

Appendix E

Cultural Heritage Evaluation Report

Cultural Heritage Evaluation Report

Blatchford Bridge (Structure Number B032085)

County of Wellington, Ontario

Draft Report

Prepared for:

Gannett Fleming Canada ULC

200 Bay Street, Suite 1600

Toronto ON M5J 2J3

Archaeological Services Inc. File: 23CH-105

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Executive Summary

Archaeological Services Incorporated was contracted by Gannett Fleming Canada ULC on behalf of the County of Wellington to conduct a Cultural Heritage Evaluation Report (C.H.E.R.) for the Blatchford Bridge (Structure Number 032085) in the Township of Guelph/Eramosa and the Township of Puslinch, in the County of Wellington, Ontario. The C.H.E.R. is being undertaken as part of the Schedule B Municipal Class Environmental Assessment Study for the replacement or rehabilitation of the Blatchford Bridge. The structure is a single-span half-through (pony) truss bridge with exposed concrete deck constructed in 1949 and carries one traffic lane per direction of Wellington Road 32 over the Speed River. As the subject bridge was constructed before 1956, it requires a C.H.E.R. to determine cultural heritage value or interest as part of this Environmental Assessment (Municipal Engineers Association, 2023).

This report includes an evaluation of the cultural heritage value or interest of the structure as determined by the criteria in Ontario Regulation 9/06 of the *Ontario Heritage Act*. This evaluation determined that the bridge has design/physical and historical/associative value in the local context. In particular, the subject bridge is a good representative of a half-through (pony) truss bridge in the Township of Guelph/Eramosa and the Township of Puslinch, and is historically linked to an engineer of local importance.

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

1. A Heritage Impact Assessment (H.I.A.) should be completed for Blatchford Bridge during the preliminary design phase. The H.I.A. will help to identify alternatives as well as mitigation and monitoring commitments to avoid or lessen impacts on the heritage attributes of the bridge, based on the proposed Statement of Cultural Heritage Value or Interest. This assessment should be completed by a qualified person who has relevant and recent experience in the conservation of road bridges (see Section 3.0 of the



Standards and Guidelines for Conservation of Provincial Heritage Properties (Ministry of Citizenship and Multiculturalism, 2014) as a guide for best practice) and submitted to planning staff at the County of Wellington, the planning staff at the Township of Guelph/Eramosa, the planning staff at the Township of Puslinch, County of Wellington Information, Heritage, and Seniors Committee, the Guelph Eramosa Heritage Committee, and the Township of Puslinch Heritage Advisory Committee for review and approval and to the Ministry of Citizenship and Multiculturalism (M.C.M.) for review.

2. The proponent should submit this report for review and comment to planning staff at the County of Wellington, the planning staff at the Township of Guelph/Eramosa, the planning staff at the Township of Puslinch, County of Wellington Information, Heritage, and Seniors Committee, the Guelph Eramosa Heritage Committee, and the Township of Puslinch Heritage Advisory Committee, the M.C.M., and to any other relevant stakeholder that has an interest in the heritage of the subject bridge. Any feedback will be incorporated into this report prior to finalization. The final report should be submitted to the Wellington County Museum and Archives for archival purposes.

Report Accessibility Features

This report has been formatted to meet the Information and Communications Standards under the *Accessibility for Ontarians with Disabilities Act, 2005* (A.O.D.A.). Features of this report which enhance accessibility include: headings, font size and colour, alternative text provided for images, and the use of periods within acronyms. Given this is a technical report, there may be instances where additional accommodation is required in order for readers to access the report's information. If additional accommodation is required, please contact Annie Veilleux, Manager of the Cultural Heritage Division at Archaeological Services Incorporated, by email at aveilleux@asiheritage.ca or by phone 416-966-1069 ext. 255.



Project Personnel

- **Senior Project Manager:** Lindsay Graves, M.A., C.A.H.P., Senior Cultural Heritage Specialist, Assistant Manager - Cultural Heritage Division
- **Project Coordinator:** Jessica Bisson, B.F.A. (Hon), Cultural Heritage Technician, Division Coordinator – Cultural Heritage Division
- **Project Manager:** Kirstyn Allam, B.A. (Hon), Advanced Dipl. Applied Museum Studies, Cultural Heritage Analyst, Project Manager - Cultural Heritage Division
- **Field Review:** Lindsay Graves, Becca Clark, B.A. (Hon), Adv. Dipl. Applied Museum Studies, Cultural Heritage Technical Writer & Researcher, Project Administrator – Cultural Heritage Division
- **Historical Research:** Becca Clark
- **Report Production:** Becca Clark
- **Graphics Production:** Andrew Clish, B.E.S., Senior Archaeologist - Planning Assessment Division
- **Report Reviewer(s):** Lindsay Graves, Kirstyn Allam

For further information on the Qualified Persons involved in this report see Appendix A.

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1.0 Introduction

Archaeological Services Incorporated was contracted by Gannett Fleming Canada ULC on behalf of the County of Wellington to conduct a Cultural Heritage Evaluation Report (C.H.E.R.) for the Blatchford Bridge (Structure Number 032085) in the Township of Guelph/Eramosa and the Township of Puslinch, in the County of Wellington, Ontario (Figure 1). The C.H.E.R. is being undertaken as part of the Schedule B Municipal Class Environmental Assessment Study for the replacement or rehabilitation of the Blatchford Bridge. The structure is a single-span half-through (pony) truss bridge with exposed concrete deck constructed in 1949 and carries one traffic lane per direction of Wellington Road 32 over the Speed River. As the subject bridge was constructed before 1956, it requires a C.H.E.R. to determine cultural heritage value or interest as part of this Environmental Assessment (Municipal Engineers Association, 2023).

1.1 Project Overview

The Schedule B Municipal Class Environmental Assessment Study for the Blatchford Bridge is being completed to confirm and document the existing structural deficiencies and identify alternative solutions, including rehabilitation or replacement and evaluate associated impacts. The 2021 Biennial Inspection evaluated the bridge as being in fair condition. The 2023 Biennial Inspection presented a Bridge Condition Index (B.C.I.) of 62.08 and recommended replacement or rehabilitation of the subject bridge within one to five years (Gannett Fleming Canada ULC, 2023; WSP Canada Inc., 2021).

The subject bridge is not identified as a built heritage resource by the municipality and is not included on the *Ontario Heritage Bridge List* (Ministry of Transportation, 2010). The C.H.E.R. is being undertaken as part of the Schedule B Municipal Class Environmental Assessment Study for the replacement or rehabilitation of the Blatchford Bridge. A Municipal Bridges Criteria for Evaluating Potential Cultural Heritage Resources Checklist can be found in Appendix B. Research was completed to investigate, document, and evaluate the cultural



heritage value of the subject bridge. The C.H.E.R. was conducted by Kirstyn Allam, Cultural Heritage Analyst, and Becca Clark, Cultural Heritage Technician, under the senior project management of Lindsay Graves, Senior Project Manager, of the Cultural Heritage Division, A.S.I.



Figure 1: Location of Blatchford Bridge on Wellington Road 32 between Wellington Road 124 and Laird Road West, County of Wellington. Source: (c) Open Street Map contributors, Creative Commons n.d.

1.2 Legislation and Policy Context

Pursuant to the *Environmental Assessment Act* (Ministry of the Environment 1990), applicable infrastructure projects are subject to heritage assessment and/or evaluation to identify built heritage resources and cultural heritage landscapes and to determine related impacts on identified heritage properties (Ministry of Transportation, 2007). Infrastructure projects have the potential to impact built heritage resources and cultural heritage landscapes in a variety of ways such as loss or displacement of resources through removal or demolition and the disruption of resources by introducing physical, visual, audible, or atmospheric elements that are not in keeping with the resources and/or their setting.

The analysis used throughout the cultural heritage evaluation process addresses cultural heritage resources under other various pieces of legislation and their supporting guidelines. These policies form the broad context which frame this assessment, and are included as relevant to this undertaking based on professional opinion and with regard for best practices:

- *Provincial Policy Statement* (Ministry of Municipal Affairs and Housing, 2020);
- *Environmental Assessment Act* (Ministry of the Environment 1990);
- *Ontario Heritage Act* (Ontario Heritage Act, R.S.O. c. O.18, [as Amended in 2023], 1990);
- *Ontario Heritage Tool Kit* (Ministry of Citizenship and Multiculturalism, 2006);
- *Ontario Heritage Bridge Guidelines* (Ministry of Culture and Ministry of Transportation, 2008);
- *Municipal Bridges Criteria for Evaluating Potential for Cultural Heritage Resources* (Municipal Engineers Association, 2023); and
- *Ontario Regulation 160/02, Standards for Bridges* (Public Transportation and Highway Improvement Act, R.S.O. 1990, c.P.50, 2002).



1.3 Approach to Cultural Heritage Evaluation Reports

The scope of a C.H.E.R. is guided by the *Ontario Heritage Tool Kit* (Ministry of Citizenship and Multiculturalism, 2006).

Generally, C.H.E.R.s include the following components:

- A general description of the history of the subject bridge as well as detailed historical summaries of property ownership and building(s) development;
- A description of the cultural heritage landscapes and built heritage resources that are under evaluation in this report;
- Representative photographs of the exterior and interior of a building or structure, and character-defining architectural details;
- A cultural heritage resource evaluation guided by the *Ontario Heritage Act* criteria;
- A summary of heritage attributes;
- Historical mapping, photographs; and
- A location plan.

Using background information and data collected during the site visits, the property is evaluated using criteria contained within Ontario Regulations 9/06 of the *Ontario Heritage Act*. The criteria require a full understanding, given the resources available, of the history, design and associations of all cultural heritage resources of the property in the community context. If a property meets one criterion in Ontario Regulation 9/06, it is eligible for inclusion on a municipal heritage register as a non-designated, listed property. If a property meets two or more criteria, then it is eligible for designation under the *Ontario Heritage Act* (Ministry of Citizenship and Multiculturalism, 1990).



2.0 Community Engagement

The following section outlines the community consultation that was undertaken to gather and review information about the subject bridge.

2.1 Information Gathering

The following stakeholders were contacted with inquiries regarding the heritage status and for information concerning the subject bridge and any additional adjacent built heritage resources or cultural heritage landscapes:

- Laura Emery, Communications and Committee Coordinator, Puslinch Township (email communication 27 and 28 May 2024). Email correspondence confirmed that there are no previously identified heritage resources or concerns regarding the subject bridge area within Puslinch Township.
- Amanda Roger, Planning Technician, Township of Guelph/Eramosa (email communication May 29 2024). Email correspondence did not provide any information about known built heritage resources or cultural heritage landscapes surrounding the area; correspondence instead redirected any research to the County of Wellington.
- Zachary Prince, Senior Planner, County of Wellington (email communication May 30 2024). An inquiry was made to confirm the presence of any cultural heritage resources surrounding the subject bridge. At the time of report submission, correspondence is outstanding.
- The Ministry of Citizenship and Multiculturalism (email communication 27 May 2024). Email correspondence confirmed that no properties have been designated by the Minister and that they are not aware of any known Provincial Heritage Properties within or adjacent to the subject bridge. Email correspondence did bring attention to the potential cultural heritage value or interest of the bridge as it is identified in Arch, Truss and Beam: The Grand River Watershed Heritage Bridge Inventory (Benjamin et al., 2013).



- Samuel Bayefsky, Real Property Coordinator, Ontario Heritage Trust (email communications 27 and 30 May 2024). A response indicated that there are no conservation easements or Trust-owned properties adjacent to the subject structure.

2.2 Agency Review

The draft report will be submitted to the County of Wellington, the Township of Guelph/Eramosa, the Township of Puslinch, Wellington County Information, Heritage and Seniors Committee, the Puslinch Heritage Committee, and Heritage Guelph/Eramosa for review and comment. Any feedback received will be considered and incorporated into this report as appropriate. The final cultural heritage evaluation report will be submitted to the Ministry of Citizenship and Multiculturalism, and the County of Wellington for their information.

2.3 Indigenous Nations Engagement

Indigenous Nation Engagement for this project is being completed by Gannett Fleming Canada ULC to Indigenous Nations that have an interest in the subject bridge. At the time of submission, Gannett Fleming Canada ULC has prepared draft notices of commencement of the project (email communication with Gannett Fleming Canada ULC 27 May 2024) for the Mississaugas of the Credit First Nation, Six Nations of the Grand River and Haudenosaunee Confederacy Chiefs Council c/o Haudenosaunee Development Institute. If any of the above mentioned Indigenous Nations express interest in the project, this draft Cultural Heritage Evaluation Report should be provided for review and feedback.

3.0 Description of the Structure and Crossing

The following section provides a description of the subject bridge and crossing.



3.1 Existing Conditions

The Blatchford Bridge is a single-span half-through (also called a Warren pony) truss bridge with cast-in-place concrete abutments and wingwalls (Figure 9). The bridge carries Wellington Road 32 over the Speed River. The subject bridge was constructed by the Dominion Bridge Company Ltd. in 1949 based on the designs of William Hargreave (W.H.) Keith. The bridge underwent a partial replacement of the lattice railing in 1992, and partial bottom chord replacement at the northwest and southeast ends, diagonal member replacement, deck replacement, new expansion joints, structural steel coating, and rock protection in 2010 (WSP Canada Inc., 2021).

The Blatchford Bridge is located 0.8 kilometres south of Wellington Road 124 and straddles the Townships of Guelph/Eramosa and Puslinch, County of Wellington. The bridge is within a rural context with naturalized lands and large rural residential properties surrounding the immediate vicinity. North of the bridge at the intersection of Wellington Roads 32 and 124 the area is industrialized. The private residential properties to the northeast and northwest of the bridge are heavily wooded and not visible from the right-of-way. The Speed River has a general northeast-southwest orientation under the bridge, with the watercourse curving south after being carried southwest beneath the bridge. The Guelph to Cambridge Hiking Trail crosses the deck of the bridge from the north and continues west along the south bank of the Speed River. Below the east side of the bridge on the northeast and southeast banks of the river there are remnants of a previous bridge. South of the bridge there are large expanses of farmland with some smaller residential parcels interspersed.





Figure 2: Aerial image of the subject bridge in the County of Wellington (Google Maps).

3.2 Heritage Recognitions

The subject bridge is not recognized as a known heritage resource or potential heritage property by the municipality, region, county, province, or federal government. The subject bridge is identified as a heritage bridge in Arch, Truss and Beam: The Grand River Watershed Heritage Bridge Inventory (Benjamin et al., 2013). The description of the bridge from the Grand River Watershed Heritage Bridge Inventory is provided in Appendix C.

3.3 Adjacent Lands

The subject bridge is located in a rural agricultural context with a naturalized landscape to the north and active farmscapes to the south of the subject bridge along Wellington Road 32. No adjacent properties are listed or designated under the *Ontario Heritage Act*. The Speed River, which runs underneath the subject bridge, is recognized as a Canadian Heritage River (The Grand as a Canadian Heritage River, 1989).

4.0 Research

This section provides: the results of primary and secondary research; a discussion of historical or associative value; a discussion of physical and design value; a discussion of contextual value; and results of comparative analysis.

4.1 List of Key Sources, Report Limitations, and Site Visit Information

The following section describes the sources consulted and research activities undertaken for this report.

4.1.1 Key Sources

Background historical research, which includes consulting primary and secondary source documents, photos, and historic mapping, was undertaken to identify early settlement patterns and broad agents or themes of change in the subject bridge. In addition, online historical research was undertaken through the websites of the following libraries and archives to build upon information gleaned from other primary and secondary materials:

- Wellington County Museum and Archives (email communication 27 May 2024). Information was provided regarding primary and secondary sources for pre-amalgamation Guelph Township.
- Guelph Public Library (collection accessed 6 June 2024). Research conducted via City Council Minutes yielded no results.
- Puslinch Public Library (email communication 28 May 2024). Inquiry resulted in a recommendation to contact the Puslinch Historical Society.
- Puslinch Historical Society (email communication 29 May 2024). Inquiry resulted in reception of primary and secondary materials.

Available federal, provincial, and municipal heritage inventories and databases were also consulted to obtain information about the properties. These included:

- Township of Guelph/Eramosa Municipal Heritage Register (Township of Guelph-Eramosa, n.d.);
- Township of Puslinch Heritage Register (Puslinch Township, 2024);
- Arch, Truss and Beam: The Grand River Watershed Heritage Bridge Inventory (Benjamin et al., 2013);
- The *Ontario Heritage Act Register* (Ontario Heritage Trust, n.d.b);
- The *Places of Worship Inventory* (Ontario Heritage Trust, n.d.c);
- The inventory of Ontario Heritage Trust easements (Ontario Heritage Trust, n.d.a);
- The Ontario Heritage Trust's *An Inventory of Provincial Plaques Across Ontario*: a PDF of Ontario Heritage Trust Plaques and their locations (Ontario Heritage Trust, 2023);
- Parks Canada's *Directory of Federal Heritage Designations*, an online database that identifies National Historic Sites, National Historic Events, National Historic People, Heritage Railway Stations, Federal Heritage Buildings, and Heritage Lighthouses (Parks Canada, n.d.b);
- Parks Canada's *Historic Places* website, an online register that provides information on historic places recognized for their heritage value at all government levels (Parks Canada, n.d.a); and
- Inventory of bridges included at *Historicbridges.com*.

No previous consultant reports associated with potential above-ground cultural heritage resources and archaeological resources within and/or adjacent and/or in the vicinity of the subject bridge in the Township of Guelph/Eramosa and Township of Puslinch, County of Wellington were available for review as part of this assessment.

A full list of references consulted can be found in Section 8.0 of this document.



4.1.2 Research and Report Limitations

No research or reporting limitations were identified for this assessment.

4.1.3 Site Visit

A site visit to the subject bridge was conducted on 23 May 2024 by Lindsay Graves and Becca Clark of Archaeological Services Incorporated (A.S.I.). The site visit included photographic documentation of the structure from the Wellington Road 32 right-of-way and the Guelph to Cambridge Hiking Trail. Permission to Enter was not required for adjacent properties, as all work was conducted from the publicly-accessible right-of-way.

4.2 Discussion of Historical or Associative Value

Historically, the bridge was located on and between Lot 10, Division B South of Waterloo Road in Guelph Township, and Lots 5 to 6, Concession 5 in the Township of Puslinch, within Wellington County. It is now located on the boundary of the Township of Guelph/Eramosa and the Township of Puslinch.

4.2.1 Summary of Early Indigenous History in Southern Ontario

Current archaeological evidence indicates humans were present in southern Ontario approximately 13,000 years before present (B.P.) (Ferris, 2013). Populations at this time would have been highly mobile, inhabiting a boreal-parkland similar to the modern sub-arctic. By approximately 10,000 B.P., the environment had progressively warmed (Edwards & Fritz, 1988) and populations now occupied less extensive territories (Ellis & Deller, 1990).

Between approximately 10,000-5,500 B.P., the Great Lakes basins experienced low-water levels, and many sites which would have been located on those former shorelines are now submerged. This period produces the earliest evidence of heavy woodworking tools, an indication of greater investment of labour in felling trees for fuel, to build shelter, and watercraft production. These



activities suggest prolonged seasonal residency at occupation sites. Polished stone and native copper implements were being produced by approximately 8,000 B.P.; the latter was acquired from the north shore of Lake Superior, evidence of extensive exchange networks throughout the Great Lakes region. The earliest archaeological evidence for cemeteries dates to approximately 4,500-3,000 B.P. and is interpreted by archaeologists to be indicative of increased social organization and the investment of labour into social infrastructure (Brown, 1995, p. 13; Ellis et al., 1990, 2009).

Between 3,000-2,500 B.P., populations continued to practice residential mobility and to harvest seasonally available resources, including spawning fish. The Woodland period begins around 2,500 B.P. and exchange and interaction networks broaden at this time (Spence et al., 1990, pp. 136, 138) and by approximately 2,000 B.P., evidence exists for small community camps, focusing on the seasonal harvesting of resources (Spence et al., 1990, pp. 155, 164). By 1,500 B.P. there is macro botanical evidence for maize in southern Ontario, and it is thought that maize only supplemented people's diet. There is earlier phytolith evidence for maize in central New York State by 2,300 B.P. – it is likely that once similar analyses are conducted on Ontario ceramic vessels of the same period, the same evidence will be found (Birch & Williamson, 2013, pp. 13–15). As is evident in detailed Anishinaabek ethnographies, winter was a period during which some families would depart from the larger group as it was easier to sustain smaller populations (Rogers, 1962). It is generally understood that these populations were Algonquian-speakers during these millennia of settlement and land use.

From the beginning of the Late Woodland period at approximately 1,000 B.P., lifeways became more similar to that described in early historical documents. Between approximately 1000-1300 Common Era (C.E.), larger settlement sites focused on horticulture begin to dominate the archaeological record. Seasonal dispersal of the community for the exploitation of a wider territory and more varied resource base was still practised (Williamson, 1990, p. 317). By 1300-1450 C.E., archaeological research focusing on these horticultural societies note that this episodic community dispersal was no longer practised and these



populations now occupied sites throughout the year (Dodd et al., 1990, p. 343). By the mid-sixteenth century these small villages had coalesced into larger communities (Birch et al., 2021). Through this process, the socio-political organization of these First Nations, as described historically by the French and English explorers who first visited southern Ontario, was developed. Other First Nation communities continued to practice residential mobility and to harvest available resources across landscapes they returned to seasonally/annually.

By 1600 C.E., the Confederation of Nations were encountered by the first European explorers and missionaries in Simcoe County. Samuel de Champlain in 1615 reported that a group of Iroquoian-speaking people situated between the Haudenosaunee and the Huron-Wendat were at peace and remained “la nation neutre”. Like the Huron-Wendat, Petun, and Haudenosaunee, the Neutral or Attawandaron people were settled village agriculturalists. By the 1640s, devastating epidemics and the traditional enmity between the Haudenosaunee and the Attawandaron and the Huron-Wendat (and their Algonquian allies such as the Nipissing and Odawa) led to their dispersal from southern Ontario. Shortly afterwards, the Haudenosaunee established a series of settlements at strategic locations along the trade routes inland from the north shore of Lake Ontario. By the 1690s however, the Anishinaabeg were the only communities with a permanent presence in southern Ontario. From the beginning of the eighteenth century to the assertion of British sovereignty in 1763, there was no interruption to Anishinaabeg control and use of southern Ontario.

The subject bridge is within the boundaries of Treaty #3, the Between the Lakes Purchase, of 1792.

Following the American Revolutionary War, the British Crown needed to find lands on which to settle United Empire Loyalists, including approximately 2,000 members of the Six Nations confederacy who had fought alongside British troops. Led by Sir Frederick Haldimand who was the governor of Quebec at that time, the Crown was initially planning on providing lands for Loyalist settlers in Quebec and Southeastern Ontario, including providing land in the Bay of Quinte for Six Nations refugees. This was not suitable for many of the members of Six



Nations and a contingent of approximately 1,800 community members, led by Chief Joseph Brant, requested land north of Lake Erie along the Grand River. Brant felt that the location in the Bay of Quinte was too isolated and that his followers could be better served by being closer to the Six Nations communities that chose to remain in the United States in western New York (Surtees, 1984, p. 21).

Recognizing that under the terms of the Royal Proclamation the land needed to be purchased prior to settlement, Colonel John Butler was sent to negotiate with the Mississaugas of the Credit for lands east of Lake Ontario and north of Lake Erie. On May 22, 1784, the Mississaugas of the Credit agreed to cede approximately 3,000,000 acres (1,214,057 hectares) of land containing all or part of Brant, Elgin, Middlesex, Oxford, and Wellington Counties as well as the Regions of Haldimand-Norfolk, Halton, Hamilton-Wentworth, Niagara, and Waterloo. In exchange for these lands, the Mississaugas received £1180.74 worth of trade goods (Crown-Indigenous Relations and Northern Affairs 2016; Surtees 1984). Of the 3,000,000 acres (1,214,057 hectares), approximately 550,000 acres (222,577 hectares) was set aside for the settlement of Six Nations people.

However, due to uncertainties with the description of the lands in the original surrender, Treaty #3 was renegotiated on December 7, 1792, to clarify what was ceded. This largely revolved around the northern boundary of the Treaty area and in particular the area set aside for Six Nations settlement along the Grand River (see Haldimand Tract and Treaty #4). The signees on the side of the British included Lieutenant Governor John Graves Simcoe, John Butler, Robert Kerr, Peter Russell, John McGill, and Davie William Smith. The signees on the side of the Mississauga included Chiefs Wabakayne, Wabanip, Kautabus, Wabaniship and Mottotow (Crown-Indigenous Relations and Northern Affairs, 2016; Mississaugas of the Credit First Nation, 2017; Surtees, 1984).

The original text stipulated that the north-west boundary of the parcel was an imaginary line between Burlington Bay and the Thames River, which is inconsistent with the geography of the area. The boundaries of the parcel were



corrected to create a polygon encompassing the Niagara peninsula up to Burlington Bay and then up north to the present-day town of Arthur then south to the present-day town of Woodstock to finally meet Lake Erie at Port Bruce. (Crown-Indigenous Relations and Northern Affairs, 2016; Native Land Digital, 2018).

4.2.2 Euro-Canadian Settlement

The first Europeans to arrive in the area were transient merchants and traders from France and England, who followed existing transit routes established by Indigenous peoples and set up trading posts at strategic locations along the well-traveled river routes. All of these occupations occurred at sites that afforded both natural landfalls and convenient access, by means of the various waterways and overland trails, into the hinterlands. Early transportation routes followed existing Indigenous trails, both along the lakeshore and adjacent to various creeks and rivers (A.S.I., 2006). Early European settlements occupied similar locations as Indigenous settlements as they were generally accessible by trail or water routes, and would have been in locations with good soil and suitable topography to ensure adequate drainage.

Throughout the period of initial European settlement, Indigenous groups continued to inhabit Southern Ontario, and continued to fish, gather, and hunt within their traditional and treaty territories, albeit often with legal and informal restrictions imposed by colonial authorities and settlers. In many cases, Indigenous peoples acted as guides and teachers, passing on their traditional knowledge to Euro-Canadian settlers, allowing them to sustain themselves in their new homes. Indigenous peoples entered into economic arrangements and partnerships, and often inter-married with settlers. However, pervasive and systemic oppression and marginalization of Indigenous peoples also characterized Euro-Canadian colonization, with thousands being displaced from their lands, denied access to traditional and treaty hunting, fishing, and collecting grounds, and forced to assimilate with Euro-Canadian culture through mandatory attendance at Day and Residential Schools (Ray, 2005; Rogers & Smith, 1994).



Historically, the subject bridge was located on and between Lot 10, Division B S of Waterloo Road in Guelph Township, Wellington County, and Lots 5 & 6, Concession 5 in the Township of Puslinch, Wellington County.

4.2.3 Township of Guelph

Historically, the subject bridge is located in the Townships of Guelph and Puslinch.

Guelph Township is named after the Royal House of Brunswick, family of the English monarch, George IV. Guelph Township was surveyed by John MacDonald in 1830. The land in the township was purchased by the Canada Company, which consisted of a group of British speculators who acquired more than two million acres of land in Upper Canada for colonization purposes (Mika & Mika, 1981). Many settlers arrived in the township before it was surveyed. The first Euro-Canadian settler in the township was Samuel Rife, who squatted near the western limits of the township around the year 1825. In 1827 a group of Scottish settlers called the La Guayrans were resettled in Guelph Township from Venezuela by the Canada Company.

Waterloo Road, formerly Broad Road, was built by Absalom Shade and was finished around 1827, the year the Town of Guelph was founded (Mika & Mika, 1981). Many settlers arrived in the township between the years 1827 and 1830. Guelph became the centre of the surrounding agricultural area and in 1851 was incorporated as a village. By 1879 the population of Guelph reached almost 10,000 and it was incorporated as a city. In 1887 the city built the Guelph Junction Railway, connecting the city to the Canadian Pacific Railway. The early 1900s saw the City of Guelph become an industrial epicentre, mainly in the production of furniture and gasoline engines for farm use.

The city expanded in the 1970s, annexing parts of the Township of Puslinch and the Township of Guelph. The Township of Guelph/Eramosa was incorporated in 1999 from the former townships of Guelph, Eramosa and parts of Pilkington and Nichol.



4.2.4 Township of Puslinch

The Township of Puslinch was surveyed between 1828 and 1831 and was named for Puslinch in Devonshire, England. The township is reported to have once been mostly a Clergy Reserve. Settlement began in or around 1828, and the first clergy reserve lot was sold in 1829. Township lands were not offered for sale until the survey was completed, two years later. Rowland Wingfield was the first to receive a patent in the township in 1832 for Lot 8, Concession 5. He was the first importer of thoroughbred cattle into Canada. Other early settlers included John MacFarlane, John and William Gordon, Peter Byrn, John Arkell, Thomas Arkell, and F. W. Stone. The township's first school was held in the early 1830's on Lot 18, Concession 8. It was later moved to a log building which also served as a church on Lot 17, Concession 7. From 1840 to 1849 Puslinch was represented on the Wellington District Council. After which its representatives sat on the Waterloo County Council until 1852 when the township was included in the United Counties of Wellington, Waterloo and Grey. In 1853 Puslinch officially became a part of the United Counties of Wellington and Grey. Finally, in 1854, Puslinch became one of the townships that formed the newly independent County of Wellington. During these changes Puslinch elected their first township council in 1849. Until a township hall was built in 1867 the council met at McMeekin's tavern, occasionally meeting at one of the other fifteen or so taverns operating in the township at that time (Mika & Mika, 1983).

Puslinch saw an increase in business surrounding the Credit Valley Railway system after its installation in 1880 (Puslinch Historical Society, n.d.). The Puslinch Railway Station became a shipping point for live stock and grain trade throughout southern Ontario. However, by 1925, Highway No. 6 was paved and created an overhead crossing of the railway. This created an extra hill that prevented trains from stopping in the town. This caused a cease in all associated business like livestock shipping and grain trade. In 1966 the Board of Transport Commission for Canada gave approval for the removal of the railroad station at Puslinch. The hamlet of Puslinch housed less than 100 people by the 1970s and those who lived there attended school and church in either Morriston or Freelon.



4.2.5 The Grand River Watershed

The subject bridge crosses the Speed River which is part of the Grand River watershed. The Grand River watershed is the largest watershed in southern Ontario at 6,800 square kilometres including the cities of Brantford, Cambridge, Guelph, Kitchener, and Waterloo. The Grand River watershed includes all the land drained by the Grand River and its tributaries. It begins in Dufferin County in the Dufferin Highlands and travels south 310 kilometres before emptying into Lake Erie at Port Maitland. The Conestogo, Nith, Speed and Eramosa rivers are the major four which feed into the Grand. Roughly 70 percent of the watershed is made of intensive agricultural areas (Grand River Conservation Authority, 2020).

