

DRAFT REPORT – JANUARY 23, 2018

CULTURAL HERITAGE EVALUATION REPORT

TRANSIT PROJECT ASSESSMENT PROCESS
LONDON BUS RAPID TRANSIT

HIGHBURY AVENUE NORTH OVERPASS
CITY OF LONDON
PROVINCE OF ONTARIO





CULTURAL HERITAGE EVALUATION REPORT

HIGHBURY AVENUE NORTH OVERPASS

CITY OF LONDON
PROVINCE OF ONTARIO

REPORT

PROJECT NO.: 141-21085-00
DATE: JANUARY 2019

WSP

WSP.COM

SIGNATURES

PREPARED BY

DRAFT

Lauren Walker, BA (Hons)
Cultural Heritage Specialist

REVIEWED BY

DRAFT

Joel Konrad, PhD.
Cultural Heritage Lead – Ontario

This report was prepared by WSP Canada Inc. for the account of the City of London, in accordance with the professional services agreement. The disclosure of any information contained in this report is the sole responsibility of the intended recipient. The material in it reflects WSP's best judgement in light of the information available to it at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. WSP accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. This limitations statement is considered part of this report.

The original of the technology-based document sent herewith has been authenticated and will be retained by WSP for a minimum of ten years. Since the file transmitted is now out of WSP's control and its integrity can no longer be ensured, no guarantee may be given with regards to any modifications made to this document.

EXECUTIVE SUMMARY

WSP Canada Inc. (WSP) was retained by the City of London to complete a Cultural Heritage Evaluation Report (CHER) for the Highbury Avenue North Overpass as part of the Preliminary Design and Class Environmental Assessment Study for the proposed London Bus Rapid Transit system. The purpose of this report is to identify the cultural heritage value or interest of the structure, which has been identified in the City of London Cultural Heritage Screening Report (October 2018) as being directly impacted and as a heritage property listed on the City of London's Inventory of Heritage Resources.

The study area includes the Highbury Avenue North Overpass and its approaches. Based on the results of background historical research, site investigation, and application of Ontario Regulation 9/06 criteria, the Highbury Avenue North Overpass was not determined to retain cultural heritage value or interest.

The completion of the study has resulted in the following recommendation:

- 1 The Highbury Avenue North Overpass was determined not to demonstrate cultural heritage value or interest. As such, no further cultural heritage work is recommended for this structure.**



TABLE OF CONTENTS

1	INTRODUCTION.....	1
1.1	Development Context	1
2	LEGISLATION AND POLICY CONTEXT	2
2.1	Provincial and Municipal Context and Policies.....	2
2.1.1	Provincial Policy Context	2
2.1.2	Ontario Regulation 9/06	3
2.1.3	Municipal Policies.....	3
2.2	Methodology	4
2.3	Consultation.....	4
3	HISTORICAL CONTEXT	6
3.1	Local Context and Settlement History	6
3.1.1	Historical MaP Review	8
3.2	Early Bridge Building in Ontario.....	9
3.2.1	History of Concrete Slab Bridges	10
3.3	Highbury Avenue North Overpass Construction and History10	
3.3.1	1796 – 1958.....	10
3.3.2	1958 - Present.....	11
4	EXISTING CONDITIONS	12
4.1	Description of Study Area and Landscape Context	12
4.2	Bridge Description	12
4.2.1	Approaches.....	13
4.2.2	Abutments and Pelrs.....	13
4.2.3	Girders/Deck/Railings	13
5	HERITAGE EVALUATION	14
5.1	Ontario Regulation 9/06 Evaluation.....	14
5.2	Comparative Analysis	15
5.3	Discussion of Integrity.....	16

6	CONCLUSIONS	18
7	RECOMMENDATIONS	19
8	IMAGES	20
9	HISTORICAL PHOTOS AND MAPPING.....	30
10	BIBLIOGRAPHY AND SOURCES	46
11	APPENDICES.....	49