The Grand River was an important transportation route and a critical resource extraction area for generations of Indigenous people. Historically, the Grand River has been utilized as a navigable waterway, as a power source (such power sites served as settlement nuclei), and above Brantford as a course for driving logs (Chapman & Putnam, 1984). It is also the focus of the Haldimand Tract; an area of six miles (10 kilometres) on either side of the river that was awarded to the Haudenosaunee in 1784 (Filice 2016; Lytwyn 2005). The Grand River (and its tributaries the Nith, Conestogo, Speed and Eramosa Rivers) was designated as a Canadian Heritage River in 1994 for its cultural history and recreation (Canadian Heritage Rivers System, 2016).

4.2.6 Dominion Bridge Company

The Blatchford Bridge was built by the Dominion Bridge Company. Founded in the nineteenth century, the Dominion Bridge Company was a Canadian steel bridge constructor originally based in Toronto in 1879 under the name Toronto Bridge Company. It moved to Lachine, Quebec in 1883. The company was then renamed the Dominion Bridge Company (A.S.I., 2018).

The company built numerous skyscrapers and bridges across Canada. It built all Canadian Pacific rail bridges between Montreal and Vancouver, and in 1886 it began construction on Canadian Pacific's cantilevered bridge over the St.



Lawrence River. In 1898, the company was awarded the contract to design and build the Royal Alexandra Interprovincial Bridge in Ottawa, one of Canada's most notable bridges. The Alexandra Bridge is a National Historic Civil Engineering Site. The Dominion Bridge Company opened a manufacturing site in Toronto after 1910. In 1925, the company built the Jacques Cartier Bridge in Montreal. It declined after 1975 and went bankrupt in 1998 (A.S.I., 2018). The company was bought after declaring bankruptcy and was sold again in 2003. The purchaser was Cintube, a former partner of the Dominion Bridge Company (Unterman McPhail Associates, 2019).

4.2.7 W.H. Keith

The Blatchford Bridge was built in 1949 by the Dominion Bridge Company according to the designs of William Hargreave (W.H.) Keith, Wellington County Engineer. The subject bridge was designed in order to replace the original bridge onsite (Hutchinson, 1998). Keith led the repair and replacement of a number of bridges within Wellington County in his time as County Engineer including Blatchford Bridge (1949), Bosworth Bridge (1949), Salem Bridge (1952), Rothsay Bridge (1953), Emerson Simmons Bridge (1952), and Flax Bridge (1954) (Benjamin et al., 2013).

4.2.8 Historical Chronology and Setting of the Subject Crossing

The following provides a brief overview of the historical chronology of the subject crossing, as provided in available sources, as well as a mapping review.

The subject bridge was constructed in 1949 and is a replacement of an earlier structure on Wellington Road 32 within the historical Townships of Guelph and Puslinch, County of Wellington.

The 1861 *Tremaine's Map of the County of Wellington* (Tremaine, 1861) and the 1877 *Illustrated Historical Atlas of the County of Wellington* (Walker and Miles, 1877) were reviewed to determine the historical setting of the subject bridge in the nineteenth century (Figure 3 and Figure 4). It should be noted, however,



that not all features of interest were mapped systematically in the Ontario series of historical atlases, given that they were financed by subscription, and subscribers were given preference with regard to the level of detail provided on the maps. Moreover, not every feature of interest would have been within the scope of the atlases.

The nineteenth-century maps demonstrate that while no bridge is indicated over the river in either the 1861 or 1877 mapping, an established road can be seen in both maps that crosses the river in the same area as the subject bridge, suggesting the presence of an earlier bridge. The north-south alignment of the road is reflected in this mapping along with the east-west alignment of the Speed River underneath. The subject bridge is surrounded by rural agricultural land with few structures.

In addition to nineteenth-century mapping, historical topographic mapping and aerial photographs were examined. This report presents maps and aerial photographs from 1916, 1936, 1954, and 1975 (Figure 5 to Figure 8). Generally, these maps demonstrate that the subject bridge retained a rural agricultural context throughout the late-nineteenth century and into the late-twentieth century.

The 1916 topographic map of Galt demonstrates that an iron bridge is present over the Speed River at this point (Figure 5). The represented bridge predates the subject bridge, suggesting again that an earlier structure was demolished before the subject bridge was installed. The remnants of a previous bridge sit adjacent to the current bridge wingwalls, indicating the presence of an earlier bridge from the early twentieth century. Wooded areas surround the subject bridge on both sides of Wellington Road 32 and the Speed River. Beyond that the bridge is located within an agricultural context with scattered wooden and stone/brick buildings marking the terrain along Wellington Roads 32 and 124. The Grand Trunk Railway curves from northeast to southwest across Wellington Road 124 southwest of the subject bridge.



The 1936 topographic map of Galt again demonstrates that a previous iron bridge is present over the Speed River (Figure 6). Wellington Road 32 is represented as a dirt road while Wellington Road 124 is represented as a paved main highway with electric power lines on steel towers. The railway is now owned by Canadian National. The number of structures surrounding the subject bridge did not increase during this period.

The Blatchford Bridge was built in 1949 by the Dominion Bridge Company according to the designs of William Hargreave (W.H.) Keith. The construction of the subject bridge is described in Section 4.3.5. The 1954 aerial photograph of Southern Ontario reflects the wooded and rural agricultural setting of the area surrounding the subject bridge and captures the bridge for the first time in the mapping (Figure 7). While a clear indication of the type of bridge cannot be found, Wellington Road 32 runs uninterrupted over the Speed River. Wellington Road 124 and the Canadian National Railway Line are visible northwest of the subject bridge. A small number of new structures are visible throughout the surrounding area, which remains largely wooded and agricultural.

The 1975 topographic map of Cambridge-Preston again shows the subject bridge in a rural agricultural setting (Figure 8). The majority of the bridge is within Guelph Eramosa Township, however a small portion crosses over to Puslinch Township. Along the banks of the Speed River the landscape remains largely untouched. Heading both north and south from the subject bridge there is an increase in the number of residential and industrial buildings along Wellington County Road 124 and Wellington County Road 32. Wellington County Road 32 is now marked as a paved highway as is Wellington County Road 124.



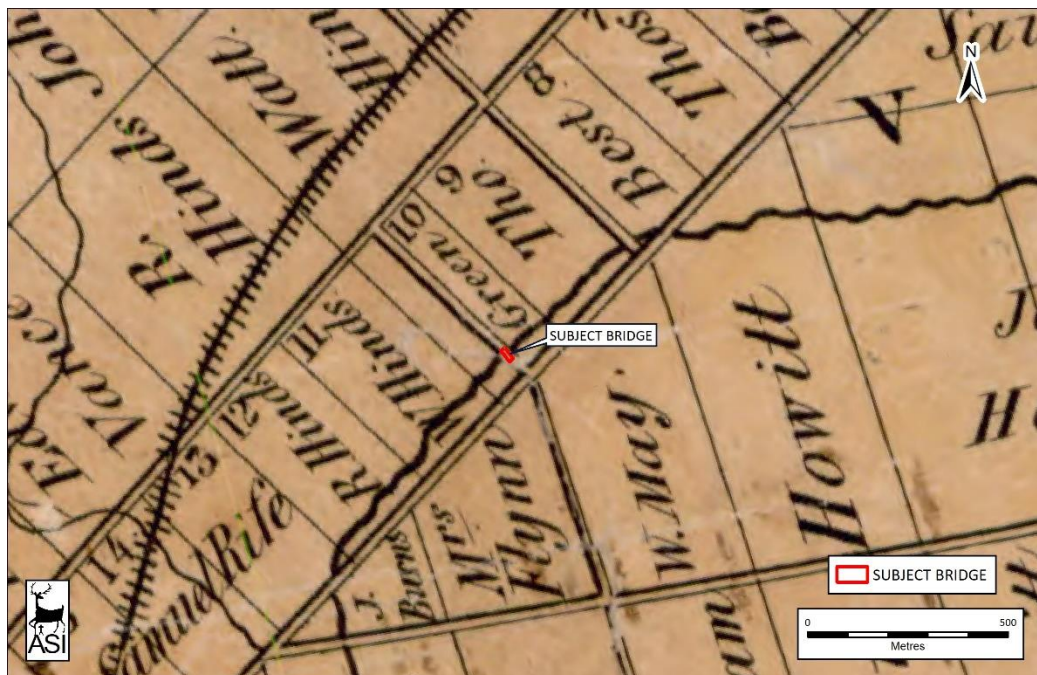


Figure 3: The location of the subject bridge overlaid on the 1861 *Tremaine's Map of the County of Wellington*. Source: (Tremaine, 1861)

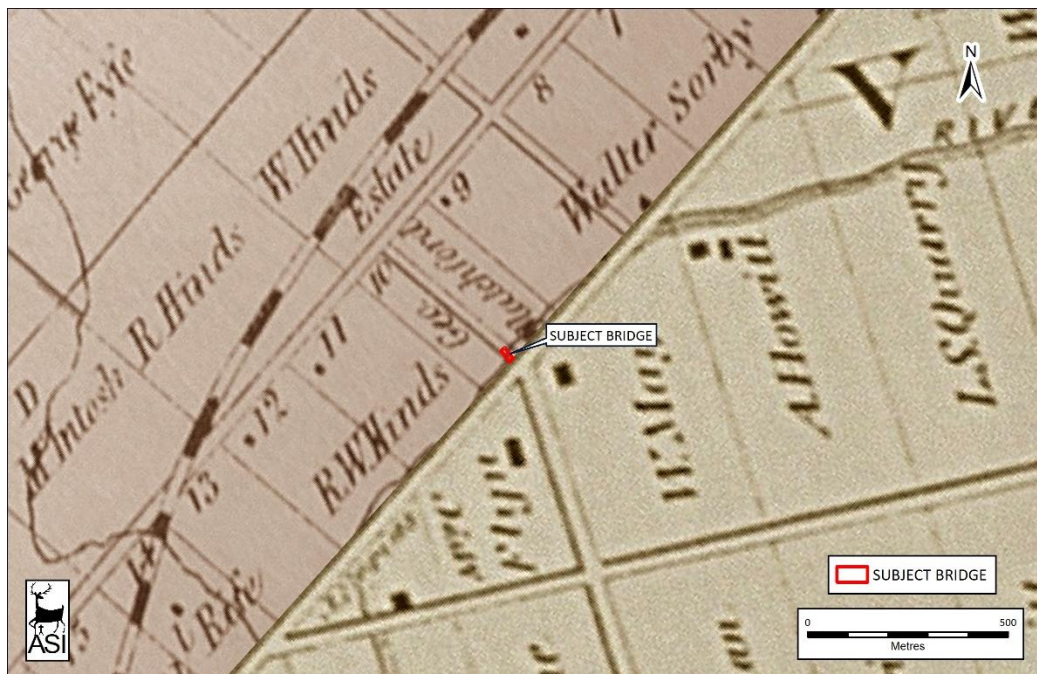


Figure 4: The location of the subject bridge overlaid on the 1877 *Illustrated Historical Atlas of the County of Wellington*. Source: (Walker and Miles, 1877)



Figure 5: The location of the subject bridge overlaid on the 1916 topographical map of Galt. Source: (Department of Militia and Defence, 1916)

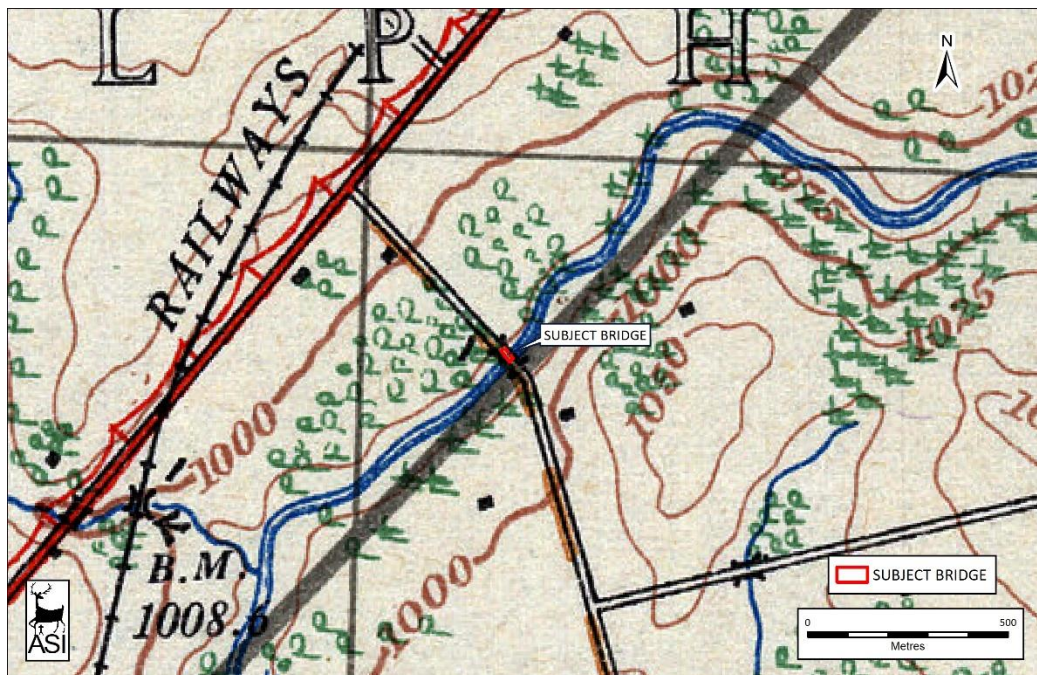


Figure 6: The location of the subject bridge overlaid on the 1936 topographical map of Galt. Source: (Department of National Defence, 1936)



Figure 7: The location of the subject bridge overlaid on the 1954 aerial photograph of Southern Ontario. Source: (Hunting Survey Corporation Limited, 1954)

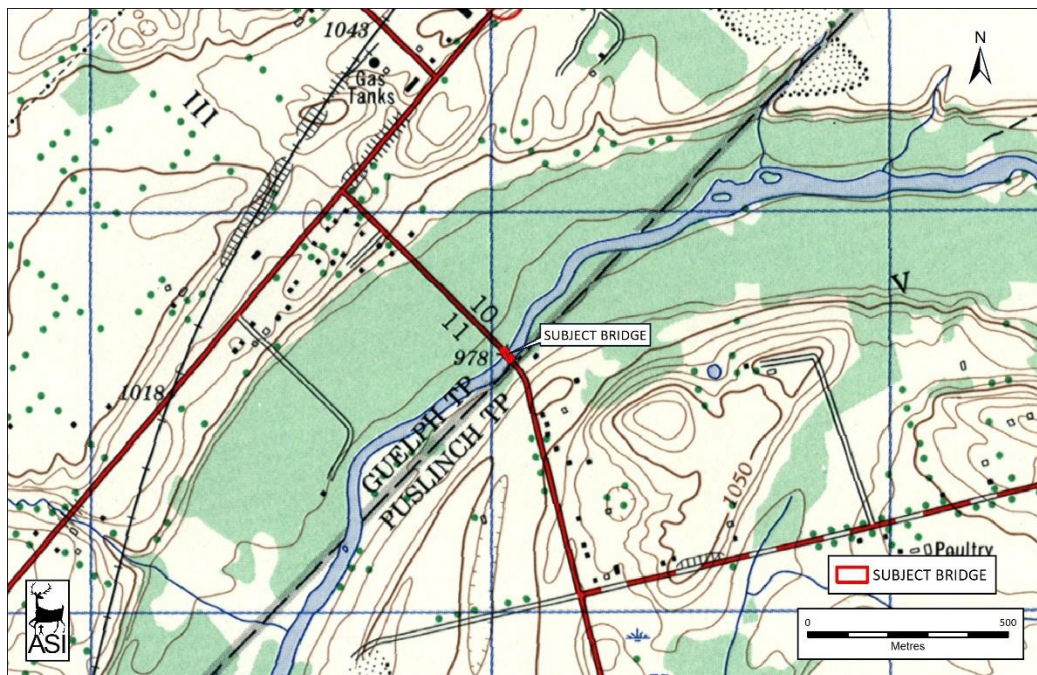


Figure 8: The location of the subject bridge overlaid on the 1975 topographic map of Cambridge-Preston. Source: (Department of Energy, Mines and Resources, 1975)

4.3 Discussion of Physical and Design Value

Original structural drawings, rehabilitation drawings, and the 2021 and 2023 Ontario Structure Inspection Manual (O.S.I.M.) reports of the subject bridge were reviewed as part of this assessment to evaluate and describe the physical and design value of the subject bridge (Gannett Fleming Canada ULC, 2023; McCormick Rankin Consulting Engineers, 1992; WSP Canada Inc., 2021). A field review was undertaken to conduct photographic documentation of the bridge crossing and to collect data relevant for completing a heritage evaluation of the structure. The following description of the structure, including the dates of interventions, and existing conditions is based on a combination of the results of the field review and historical background research on the subject bridge. A selection of original structural and rehabilitation drawings are provided in Appendix D and photographic documentation of the current conditions of the bridge is provided in Figure 9 to Figure 18. Further, photographs of comparative half-through truss structures in Wellington County are also provided in Section 4.5.1.

4.3.1 Physical Characteristics

The Blatchford Bridge is a single-span Warren pony half-truss bridge resting on concrete abutments with a north-south alignment. The bridge carries Wellington County Road 32 over the Speed River and has a span length of 31.7 metres. The subject bridge has an overall length of 32.4 metres and an overall width of 8.1 metres (Gannett Fleming Canada ULC, 2023).

The superstructure of the subject bridge features a steel half-through truss with steel stringers; riveted plate girders; and steel riveted truss connections with rusting/perforation on top of all four supports, diagonals and verticals with corrosion at the connection plates of the railings, corrosion at the bracing panels, impact damage at the northeast and south sides, and rusting with perforation at the northeast side; as well as two plaques commemorating the date of construction and the builder of the bridge, the Dominion Bridge Company, located at the northwest and southeast corners of the bridge and a



Suburban Road Commission commemoration plaque at the southeast corner (Gannett Fleming Canada ULC, 2023).

The substructure of the subject bridge contains steel roller bearings with light to medium corrosion and spall near the northeast bearing; cast-in-place concrete abutment walls measuring 2.45 metres high with a large spall with exposed rebars at the south abutment, a spall with exposed rebar at the east end of the south ballast wall, light scaling on the north abutment, and spall near the northeast bearing; and cast-in-place reinforced concrete wingwalls measuring 1.63 metres high and 4.7 metres wide with medium scaling, spalling, delamination and map cracks with efflorescence at the southwest side, spalling, delamination and cracks with efflorescence at the northwest side, and horizontal cracking and scaling at the southwest side (Gannett Fleming Canada ULC, 2023).

The deck of the subject bridge is cast-in-place concrete with an asphalt wearing surface and carries one lane of traffic in each direction heading north-south with steel lattice barriers along each truss. The steel lattice barriers show corrosion over approximately 50% of the railings, numerous areas of impact damage (~30% replaced), and traffic impact damage to the railing at the northeast and northwest corners. There are no sidewalks along the bridge and the concrete curbs measure 0.15 metres in width. The curbs show delamination on the west curb at the south end, medium vertical cracks at the east curb, and spalls at the exterior connection with diagonal chords at the northeast and southeast sides. There is hazard signage in advance of the north and south approaches. The approaches are at grade with an asphalt wearing surface and steel flex beam on steel post guard rails. Along the north and south approaches to the bridge the maximum load allowed is marked. Signage on the south approach indicates that the bridge is prone to icing over and that the road curves ahead. There are hazard signs at the ends of both approaches (Gannett Fleming Canada ULC, 2023).



4.3.2 Existing Conditions Photographs



Figure 9: Oblique view of the west elevation, looking southeast (A.S.I., 2024).



Figure 10: Oblique view of the east elevation, looking south (A.S.I., 2024).



Figure 11: View of a date plaque on the northwestern corner of the bridge (A.S.I., 2024).



Figure 12: Detail of the steel lattice railing (A.S.I., 2024).



Figure 13: Under the subject bridge looking east at remnants of the previous bridge (A.S.I., 2024).



Figure 14: View to the southern abutment, looking south (A.S.I., 2024).



Figure 15: Gusset plate with riveted and bolted connections (A.S.I., 2024).



Figure 16: Detail of the vertical and diagonal chords. Note the damage to the lattice railing (A.S.I., 2024).



Figure 17: View of the bridge deck from the northern approach (A.S.I., 2024).



Figure 18: View of southern approach to bridge, looking north (A.S.I., 2024).

4.3.3 Early Ontario Bridges and Culverts

Bridges were a necessity from the earliest days of road construction and were important to economic and social life, especially as mills were situated along the rivers. Crossing rivers by bridge was easier than fording. Settlements sprang up where the mills were serviced by bridges. Construction of railways in Ontario began in the 1850s which made it necessary to have reliable bridges able to withstand the weight of locomotives. In addition, good road bridges were required so farmers could transport their produce to local railway stations (Region of Waterloo: Planning, Housing, and Community Services, 2004). Most road bridge designs that evolved were based on principles derived from railroad construction. In Ontario, the timber bridge dominated the landscape in rural areas from 1780 to 1880, and persisted into the early twentieth century (Cuming, 1983). Most nineteenth-century bridges in southern Ontario were built of timber. Short spans were beam structures, and longer spans employed simple trusses, such as King and Queen Post trusses. Stone and wrought iron materials were also employed, but due to higher costs and a lack of skilled craftsmen such structures were generally restricted to market towns (T.R.C.A., 2011). By the 1890s, steel and concrete were becoming the materials of choice when constructing bridges given that both were less expensive and more durable than their wood and wrought iron predecessors (T.R.C.A., 2011). Steel truss structures were very common by 1900, as were steel girder bridges. After the First World War, the increase in personal vehicles meant that stronger bridges were necessary. The Pratt truss and the Warren truss dominated the early twentieth century and were typically used for spans up to 400 feet (Comp & Jackson, 1977). The use of concrete in bridge construction 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. Today, concrete is the primary bridge building material on Ontario roads (T.R.C.A., 2011).

4.3.4 Truss Bridge Construction

Steel truss and steel girder structures were very common by 1900, and early truss bridges were commonly made from a series of straight steel bars. In



general, most steel truss bridges were constructed at the turn of the twentieth century. After the First World War the increase in personal vehicles meant that stronger bridges were necessary. The Pratt truss and the Warren truss dominated the early twentieth-century and were typically used for spans up to 400 feet (Comp & Jackson, 1977).

The Warren truss design has been widely used and adapted in North America, particularly in the twentieth century. The design was patented by James Warren and Theobald Willoughby Monsani in 1848 and consists of a “W” pattern of alternately placed members in tension and compression (Cleary, 2007). The addition of a vertical member intersecting the horizontal members was a common modification to the design. The Warren truss type became the design of choice for steel rail and road bridges in the mid-twentieth century, with Warren deck trusses common for multiple span structures (Cleary, 2007).

A Warren pony (half-through) truss bridge consists of a deck between the top of and bottom chords with no top lateral bracing. These bridges required less labour and material to erect than through trusses and were subsequently more cost effective. However, due to a lack of added stability, these bridges were suitable only for shorter spans. The half-through truss became popular in the early twentieth century, though their popularity waned with the widespread adoption of concrete as a primary building material by the 1930s.

4.3.5 Bridge Construction, Evolution, and Alterations

The subject bridge was constructed in 1949 by the Dominion Bridge Company using the designs of engineer William Hargreave (W.H.) Keith to replace an older structure. The remains of a previous structure are present on the east side of the subject bridge, as the alignment of the subject bridge shifted slightly from the previous structure (Figure 6). The bridge underwent a partial replacement of the lattice railing in 1992, and partial bottom chord replacement at the northwest and southeast ends, diagonal member replacement, deck replacement, new expansion joints, structural steel coating, and rock protection in 2010 (WSP Canada Inc., 2021).



4.4 Discussion of Contextual Value

The following section discusses the contextual value of the subject bridge.

4.4.1 Setting and Character of the Bridge and Surroundings

The subject bridge carries Wellington County Road 32 over the Speed River at the border of Guelph Eramosa Township and Puslinch Township in a rural agricultural portion of the County of Wellington, approximately 0.8 kilometres southeast of Wellington Road 124. The surrounding area generally consists of wooded and agricultural lands along with industrial and commercial facilities to the north, agricultural lands to the south, and is bound by vegetation associated with the banks of the Speed River (Figure 19). The Guelph to Cambridge Hiking Trail crosses the deck of the bridge from the north and continues west along the south bank of the Speed River.

The Speed River flows in a northeast-southwest alignment through Guelph and south towards Cambridge. The river is approximately 16.5 metres wide at its intersection with Wellington County Road 32. The banks of the river are naturalized with lush vegetation and a hiking trail along the southwest bank. The Grand River Watershed, including the Speed River, is the largest river system in southern Ontario and has been a source of transportation and resource extraction since time immemorial. The Grand River including the Speed River is recognized as a Canadian Heritage River (The Grand as a Canadian Heritage River, 1989). At its intersection with Wellington County Road 32, the Speed River serves as a boundary between Guelph/Eramosa Township and Puslinch Township.

The bridge crossing surrounding context includes naturalized banks following the Speed River surrounded by rural agricultural landscape and some interspersed industrial commercial facilities to the north of the subject bridge. The City of Guelph lies approximately two-and-a-half kilometres to the north and the City of Cambridge lies approximately four kilometres to the south of the subject bridge.



The subject crossing retains the rural setting that was established in the nineteenth century (Figure 21); however, the subject structure is not an original or early structure at this crossing. While the subject bridge supports this character by carrying the road over the river, this twentieth-century structure is not directly tied to the nineteenth-century context and is not evocative of nineteenth-century themes of transportation, settlement, or agriculture.



Figure 19: South facing approach to the subject bridge surrounded by vegetation (A.S.I., 2024).



Figure 20: The Speed River, looking north from Blatchford Bridge (A.S.I., 2024).



Figure 21: The Speed River, looking south from Blatchford Bridge (A.S.I., 2024).



Figure 22: Wellington Road 32, looking north from north of Blatchford Bridge (A.S.I., 2024).

4.4.2 Community Landmark

The Blatchford Bridge is not considered to be a landmark within the local context. The subject bridge has a moderate traffic volume of 7,219 vehicles per day (Gannett Fleming Canada ULC, 2023) and is believed to be viewed on a daily basis by a moderate number of motorists. While a familiar structure to local motorists, this portion of Wellington Road 32 does not experience the significant traffic volumes as nearby Wellington Road 124 does to the north, which is a more commonly utilized roadway to access Cambridge from Guelph. The subject bridge stands on the borders between the Township of Guelph/Eramosa and the Township of Puslinch and may act as an unofficial marker of the entry point to Puslinch from Guelph for local residents, but is not a significant gateway feature between neighbourhoods or streetscapes.

4.5 Comparative Analysis

As mentioned above in, Section 4.3.1, the Blatchford Bridge is a single-span steel half-through truss bridge that measures approximately 32.4 metres in length

and 8.1 metres in width that was constructed in 1949 to carry two lanes of traffic (Gannett Fleming Canada ULC, 2023). For the purposes of this comparative analysis, similar half-through truss bridges in the Arch, Truss and Beam: The Grand River Watershed Heritage Bridge Inventory (Benjamin et al., 2013) and the Wellington County O.S.I.M. Inventory (County of Wellington, 2023) were reviewed. According to this comparative sample, there are eight comparable half-through truss structures in the County of Wellington. The Blatchford Bridge is the only remaining half-through truss bridge in the Townships of Guelph/Eramosa and Puslinch. A list of bridges used in this comparative analysis is provided in Appendix E

4.5.1 Comparable Half-Through Truss Structures

The eight comparative half-through truss structures reviewed as part of this analysis have construction dates ranging from 1900 to 1954, with a median construction date of 1952. The subject bridge, constructed in 1949, ranks fourth in terms of date of construction, and is therefore not significant in terms of age. The Dirksen Farm Bridge, constructed in 1900, is the oldest half-through truss bridge in this comparative analysis (Figure 23).

Comparative structures in this analysis have lengths of between 17 metres and 65.3 metres, with a median length of 26.85 metres. The subject bridge, with a length of 32.4 metres, ranks fourth in terms of length, and is therefore not significant in terms of overall length. The Emerson Simmon's Bridge, with a length of 65.3 metres, is the longest half-through truss bridge in this comparative analysis (Figure 24).

Comparative structures in this analysis have between one and two spans, with a median of one span. The subject bridge has one span is therefore not significant in this respect. The Emerson Simmon's Bridge, with a total of two spans, has the greatest number of spans in this comparative analysis (Figure 24).

Examples of half-through truss bridges of similar scale to the subject bridge in the County of Wellington in general are available in the inventories of



Historicbridges.org. Some examples of similar structures that were constructed to carry a roadway over a waterway include the following:

- Mallet River Bridge, a single-span half-through truss bridge that carries Sideroad 6 over Mallet River in Mapleton. The bridge length is 17 metres, and the date of construction is 1910 (Figure 25).
- Bosworth Bridge, a single-span half-through truss bridge that carries Wellington Road 7 over a tributary of Conestogo Lake in Mapleton. The bridge length is 42.1 metres, and the date of construction is 1949 (Figure 26). This bridge is no longer extant as it was removed and replaced in 2024 with a new structure.
- Townline Bridge, a single-span half-through truss bridge that carries the Wellington Road 6 over Bethel Creek in Wellington North. The bridge length is 31.1 metres, and the date of construction is 1950 (Figure 27).
- Rothsay Bridge, a single-span half-through truss bridge that carries Wellington Road 7 over a tributary of Conestogo Lake in Mapleton. The bridge length is 18.7 metres, and the date of construction is 1953 (Figure 28).
- Moorefield Bridge, a single-span half-through truss bridge that carries Wellington Road 10 over a tributary of Conestogo Lake in Mapleton. The bridge length is 22.6 metres, and the date of construction is 1954 (Figure 29).
- Flax Bridge, a single-span half-through truss bridge that carries Wellington Road 11 over Mitchell's Creek in Mapleton. The bridge length is 22.3 metres, and the date of construction is 1954 (Figure 30).





Figure 23: Dirksen Farm Bridge (Melissa Davies, 2012).



Figure 24: Emerson Simmon's Bridge (Melissa Davies, 2012).



Figure 25: Mallet River Bridge (Melissa Davies, 2012).



Figure 26: Bosworth Bridge prior to replacement (Google Streetview).



Figure 27: Townline Bridge (Google Streetview).



Figure 28: Rothsay Bridge (Google Streetview).



Figure 29: Moorefield Bridge (Google Streetview).



Figure 30: Flax Bridge (Google Streetview).

4.5.2 Summary

Based on the inventory of half-through truss bridges above, the subject bridge is one of nine comparative half-through truss bridges in this sample. Truss bridges were common structures by 1900. Their popularity waned after the adoption of concrete as a primary building material by the 1930s and they were less commonly built. When examined in the context of road truss structures within Wellington County, the subject bridge is not significant in the local context in terms of age of construction, overall length, or number of spans. However, as the only remaining half-through truss bridge within the Townships of Guelph/Eramosa and Puslinch, the Blatchford Bridge is significant as being the only remaining bridge of its type in the local community.

5.0 Heritage Evaluation

The evaluation of Blatchford Bridge using the criteria set out in Ontario Regulation 9/06 is presented in the following section (Section 5.1). The following evaluation has been prepared in consideration of data regarding the design, historical/associative, and contextual values in the Township of Guelph/Eramosa and Township of Puslinch, County of Wellington.

5.1 Ontario Regulation 9/06

Evaluation of Blatchford Bridge using Ontario Regulation 9/06 of the *Ontario Heritage Act*.

1. The property has design value or physical value because it:
 - i. is a rare, unique, representative or early example of a style, type, expression, material or construction method:
 - The Blatchford Bridge is a single-span half-through truss structure constructed in 1949. Based on a review of comparative structures in the wider region, the subject bridge is not the oldest nor the longest surviving example of a half-through truss bridge within the County of Wellington. However, this bridge is significant as the only remaining



half-through truss structure in the Townships of Guelph/Eramosa and Puslinch. Furthermore, the bridge is a good representative example of the half-through truss style and rehabilitation efforts have been sympathetic to the original bridge design (Gannett Fleming Canada ULC, 2023; WSP Canada Inc., 2021).

- The subject bridge meets this criterion.

ii. displays a high degree of craftsmanship or artistic merit:

- The subject bridge is constructed with common materials and is a simple, single-span structure that lacks ornamentation or decoration. It exhibits a low degree of artistic merit and was not constructed with a greater than industry standard degree of craftsmanship.
- The subject bridge does not meet this criterion.

iii. demonstrates a high degree of technical or scientific achievement:

- The subject bridge exhibits a low degree of technical or scientific achievement given its short span, common construction materials, common structure type, and the easy access and gentle flow of the watercourse below.
- The subject bridge does not meet this criterion.

2. The property has historical value or associative value because it:

i. has direct associations with a theme, event, belief, person, activity, organization or institution that is significant to a community:

- The subject bridge was designed by W.H. Keith, Wellington County Engineer, in order to replace the original bridge onsite (Hutchinson, 1998). Keith led the repair and replacement of a number of bridges within Wellington County in his time as County Engineer, including Blatchford Bridge (1949), Bosworth Bridge (1949), Salem Bridge (1952), Rothsay Bridge (1953), Emerson Simmons Bridge (1952), and Flax Bridge (1954) (Benjamin et al., 2013).
- The subject bridge does meet this criterion.



- ii. yields, or has the potential to yield, information that contributes to an understanding of a community or culture:
 - There is no indication that the subject bridge has the potential to yield information that contributes to an understanding of community or culture.
 - The subject bridge does not meet this criterion.
- iii. demonstrates or reflects the work or ideas of an architect, artist, builder, designer or theorist who is significant to a community:
 - The subject bridge was designed by Wellington County Engineer W.H. Keith who has been previously identified in this report as significant to the community for his contributions to bridge repair and replacements in the mid-twentieth century. The subject bridge is an example of the lasting quality of Keith's designs.
 - The subject bridge does meet this criterion.

3. The property has contextual value because it:

- i. is important in defining, maintaining or supporting the character of an area:
 - The subject bridge carries Wellington Road 32 over the Speed River on the border of the Township of Guelph/Eramosa and the Township of Puslinch in a rural and agricultural area of the two townships. The bridge is not considered to define or maintain the rural or agricultural character of the area.
 - The subject bridge does not meet this criterion.
- ii. is physically, functionally, visually or historically linked to its surroundings:
 - The location of the subject bridge has served as a historical bridging point for vehicles and farm equipment over the Layton River since the mid- to late-nineteenth century and is physically associated with Saintfield Road, a historically-surveyed roadway. However, the subject bridge is not an original structure at this crossing, and as such, it is not significantly linked to its surroundings.



- The subject bridge does not meet this criterion.

iii. is a landmark:

- The subject bridge can be considered a familiar structure to local residents; however, it is not considered to be a significant gateway feature or to act as a significant physical or contextual division between neighbourhoods or streetscapes.
- The subject bridge does not meet this criterion.

Based on available information, it has been determined that Blatchford Bridge meets the criteria contained in Ontario Regulation 9/06 of the *Ontario Heritage Act* for design/physical and historical/associative value.

6.0 Conclusions and Recommendations

This evaluation was prepared in consideration of data regarding the design, historical/associative, and contextual values within the Townships of Guelph/Eramosa and Puslinch and the County of Wellington. This evaluation determined that Blatchford Bridge meets the criteria outlined in Ontario Regulation 9/06 of the *Ontario Heritage Act*, and therefore has cultural heritage value or interest at the local level.

The following recommendations are proposed:

1. A Heritage Impact Assessment (H.I.A.) should be completed for Blatchford Bridge during the preliminary design phase. The H.I.A. will help to identify alternatives as well as mitigation and monitoring commitments to avoid or lessen impacts on the heritage attributes of the bridge, based on the proposed Statement of Cultural Heritage Value or Interest. This assessment should be completed by a qualified person who has relevant and recent experience in the conservation of road bridges (see Section 3.0 of the *Standards and Guidelines for Conservation of Provincial Heritage Properties* (Ministry of Citizenship and Multiculturalism, 2014) as a guide for best practice) and submitted to planning staff at the County of



Wellington, the planning staff at the Township of Guelph/Eramosa, the planning staff at the Township of Puslinch, County of Wellington Information, Heritage, and Seniors Committee, the Guelph Eramosa Heritage Committee, and the Township of Puslinch Heritage Advisory Committee for review and approval and to the Ministry of Citizenship and Multiculturalism (M.C.M.) for review.

2. The proponent should submit this report for review and comment to planning staff at the County of Wellington, the planning staff at the Township of Guelph/Eramosa, the planning staff at the Township of Puslinch, County of Wellington Information, Heritage, and Seniors Committee, the Guelph Eramosa Heritage Committee, and the Township of Puslinch Heritage Advisory Committee, the M.C.M., and to any other relevant stakeholder that has an interest in the heritage of the subject bridge. Any feedback will be incorporated into this report prior to finalization. The final report should be submitted to the Wellington County Museum and Archives for archival purposes.

7.0 Draft Statement of Cultural Heritage Value and Heritage Attributes

The Blatchford Bridge on the border of the Township of Guelph/Eramosa and the Township of Puslinch, in the County of Wellington meets three out of nine criteria outlined in Ontario Regulation 9/06, which considers the bridge within the local context. As such the subject bridge should be considered to have cultural heritage value or interest at the local level. In particular, the subject bridge is a good representative of a half-through truss bridge in the local context and is historically linked to an engineer of local importance.

This section provides the description of the property, a description of its cultural heritage value or interest, and a list of associated heritage attributes.



Description of Property

The Blatchford Bridge (Structure Number B032085) is a single-span half-through truss bridge with concrete abutments and wingwalls. The bridge carries Wellington Road 32 over the Speed River. The subject bridge was constructed by Dominion Bridge Company Ltd. in 1949 based on the designs of William Hargreave (W.H.) Keith. The subject bridge underwent a partial replacement of lattice railing in 1992, and partial bottom chord replacement at the northwest and southeast ends, diagonal member replacement, deck replacement, new expansion joints, structural steel coating, and rock protection in 2010.

The Blatchford Bridge is located 0.8 kilometres south of Wellington Road 124 in the County of Wellington. The bridge permits access along Wellington County Road 32 over the Speed River. The Speed River is recognized as a Canadian Heritage River (The Grand as a Canadian Heritage River, 1989).

Cultural Heritage Value or Interest

The Blatchford Bridge has physical and design value as a good representative example of an altered mid-twentieth century half-through truss bridge in the local context. Repairs and alterations made in 1992 and 2010 are sympathetic to the original design and therefore do not detract from the design value of the bridge.

Half-through (pony) truss bridges were commonly constructed in the late nineteenth and early twentieth centuries to carry roadways due to their durability, low cost, ease of construction, and readily-available construction materials. Further, their modular design meant that construction could also largely be completed by the manufacturer and delivered to site with many elements prefabricated, greatly speeding up construction. While popular in the late nineteenth and early twentieth centuries, these structures are increasingly becoming a rare feature in the Ontario landscape as they are replaced by more cost-effective concrete or steel girder structures when they reach the end of their useful service life.



The subject bridge has historical and associative value as it was designed by Wellington County Engineer W.H. Keith who contributed greatly to bridge construction and repair in the twentieth century locally.

Heritage Attributes

Physical attributes of Blatchford Bridge that express the design value of the structure include:

- The 1949 single-span half-through truss structure including truss chords, diagonals, verticals with lattice railings, date plaques, and featuring riveted connections.
- Location along Wellington Road 32 allowing vehicular traffic over the Speed River.

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Appendix A: Qualified Persons Involved in the Project

Lindsay Graves, M.A., C.A.H.P.

Senior Cultural Heritage Specialist, Assistant Manager - Cultural Heritage Division

The Senior Project Manager for this Cultural Heritage Evaluation Report is **Lindsay Graves** (M.A., Heritage Conservation), Senior Cultural Heritage Specialist and Assistant Manager for the Cultural Heritage Division. 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 Environmental Assessment processes and has served as Project Manager for over 100 heritage assessments during her time at Archaeological Services Incorporated (A.S.I.). Lindsay is a member of the Canadian Association of Heritage Professionals.

Kirstyn Allam, B.A. (Hon), Advanced Dipl. in Applied Museum Studies
Cultural Heritage Analyst - Cultural Heritage Division

The Project Manager for this Cultural Heritage Evaluation Report is **Kirstyn Allam** (B.A. (Hon.), Advanced Diploma in Applied Museum Studies), 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 site surveys and drafting of study findings and recommendations. 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, including three years' experience as a member of the Heritage Whitby Advisory Committee. Kirstyn also has experience being involved with Stage 1-4 archaeological excavations in the Province of Ontario. Kirstyn is an intern member of the Canadian Association of Heritage Professionals (C.A.H.P.).

Becca Clark, B.A. (Hons)

Cultural Heritage Technical Writer and Researcher - Cultural Heritage Division

The Cultural Heritage Technician for this project is Becca Clark (B.A. Hons, Adv. Diploma Applied Museum Studies), who is a Cultural Heritage Technical Writer and Researcher and Project Administrator within the Cultural Heritage Division. She was responsible for preparing research and technical reporting. With her educational and working background, Becca provides an understanding of Ontario history and built heritage as well as skilled research and analysis. Her time as a museum professional focused on local history in Southern Ontario and how it may be represented by objects and built heritage. In 2021, Becca researched, designed, and produced the Guelph Civic Museum's exhibition "The Origin of Fan: Folding Form and Function". She has since translated her knowledge of Southern Ontario's history into built heritage research. In 2023, she joined ASI's Cultural Heritage team as a Cultural Heritage Technician.

Appendix B: Municipal Heritage Bridges Criteria for Evaluating Potential for Cultural Heritage Resources Checklist

Municipal Bridges
Criteria for Evaluating Potential for Cultural Heritage Resources
(revised July 7, 2023)

This checklist was prepared by the Municipal Engineers Association in consultation with the Ministry of Citizenship and Multiculturalism (MCM) to assist with undertaking cultural heritage due diligence as per the requirements of the Municipal Class Environmental Assessment.

Project Name: Blatchford Bridge Replacement or Rehabilitation

Location: Wellington Road 32 0.8km south of Wellington Road 124

Municipality: Township of Guelph/Eramosa and the Township of Puslinch

Project Engineer: Gannett Fleming

Checklist completed by: Archaeological Services Inc.

Date: June 27, 2024

NOTE: Complete all sections of Checklist. Both Built Heritage Resources/Cultural Heritage Landscapes (B) and Archaeological (C) Sections must be satisfied before proceeding.

Questions apply to the entire study area including temporary storage or work areas as well as temporary roads/detours, except as otherwise stated.

Please have the following available, when requesting information related to the screening questions below:

- a clear map showing the location and boundary of the property or project area
 - large scale and small scale showing nearby township names for context purposes
 - the municipal addresses of all properties within the project area
 - the lot(s), concession(s), and parcel number(s) of all properties within a project area
- Answer each question in succession and follow the instructions in blue. Continue until all questions are answered or a definitive conclusion is reached.

Refer to the Appendix for additional details and resources to assist in answering select questions.

Font Colour

Green – MEA's Advice

Blue - Instructions

PART A – MUNICIPAL CLASS EA ACTIVITY SELECTION

Which of the following describes the proposed project?	MCEA Schedule	Selection
1. Normal or emergency operation and maintenance of linear paved facilities, cycling lanes/facilities & multi-purpose paths, sidewalks, parking lots and related facilities located within or outside existing rights- of-way <i>Related facilities include bridges.</i> Maintenance means work that extends the life of the structure or keeps the structure safe for intended use. Repairs means work that fixes or replaces components of the structure to return the structure to its original condition	Schedule A Complete Part C of this checklist to determine whether an archaeological assessment is required.	☐
24a Retirement of existing roads and road related facilities. <i>Related facilities include bridges</i> <i>Proponents should consider cultural heritage value in accordance with MEA's Municipal Heritage Bridge Checklist developed with the Ministry of Citizenship and Multiculturalism (MCM) and posted on the MEA website. Completion of the checklist does not mean approval or permission from MCM to remove a bridge with potential heritage value</i> RETIREMENT Means the taking out of operation, abandonment, removal, demolition or disposal of a road, bridge, sewage, stormwater management or water facility for which approval under the EAA would have been necessary for its	Exempt – Schedule A+ Complete Parts B of this checklist if the bridge is > 40 years old and C of this checklist if the project involves excavation activities to determine whether any technical cultural heritage studies are required prior to removal of the bridge	☐

establishment and includes sale, lease, or other transfer of the facility for purposes of taking out of operation, abandonment, removal, demolition or disposal.		
25b Construction or removal of sidewalks, multi-purpose paths or cycling facilities including water crossings outside existing right-of-way and/or in a utility or rail corridor	Schedule A+ if <\$4.1m Schedule B if >\$4.1m Schedule C if >\$12m <i>This clause does not include qualifiers such as property requirements or proximity to sensitive features. Instead cost of project triggers classification</i>	☐
30. Reconstruction of a water crossing where the reconstructed facility will be for the same purpose, use, capacity and at the same location • Capacity refers to either hydraulic or road capacity but does not include alterations to include or remove facilities for cycling, pedestrians or to support utilities • This includes ferry docks BRIDGE CAPACITY Means the number of through travel lanes for vehicles on the bridge. Adjusting lane width to current standards that do not increase the number of travel lanes and cycling, parking or turning lanes are not through travel lanes. Increasing the width of a narrow bridge (one lane with two way traffic) to the current standard to accommodate two way traffic (two lane) is not considered an increase in capacity. OPERATION Means use, maintenance, repair, and management of a municipal facility where the purpose, use, capacity and location remain the same. Same purpose, use, capacity and location refers to the replacement or upgrading of a structure or facility or its	Item 30 applies to bridges <40 yrs old. Exempt – Schedule A+ If the project involves excavation, complete Part C of this checklist to determine whether an archaeological assessment is required. <i>Hydraulic capacity of a bridge is controlled by the openings between abutment walls and piers. The bridge elevation needs to be set a minimum clearance above high-water elevations. Further adjusting the elevation of the bridge to match road grades will not change the hydraulic characteristics. However, if the hydraulic capacity of the bridge is part of the flood control system for the water course and the openings between abutment walls and piers is changing then item 63 “Modify existing water crossings for the purposes of flood control” from the Water/Wastewater table applies and the project is Schedule B.</i> Substantial Change - Within the existing road allowance or utility corridor, a substantial change could be considered a change of more than approximately >10%.	☐

performance, where the objective and application remain unchanged, and the volume, size and capability do not exceed the minimum municipal standard (defined above), or the existing rated capacity (defined above), and there is no substantial change in location	<i>For example, a road allowance 20m wide and 1 km long has an area of 20,000 m² and a change of < 2000m² would be <10%</i> Property Acquisition – No EA process is required for property purchase. If the proponent acquires property through separate process (negotiation with owner or planning policies for minimum width of road allowances) such that the proponent owns the property required for a project before the Notice of Completion then no property acquisition is required for the project. For many project types, this could mean the project would be classified as Schedule A or A+ (exempt). If there is dispute about the property acquisition then a Schedule B process should be followed to support the acquisition (expropriation). Utility Corridor – A utility corridor may include property that is non-linear, for example a rectangular area for a Stormwater Management Pond.	
31a Reconstruction of, or alteration to a structure or the grading adjacent to it, when the structure is over 40 years old and has been found not to have cultural heritage value or interest <i>To determine whether a bridge has “cultural heritage value” refer to the MEA’s municipal heritage bridge checklist developed with the Ministry of Citizenship and Multiculturalism and posted on the MEA website</i>	Item 31 applies to bridges >40 yrs old. Exempt – Schedule A+ Complete Parts B and C of this checklist to determine whether any technical cultural heritage studies are required.	

31b Reconstruction of, or alteration to a structure or the grading adjacent to it when the structure is over 40 years old, the structure is found to have cultural heritage value or interest, and the heritage attributes will be conserved in accordance with the recommendations of a Heritage Impact Assessment <i>To determine whether a bridge has “cultural heritage value”, refer to the MEA’s municipal heritage bridge checklist developed with the Ministry of Citizenship and Multiculturalism and posted on the MEA website</i>	Exempt - Schedule A+ after completing Archaeological Screening Process (ASP) and provided the heritage attributes will be conserved in accordance with the recommendations of a Heritage Impact Assessment Complete Parts B and C of this checklist to determine whether any technical cultural heritage studies are required.	☐
31c Reconstruction of, or alteration to a structure or the grading adjacent to it, when the structure is over 40 years old the structure is found to have cultural heritage value or interest, but heritage attributes will not be conserved in accordance with the recommendations of a Heritage Impact Assessment <i>To determine whether a bridge has “cultural heritage value”, refer to the MEA’s municipal heritage bridge checklist developed with the Ministry of Citizenship and Multiculturalism and posted on the MEA website</i>	Schedule B The Schedule B process requires due consideration of all aspects including Heritage, which involves the completion of a Heritage Impact Assessment where cultural heritage value or interest has been identified. Proponents should always strive to conserve/recognize cultural heritage attributes.and comply with 31b.	☒
32a. Construction of underpasses or overpasses for pedestrian, cycling, recreational or agricultural use	Schedule A+ if <\$3.0m No qualifiers	☐

32b Construction of underpasses or overpasses for pedestrian, cycling, recreational or agricultural use, and where the underpass or overpass would not be located in or adjacent to an environmentally sensitive natural area, potential built heritage resource or cultural heritage landscape or other sensitive land use, or on lands with archaeological potential • <i>To determine whether there is “archaeological potential” refer to MCM’s Criteria for Evaluating Archaeological Potential checklist</i> <i>Refer to new definition of “environmentally sensitive natural area” in the Glossary</i>	Applies to projects >\$3M Schedule A+ after completing Archaeological Screening Process (ASP). Otherwise Schedule B Use the checklists at the following links to determine archaeological potential, and potential for built heritage resources and cultural heritage landscapes: • Criteria for Evaluating Archaeological Potential • Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes A1-2 Archaeological Screening Process (ASP) The projects that are identified as eligible for screening, subject to the archaeological screening process (identified as “ASP”) may be exempt from the requirements of the EAA as determined by the archaeological screening process set out below. In order to proceed with a project that is identified as eligible for screening, a proponent must either; - carry out the process for a Schedule B/C project; or - complete the archaeological screening process and follow the directions set out in the screening process. If the outcome of the screening process is that the project is exempt from the requirements of the EAA, the proponent may proceed with the undertaking/project without further application of the EAA to the project	
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32c Construction of underpasses or overpasses for pedestrian, cycling, recreational or agricultural use, and where the underpass or overpass would be located in or adjacent to an environmentally sensitive natural area, potential built heritage resource or cultural heritage landscape or other sensitive land use, or on lands with archaeological potential • <i>To determine whether there is “archaeological potential” refer to MCM’s Criteria for Evaluating Archaeological Potential checklist</i> <i>Refer to new definition for “environmentally sensitive natural area” in the Glossary</i>	Applies to projects >\$3M Schedule B	☐
35 Reconstruction of a water crossing where the reconstructed facility will not be for the same purpose, use, capacity or at the same location • <i>Capacity refers to either hydraulic or road capacity but does not include alterations to include or remove facilities for cycling, pedestrians or to support utilities</i> • <i>This includes ferry docks</i>	Schedule B The heading for 35, 36a and 36b projects is “RECOONSTRUCTION OF BRIDGES WITH INCREASE TO TRAVEL LANES”. The increase to travel lanes triggers Schedule B regardless of Heritage or other features. The Schedule B process requires due consideration of all aspects including Heritage, which involves the completion of a Heritage Impact Assessment where cultural heritage value or interest has been identified. Proponents should always strive to conserve/recognize cultural heritage attributes	☐
36a Reconstruction of, or alteration to a structure or the grading adjacent to it when the structure is over 40 years old and has cultural heritage value or interest and the heritage attributes will not be conserved in accordance with the recommendations of a Heritage Impact Assessment	Schedule B See note Project 35	☐

<i>To determine whether a bridge has “cultural heritage value”, refer to the MEA’s municipal heritage bridge checklist developed with the Ministry of Citizenship and Multiculturalism and posted on the MEA website</i>		
36b Reconstruction of, or alteration to a structure or the grading adjacent to it when the structure is over 40 years old and is not found to have cultural heritage value or interest or is found to have cultural heritage value or interest but the heritage attributes will be conserved in accordance with the recommendations of a Heritage Impact Assessment <i>To determine whether a bridge has “cultural heritage value”, refer to the MEA’s municipal heritage bridge checklist developed with the Ministry of Citizenship and Multiculturalism and posted on the MEA website</i>	Schedule B See note Project 35	☐
37. Construction of new water crossings - This includes ferry docks - This does not apply to culverts. See Projects # 8 and 20.	Schedule B	☐
38. Construction of new grade separations and interchanges	Schedule B	☐



PART B – SCREENING FOR BUILT HERITAGE RESOURCES AND CULTURAL HERITAGE LANDSCAPES

If you are not sure how to answer one or more of the questions on the checklist, you may want to hire a qualified person to undertake technical cultural heritage studies as identified at the end of Part B.

Screening Questions	Response	
Part B1: Screening for Recognized Cultural Heritage Value or Interest		
1. Is the proposed undertaking consistent with an approved conservation plan, if one exists?	Yes ☐	No ☒
If you answered YES , then it is not necessary to complete the remaining questions in the checklist. The proponent will include this information in the project file and follow the recommendations of the conservation plan during project planning and implementation.		
If you answered NO , continue to question 2.		
2. Has the bridge and the study area been evaluated before and found not be of cultural heritage value or interest (CHVI)?	Yes ☐	No ☒
If you answered YES , it is not necessary to complete the remaining questions in the Part B. The proponent will summarize the previous evaluation and add this checklist to the project file, with appropriate documentation demonstrating that a cultural heritage evaluation was undertaken. Proceed to Part C: Screening for Archaeological Resources.		
If you answered NO , continue to question 3.		
3. Is the bridge, or a parcel of land in the study area:		
a. designated under the <i>Ontario Heritage Act</i> ?	Yes ☐	No ☒
b. subject to an agreement, covenant or easement entered into under Parts II or IV of the <i>Ontario Heritage Act</i> ?	Yes ☐	No ☒
c. included on a register or inventory of heritage properties maintained by the municipality?	Yes ☐	No ☒
d. subject to a notice of - intention to designate (under Part IV of the <i>Ontario Heritage Act</i>)? - a Heritage Conservation District study area by-law (under Part V of the <i>Ontario Heritage Act</i>)?	Yes ☐	No ☒

e. included in MCM's list of provincial heritage properties?	Yes ☐	No ☒
f. designated under the <i>Heritage Railway Stations Protection Act</i> ?	Yes ☐	No ☒
g. designated under the <i>Heritage Lighthouse Protection Act</i> ?	Yes ☐	No ☒
h. identified as a Federal Heritage Building by Federal Heritage Buildings Review Office?	Yes ☐	No ☒
i. a National Historic Site or part of one?	Yes ☐	No ☒
j. located within a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site?	Yes ☐	No ☒
If you answered YES to any of the questions 3a through 3h, a Heritage Impact Assessment is necessary. Proceed to Part C.		
If you answered YES to either of questions 3i or 3j, follow the direction in the conservation and management documents for the National Historic Site or UNESCO World Heritage Site. Proceed to Part C.		
If you answered NO to all of the above questions, continue to Part B2		

Part B2: Screening for potential Cultural Heritage Value or Interest		
4. Will the proposed project involve a bridge structure that was: a) constructed less than 40 years ago?	Yes ☐	No ☒
b) constructed after 1956 with a plain concrete substructure, and the superstructure construction is with common steel and/or concrete products involving one of the following four bridge types? - Rigid Frame - Precast Girders with Concrete Deck - Culvert or Simple Span - Steel Girders/Concrete Deck	Yes ☐	No ☒
If you answered YES to 4 (a) or (b), continue this Part.		
If you answered NO to both 4 (a) and (b), the bridge has potential CHVI. Proceed to Part B3 to screen for potential impacts.		
5. Will the project involve replacement of a bridge's substructure, or any alteration of adjacent lands?	Yes ☐	No ☐
If you answered YES , continue this Part to screen for potential CHVI of the property/location.		
If you answered NO , proceed to Part C.		

6. Is the bridge or project area described by an on-site municipal, provincial or federal commemorative or interpretive plaque?	Yes ☐	No ☐
7. Does the project area contain a parcel of land that has or is adjacent to a known burial site or cemetery?	Yes ☐	No ☐
8. Does the proposed project involve a crossing of a Canadian Heritage River?	Yes ☐	No ☐
9. Is there local or Indigenous knowledge or accessible documentation suggesting that the property (or project area) is situated on a parcel of land that:		
a. Is considered a landmark in the local community or contains any structures or sites that are important in defining the character of the area? (For example: buildings or landscape features accessible to the public or readily noticeable and widely known, complexes of buildings, monuments, ruins)	Yes ☐	No ☐
b. Has a special association with a community, person or historical event? (For example: Indigenous sacred site, traditional-use area, battlefield, birthplace of an individual of importance to the community, etc.)	Yes ☐	No ☐
c. Contains or is part of a cultural heritage landscape (for example, an Indigenous trail, historic road or rail corridor, park, designed garden, unique landform, or any other area in which multiple features are valued together for their interrelationship, meaning or association)?	Yes ☐	No ☐
If you answered YES to one or more of questions 6, 7, 8 or 9, there is potential for built heritage resources and/or cultural heritage landscapes in the study area. Continue to Part B3 to screen for potential impacts.		
If you answered NO , there is a low potential for built heritage resources and/or cultural heritage landscapes to be impacted. Proceed to Part C.		

B3 Screening for potential Cultural Heritage Impacts to the Bridge Structure		
10. a) Will the proposed project leave the substructure of the bridge unchanged?	Yes ☐	No ☒
b) Is the substructure of the bridge constructed with plain concrete with no untypical elements?	Yes ☒	No ☐
If you answered YES to either 10 (a) or (b), proceed to question 11.		
If you answered NO to both 10 (a) and (b), there is potential for cultural heritage impacts on the bridge structure. You need to hire a qualified person(s) to undertake a CHER for the existing bridge area. Continue to Part C.		
11. a) Is the superstructure of the bridge constructed with common steel and/or concrete products involving one of the following four bridge types? - Rigid Frame - Precast with Concrete Deck - Culvert or Simple Span - Steel Girders/Concrete Deck	Yes ☐	No ☒
b) Will the finished product replicate the existing superstructure?	Yes ☐	No ☒
If you answered YES to both 11 (a) and (b), continue to 12.		
If you answered NO to either 11 (a) or (b), there is potential for cultural heritage impacts on the bridge structure. You need to hire a qualified person(s) to undertake a CHER for the existing bridge area. Proceed to Part C.		
12. a) Is work proposed on the parapet walls/railings of the bridge?	Yes ☐	No ☐
b) If YES to (a), are the parapet walls/railings contain materials other than plain concrete and steel, or any untypical elements?	Yes ☐	No ☐
If you answered YES to both 12 (a) and (b), continue to question 12 (c).		
If you answered NO to either 12 (a) or (b), there is low potential for cultural heritage impacts on the bridge structure. Proceed to Part C.		
c) Is the purpose of the work being done on the parapet walls/railings to upgrade them to meet current crash test standards?	Yes ☐	No ☐
If you answered YES , proceed with reconstructing the parapet walls/railings to a sympathetic design ; see guidance in the Appendix. Hire a qualified person(s) to undertake a CHER if this is not practicable. Proceed to Part C.		
If you answered NO , there is potential for cultural heritage impacts on the bridge structure. You need to hire a qualified person(s) to undertake a CHER for the existing bridge area. Continue to Part C: Screening for Archaeological Resources.		

PART C – SCREENING FOR ARCHAEOLOGICAL RESOURCES

If you are not sure how to answer one or more of the questions on the checklist, you may want to hire a licensed archaeologist to undertake an archaeological assessment. See description of this process in the Appendix.

Screening Questions	Response	
1. Will the proposed project involve disturbance to the bed of a waterbody, including a river or creek?	Yes ☐	No ☐
If you answered YES , complete MCM's Criteria for Evaluating Marine Archaeological Potential to determine whether it is necessary to complete a marine archaeological assessment. Continue with this Part to determine whether it is necessary to complete a terrestrial archaeological assessment.		
If you answered NO , continue to 2.		
2. Has an archaeological assessment been prepared for this proposed study area that recommends that there are no further concerns about impacts and that has been entered into the Ontario Public Register of Archaeological Reports maintained by MCM?	Yes ☒	No ☐
If you answered YES , then it is not necessary to complete the remaining questions in the checklist. The proponent will summarize this conclusion and include this checklist with the appropriate documentation (e.g. MCM letter indicating that the report has been entered into the Register) to the project file. The summary and appropriate documentation will be maintained by the proponent.		
If you answered NO , continue to question 3.		
3. Are there known archaeological sites within 300 metres of the proposed project?	Yes ☐	No ☐
If you answered YES , an archaeological assessment is required. It is not necessary to complete the remaining questions in the checklist		
If you answered NO , continue to question 4. Include the information used to answer question 3 (e.g. a response from MCM or the municipality to an inquiry on this topic) with EA documentation.		
4. Will the proposed project, decision or activity result in significant ground disturbance?	Yes ☐	No ☐
If you answered YES , continue to question 5. Documentation to support an answer of YES is not required.		
If you answered NO , an archaeological assessment is NOT required and it is not necessary to fill out the remainder of the checklist. The proponent will summarize this conclusion and include appropriate documentation demonstrating that no ground disturbance will take place to the project file.		
5. Have all areas to be impacted by ground disturbing activities been subjected to recent extensive and intensive disturbances and to depths greater than the depths of the proposed activities?	Yes ☐	No ☐
If you answered YES , an archaeological assessment is NOT required. The checklist and any supporting documentation demonstrating that no activities will go deeper than past ground disturbances or will occur in previously undisturbed lands is to be included in the summary.		
If you answered NO , then there is potential for archaeological resources and an archaeological assessment is required.		