FIGURES

FIGURE 1: LOCATION AND CONTEXT OF THE Highbury Avenue North Overpass, City of London, Ontario.....	31
FIGURE 2: Highbury Avenue North Overpass, City of London, Ontario, 1862 Tremaine's Map of the County of Middlesex, Canada West	32
FIGURE 3: Highbury Avenue North Overpass, City of London, Ontario 1878 Illustrated Historical Atlas of the County of Middlesex	33
FIGURE 4: Highbury Avenue North Overpass, City of London, Ontario, 1913 Topographic Map, St. Thomas Sheet	34
FIGURE 5: Highbury Avenue North Overpass, City of London, Ontario, 1919 Topographic Map, St. Thomas Sheet	35
FIGURE 6: Highbury Avenue North Overpass, City of London, Ontario, 1924 Topographic Map, St. Thomas Sheet	36
FIGURE 7: Highbury Avenue North Overpass, City of London, Ontario, 1926 Geodetic Survey of London	37
FIGURE 8: Highbury Avenue North Overpass, City of London, Ontario, 1929 Topographic Map, St. Thomas Sheet	38
FIGURE 9: Highbury Avenue North Overpass, City of London, Ontario, 1934 Topographic Map, St. Thomas Sheet	39

FIGURE 10: Highbury Avenue North Overpass, City of London, Ontario, 1938 Topographic Map, St. Thomas Sheet	40
FIGURE 11: Highbury Avenue North Overpass, City of London, Ontario, 1941 Topographic Map, St. Thomas Sheet	41
FIGURE 12: Highbury Avenue North Overpass, City of London, Ontario, 1948 Topographic Map, St. Thomas Sheet	42
FIGURE 13: Highbury Avenue North Overpass, City of London, Ontario, 1957 Geodetic Survey of London	43
FIGURE 14: Highbury Avenue North Overpass, City of London, Ontario, 1967 Aerial Image	44
FIGURE 15: Highbury Avenue North Overpass, City of London, Ontario, 1998 Aerial Image	45

1 INTRODUCTION

1.1 DEVELOPMENT CONTEXT

WSP Canada Inc. (WSP) was retained by the City of London to complete a Cultural Heritage Evaluation Report (CHER) as part of the Transit Project Assessment Process (TPAP) for the proposed London Bus Rapid Transit (BRT) system to establish the cultural heritage value of the study area encompassing Highbury Avenue North Overpass and its approaches (Figure 1). The BRT system is comprised of four segments, combined into two operational routes: the north/east corridor and the south/west corridor. The BRT network was approved by City Council through the Rapid Transit Master Plan in July 2017.

The Highbury Avenue North Overpass was identified in the City of London Cultural Heritage Screening Report (CHSR) (WSP, October 2018) as being directly impacted. The CHSR was completed as part of the Transit Project Assessment Process for the London Bus Rapid Transit project. The TPAP is regulated by the Environmental Assessment Act (EAA) under Ontario Regulation 231/08: Transit Projects and Metrolinx Undertakings (O. Reg. 231/08). This CHER form part of the Environmental Project Report (EPR) completed under the TPAP.

The following report has been prepared utilizing the CHER Terms of Reference prepared for the London BRT TPAP process, which was prepared in consultation with the City of London Heritage Planning staff and the Ministry of Tourism, Culture and Sport (MTCS), and has been received by the London Advisory Committee on Heritage (LACH).

2 LEGISLATION AND POLICY CONTEXT

2.1 PROVINCIAL AND MUNICIPAL CONTEXT AND POLICIES

2.1.1 PROVINCIAL POLICY CONTEXT

The Ministry of Tourism, Culture and Sport is charged under Section 2 of the *Ontario Heritage Act* (2006) with the responsibility to determine policies, priorities and programs for the conservation, protection, and preservation of the heritage of Ontario and has published guidelines to assist in assessing cultural heritage resources as part of an environmental assessment. The following guidelines have been utilized in the preparation of this CHER:

- Reference Guide on Physical and Cultural Heritage Resources (Canadian Environmental Assessment Agency, 1996)
- Guideline for Preparing the Cultural Heritage Resource Component of Environmental Assessments (1992),
- Guidelines on the Man-Made Heritage Component of Environmental Assessments (1981), and
- The Ontario Heritage Toolkit (2006).