Appendix: Additional instructions, information sources, and definitions to assist in answering checklist questions

Part A	
1	Maintenance means work that extends the life of the structure or keeps the structure safe for intended use. Repairs means work that fixes or replaces components of the structure to return the structure to its original condition.
2	Rehabilitation means a modification, alteration, or improvement of the condition of a structure or bridge subsystem that is designed to correct deficiencies in order to achieve a particular design life and live load level. Vehicle capacity means the number of through travel lanes for vehicles on the bridge. Adjusting lane width to current standards does not increase the number of travel lanes and cycling, parking, or turning lanes are not through travel lanes. Increasing the width of a narrow bridge (one lane with two-way traffic) to the current standard to accommodate two-way traffic (two lane) is not considered an increase in capacity.
Part B	
1	Municipal heritage staff and municipal heritage committees can help determine whether an approved conservation plan, or previous cultural heritage evaluation, exist.
2	A previous evaluation might have been carried out by: • A heritage consultant, in a CHER prepared for a previous consultant/applicant • The Municipal Heritage Committee, in considering the property for inclusion on the municipality's Heritage Register • The municipality, in a Bridge Infrastructure Master Plan Evaluations should use the criteria in Ontario Regulation 9/06. Re-evaluation is necessary if new information is available or there is evidence that heritage attributes have changed.
3	Where to find information: a) For OHA-designated properties contact the municipal clerk, or search the Ontario Heritage Trust (OHT) Register at https://www.heritagetrust.on.ca/en/pages/tools/ontario-heritage-act-register b) - For municipal easements, contact the municipal clerk - For OHT easements, contact the OHT Provincial Heritage Registrar at registrar@heritagetrust.on.ca or see https://www.heritagetrust.on.ca/en/property-types/easement-properties - Easements can also be identified through the local land registry (title search) c) For listed or inventoried properties, contact the municipal clerk or heritage staff

	d) For properties subject to a notice of intention to designate or notice of Heritage Conservation District Study, contact the municipal clerk or heritage staff e) For provincial heritage properties, contact the MCM Registrar at registrar@ontario.ca f) For all federal designations, search the Directory of Federal Heritage Designations at https://www.pc.gc.ca/apps/dfhd/default_eng.aspx g) See (f) above h) See (f) above i) See (f) above j) For UNESCO World Heritage Sites see the UNESCO website: http://whc.unesco.org/en/statesparties/CA (note: as of 2020, Ontario's only UNESCO World Heritage Sites are the Rideau Canal and Pimachiowin Aki)
6	Plaque locations can be found from the following sources: • Municipal heritage committees or local heritage organizations • Ontario Heritage Trust: https://www.heritagetrust.on.ca/en/online-plaque-guide • Historic Sites and Monuments Board of Canada: http://www.pc.gc.ca/apps/dfhd/default_eng.aspx
7	Cemeteries can be located through the Bereavement Authority of Ontario's Public Register of licensed cemeteries: https://licensees.bereavementauthorityontario.ca/public-register If cemetery limits are unclear, an Investigation Authorization issued by the Bereavement Authority of Ontario may be required. In this context, adjacent means contiguous or as otherwise defined in a municipal official plan.
8	A list of the Canadian Heritage Rivers in Ontario can be found at http://chrs.ca/the-rivers-ontario/.
9	For information, contact: • Elders in Indigenous Communities or community researchers who may have information on potential cultural heritage resources. Please note that Indigenous traditional knowledge may be considered sensitive. • municipal heritage committees or local heritage organizations • Ontario Historical Society's "Heritage Directory" - for a list of historical societies and heritage organizations in the province: https://ontariohistoricalsociety.ca/directory-and-map/ Information specific to trails may be obtained through Ontario Trails at https://www.ontariotrails.on.ca/index.php?url=trails

10	If the checklist indicates the need to hire a qualified person to undertake a Cultural Heritage Evaluation Report (CHER), do this during the EA study and follow its recommendations, which may include completing a Heritage Impact Assessment (HIA) if the structure or property is found to have cultural heritage value or interest (CHVI) and may be impacted by the project. Both the CHER and the HIA should be included in EA documentation and inform the decision-making in the EA process.
11	
12	
12 (c)	To develop a sympathetic design for railings, the proponent should first consider retaining the existing railing. If the existing railing is tall enough for pedestrian safety, consider providing a new barrier wall between road and sidewalk if adequate space and bridge capacity is available, and snow clearing operations can continue. If inadequate space and structural capacity exists, or snow clearing cannot be accommodated, or pedestrian Ontario Building Code (OBC) safety requirements are not met, then the existing railings should be removed and replaced with a new Canadian Highway Bridge Design Code- and OBC- (if applicable) compliant barrier with a design that, as much as possible, uses the same materials and elements (e.g. vertical steel posts) as the original railing.

Part C													
If this Part indicates the need for an archaeological assessment, you will need to hire an archaeologist licensed under the Ontario Heritage Act. This licensee will follow the archaeological assessment process laid out in the <i>Standards and Guidelines for Consultant Archaeologists</i> and submit archaeological assessment reports directly to MCM for technical review. Archaeological assessment follows a phased approach that begins with evaluation of archaeological potential and proceeds as necessary to a field survey, an assessment of any sites identified, and mitigation measures such as excavation, with each phase resulting in recommendations as to whether the next is necessary. MCM will inform the client/proponent when review of and any necessary revisions to archaeological assessment reports have been completed. Archaeological assessment reports should be included in EA documentation. You can find information on archaeological assessments, and a list of licensed Archaeologists in Ontario, on MCM's website at https://www.ontario.ca/page/archaeological-assessments and https://www.ontario.ca/page/archaeologists-licensed-ontario.													
2	Information can be obtained from MCM by emailing archaeology@ontario.ca .												
3	The municipality may be able to answer Question 3 if it has a data sharing agreement with MCM.												
4	Significant ground disturbance means to interfere with or alter the existing condition of the ground, whether it is above or below water, through human actions that have potential to affect cultural heritage resources, and includes, but not limited to: <table border="0"> <tr> <td>altering the existing grade of land</td><td>compacting, excavating or removing topsoil</td></tr> <tr> <td>power spraying</td><td>dredging</td></tr> <tr> <td>placing or dumping fill</td><td>removing vegetation</td></tr> <tr> <td>allowing heavy vehicle traffic</td><td>trenching (e.g. for services)</td></tr> <tr> <td>drainage ditch construction</td><td>trail construction</td></tr> <tr> <td>scarification and soil mechanics studies</td><td></td></tr> </table> A ground disturbance does <u>not</u> include: normal, regular farming practices such as ploughing or tilling or gardening	altering the existing grade of land	compacting, excavating or removing topsoil	power spraying	dredging	placing or dumping fill	removing vegetation	allowing heavy vehicle traffic	trenching (e.g. for services)	drainage ditch construction	trail construction	scarification and soil mechanics studies	
altering the existing grade of land	compacting, excavating or removing topsoil												
power spraying	dredging												
placing or dumping fill	removing vegetation												
allowing heavy vehicle traffic	trenching (e.g. for services)												
drainage ditch construction	trail construction												
scarification and soil mechanics studies													
5	Recent means since 1960. Extensive means over all or most of the area. Intensive means thorough or complete disturbance.												

Appendix C: Arch, Truss and Beam: The Grand River Watershed Heritage Bridge Inventory

Blatchford Bridge



Photograph by Lindsay Benjamin, 2012

General Information	Physical Details
Bridge No. PL1	Type: Warren Pony Truss
Ownership: County of Wellington	Span: Single
Construction Date: 1949	Dimensions: 32.4m x 8.1m (LxW)
Water Crossing: Speed River	Materials: Steel, Reinforced Concrete



Evaluation Form	Check
Design/Physical Value	
I. Is a rare, unique, representative or early example of a style, type, expression, material or construction method	✓
II. Displays a high degree of craftsmanship or artistic merit	
III. Demonstrates a high degree of technical or scientific achievement	
Historic/Associative Value	
I. Has direct association with a theme, event, belief, person, activity, organization, or institution that is significant to the community	
II. Yields, or has the potential to yield, information that contributes to an understanding of the community or culture	
III. Demonstrates or reflects the work or ideas of an architect, artist, engineer, builder, designer or theorist who is significant to a community	✓
Contextual Value	
I. Is important in defining, maintaining or supporting the character of an area	✓
II. Is physically, functionally, visually or historically linked to its surroundings	
III. Is a landmark	

General Description

The Blatchford Bridge is located on County Road 32, 0.80 km south of County Road 124. It was constructed in 1949 and is one of two remaining steel truss bridges in the Township of Puslinch, and represents the only pony truss. The Blatchford Bridge is similar in appearance to other pony trusses in Wellington County and built during the same time period, generally between 1949 and 1954.

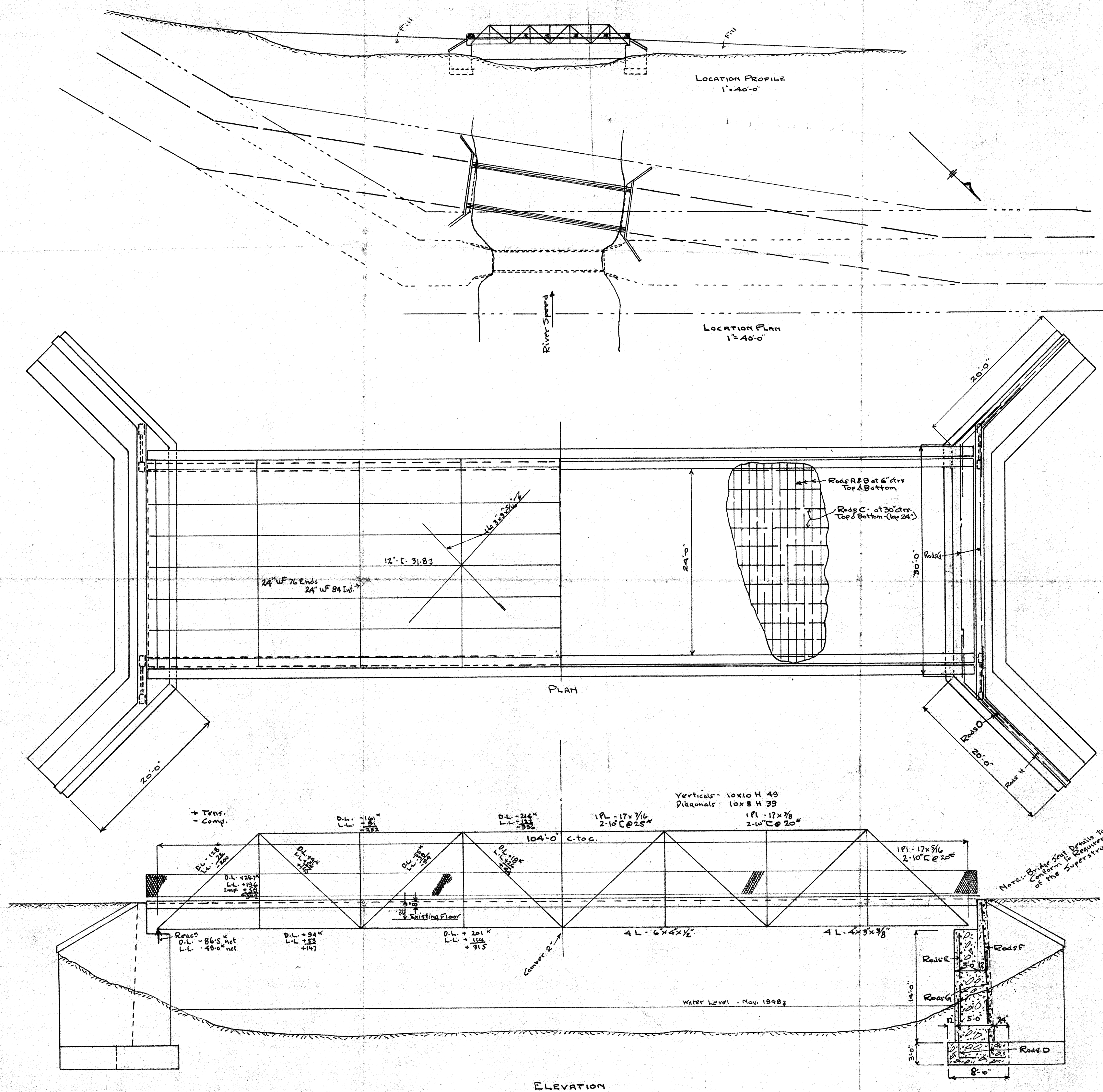
The Dominion Bridge Company Ltd. constructed this steel pony truss bridge for the County of Wellington. Established in 1886, this company was a Canadian steel bridge constructor based in Lachine, Quebec, and eventually growing to have plants located across Canada. Contractor A.H. MacLellan and County Engineer, W.H. Keith, are credited with working on this bridge and many other truss bridges in the County. The Blatchford Bridge underwent repairs in 1992.

Located directly east of the bridge, remnant concrete abutments remain indicating the alignment of a previous bridge parallel to the Blatchford Bridge.

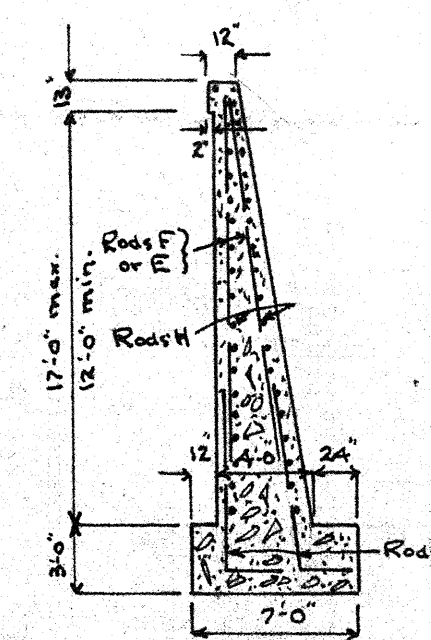
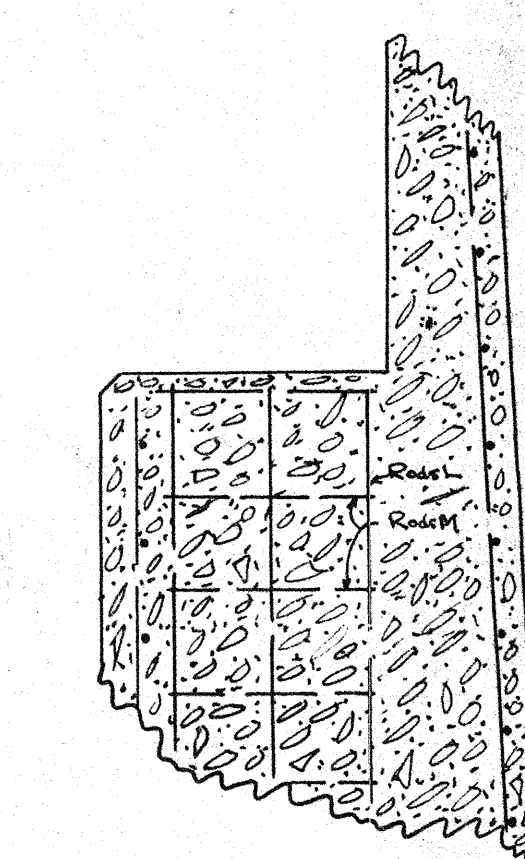
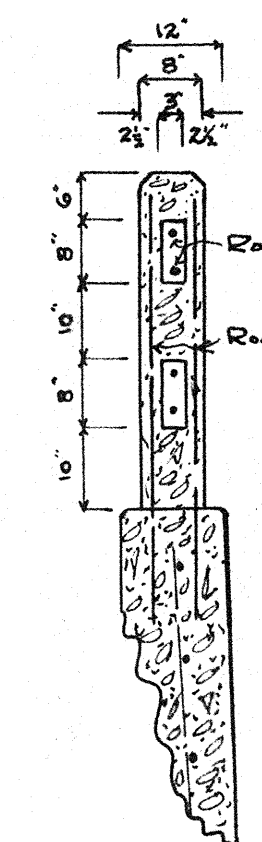
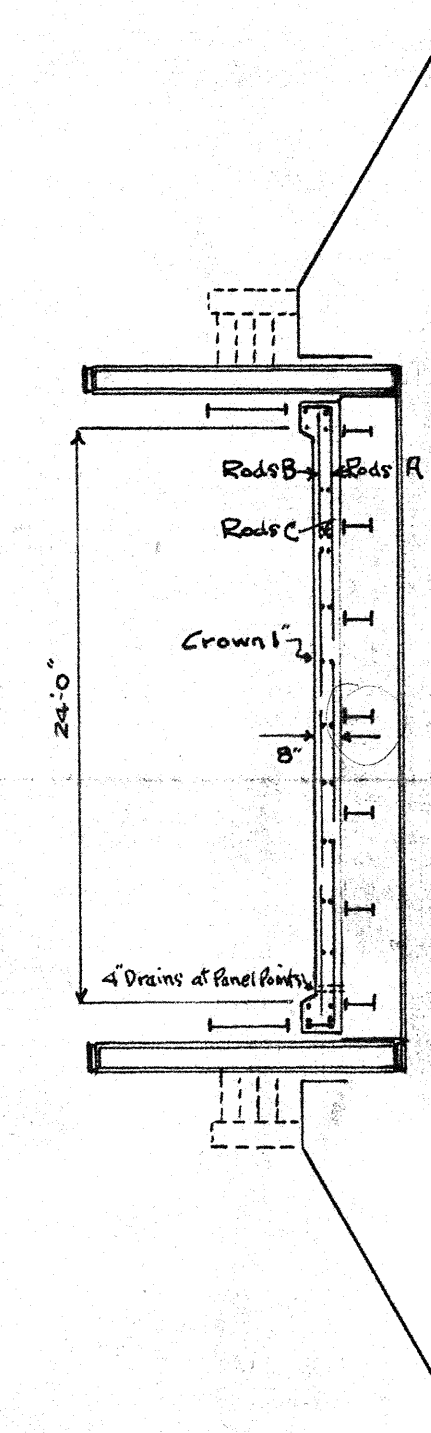
Sources: GRCA Heritage Bridge Inventory
County of Wellington, 2007 Bridge Appraisals



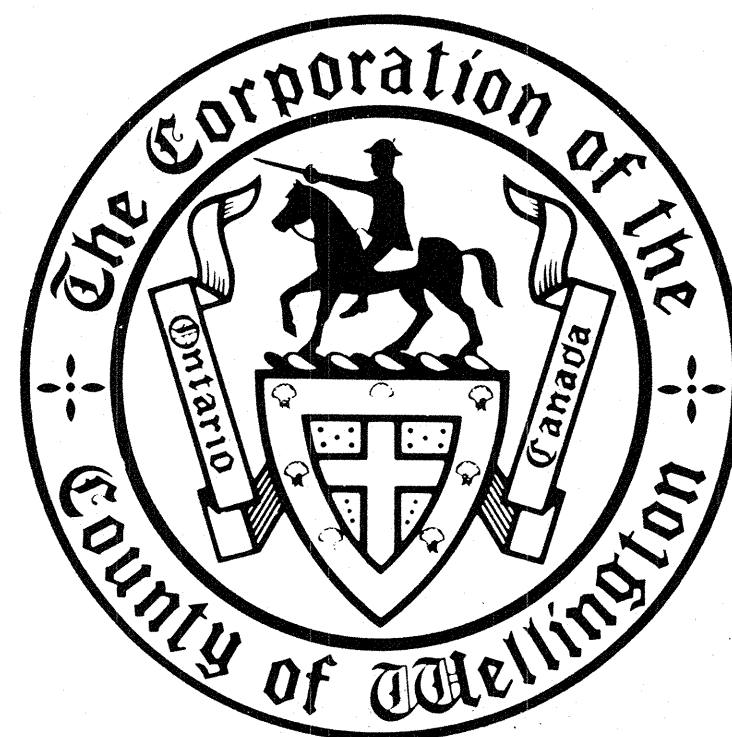
Appendix D: Select Structural Drawings



LIST OF REINFORCING						
Letter	Location	Size	Number	Length	Spacing	Shape
A	Slab	$\frac{3}{8}" \phi$	206	25'-6"	6"	12" 
B	"	$\frac{3}{8}" \phi$	206	23'-0"	6"	Straight
C	"	$\frac{1}{2}" \phi$	130	22'-8"	30"	" 
D	Footings	$\frac{3}{4}" \phi$	256	10'-0"	12"	" 
E	Abuts. & Wings	$\frac{3}{8}" \phi$	128	12'-0"	12"	5' straight
F	Abuts. & Wings	$\frac{3}{8}" \phi$	128	16'-0"	12"	"
G	Abutments	$\frac{3}{8}" \phi$	72	30'-0"	12"	"
H	Wings	$\frac{3}{8}" \phi$	144	15'-0"	12"	"
J	Rails	$\frac{3}{8}" \phi$	16	2'-6"	✓	"
K	Posts	$\frac{3}{8}" \phi$	16	5'-6"	✓	"
L	Bridge Seat	$\frac{3}{4}" \phi$	28	6'-0"	✓	" 
M	"	$\frac{1}{2}" \phi$	24	7'-6"	12"	" 
O	Corners	$\frac{3}{8}" \phi$	140	14'-0"	12"	" 



THE GUELPH and WELLINGTON SUBURBAN ROAD COMMISSION
BLATCHFORD BRIDGE
ROAD # 68
Lot 10, Con. III, Div. B, Twp. GUELPH
1/8 = 1-0'
JUNE 1949



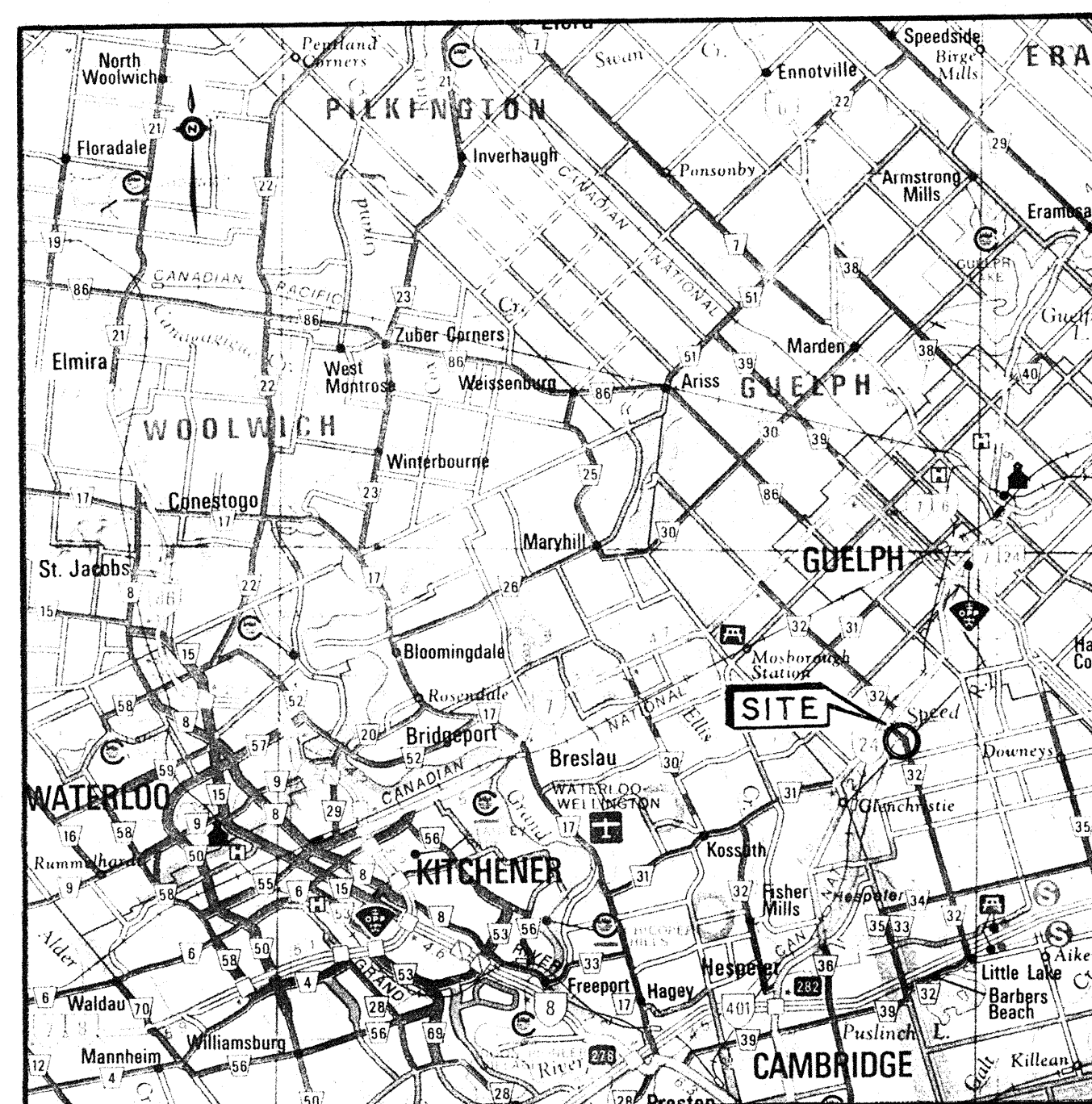
**GUELPH SUBURBAN ROADS COMMISSION
COUNTY OF WELLINGTON**

CONTRACT FOR

REPAIRS TO STRUCTURE No. 32085

**BLATCHFORD BRIDGE
ON COUNTY ROAD 32 OVER SPEED RIVER**

CONTRACT No. 92-60



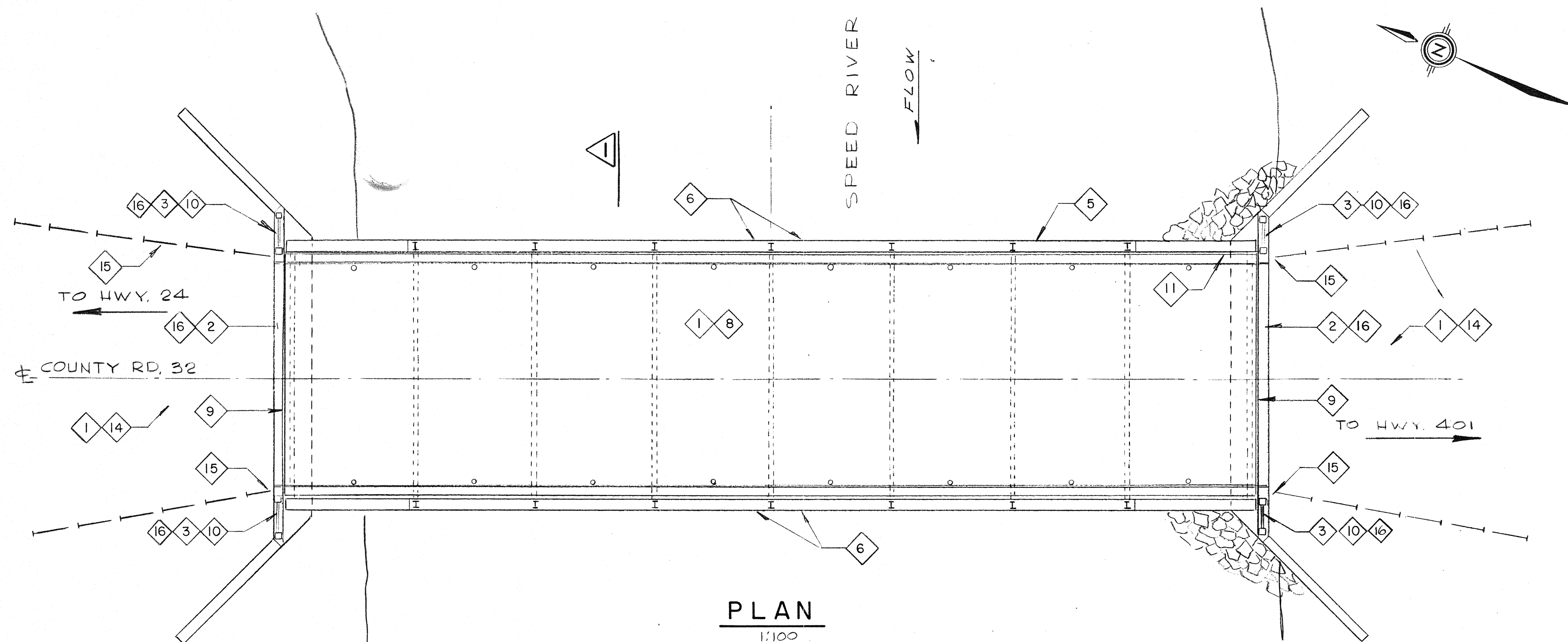
KEY PLAN

G. OUGH P.ENG
WELLINGTON COUNTY ENGINEER

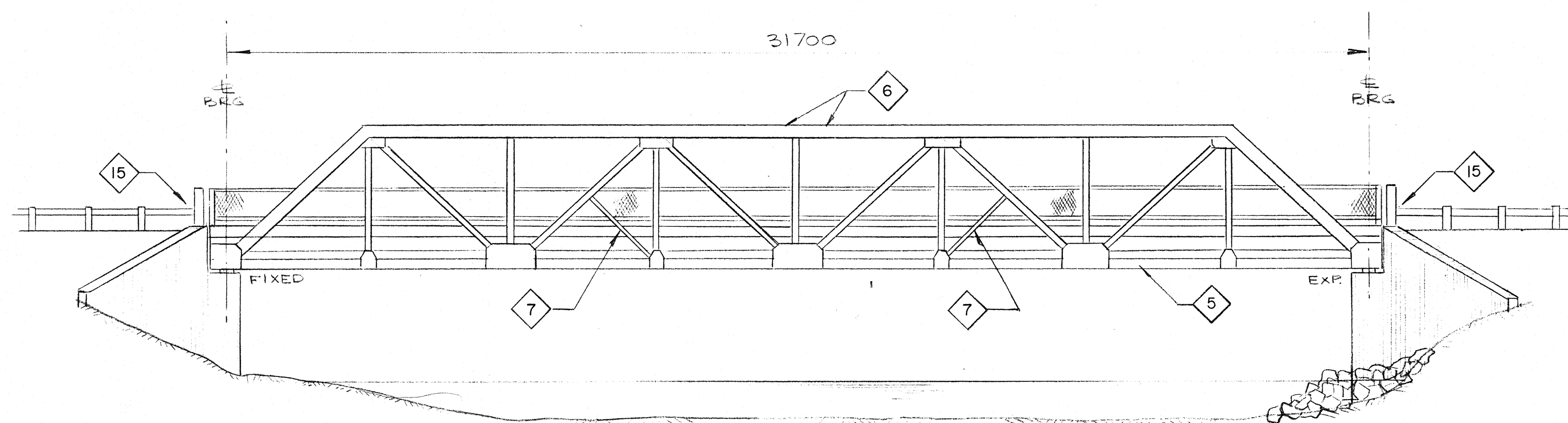
JAN. 1992
DATE

ISSUED FOR CONSTRUCTION

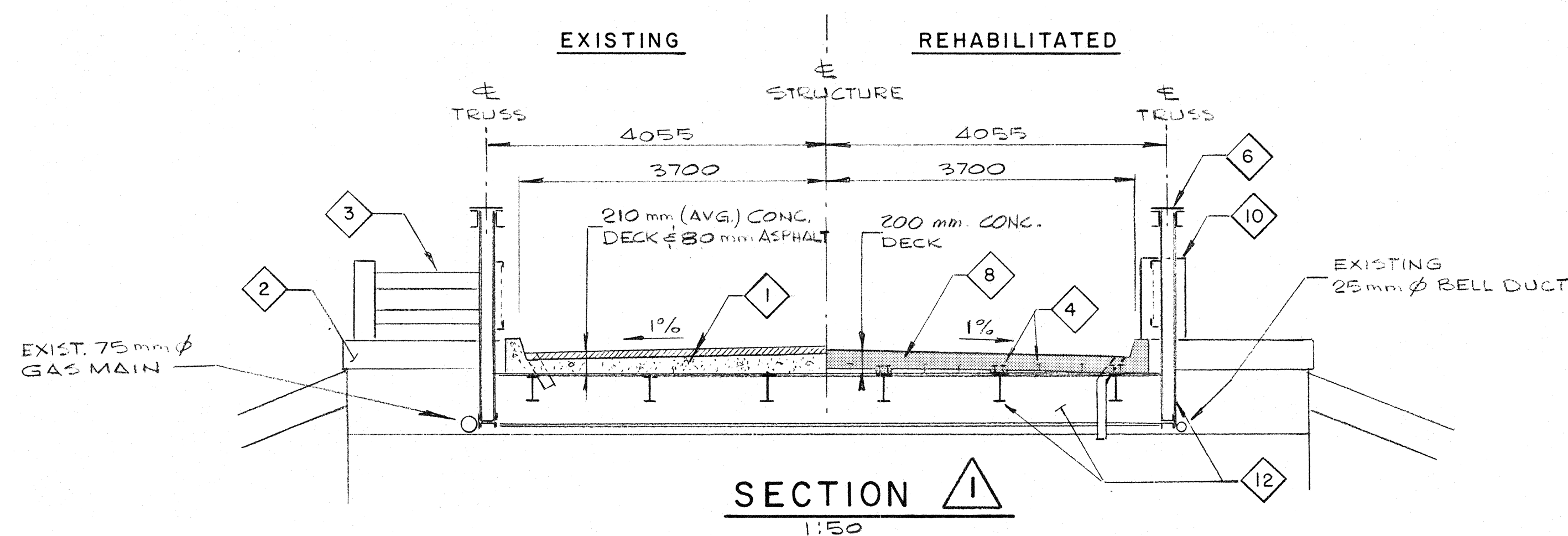
McCORMICK RANKIN
CONSULTING ENGINEERS



PLAN
1:100



ELEVATION
1:100



SECTION 1
1:50

GENERAL NOTES

- CLASS OF CONCRETE - 30 MPa.
- REINFORCING STEEL SHALL BE CLASS 400. BARS MARKED WITH SUFFIX 'C' DENOTE EPOXY COATED BARS.
- STRUCTURAL STEEL TO BE IN ACCORDANCE WITH CSA CAN3-C40.21-M81 GRADE 300W.
- CLEAR COVER TO REINFORCING STEEL
DECK TOP 55±5
DECK BOTTOM 55±5
REMAINDER 70±20
- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS OF THE EXISTING STRUCTURE AND REPORT ANY DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK.
- COUNTY ROAD 32 WILL BE CLOSED FOR REPLACEMENT OF THE DECK SLAB AND INSTALLATION OF NEW EXPANSION JOINTS. THE REMAINDER OF THE WORK WILL BE STAGED TO MAINTAIN ONE LANE OF TRAFFIC CONTROLLED BY TEMPORARY TRAFFIC SIGNALS.
- SIGNAGE REQUIRED FOR THE COMPLETE CLOSURE STAGE ONLY WILL BE SUPPLIED AND MAINTAINED BY THE COUNTY OF WELLINGTON.
- THE STRUCTURE HAS BEEN STRUCTURALLY EVALUATED IN ACCORDANCE WITH OHBDC, 1983, SECTION 14. UPON REPAIRS IN ACCORDANCE WITH THIS CONTRACT THE STRUCTURE WILL NOT REQUIRE POSTING.
- EXISTING UTILITIES TO BE MAINTAINED AND PROTECTED DURING ALL PHASES OF THE WORK.

WORK DESCRIPTION

- REMOVE EXISTING CONCRETE DECK AND ASPHALT. REMOVE ASPHALT AT APPROACHES.
- REMOVE TOPS OF BALLAST WALLS.
- REMOVE EXISTING CONCRETE RAILS AND POSTS.
- MODIFY EXISTING STRINGERS AND FLOORBEAMS BY WELDING SHEAR STUDS TO TOP FLANGES.
- REPLACE DETERIORATED/BROKEN BOTTOM CHORD MEMBER IN EAST TRUSS.
- ADD NEW COVER PLATES TO TOP CHORDS IN CENTRE TWO BAYS OF TRUSSES.
- INSTALL BRACING AT TRUSS DIAGONAL (2 IN EACH TRUSS).
- CONSTRUCT NEW REINFORCED CONCRETE DECK SLAB WITH DECK DRAINS.
- INSTALL NEW EXPANSION JOINTS.
- CONSTRUCT NEW REINFORCED CONCRETE END POSTS.
- REPLACE DAMAGED HANDRAIL SECTION.
- ABRASIVE BLAST CLEAN AND COAT ALL STRUCTURAL STEEL.
- PLACE ROCK PROTECTION AT SOUTH ABUTMENT.
- REPAVE APPROACHES.
- MODIFY EXISTING STEEL BEAM GUIDERAIL AT NW, SW AND SE APPROACHES AND ATTACH TO NEW END POSTS. INSTALL NEW STEEL BEAM GUIDERAIL AT NE APPROACH.
- RECONSTRUCT TOP OF BALLAST WALLS.

QUANTITIES FOR LUMP SUM TENDER ITEMS

CONCRETE IN BALLAST WALLS AND END POSTS	4 m ³
CONCRETE IN DECK	55 m ³
COATING SYSTEM EPOXY/VINYL (SYSTEM 3)	880 m ²

LIST OF DRAWINGS

- GENERAL ARRANGEMENT
- CONSTRUCTION STAGING
- CONCRETE DETAILS
- STRUCTURAL STEEL DETAILS I
- STRUCTURAL STEEL DETAILS II
- EXPANSION JOINTS
- TRAFFIC SIGNALS - TEMPORARY
- EXISTING STRUCTURE DRAWING



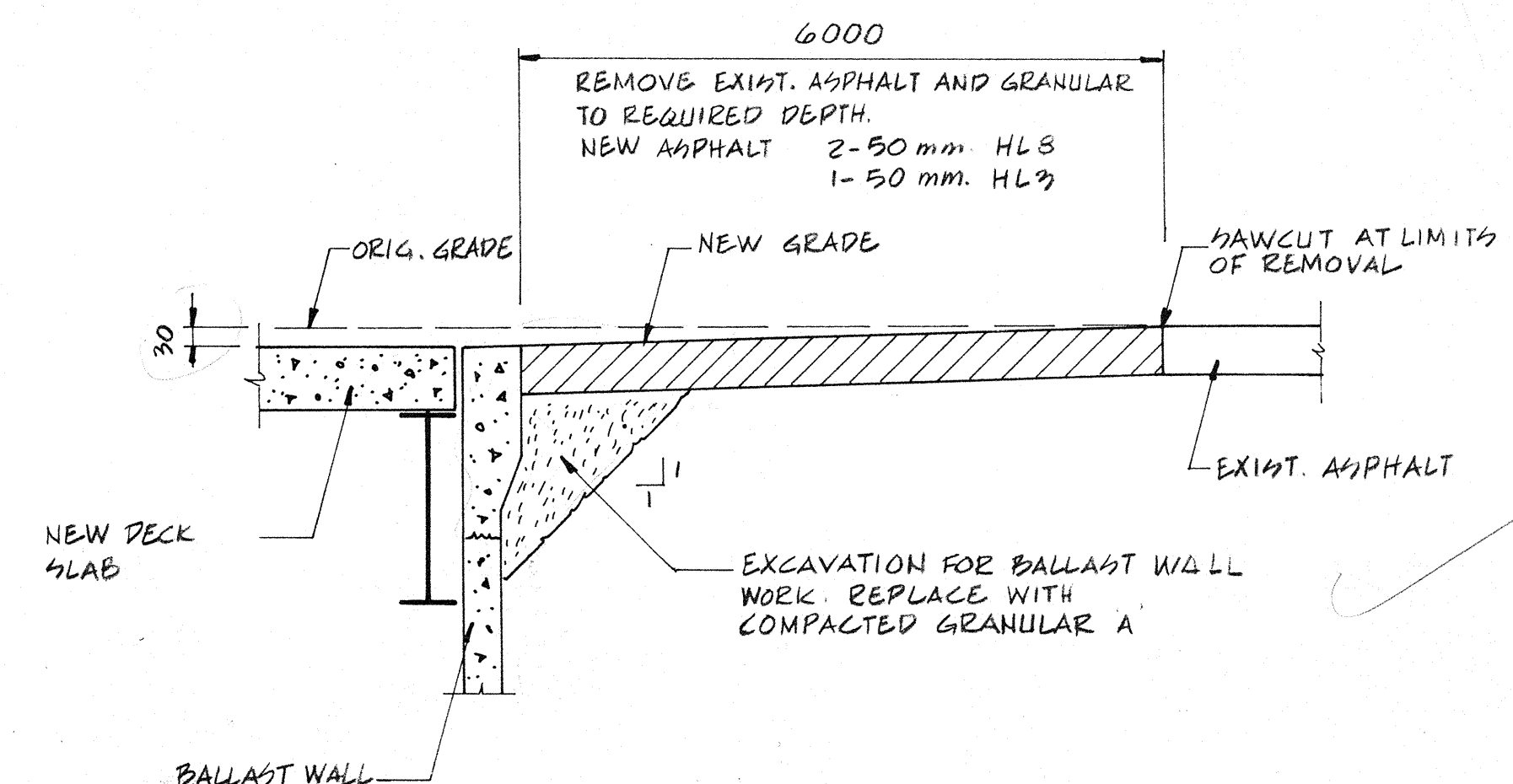
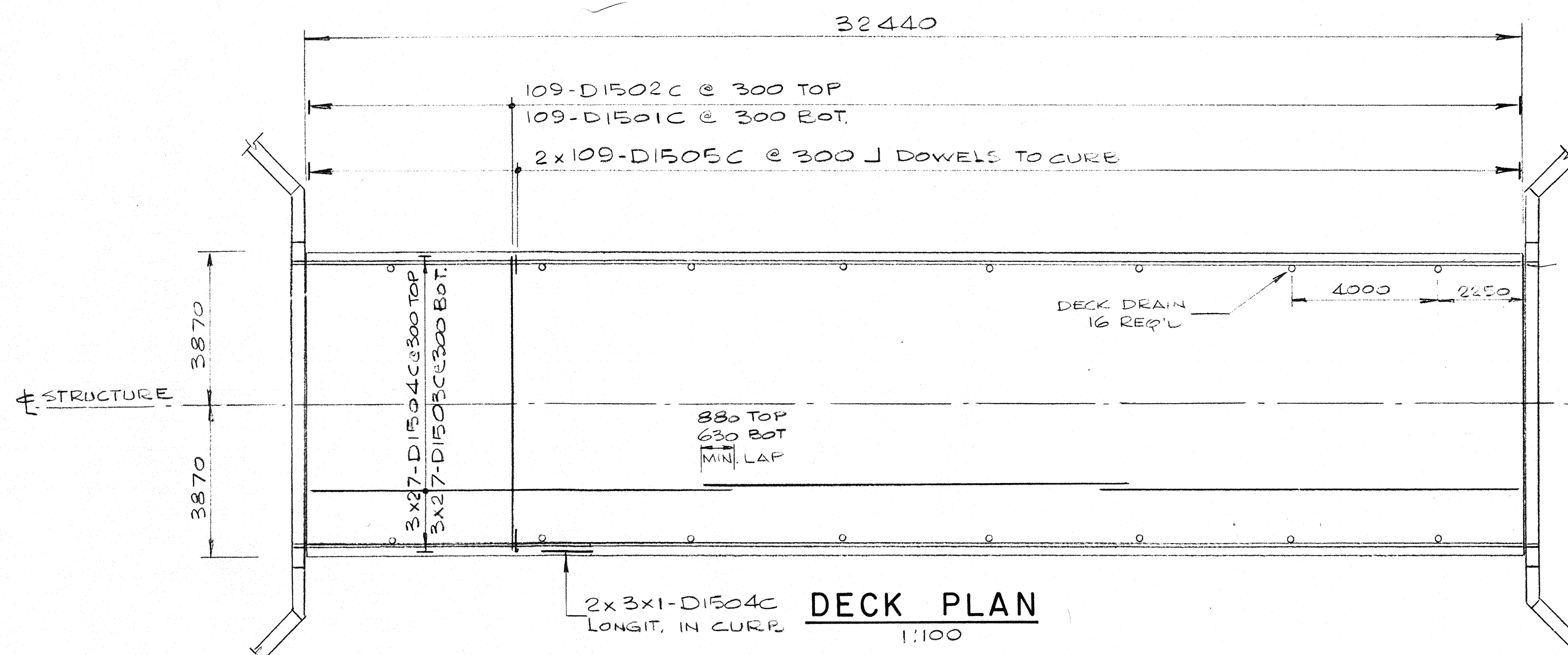
MCCORMICK RANKIN
CONSULTING ENGINEERS

SCALE AS SHOWN
DATE JAN. 17, 1992
DWG. W.C.D.
CHK. R.S.S.

GUELPH SUBURBAN ROADS COMMISSION
COUNTY OF WELLINGTON
REPAIRS TO STRUCTURE N° 32085
BLATCHFORD BRIDGE
ON COUNTY ROAD 32 OVER SPEED RIVER
GENERAL ARRANGEMENT

92-60
CONTRACT NO.
DRAWING NO.
2451-1

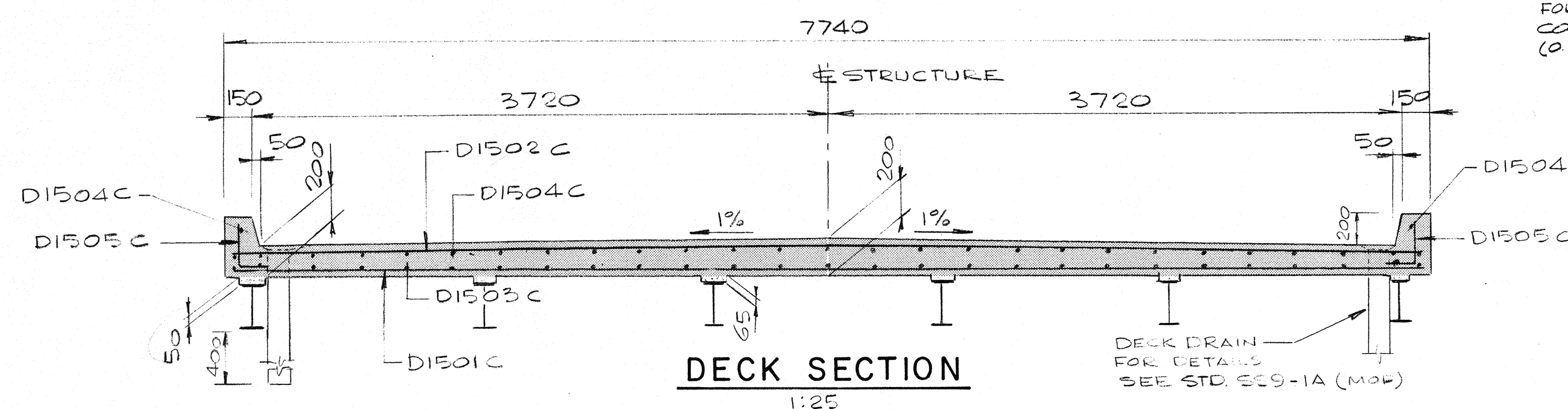
92-60
CONTRACT NO.
DRAWING NO.
2451-2



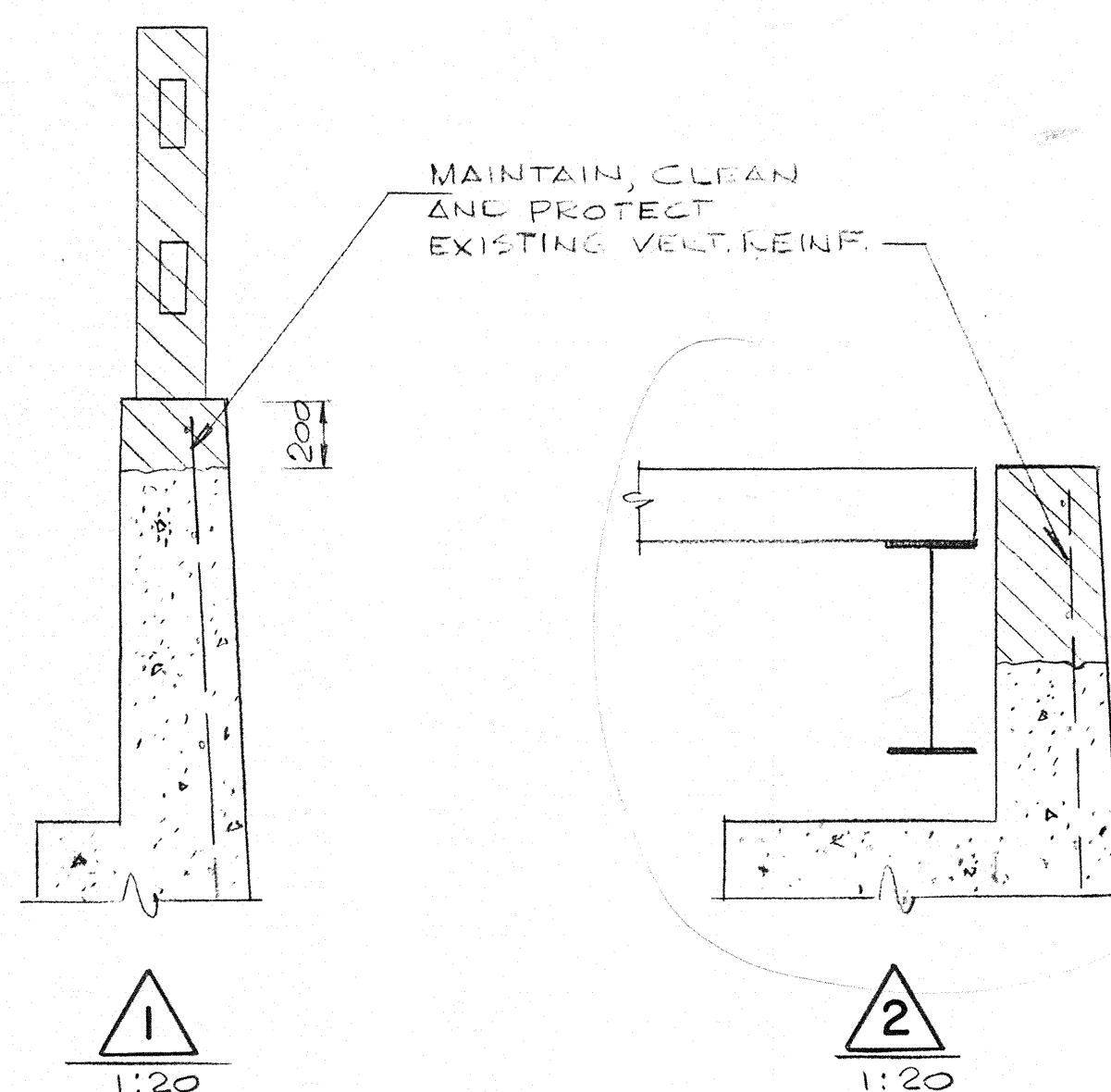
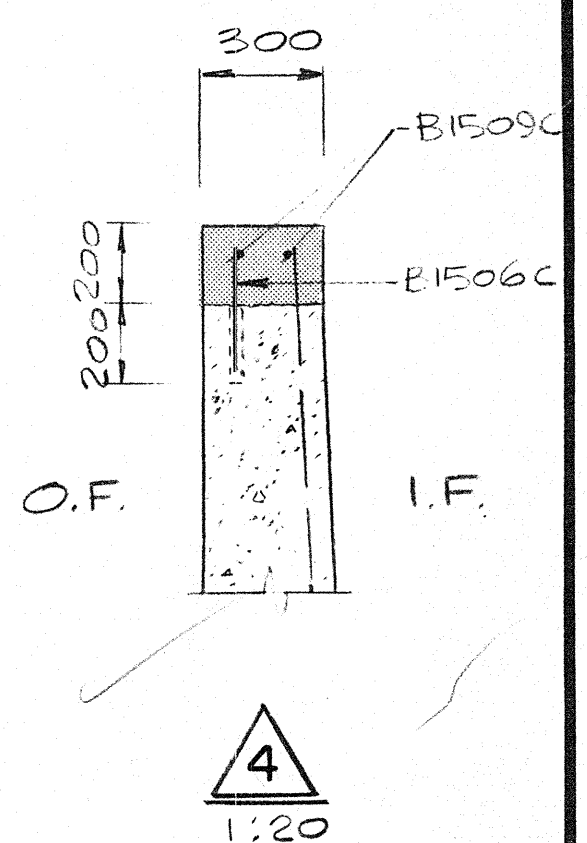
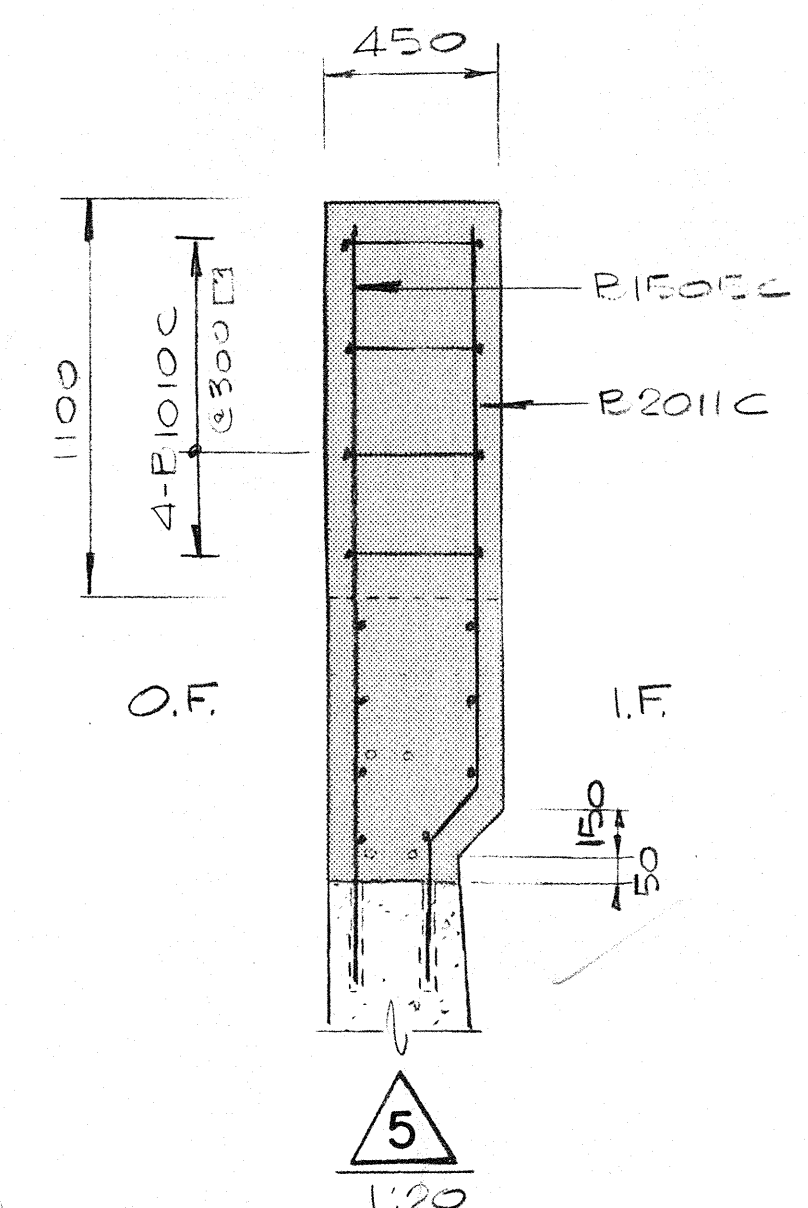
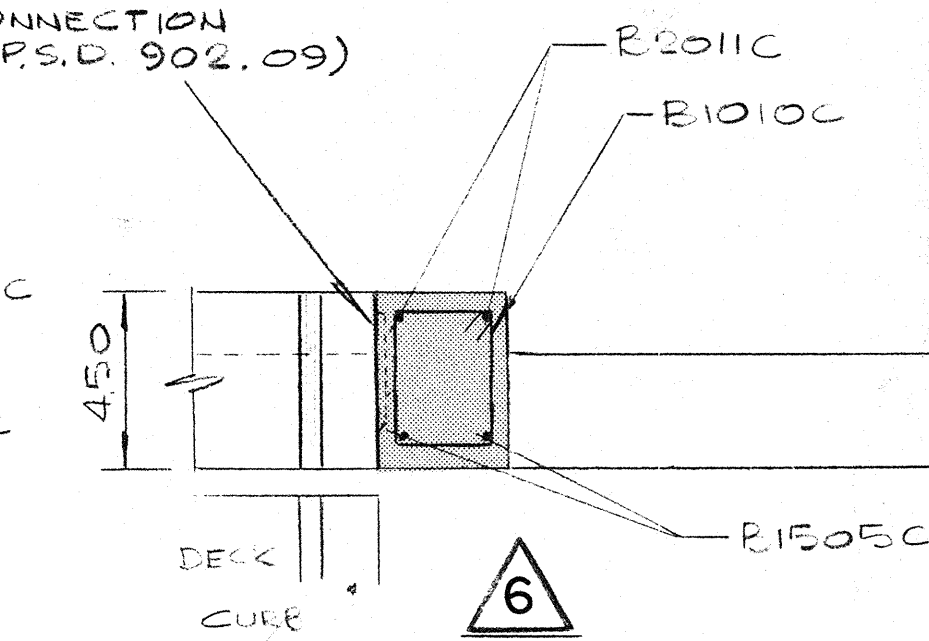
PAVING DETAIL

NOTES:

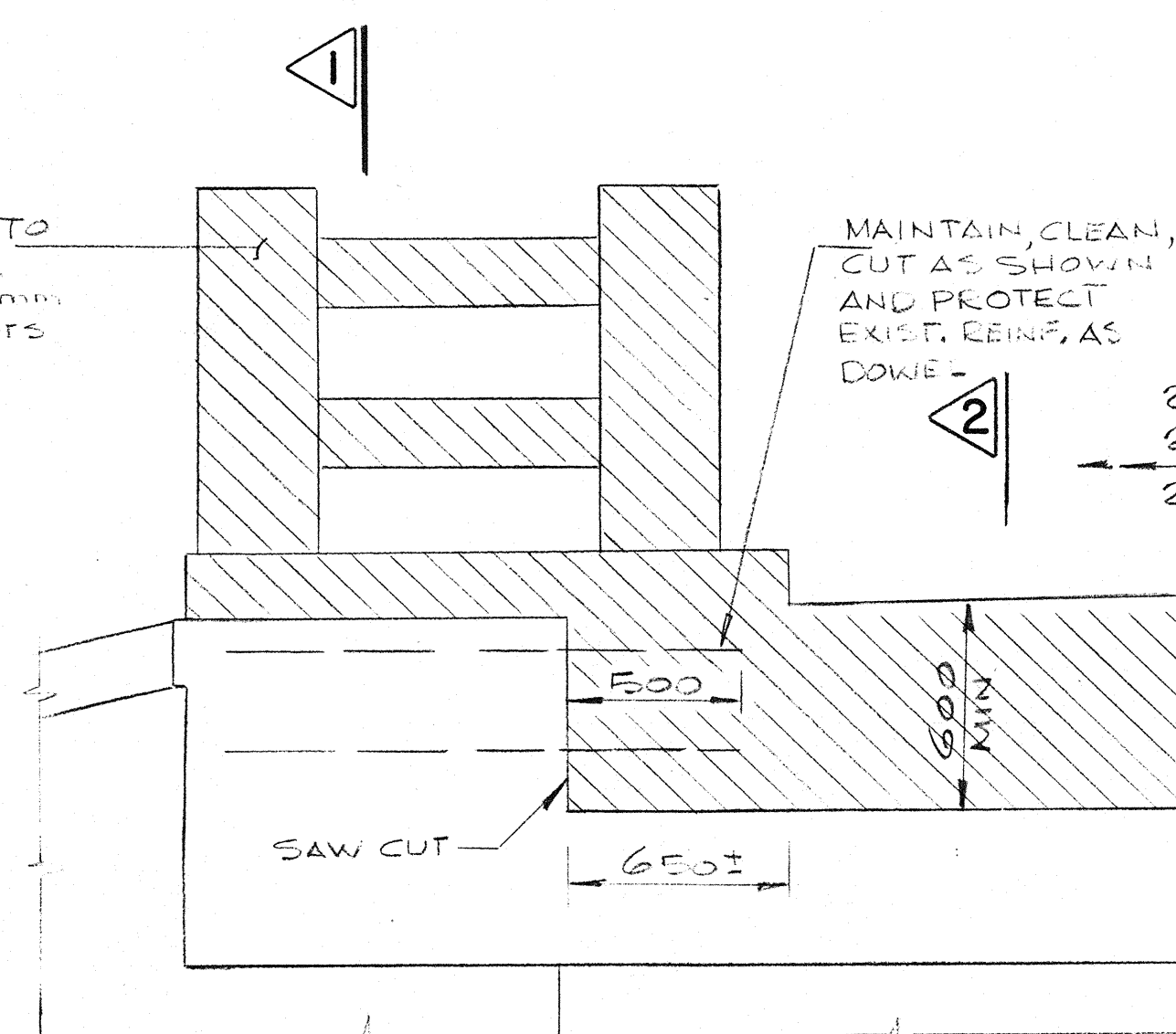
1. GROUT SHALL BE HILTI H.I.T. SYSTEM OR APPROVED EQUAL. HOLE DIAMETERS SHALL BE AS SPECIFIED BY THE MANUFACTURER AND APPROVED BY THE ENGINEER.
2. REFER TO SPECIFICATIONS FOR PREPARATION OF EXISTING SURFACES PRIOR TO PLACING NEW CONCRETE.