An Environmental Assessment is required for all large-scale projects that have potential impact on the environment. These projects require approval from the Government of Ontario. Certain projects, such as transit projects, have more predictable environmental impacts or effects, and can be more readily managed. This streamlined approach protects the environment, but shortens the timeline to six months for commencement, review and approval. This Environmental Assessment process for transit projects is known as the Transit Project Assessment Process (TPAP).

TPAP provides a framework for focused consultation and objection processes. Through TPAP, the Minister of the Environment may initiate a Time Out period if there is a potential for a negative impact on a matter of provincial importance that relates to the natural environment or has cultural heritage value or interest, or on a constitutionally protected Aboriginal or treaty right (TPAP Guide to Environmental Assessment Requirements for Transit Projects, 2014).

Additionally, the *Planning Act* (1990) and related *Provincial Policy Statement (PPS)* (2014) provide guidance for the assessment and evaluation of potential heritage resources. Subsection 2.6 of the *Provincial Policy Statement, Cultural Heritage and Archaeological Resources*, states that:

2.6.1 Significant built heritage resources and significant cultural heritage landscapes shall be conserved.

Criteria for determining significance for the resources are mandated by the Province in Ontario Regulation 9/06 of the *Ontario Heritage Act*.

2.1.2 ONTARIO REGULATION 9/06

Ontario Regulation 9/06 (O. Reg 9/06) provides the Criteria for Determining Cultural Heritage Value or Interest under the *Ontario Heritage Act* (2006). This regulation was created to ensure a consistent approach to the designation of heritage properties in Ontario under the *Ontario Heritage Act* (2006). All designations under the *Ontario Heritage Act* (2006) after 2006 must meet the minimum criteria outlined in the regulation.

Criteria

A property may be designated under section 29 of the *Ontario Heritage Act* if it meets one or more of the following criteria for determining whether it is of cultural heritage value or interest:

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,
 - ii. displays a high degree of craftsmanship or artistic merit, or
 - iii. demonstrates a high degree of technical or scientific achievement.
 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,
 - ii. yields, or has the potential to yield, information that contributes to an understanding of a community or culture, or
 - iii. demonstrates or reflects the work or ideas of an architect, artist, builder, designer or theorist who is significant to a community.
 3. The property has contextual value because it,
 - i. is important in defining, maintaining or supporting the character of an area,
 - ii. is physically, functionally, visually or historically linked to its surroundings, or
 - iii. is a landmark. O. Reg. 9/06, s. 1 (2).
-

2.1.3 MUNICIPAL POLICIES

In addition to provincial legislation, policies and guiding documents, municipal policies regarding cultural heritage have also been considered as a part of this CHER.

The London Plan is the City of London's new Official Plan which was consolidated August 27, 2018. *The London Plan* focuses on three areas of cultural heritage planning: general policies for the protection and enhancement of cultural heritage resources; specific policies related to the identification of cultural heritage resources including

individual heritage resources, heritage conservation districts, cultural heritage landscapes, and archaeological resources; and specific policies related to the protection and conservation of these cultural heritage resources. The criteria outlined in *The London Plan* for the identification and designation of individual properties of cultural heritage value or interest reflect the criteria defined in O.Reg 9/06 and are listed on pages 572-574 of the document.

2.2 METHODOLOGY

A Cultural Heritage Evaluation Report examines the subject property as a whole, the relationship to its surroundings, and its individual elements – engineering works, landscape etc. The recommendations of the report are based on an understanding of the physical values of the property, a documentation of its history through research, an analysis of its social context, comparisons with similar properties and mapping.

This CHER is guided by key documents such as the *Reference Guide on Physical and Cultural Heritage Resources* (Canadian Environmental Assessment Agency, 1996), the *Ontario Heritage Toolkit* (Ministry of Tourism Culture and Sport (MTCS), 2006), and the *Guidelines for Preparing the Cultural Heritage Resource Component of Environmental Assessments* (Ministry of Culture and Communications, 1992). The following report follows the Terms of Reference prepared for the London BRT TPAP process, which has been received by the London Advisory Committee on Heritage and the MTCS (Appendix A).