EMBEDDED ANCHOR PLATE FOR STEEL BEAM GUIDERAIL CONNECTION (O.P.S.D. 902.09)

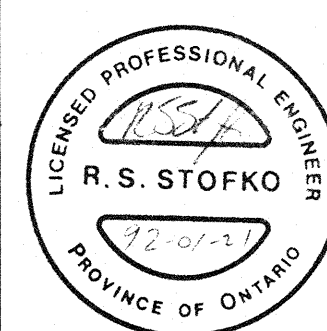
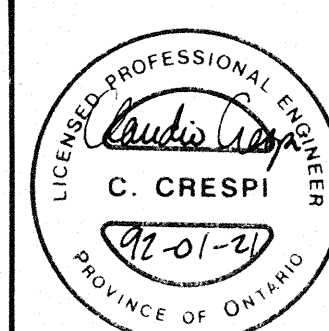
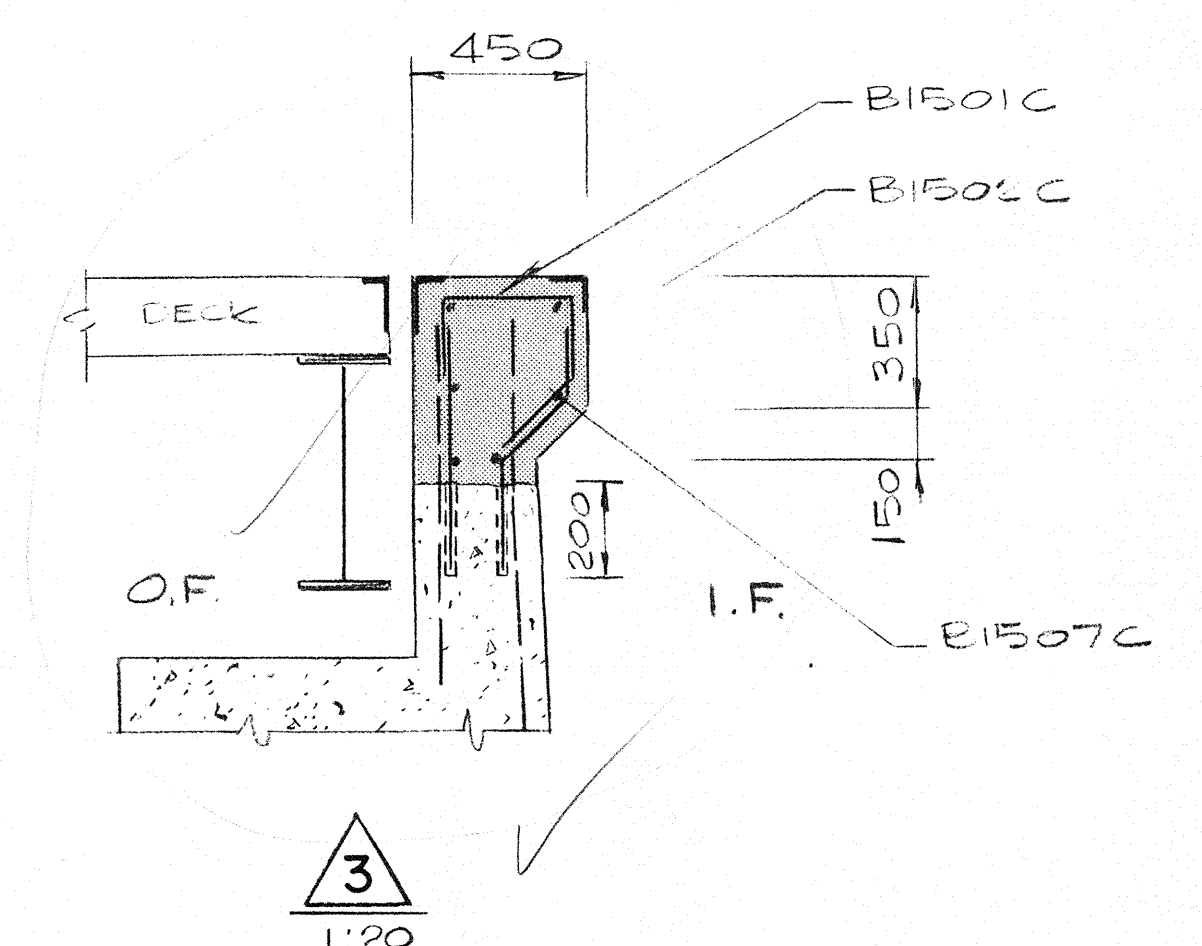
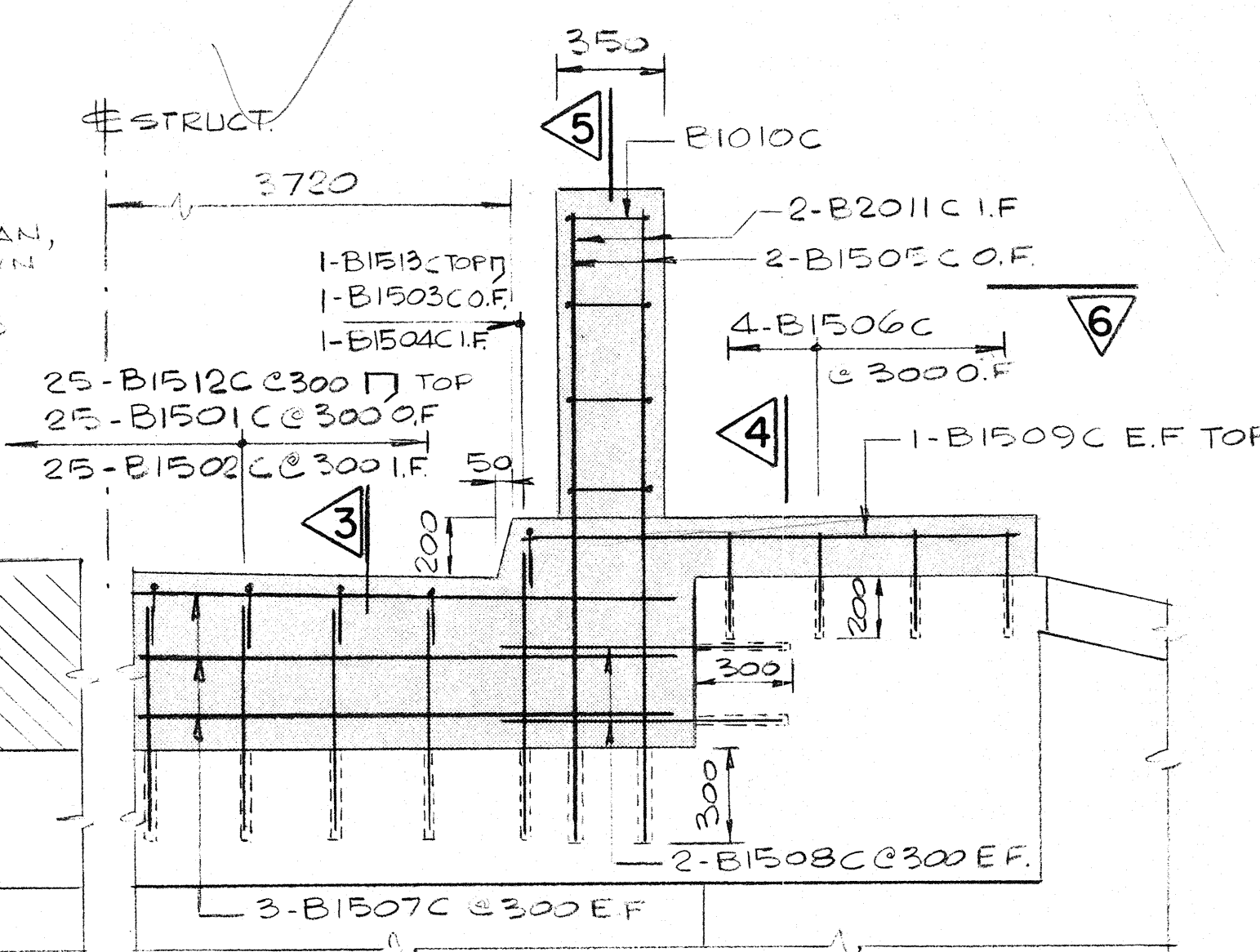


EXIST. CONC. TO BE REMOVED. SAW-CUT IS MIN. DEEP AT LIMITS OF REMOVAL



EXISTING

ELEVATION BALLAST WALL



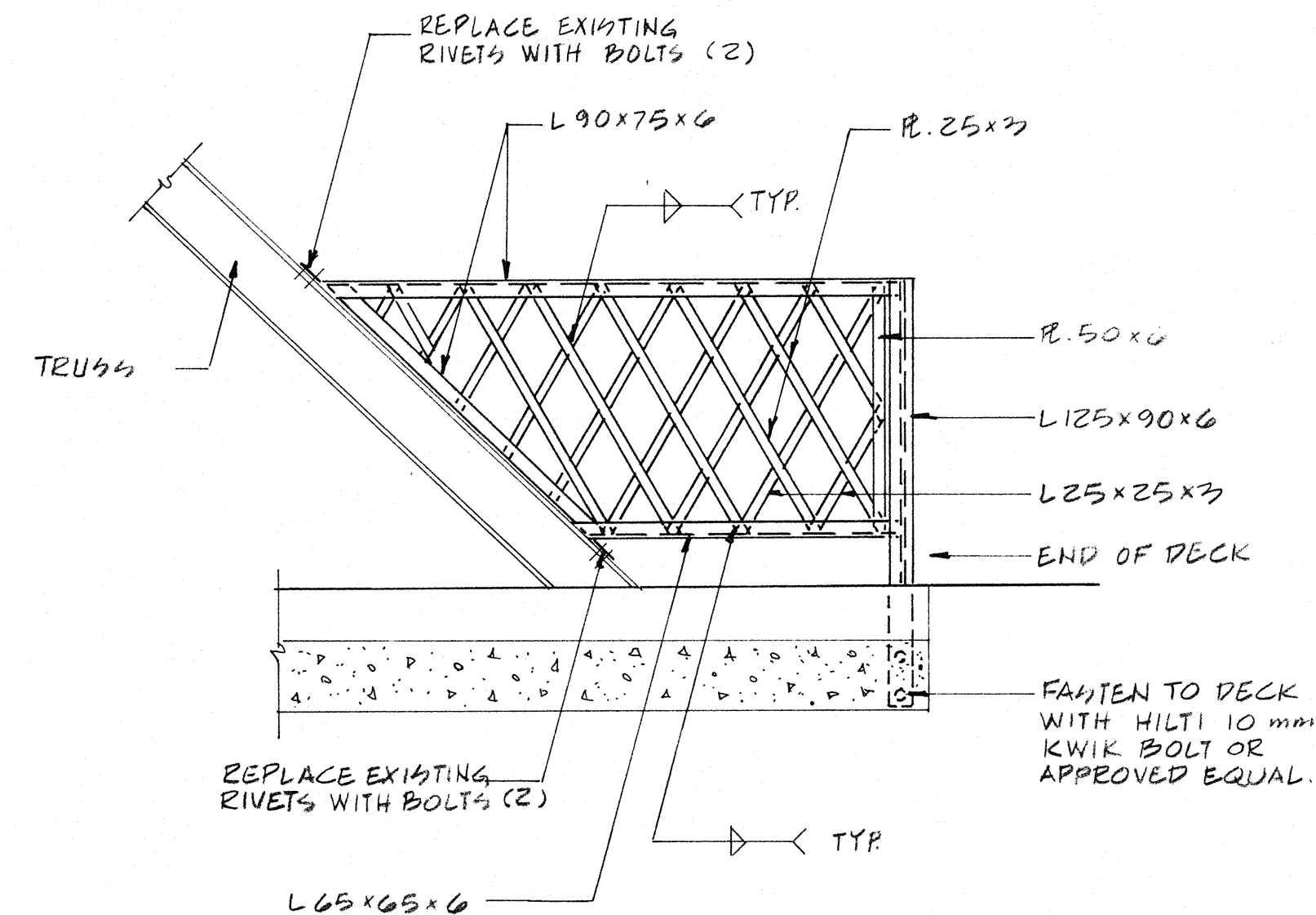
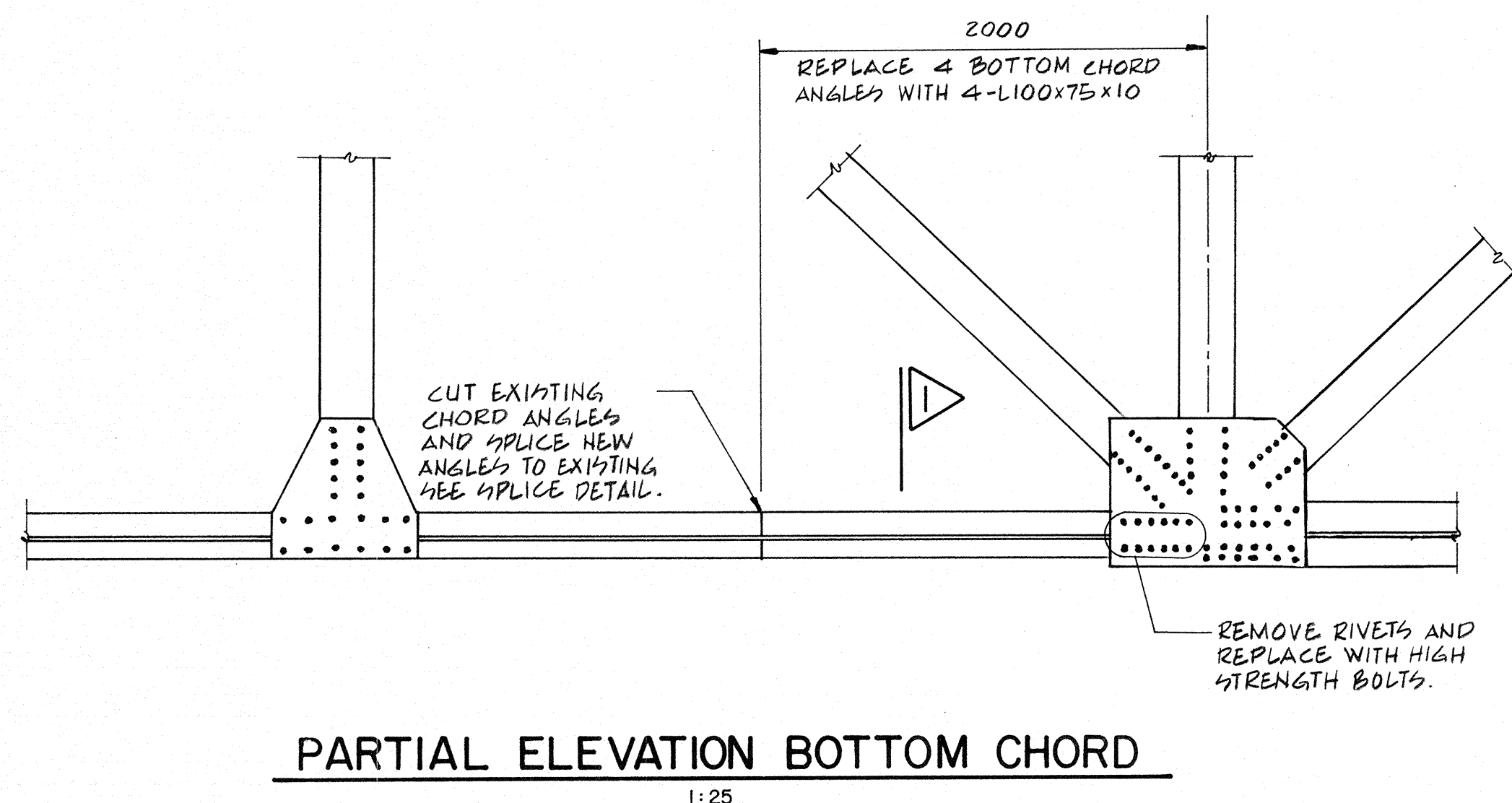
McCORMICK RANKIN
CONSULTING ENGINEERS

SCALE	AS SHOWN
DATE	JAN. 17, 1991
DWG.	W.C.D.
CHK.	
FLD. BK.	PAGE
BENCH	

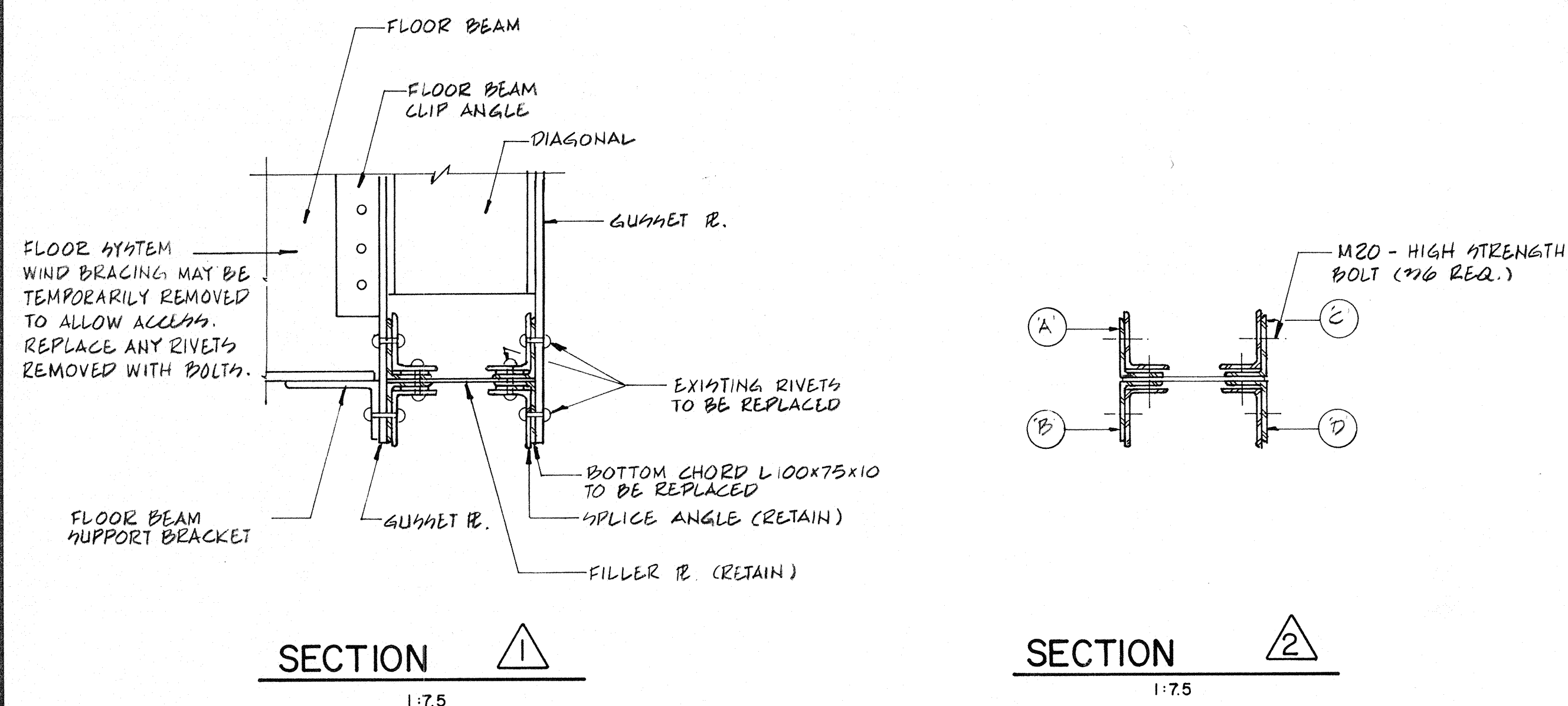
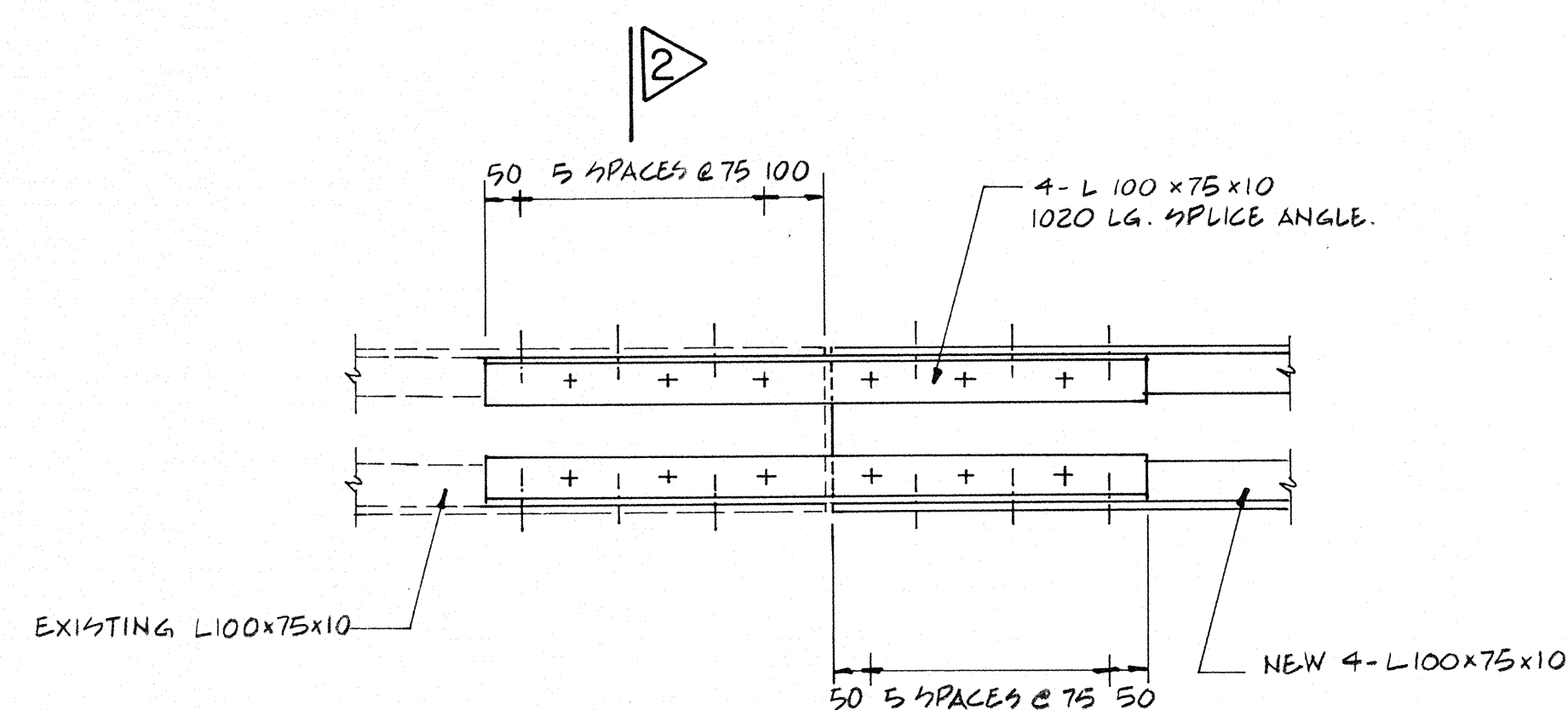
GUELPH SUBURBAN ROADS COMMISSION
COUNTY OF WELLINGTON
REPAIRS TO STRUCTURE N° 32085
BLATCHFORD BRIDGE
ON COUNTY ROAD 32 OVER SPEED RIVER
CONCRETE DETAILS

92-60
CONTRACT NO.
DRAWING NO.
2451-3

92-60
CONTRACT NO.
DRAWING NO.
2451-4



- SEQUENCE OF CONSTRUCTION FOR BOTTOM CHORD REPAIR**
1. REFER TO DWG. 4 FOR NOTES.
 2. CUT ANGLE 'A' AS SHOWN.
 3. REMOVE RIVETS ON HORIZONTAL AND VERTICAL LEGS OF ANGLE 'A' AT CONNECTION AND REMOVE ANGLE.
 4. INSTALL NEW ANGLE 'A'. INSTALL BOLTS ON VERTICAL LEG AT BOTH ENDS OF NEW MEMBER AND BOTH SIDES OF SPLICE.
 5. CUT ANGLE 'B' AS SHOWN.
 6. REMOVE RIVETS ON VERTICAL LEGS OF ANGLE 'B' AT CONNECTION AND REMOVE ANGLE.
 7. INSTALL NEW ANGLE 'B'. INSTALL BOLTS ON VERTICAL AND HORIZONTAL LEGS AT BOTH ENDS OF NEW MEMBER AND BOTH SIDES OF SPLICE.
 8. REPEAT STEPS 2-7 INCLUSIVE FOR ANGLES 'C' AND 'D'.



REINFORCING STEEL SCHEDULE																	
MARK	NO. BARS	SIZE	LENGTH	TYPE	A	B	C	D	E	F	G	H	J	K	L	M	O R
BALLAST WALLS & POSTS																	
B1501C	50	15	700	STR													
B1502C	50	15	690	6	-	250	240	200			-						
B1503C	4	15	900	STR													
B1504C	4	15	890	6	-	250	240	400			-						
B1505C	8	15	2130	STR													
B1506C	16	15	330	STR													
B1507C	12	15	7600	STR													
B1508C	16	15	1000	STR													
B1509C	8	15	1600	STR													
B1010C	16	10	1300	TI	130	310	210	310	210		130						
B2011C	8	20	2150	6	-	1600	200	350			-	140					
B1512C	50	15	1230	16	400	310	240	280									
B1513C	4	15	1630	16	600	310	440	280									
DECK & CURBS																	
D1501C	109	15	7600	STR													
D1502C	109	15	7600	STR													
D1503C	81	15	11200	STR													
D1504C	87	15	11400	STR													
D1505C	218	15	535	17		275	260	-									

NOTES:-

BENDING DETAILS AND NOTES ARE AS OUTLINED IN THE "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCING CONCRETE STRUCTURES" (A.C.I. 315-65) AS ISSUED BY THE AMERICAN CONCRETE INSTITUTE WITH THE FOLLOWING EXCEPTIONS AND ADDITIONS:-

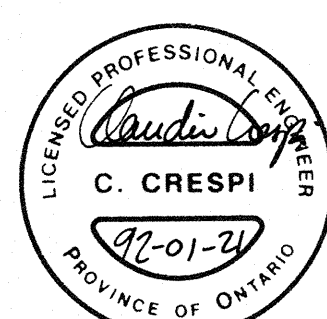
7. (REVISED AS FOLLOWS)

NO ALLOWANCE FOR BEND CURVATURE HAS BEEN MADE EXCEPT FOR STANDARD HOOK AND RADII IN EXCESS OF SAME. ALLOWANCE FOR BAR EXTENSION DUE TO BENDING (CREEP) SHALL BE MADE BY THE FABRICATOR.

8. SPACERS TO BE PROVIDED WITH ALL SPIRALS AS SPECIFIED IN A.C.I. 315-65

9. WEIGHT OF SPIRALS AND SPACERS NOT INCLUDED IN THE "WEIGHT OF STEEL"

10. ALL REINFORCING SHALL CONFORM TO C.S.A. G-30-12M GRADE 400MPa.



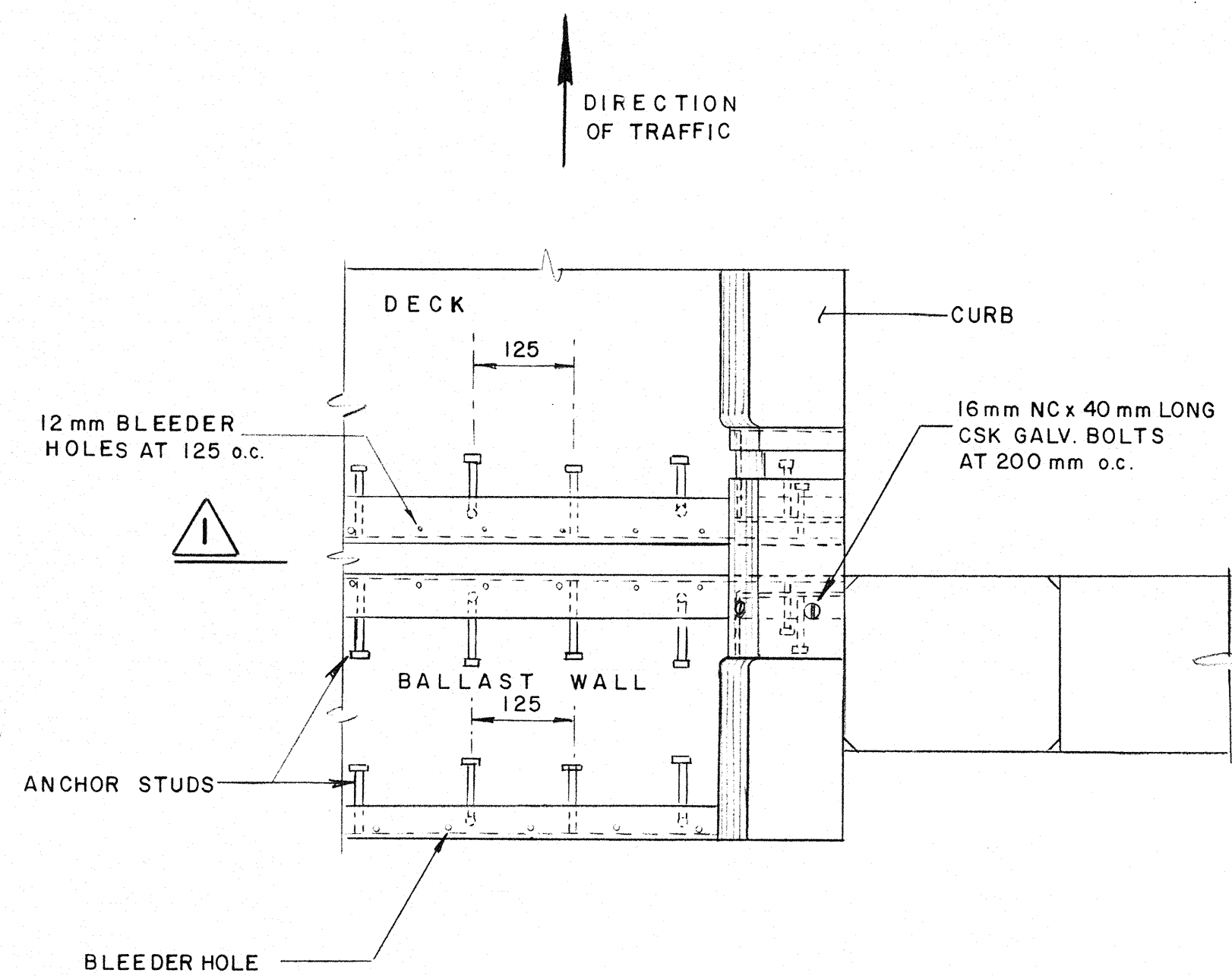
McCORMICK RANKIN
CONSULTING ENGINEERS

SCALE AS SHOWN
DATE JAN 17, 1992
DWG. K.V.
CKD.
FLD. BK.
BENCH M

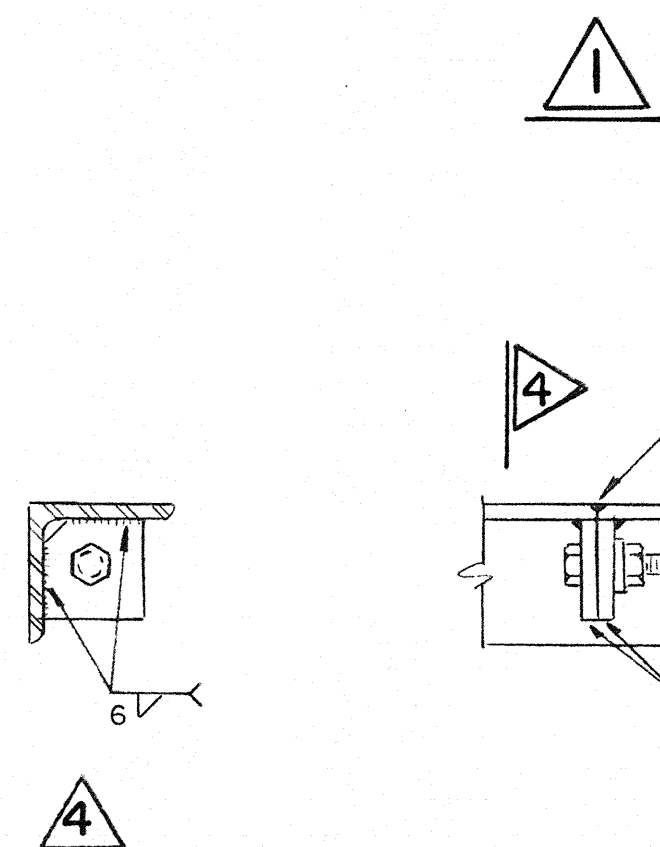
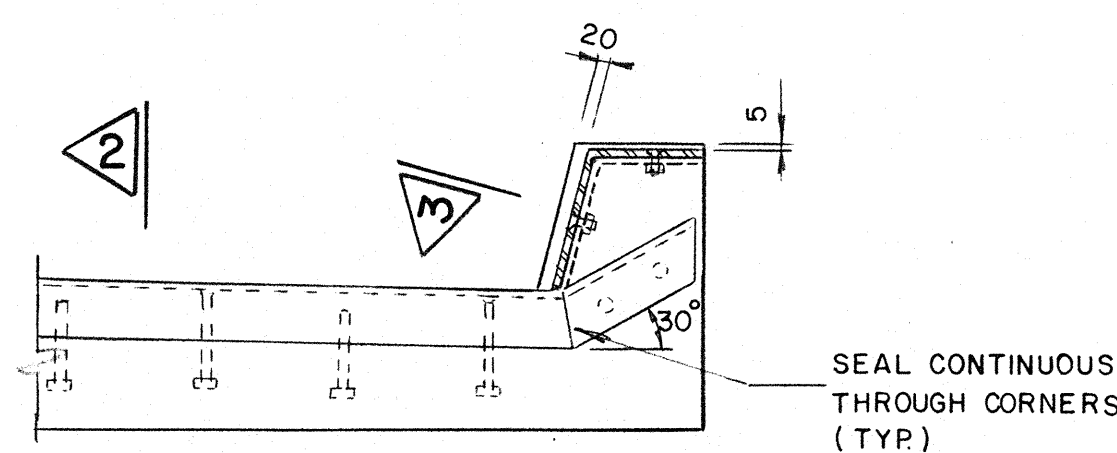
PROJECT

GUELPH SUBURBAN ROADS COMMISSION
COUNTY OF WELLINGTON
REPAIRS TO STRUCTURE N° 32085
BLATCHFORD BRIDGE
ON COUNTY ROAD 32 OVER SPEED RIVER
STRUCTURAL STEEL DETAILS II

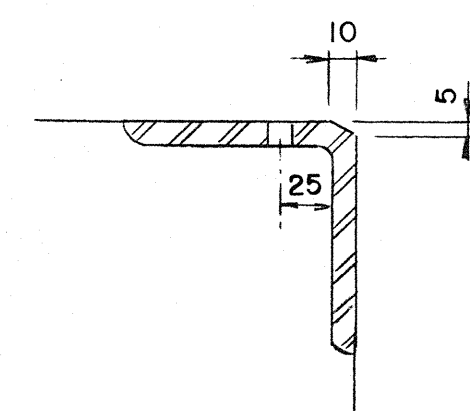
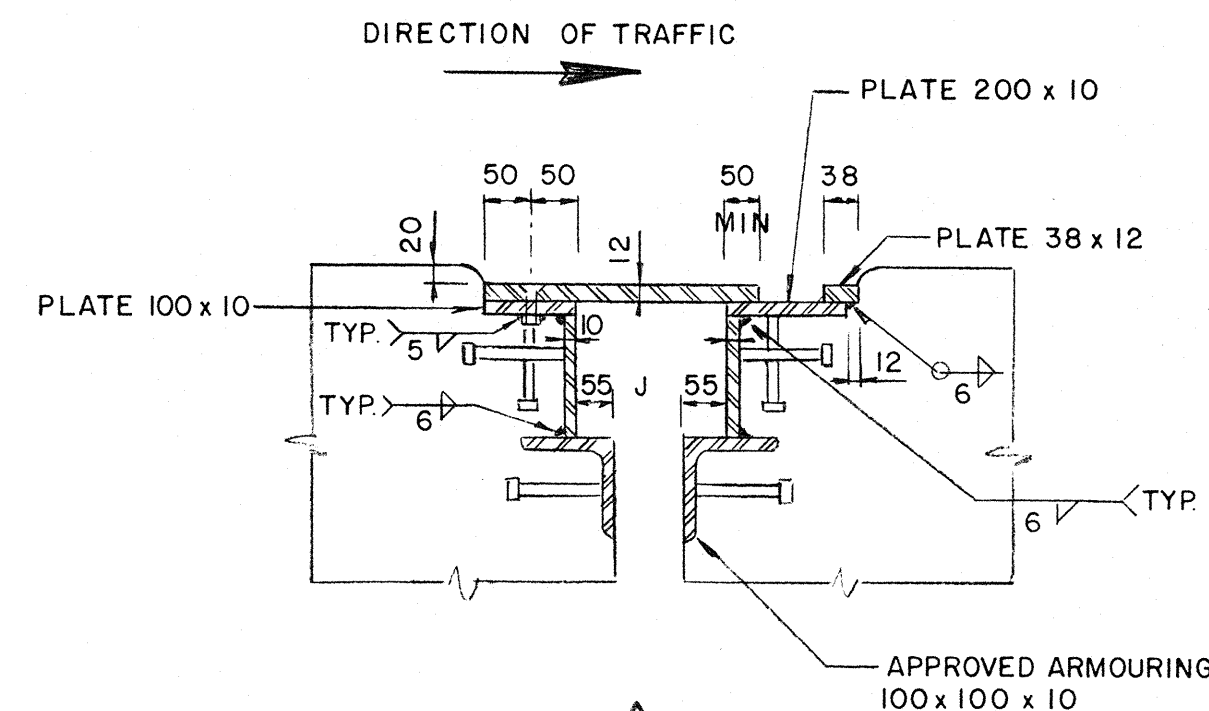
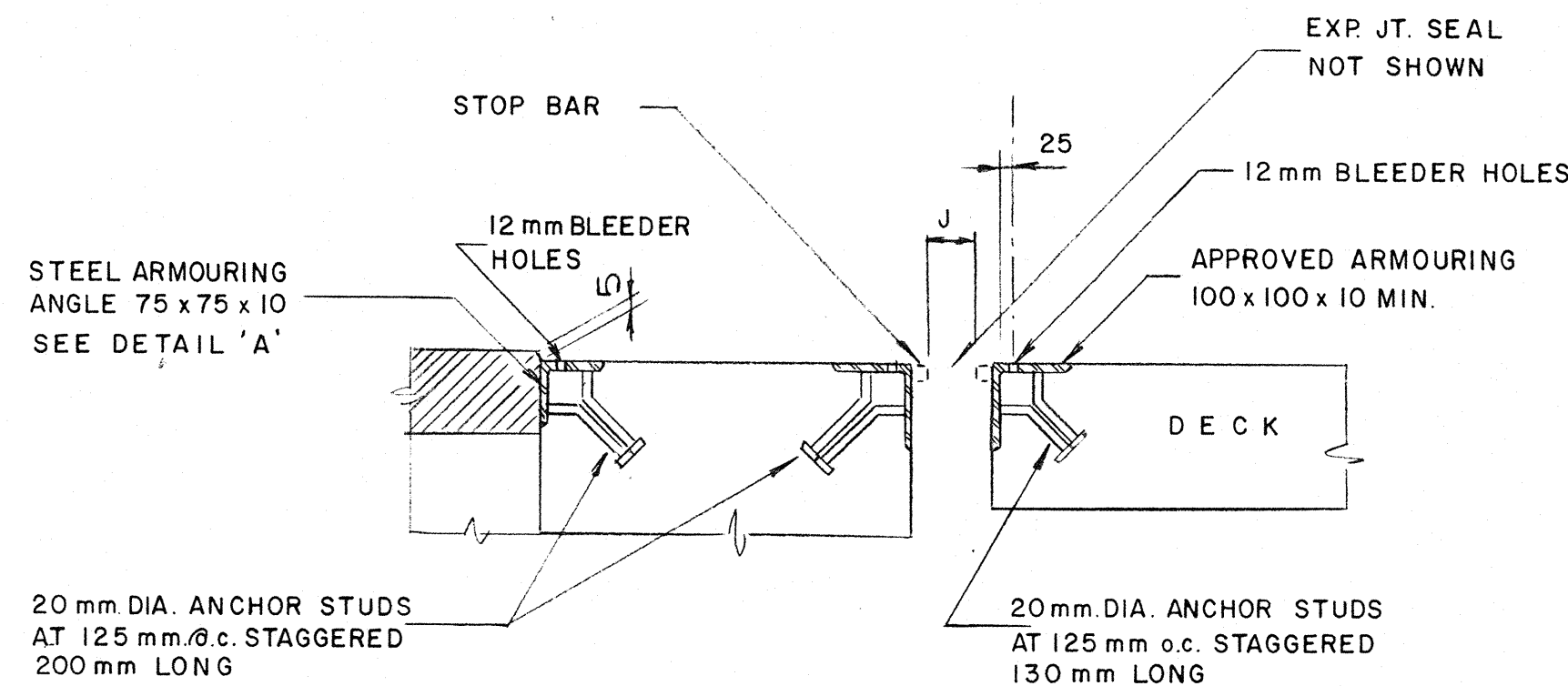
92-60
CONTRACT NO.
DRAWING NO.
2451-5



PLAN OF JOINT AT CURB



SPLICE DETAIL



DETAIL 'A'

NOTES:

- EXPANSION JOINT SHALL BE IN ACCORDANCE WITH THE DESIGNATED SOURCE FOR MATERIALS LIST DSM 9.40.27 TYPE C.
- STEEL SHALL BE IN ACCORDANCE WITH CSA STANDARD CAN3-G40.21-M87 GRADE 300 W.
- STEEL COVER PLATES SHALL BE HOT DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH CSA STANDARD G164-M. ALL OTHER STEEL SURFACES OF JOINT ASSEMBLY SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH CSA STANDARD G164-M OR ZINC METALLIZED AFTER FABRICATION IN ACCORDANCE WITH CSA STANDARD G189.
- REINFORCING STEEL SHALL BE IN ACCORDANCE WITH CSA STANDARD G30.16-M GRADE 400.
- STUDS SHALL BE IN ACCORDANCE WITH DSM 9.10.75 USING FUSION WELD PROCESS.
- WELDING SHALL BE OF A LOW HYDROGEN CLASSIFICATION AND IN ACCORDANCE WITH CSA STANDARD W59-M1989 (E480XX ELECTRODES).
- JOINT ASSEMBLIES SHALL BE COMPLETELY SHOP ASSEMBLED (EXCEPT FOR SEALS) AND PRESET TO DIMENSION 'J' FOR 15°C AND ADJUSTED IN THE FIELD TO SUIT INSTALLATION TEMPERATURE.
- SEALS SHALL BE PREFORMED NEOPRENE SEALS IN ACCORDANCE WITH OPSS-1210 AND SHALL EACH BE INSTALLED IN ONE CONTINUOUS PIECE.
- SEALS SHALL BE INSTALLED AFTER JOINT ASSEMBLY HAS BEEN CAST IN PLACE AND STYROFOAM OR FILLER BETWEEN BRIDGE AND BALLAST WALL REMOVED AND EXPANSION GAP PROPERLY CLEARED.
- THE 'J' DIMENSIONS SHOWN ON SHOP DRAWINGS ARE TO BE USED FOR CONSTRUCTION.
- JOINT ASSEMBLY SHALL BE INSTALLED TO MATCH ELEVATION AND GRADE OF CONCRETE END DAMS.
- FINAL WIDTH ADJUSTMENT (DIM. 'J') SHALL BE MADE AND SETTING DEVICES TIGHTENED, JUST PRIOR TO PLACING 30 MPa CONCRETE.
- INSTALLATION TEMPERATURE SHALL BE TAKEN AS MEAN SHADE AIR TEMPERATURE AT STRUCTURE PRIOR TO JOINT INSTALLATION AS FOLLOWS:
FOR CONCRETE STRUCTURES - 48 HOURS
FOR STEEL STRUCTURES - 24 HOURS
- ALL CONSTRUCTION JOINT SURFACES SHALL BE ABRASIVE BLAST CLEANED AND COATED WITH CEMENT MORTAR IMMEDIATELY BEFORE PLACING CONCRETE.
- ALL STEEL SURFACES IN CONTACT WITH NEOPRENE SEAL SHALL BE CLEANED PRIOR TO INSTALLATION OF THE SEAL AND PROTECTED DURING PLACING OF CONCRETE.
- FOR SKEWED STRUCTURE, DETAILS SHALL BE ADJUSTED TO SUIT GEOMETRY OF STRUCTURE.
- BOLT THREADS AND UNDERSIDE OF HEADS SHALL BE LIBERALLY COATED WITH ANTISEIZE COMPOUND MEETING U.S. MILITARY SPECIFICATION MIL-A-970D JUST PRIOR TO SEAL INSTALLATION.
- SPICES IN ARMOURING SHALL BE WELDED BEFORE PLACING OF CONCRETE IN BLOCKOUTS. FOR LOCATION OF SPICES SEE GENERAL ARRANGEMENT DRAWING.
- SETTING DEVICES SHALL BE RELEASED NOT LATER THAN 4 HOURS AFTER PLACING CONCRETE IN BLOCKOUTS.
- AFTER REMOVAL OF SETTING DEVICES AND SPACER WASHERS, BOLT HOLES AND BLEEDER HOLES SHALL BE DRILLED OUT TO A DEPTH OF 20 mm AND THEN CLEANED OUT USING OIL-FREE COMPRESSED AIR. VOIDS SHALL BE FILLED IN WITH SIKADUR 35 HIMOD LV EPOXY, SUPPLIED BY SIKA CANADA INC., 2395 DREW ROAD, UNIT 6, MISSISSAUGA, ONTARIO.

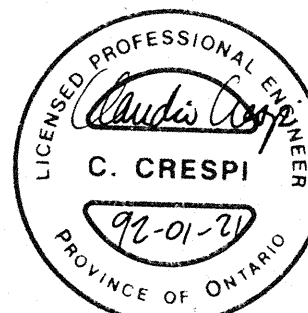
* TABLE OF 'J' DIMENSIONS (mm)

EXP. JOINT LOCATION	MTO GAP** RATING (mm)		DESIGN*** MOVEMENT	INSTALLATION TEMPERATURE (°C)						
	MIN.	MAX.		5°	10°	15°	20°	25°	30°	
NORTH	40	75	0	50	50	50	50	50	50	
SOUTH	40	75	30	59	57	55	53	51	49	

* DIMENSION 'J' MEASURED PERPENDICULAR TO CENTRELINE EXPANSION JOINT WHERE MIN. AND MAX. FOR JOINT SUPPLIED DIFFER FROM THOSE SHOWN IN TABLE, 'J' DIMENSIONS SHALL BE REVISED BY CONTRACTOR AND SHOWN ON SHOP DRAWINGS.

** MTO GAP MEASURED BETWEEN INNER FACES OF OUTER STEEL EXTRUSION IS TAKEN FROM DSM 9.40.27, TYPE C.

*** DESIGN MOVEMENT IS THE CALCULATED MOVEMENT OF THE STRUCTURE.



McCORMICK RANKIN
CONSULTING ENGINEERS

SCALE: HOR. VERT.
DATE: JAN 17, 1992
DWG. W.C.D.
CHKD. R.S.S.
FLD. BK. PAGE
BENCH M.

GUELPH SUBURBAN ROADS COMMISSION
COUNTY OF WELLINGTON
REPAIRS TO STRUCTURE N° 32085
BLATCHFORD BRIDGE
ON COUNTY ROAD 32 OVER SPEED RIVER

EXPANSION JOINTS

92-60

CONTRACT NO.

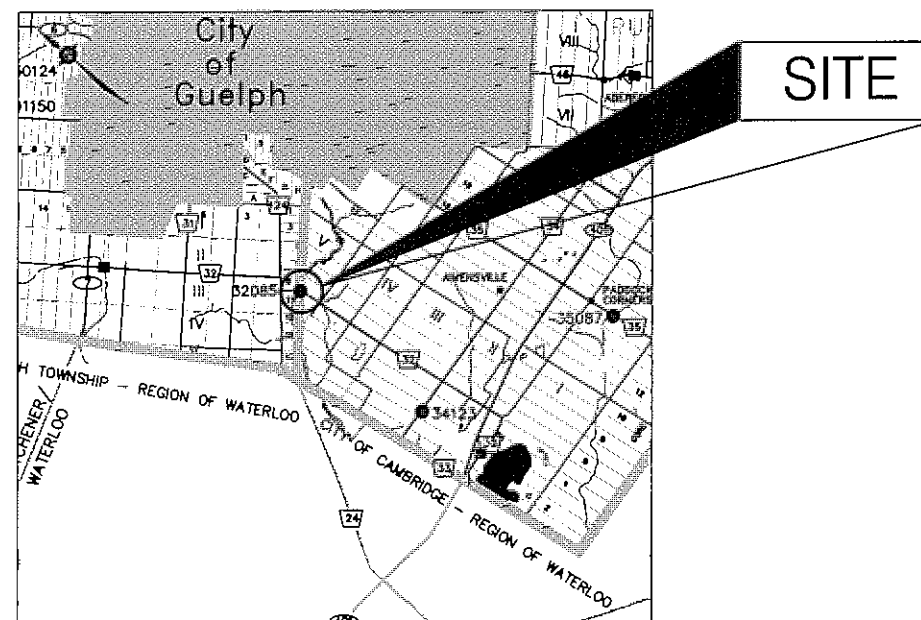
DRAWING NO.

2451-6



COUNTY OF WELLINGTON
CONTRACT FOR
REHABILITATION OF
BLATCHFORD BRIDGE

ON COUNTY ROAD 32 OVER SPEED RIVER
STRUCTURE No. B032085
WELLINGTON ROAD 32
PROJECT No. CW2010-041



KEY PLAN

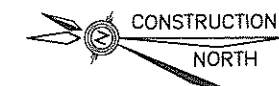
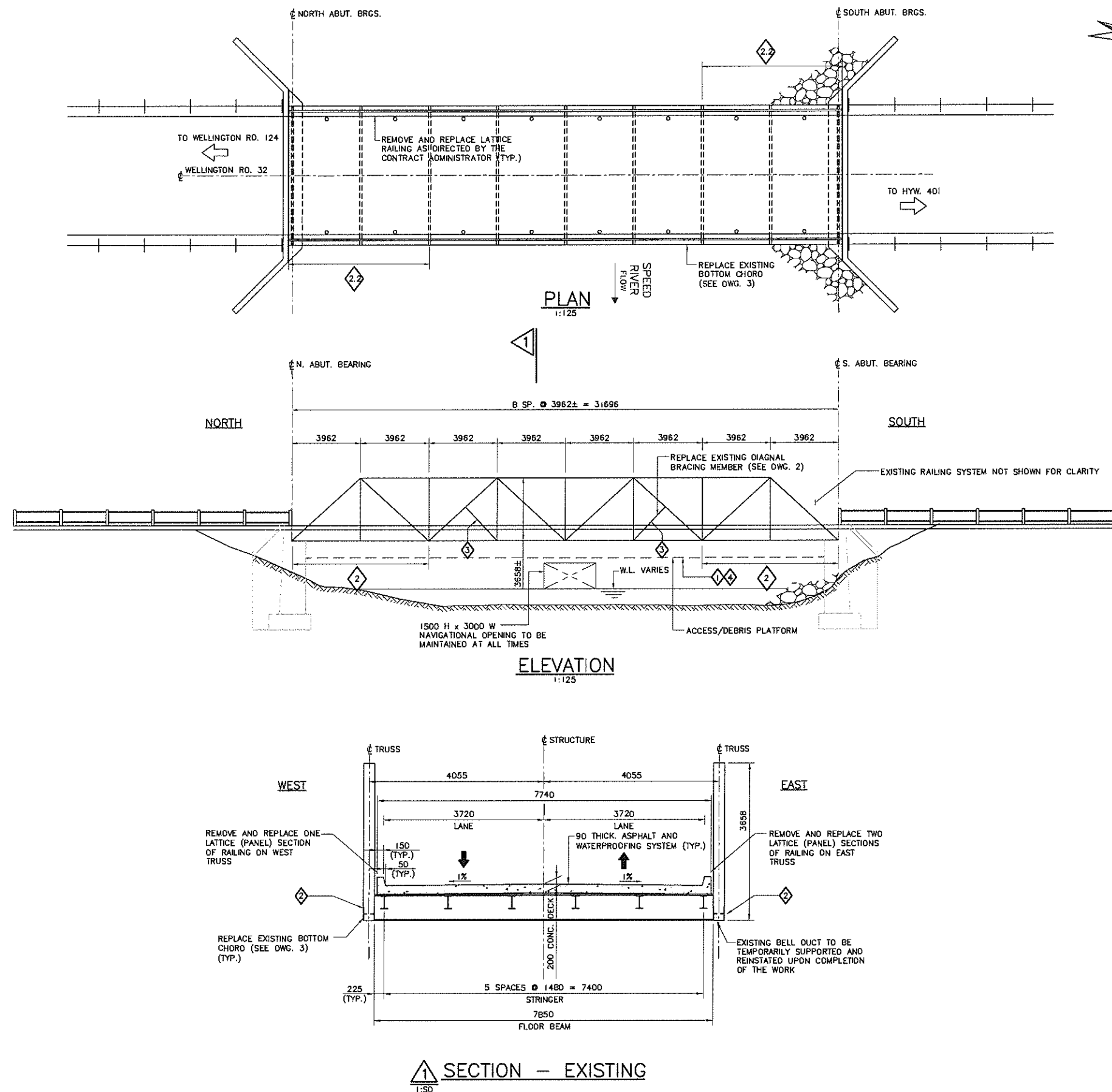
GORDON. J. OUGH, P. Eng.
WELLINGTON COUNTY ENGINEER

AUGUST 2010
DATE



MCCORMICK RANKIN
CORPORATION
A member of **MMM GROUP**

AS-BUILT DRAWINGS



GENERAL NOTES:

1. DIMENSIONS AND UNITS:
DRAWINGS ARE PREPARED USING THE METRIC SYSTEM.

ALL DIMENSIONS ARE GIVEN IN MILLIMETERS, UNLESS OTHERWISE NOTED.

DRAWINGS ARE NOT TO BE SCALED.
2. FIELD MEASUREMENT:
DETAILS AND DIMENSIONS OF EXISTING BRIDGE COMPONENTS PROVIDED HEREIN ARE EXTRACTED FROM THE PREVIOUS ORIGINAL AND REHABILITATION DRAWINGS. DEVIATIONS RESULTING FROM: SHOP DETAILING; FABRICATION ERRORS; FIELD ADJUSTMENTS; CONSTRUCTION AND ERECTION TOLERANCES, AND; ALTERATIONS MADE SINCE ORIGINAL CONSTRUCTION, ARE NOT REFLECTED.

ORIGINAL DRAWINGS ARE NOT AVAILABLE, ACCORDINGLY, THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLETING ALL FIELD MEASUREMENTS AND VERIFICATION THAT GOVERN FIT AND LOCATION OF ALL NEW WORK PRIOR TO THE PREPARATION OF SHOP AND DETAIL DRAWINGS.

FIELD MEASUREMENTS SHALL SUPERSEDE DIMENSIONS SHOWN HEREIN.
3. DAMAGE TO EXISTING COMPONENTS THAT ARE TO REMAIN IN PLACE OR ARE DESIGNATED FOR SALVAGE, SHALL BE REPAIRED OR REPLACED AT NO COST TO THE OWNER.
4. WHERE MATERIALS OR COMPONENTS ARE DISMANTLED TO PERMIT OR FACILITATE THE PERFORMANCE OF THE WORK OF THIS CONTRACT, THE REMOVAL, STORAGE AND REINSTALLATION OF THE MATERIALS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. IN THE EVENT OF THEFT, VANDALISM OR DAMAGE OF THESE MATERIALS OR COMPONENTS, THEY SHALL BE REPLACED OR REPAIRED AT NO COST TO THE OWNER. EXISTING FASTENERS SHALL NOT BE REUSED.
5. NEW BOLT HOLES, EITHER IN NEW OR EXISTING WORK, SHALL BE DRILLED OR SUB-PUNCHED, THEN REAMED. BURNING SHALL BE STRICTLY PROHIBITED.
6. FOLLOWING REMOVALS OF VARIOUS COMPONENTS DESIGNATED TO BE REMOVED, ALL ABANDONED HOLES SHALL BE REAMED AND THEN FILLED WITH A NEW BOLT OF NOMINAL SIZE 2mm LESS THAN THE NOMINAL SIZE OF THE ABANDONED HOLE. MAXIMUM LENGTH OF A NEW BOLT SHALL BE SUCH THAT THE BOLT SHANK DOES NOT PROTRUDE MORE THAN 10mm BEYOND THE NUT WHEN INSTALLED.
7. FOLLOWING REMOVAL OF EXISTING FASTENERS, ALL EXISTING HOLES SHALL BE REAMED TO REMOVE ALL RUST AND TO PROVIDE A CIRCULAR HOLE WITH UNIFORM SIDES ACROSS ALL STEEL PLIES.
8. WHERE AN EXISTING COMPONENT DESIGNATED FOR REMOVAL IS CONNECTED BY WELD(S), WELOS SHALL BE GROUND FLUSH WITH SURFACE(S) OF THE COMPONENT TO REMAIN.
9. NEW STRUCTURAL STEEL SHALL CONFORM TO CAN/CSA-G40.20/G40.21 OR ASTM A572M. STRUCTURAL STEEL SHALL BE GRADE 350W UNLESS NOTED OTHERWISE. ALL NEW STRUCTURAL STEEL SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM A123.
10. ALL EXISTING STRUCTURAL STEEL AGAINST WHICH NEW STEEL IS TO BE PLACED SHALL BE CLEANED OF EXISTING COATINGS AND RUST SCALE BY VACUUM SHROUDED POWER TOOL CLEANING. ALL POWER TOOL BRUSHED AREAS SHALL BE FILED COATED (BRUSH APPLICATION) AFTER INSTALLATION (2 COATS) USING A SELF PRIMING COATING.
11. NEW HIGH STRENGTH BOLTS:
HIGH STRENGTH BOLTS SHALL CONFORM TO ASTM A325 TYPE 1.

BOLT SIZE SHALL BE 22mm (7/8") UNLESS NOTED OTHERWISE.

BOLT THREADS SHALL BE EXCLUDED FROM THE SHEAR PLANE.

ALL BOLTS, NUTS AND WASHERS SHALL BE HOT DIP GALVANIZED, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ASTM A123.

TWO HARDENED WASHERS SHALL BE REQUIRED, ONE UNDER EACH END OF BOLT.
12. CONTRACTOR TO VERIFY ALL DIMENSIONS & CONDITIONS ON SITE AND IMMEDIATELY NOTIFY THE ENGINEER OF ALL DISCREPANCIES.
13. WELLINGTON ROAD 32 WILL BE CLOSED FOR THE DURATION OF THE WORK.
14. ANY IN-STREAM WORK IS PROHIBITED.

SCOPE OF WORK:

1. INSTALL ACCESS/DEBRIS PLATFORMS TO PROTECT THE ENVIRONMENT.
2. REMOVE AND REPLACE BOTTOM CHORD AT TWO (2) LOCATIONS.
3. REMOVE AND REPLACE EXISTING DIAGONAL BRACING MEMBER AT FOUR (4) LOCATIONS.
4. REMOVE TEMPORARY ACCESS PLATFORMS AND DEBRIS PLATFORMS.

LIST OF DRAWINGS

1. GENERAL ARRANGEMENT
2. TRUSS REPAIR DETAILS I
3. TRUSS REPAIR DETAILS II
4. TRUSS REPAIR DETAILS III

AS-BUILT DRAWING

CONTRACTOR: CLEARWATER STRUCTURES INC.

WORK COMMENCED: AUGUST 2010

WORK COMPLETED: SEPTEMBER 2010

These As-built Drawings have been prepared based on inspections and observations undertaken by MRC staff during key stages of construction and an informal submission, in part, by others. While this information is believed to be reliable, MRC is not responsible for its accuracy, or for errors or omissions that may have been incorporated into this drawing as a result.