2.3 CONSULTATION

Consultation for the London BRT project has been conducted with the London Advisory Committee on Heritage (LACH). A draft CHSR report (dated February 6, 2018) was provided for their review and comment. The LACH Stewardship Sub-Committee recommended that 104 properties identified by the draft CHSR to have potential cultural heritage value or interest did not require further examination for consideration as having cultural heritage value or interest. The LACH also recommended 30 properties not identified by the CHSR be evaluated for their potential cultural heritage value. Further, the remaining properties flagged by the draft CHSR requiring further cultural heritage work were added to the Register (Inventory of Heritage Resources) pursuant to Section 27 of the *Ontario Heritage Act* (2006) by resolution of Municipal Council on March 27, 2018.

The CHSR was also provided to the MTCS for review and comments were received in July 2018. In response to MTCS comments, the CHSR was expanded to fulfil the requirements of a CHAR, including additional information on impacted properties, and a preliminary impact assessment. Ongoing communications with MTCS have continued as a part of the TPAP process.

The updated CHSR report (Dated October 8, 2018) was provided to the LACH on October 10, 2018. The Draft Terms of Reference for CHERs was also received and referred to the LACH Stewardship Sub-Committee for review. The updated CHSR was

submitted and reviewed by the LACH Stewardship Sub-Committee at their meeting on November 5, 2018. The LACH Stewardship Sub-Committee had no further concerns regarding the updated CHSR, and communicated this to the LACH at their meeting on November 14, 2018. A review timeline for Pre-TPAP CHERs, including the Highbury Avenue North Overpass CHER, was proposed and received by the LACH at the November 14, 2018 meeting. The Highbury Avenue North Overpass is scheduled for submission and review by LACH at their February 13, 2019 meeting.

3 HISTORICAL CONTEXT

3.1 LOCAL CONTEXT AND SETTLEMENT HISTORY

City of London and Middlesex County

For a detailed local history of the City of London and Middlesex County, please refer to the City of London Cultural Heritage Screening Report: London Bus Rapid Transit System (WSP, 2018).

Town of London East

London East was first incorporated as a village in 1874. It became a town in 1881 and continued as a separate municipality until amalgamation with the City of London in 1885 (London and Middlesex Historical Society, 2009). Previously known as Priest's Swamp, London East was first surveyed by Abraham Iredell in 1796, with a more accurate survey completed in 1810 by Mahlon Burwell. The boundaries of London East include the Thames River to the south, Oxford Street to the north, Adelaide Street on the west, and Highbury Avenue to the east

European settlement of London East began in 1851 when Murray Anderson, the first Mayor of the City of London, purchased a lot on the northeast corner of Adelaide and Dundas. Anderson, a tin dealer, built the first brick house in London East (London and Middlesex Historical Society, 2009). He also constructed a large iron foundry known as The Globe on the southwest corner of Adelaide and Dundas, establishing the area as an industrial neighbourhood. The London East community initially consisted of employees of the Globe, who bought inexpensive small lots from land speculators.

The area was generally defined by the oil refinery industry during the second half of the nineteenth century. Between 1863 and 1883, the Forest City Refinery, Stedwell & Co., L.C. Leonard, Burns & Co., Bailey, Duffield and Co., the London Oil Refining Company, and Silver Star Works and Imperial Oil all operated out of London East (London and Middlesex Historical Society, 2009). The presence of the oil industry, as well as industries that supported the refinement of oil, attracted workers to settle in the area. When London East amalgamated with the City of London in 1885, oil refineries were banned due to heavy pollutants. As a result, lighter industries moved into the area.

By 1912, London East had expanded to include the suburbs of Ealing, Pottersburg and Knollwood Park in London Township, and Chelsea Green in Westminster Township (London and Middlesex Historical Society, 2009). Today London East is an eastern suburb of London.

London Psychiatric Hospital

The London Psychiatric Hospital was established as the London Asylum for the Insane between 1869 and 1870. The grounds are located to the northeast of the Highbury

Avenue North Overpass, at 850 Highbury Avenue North on the east side of Highbury Avenue, north of Dundas Street and south of Oxford Street East (By-law L.S.P. – 3321-208). The complex includes, but is not limited to, a three-storey white brick Infirmary Building that was constructed between 1900 and 1902, a two-storey brown-brick Recreation Hall, built circa 1920, the Chapel of Hope built in 1884, a white-brick horse stable built in 1894 and a tree-lined avenue off Dundas Street. The property was designated by the City of London under Part IV of the *Ontario Heritage Act* in 2000 for its historic or architectural value or interest.