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DATE PLOTTED: 12/21/2010 11:20:38 AMBY: UDAROWSKAE

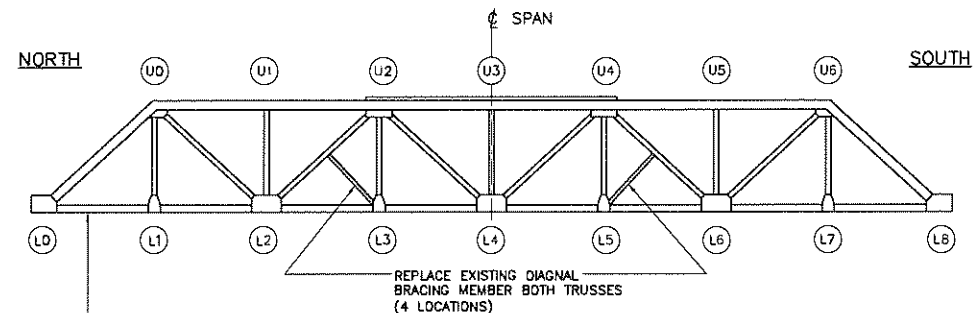
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REVISIONS		DATE	INITIAL	FIELD BK.	PAGE	PROJECT
2.	AS-BUILT	DEC. 2010	C.M.	DRAFTING	CA	
1.	ISSUED FOR CONSTRUCTION	06/04/10	G.T.	CHECKED	CT	
NO.	DESCRIPTION	DATE	INITIAL	FIELD BK.	PAGE	PROJECT

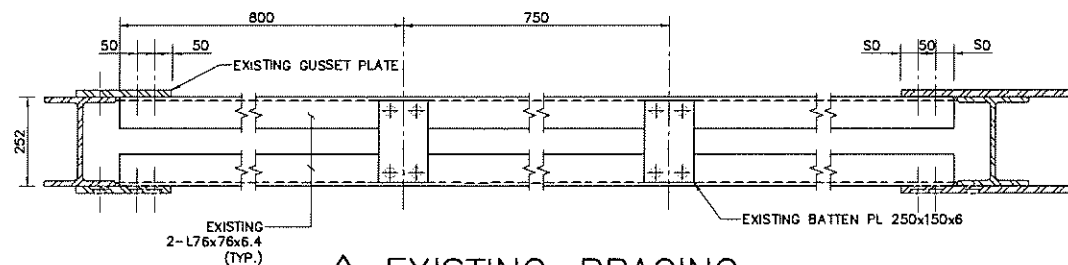


COUNTY OF WELLINGTON	CW2010-041
REHABILITATION OF STRUCTURE NO. 32085	CONTRACT NO.
BLATCHFORD BRIDGE	DRAWING NO.
WELLINGTON ROAD 32 OVER SPEED RIVER	1
GENERAL ARRANGEMENT	

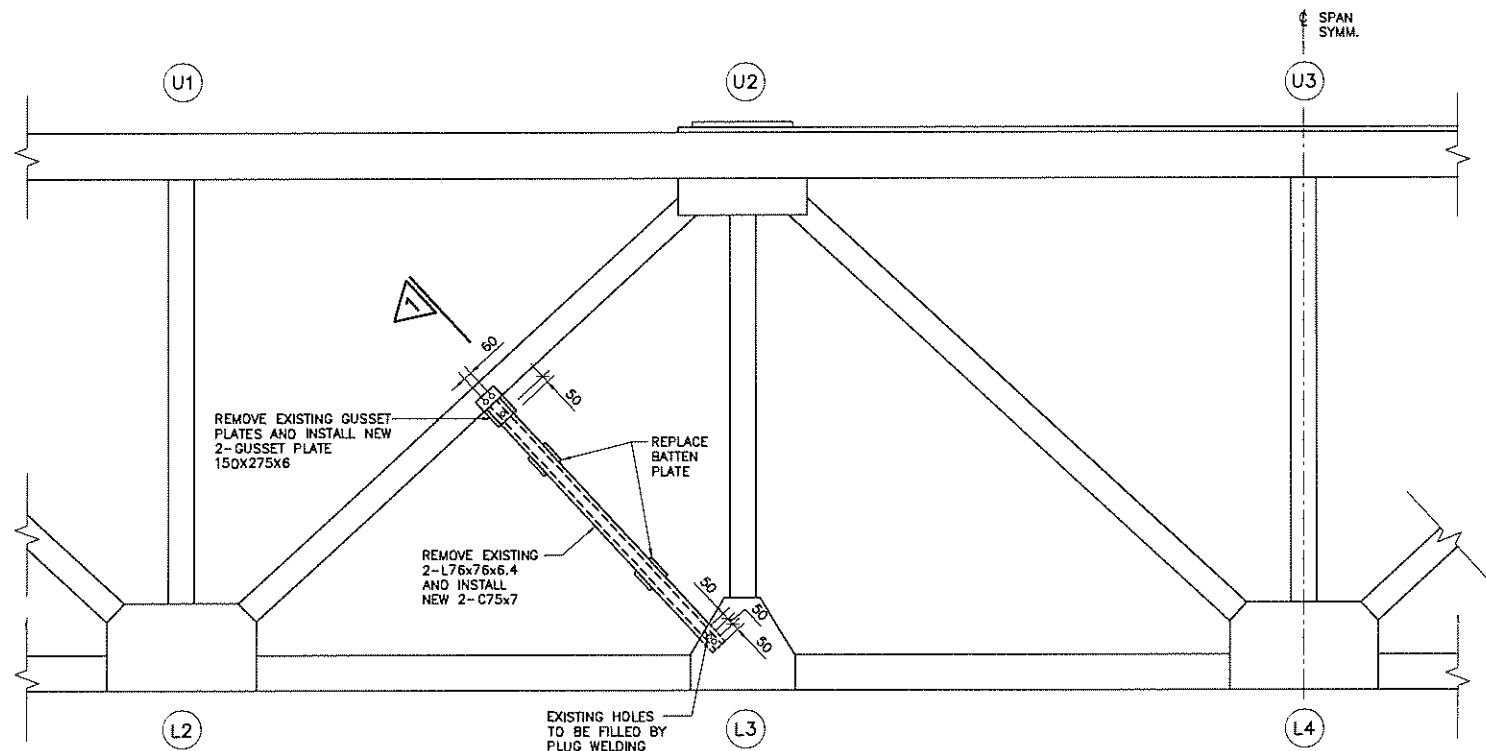


REPLACE EXISTING BOTTOM CHORD MEMBER
~~OPTION 1: REPLACE THE ENTIRE BOTTOM CHORD~~
 - OPTION 2: REPLACE BOTTOM CHORD AT TWO (2) LOCATIONS
 SEE DWG. 3 FOR DETAILS

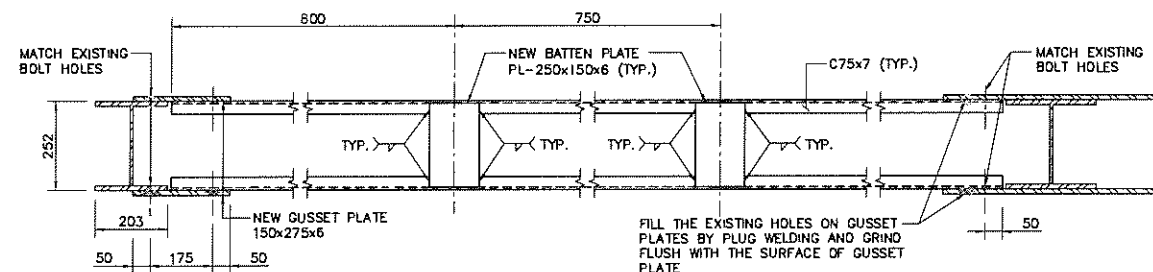
TRUSS ELEVATION
 1:125



EXISTING-BRACING
 1:10



PARTIAL TRUSS ELEVATION
 1:25



NEW-BRACING
 1:10

NOTES:

REFER TO DWG.1 FOR GENERAL CONSTRUCTION NOTES.

SEQUENCE OF CONSTRUCTION FOR BRACING MEMBERS (4 LOCATIONS)

1. REMOVE EXISTING M20 BOLTS AND EXISTING BRACING MEMBERS.
2. FILL THE EXISTING TWO (2) BOLTS HOLES BY PLUG WELDING AND GRIND FLUSH WITH THE SURFACE AS SHOWN.
3. REAM REMAINING BOLT HOLES TO 24mm DIAMETER TO SUIT M22 BOLTS.
4. INSTALL NEW BRACING MEMBERS (2-C75x7) WITH NEW M22 BOLTS AS SHOWN.
5. REPEAT STEP 1 TO 4 FOR OTHER BRACING MEMBER LOCATIONS.

AS-BUILT DRAWING

CONTRACTOR: CLEARWATER STRUCTURES INC.

WORK COMMENCED: AUGUST 2010

WORK COMPLETED: SEPTEMBER 2010

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 MODIFIED: 12/21/2010 11:26:25 AMBY: LIZARDUSKAE
 DATE PLOTTED: 12/21/2010 11:28:08 AMBY: LIZARDUSKAE

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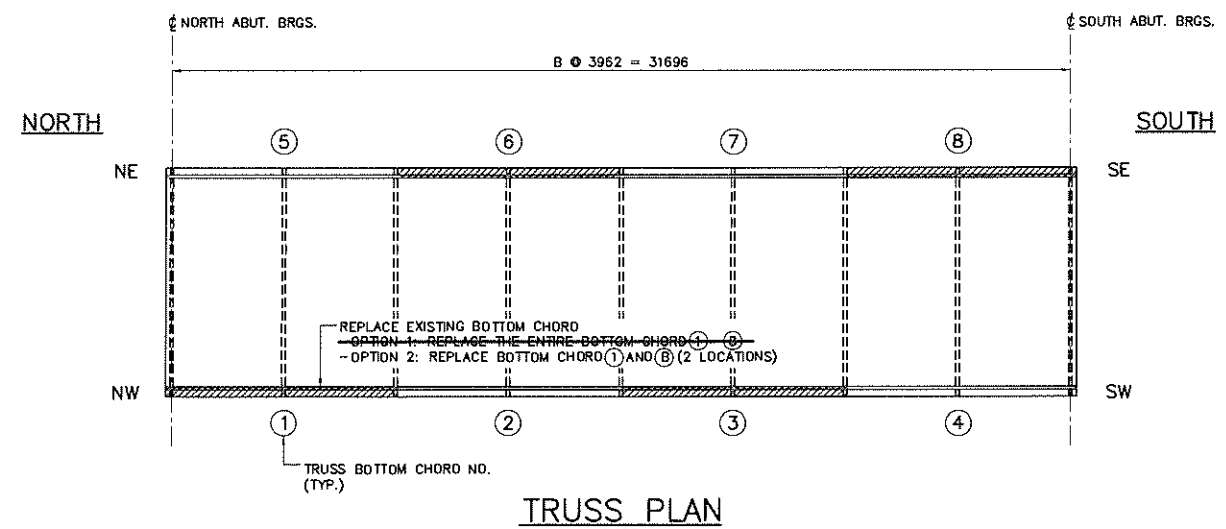


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MRC		McCORMICK RANKIN CORPORATION		A member of MRM GROUP	
SCALE	AS SHOWN	DATE	AUGUST 2010	DRAFTING	CA
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PROJECT		FIELD BK.		PAGE	

COUNTY OF WELLINGTON
 REHABILITATION OF STRUCTURE NO. 32085
 BLATCHFORD BRIDGE
 WELLINGTON ROAD 32 OVER SPEED RIVER
 TRUSS REPAIR DETAILS I

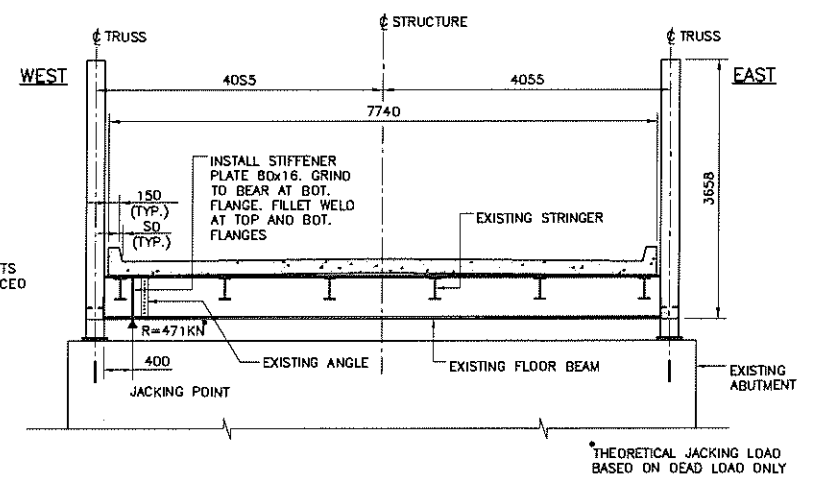
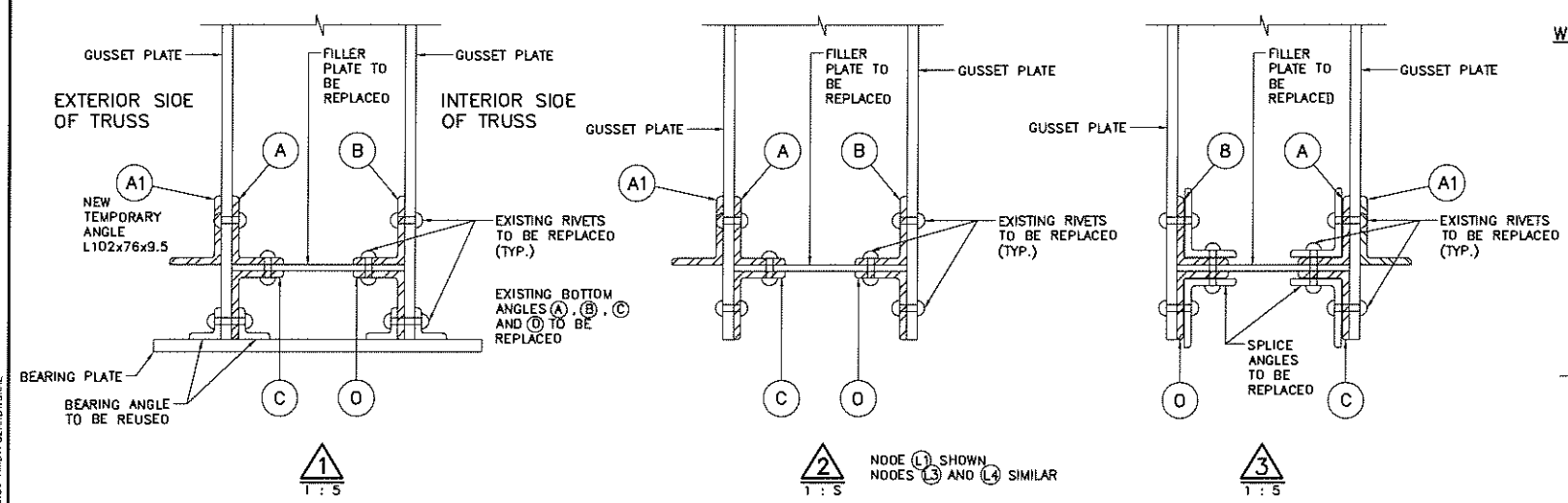
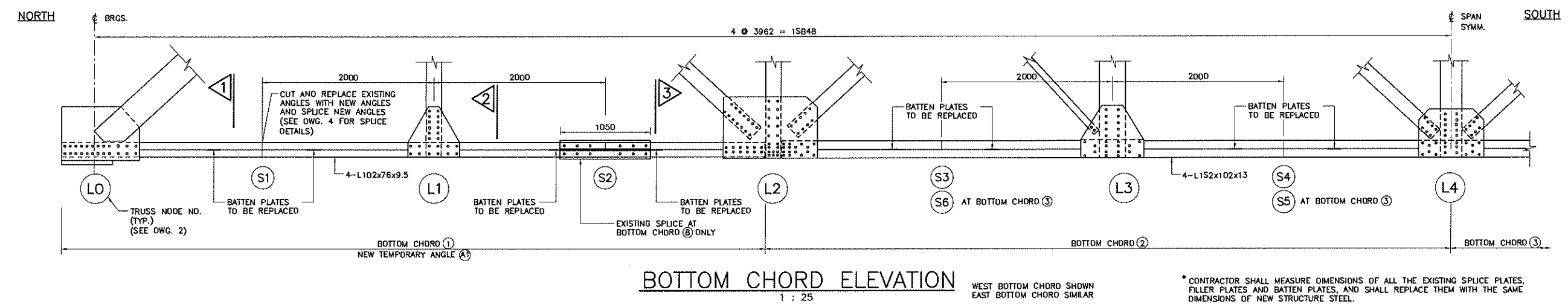
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SEQUENCE OF CONSTRUCTION FOR BOTTOM CHORD REPLACEMENT:

- OPTION 1:**
- STEP 1. REPLACE BOTTOM CHORD (1) (4) (5) AND (8)
- SEE PROCEDURE OF OPTION 2
- STEP 2 REPLACE BOTTOM CHORD (2) AND (3)
- CUT EXISTING ANGLES (C) AND (D) AT (S4) AND (S5) LOCATIONS.
 - REMOVE EXISTING RIVETS ON HORIZONTAL AND VERTICAL LEGS OF ANGLES (C) AND (D) OF TRUSS BOTTOM CHORD (2) AND (3) AT NODES (L1), (L2) AND (L3).
 - PROVIDE TEMPORARY SUPPORT FOR LATERAL BRACING IF NECESSARY.
 - REMOVE EXISTING ANGLES (C) AND (D) EXISTING FILLER PLATES, EXISTING BATTEN PLATES FROM TRUSS BOTTOM CHORD (2) AND (3).
 - REAM EXISTING HOLES TO 24mm DIAMETER TO SUIT M22 BOLTS.
 - INSTALL NEW ANGLES (C) AND (D) 2-L152x102x13, NEW FILLER PLATES, NEW BATTEN PLATES WITH NEW M22 BOLTS.
 - SPLICE NEW ANGLES (C) AND (D) AT LOCATIONS OF (S4) AND (S5) AS SHOWN ON DWG. 4 (SPLICE VERTICAL LEGS ONLY).
 - CUT EXISTING ANGLES (A) AND (B) AT LOCATIONS OF (S3), (S4), (S5) AND (S6).
 - REMOVE EXISTING RIVETS ON HORIZONTAL AND VERTICAL LEGS OF ANGLES (A) AND (B) OF TRUSS BOTTOM CHORD (2) AND (3).
 - REMOVE EXISTING ANGLES (A) AND (B) FROM TRUSS BOTTOM CHORD (2) AND (3).
 - REAM EXISTING HOLES TO 24mm DIAMETER TO SUIT M22 BOLTS.
 - INSTALL NEW ANGLES (A) AND (B), 2-L152x102x13, WITH NEW M22 BOLTS.
 - SPLICE ANGLES (A) AND (B) AT LOCATIONS OF (S3), (S4), (S5) AND (S6) AS SHOWN ON DWG. 4 (SPLICE BOTH VERTICAL AND HORIZONTAL LEGS).
- STEP 3 REPLACE BOTTOM CHORD (6) AND (7)
- FOLLOW THE SAME PROCEDURE FROM 1 TO 12 BUT FOR BOTTOM CHORD (6) AND (7)

- OPTION 2:**
- STEP 1. REPLACE BOTTOM CHORD (1)
- REMOVE EXISTING RIVETS AND BOLTS ON VERTICAL LEGS OF ANGLE (A) OF TRUSS BOTTOM CHORD (1) AT NODES (L1), (L2) AND (L3).
 - REAM HOLES TO 24mm DIAMETER TO SUIT M22 BOLTS.
 - INSTALL NEW TEMPORARY ANGLE (A), L102x76x9.5, WITH M22 BOLTS CONTINUOUS FROM (L1) TO (L3).
 - INSTALL JACKING STIFFENER AT ABUTMENT NEAR BOTTOM CHORD (1) AS SHOWN ON TYPICAL JACKING ARRANGEMENT. JACK CORNER OF BRIDGE SUFFICIENTLY TO RELIEVE LOAD ON BEARING. JACK SHALL HAVE A MIN. CAPACITY OF 2 x JACKING LOAD SHOWN.
 - CUT EXISTING ANGLES (C) AND (D) AT LOCATION (S1).
 - REMOVE EXISTING RIVETS AND BOLTS ON HORIZONTAL AND VERTICAL LEGS OF ANGLES (C) AND (D) AT NODES (L1), (L2) AND (L3). PROVIDE TEMPORARY SUPPORT FOR LATERAL BRACING AT FLOOR BEAM LOCATIONS IF NECESSARY.
 - REMOVE EXISTING ANGLES (C) AND (D) EXISTING FILLER PLATES, EXISTING BATTEN PLATES AND TWO (2) BOTTOM SPLICE ANGLES AT NODE (L2).
 - REAM EXISTING HOLES TO 24mm DIAMETER TO SUIT M22 BOLTS.
 - INSTALL NEW ANGLES (C) AND (D), 2-L102x76x9.5, NEW FILLER PLATES, NEW BATTEN PLATES AND NEW TWO BOTTOM SPLICE ANGLES AT NODE (L2) WITH NEW M22 BOLTS.
 - SPLICE ANGLES (C) AND (D) AT LOCATION (S1) AS SHOWN ON DWG 4 (SPLICE VERTICAL LEGS ONLY).
 - REMOVE BOLTS ON VERTICAL LEGS OF ANGLE (A) AND REMOVE TEMPORARY ANGLE (A).
 - CUT ANGLES (A) AND (B) AT LOCATIONS OF (S1) AND (S2).
 - REMOVE EXISTING RIVETS AND BOLTS ON HORIZONTAL AND VERTICAL LEGS OF ANGLES (A) AND (B) AT NODES (L1), (L2) AND (L3).
 - REMOVE EXISTING ANGLES (A) AND (B) AND TWO (2) TOP SPLICE ANGLES AT NODE (L2).
 - REAM EXISTING HOLES TO 24mm DIAMETER TO SUIT M22 BOLTS.
 - INSTALL NEW ANGLES (A) AND (B), 2-L102x76x9.5, AND NEW TWO TOP SPLICE ANGLES AT NODE (L2) WITH NEW M22 BOLTS.
 - SPLICE ANGLES (A) AND (B) AT LOCATIONS OF (S1) AND (S2) (SPLICE BOTH VERTICAL AND HORIZONTAL LEGS).
 - LOWER BRIDGE AND REMOVE JACK.
- STEP 2. REPLACE BOTTOM CHORD (8)
- FOLLOW THE SAME PROCEDURES 1 TO 18 OF STEP 1 FOR BOTTOM CHORD (8) AT SOUTHEAST CORNER.



AS-BUILT DRAWING

CONTRACTOR: CLEARWATER STRUCTURES INC.

WORK COMMENCED: AUGUST 2010

WORK COMPLETED: SEPTEMBER 2010

These As-built Drawings have been prepared based on inspections and observations undertaken by MRC staff during key stages of construction and on information submitted, in part, by others. While this information is believed to be reliable, MRC is not responsible for its accuracy, or for errors or omissions that may have been incorporated into this drawing as a result.

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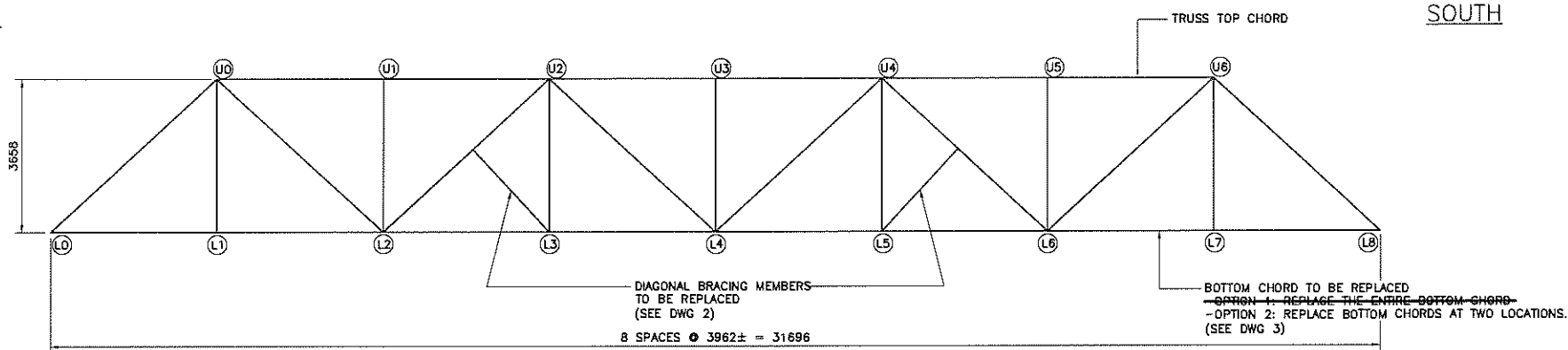
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COUNTY OF WELLINGTON
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 TRUSS REPAIR DETAILS II

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 CONTRACT NO.
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NORTH



TRUSS ELEVATION

1:75

~~BOTTOM CHORD REPLACEMENT - OPTION 1~~

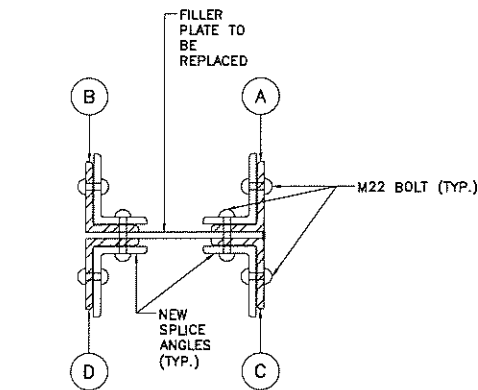
RIVETS/BOLTS REPLACEMENT		
LOCATION	EAST TRUSS	WEST TRUSS
L0	72	72
L1	36	36
L2	100	100
L3	44	44
L4	56	56
L5	44	44
L6	100	100
L7	36	36
L8	72	72
BATTEN PLATES	96	96
TEMPORARY ANGLE	48	48
NEW SPLICE*	280	280

* NEW BOLT INSTALLATION

BOTTOM CHORD REPLACEMENT - OPTION 2

RIVETS/BOLTS REPLACEMENT		
LOCATION	EAST TRUSS	WEST TRUSS
L0	-	72
L1	-	36
L2	-	100
L6	100	-
L7	36	-
L8	72	-
BATTEN PLATES	24	24
TEMPORARY ANGLE	24	24
NEW SPLICE*	60	60

* NEW BOLT INSTALLATION

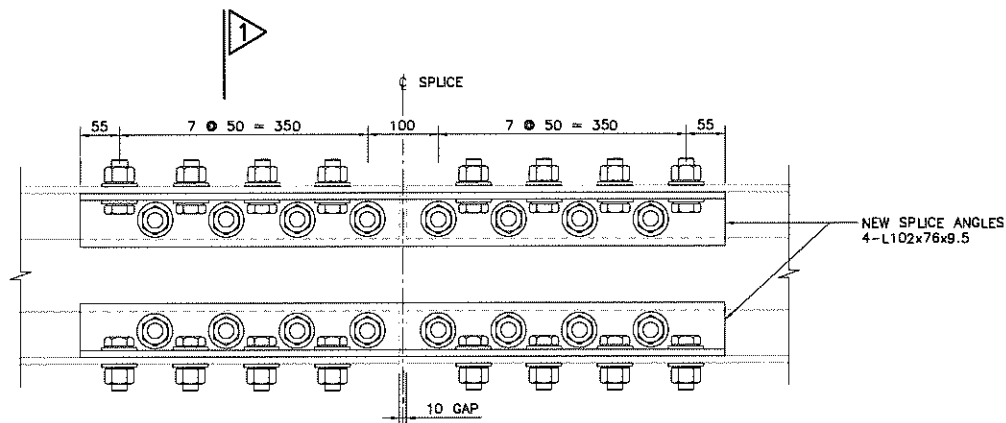


1 (TYPICAL SECTION)

DIAGONAL BRACING MEMBER REPLACEMENT (4 LOCATIONS)

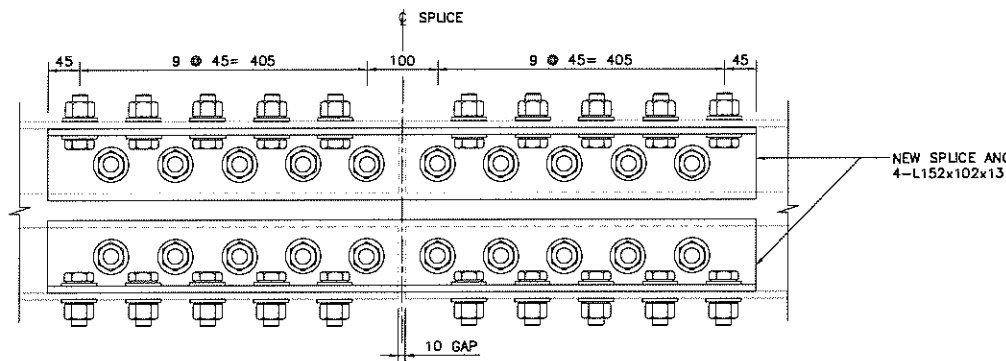
RIVETS/BOLTS REPLACEMENT		
LOCATION	EAST TRUSS	WEST TRUSS
BRACING MEMBER	24	24

SOUTH



SPLICE PLAN (LOCATIONS S1 AND S2)

1:5



SPLICE PLAN (LOCATIONS S3 S4 S5 AND S6)

1:5

AS-BUILT DRAWING

CONTRACTOR: CLEARWATER STRUCTURES INC.
WORK COMMENCED: AUGUST 2010
WORK COMPLETED: SEPTEMBER 2010

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BLATCHFORD BRIDGE
WELLINGTON ROAD 32 OVER SPEED RIVER
TRUSS REPAIR DETAIL III

CW2010-041

CONTRACT NO.
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Appendix E: Comparable Half-Through Truss Bridge Inventory

Compiled by Archaeological Services Inc. based on the 2023 Wellington County OSIM Inventory Summary (County of Wellington, 2023) and Arch Truss and Beam: The Grand River Watershed Heritage Bridge Inventory (Benjamin et al., 2013).

Table 1: Half-Through Truss Bridges from the 2023 Wellington OSIM Inventory Summary

Bridge ID	Bridge Name	Year Built	Deck Length	Deck Width	# Spans
B006009	Townline Bridge	1950	31.1m	7.5m	1
B007028	Bosworth Bridge	1949	42.1m	8.6m	1
B010023	Moorefield Bridge	1954	22.6m	8.3m	1
B011025	Flax Bridge	1954	22.3m	7.9m	1
B011029	Simmon's Bridge	1952	65.3m	7.8m	2
B035087	Blatchford Bridge	1949	31.7m	8.1m	1

Table 2: Half-Through Truss Bridges from Arch, Truss and Beam: The Grand River Watershed Heritage Bridge Inventory

Bridge ID	Bridge Name	Year Built	Deck Length	Deck Width	# Spans
ML1	Rothsay Bridge	1952	18.7m	8.3m	1
WN9	Dirksen Farm Bridge	1900	Unknown	Unknown	1
MB002	Mallet River Bridge	1910	17m	5.5m	1