The property's landscaped grounds and former rural setting symbolize the key principles of the therapeutic farming approach, on which the London Psychiatric Hospital was founded. (By-law L.S.P. – 3321-208). The facility approached the treatment of patients in a psychiatric hospital through the reduction of mechanical restriction and eliminating the use of alcohol as a method of controlling patients. In 1995, the London Psychiatric Hospital joined St. Thomas Psychiatric Hospital to operate under a single administration. In 2001 the St. Thomas Psychiatric Hospital was transferred from the Province of Ontario to St. Joseph's Hospital and renamed Regional Mental Health Care, London, and was closed in November 2014.

Railway History

The first rail line completed through this area of London was constructed by the West Ontario Pacific Railway (WOPR). In 1885 the West Ontario Pacific Railway was incorporated to build a rail line from a point on the St. Clair River on the US border to a point on Lake Erie with a branch to Ingersoll or Woodstock. In May 1886 the WOPR approved the construction of a Windsor to London line, with a total of 65 miles of track (Kennedy, 2017). In 1886 the Canadian Pacific Railway (CPR) connected Woodstock with their Credit Valley Railway (CVR) line in Toronto. The WOPR opened in 1887, and was immediately leased to the Ontario and Quebec Railway (O&Q), an historical rail company, located in southern and eastern Ontario, initially between Toronto and the Town of Perth, Ontario.

Starting in 1883, the Canadian Pacific Railway began using the O&Q lines to build a network in Southern Ontario to compete with the Grand Trunk Railway (Kennedy, 2017). The O&Q leased the Credit Valley Railway, Toronto Grey & Bruce, London Junction Railway and some sections of the Canada Southern Railway, connecting Windsor to Montreal (Kennedy, 2017).

The CPR obtained a 999-year lease for the O&Q railway in 1884, expiring in 2883. By 1890, this lease gave the CPR an extensive network in Ontario and Quebec, with lines reaching between Quebec City and Windsor, as well as a line running from near Ottawa to a connection with the CPR at Mattawa. (Kennedy, 2017) The line which runs under the Highbury Avenue North Overpass currently forms the CPR mainline from Detroit and Windsor to Toronto (Kennedy, 2017) .

3.1.1 HISTORICAL MAP REVIEW

The following review of historical mapping, aerial photographs and topographic mapping, spanning between 1862 and 1998 has been provided to establish the development of transportation and settlement patterns in area surrounding the Highbury Avenue North Overpass.

The 1862 Tremaine's Map of the County of Middlesex, Canada West (Figure 2), the area adjacent to the location of the Highbury Avenue North Overpass is largely rural, with industrial areas to the south. The map identifies Highbury Avenue North, an historically surveyed road, between the farm properties of W.I. Lawrason and Wm. Hale. The map pre-dates the establishment of the CPR rail line and subsequently no crossing currently exists at this location. A bar is located at the corner of Dundas Street and Highbury Avenue North. The early surveyed lots of London East are visible south of Dundas Street.

The 1878 Illustrated Historical Atlas of the County of Middlesex (Figure 3) identifies the rural properties formerly owned by W.I. Lawrason and Wm. Hale as part of the Insane Asylum Grounds with several asylum buildings illustrated on the map. No crossing exists at the location as the rail line had not yet been established.

The 1913 Topographic Map (St. Thomas, Sheet no. 040114) (Figure 4) confirms that the rail line was completed at that time and an overpass structure had been constructed to carry Highbury Avenue North over the CPR rail line. The area is identified as Pottersburg, and is not located within the urban boundary of the City of London. A mixed use residential and industrial area is located to the south of Dundas Street. The property adjacent to and surrounding the overpass is still occupied by the London Psychiatric Hospital.

The 1919 and 1924 Topographic Maps (Figures 5 and 6) indicate that the overpass is located outside of the City of London urban boundary. The area appears to have sustained little development during the early twentieth century, with few new buildings recorded between 1913 and 1924. The property adjacent to the overpass is still occupied by the London Psychiatric Hospital.

The 1926 Geodetic Survey of London (Figure 7) illustrates the previous structure over the CPR, including the significant change of grade required to bring the overpass over the rail line. No additional development was identified adjacent to the bridge at this time.

The 1929 Topographic map (Figure 8) confirms the City of London's urban boundary has been expanded to include the Highbury Avenue North Overpass by that time. The area remains relatively undeveloped in the 1934, 1938, 1941 and 1948 Topographic Maps (Figures 9-12), with some infill development south of Dundas Street occurring at a slow but consistent pace by 1948.

The 1957 Geodetic Survey of London (Figure 13) demonstrates that the grade change over the CPR rail line is still evident, however significant industrial and institutional development occurred within the lands adjacent to the overpass by that time.

The development adjacent to the Highbury Avenue North Overpass can also be seen in the 1967 Aerial Image (Figure 14), as well as in the 1998 Aerial Image (Figure 16). Many of the London Psychiatric Hospital buildings located to the northeast of the subject structure were demolished in 2018 (Figure 1).

3.2 EARLY BRIDGE BUILDING IN ONTARIO

Bridges have been an early necessity in Ontario due to the many waterways that required fording by roads and railways. Eighteenth-century bridges were typically of a simple wood slab design and construction was crude (Bradford, 2015; 10). There was little appetite by the government of Upper Canada to take on road and bridge construction and the first Parliament of Upper Canada, which focussed instead on building military and trading outposts connected by water routes (Bradford, 2015; 11). As a result, early bridges were typically constructed by land-owners and local governments and consisted of timber felled from local forests to produce makeshift crossings along primitive roads

Early engineered bridges were constructed using timber, with covered bridges used for road passage and timber trestle bridges for railway crossings. Timber bridges dominated the landscape between 1780-1880 and continued into the early twentieth century (Cumming, 1983). Railway expansion in the second half of the nineteenth century led to significant advances in civil infrastructure to construct structures strong enough to support trains across longer spans (Bradford, 2015; 28).

Wrought iron was briefly used in bridge construction, and most notably on the bridge crossings along the Grand Trunk Railway between Montreal and Toronto, and the Blackfriars Bridge in the City of London, Ontario (Legget, 2017). However, by the end of the nineteenth century steel was the material of choice for bridge construction as it had a greater tensile strength than iron and was more durable than timber. The truss design, characterized by a framework of supporting members, was the most common bridge type in the late-nineteenth century, with steel members replacing wood members generally by the 1890s (Cleary 2007; 127-128). Truss designs proliferated in the final decades of the nineteenth century, though these structures are generally separated into three categories: deck truss (where the deck rests wholly upon the truss); through truss (where the truss extends above the deck and is joined above the deck); and half-truss or pony-truss (where the truss extends above the deck but the top members are not connected). The use of steel in bridge construction decreased during the early twentieth century as a result of innovations in concrete fabrication and the subsequent favouring of that material by bridge engineers. However, steel is still used on Ontario's roads for some girder and steel box girder bridges and, less often, cable-stayed or suspension bridges.

Advancements in concrete production and bridge design in the first half of the twentieth century led to the general movement away from steel bridge construction by mid-century (Cleary 2007; 54-63). Rigid frame bridges, those that were entirely cast in place, appeared on Ontario's roads in the first decades of the twentieth century. These structures are defined by their monolithic casting (where the superstructure and

substructure are continuous) and commonly utilized steel rebar reinforcement within the concrete for greater strength (Cleary 2007; 54-63). Simple concrete slab bridges, characterized by a single superstructure resting atop substructure components (such as piers and abutments) were developed during the mid-twentieth century. Advancements in concrete engineering in the 1950s led to the development of pre-cast, pre-stressed concrete, which was widely adopted for bridge construction during the second half of the twentieth century. Using this design, concrete girders are typically cast off-site and compressed to ensure predictable tensile strength under load (Cleary 2007; 54-63). At present, most roads and highways in Ontario use reinforced concrete bridges, and increasingly with prefabricated components (Legget, 2017).

3.2.1 HISTORY OF CONCRETE SLAB BRIDGES

The use of concrete in the construction of Ontario bridges dates to the early twentieth century, becoming the dominant material used by mid-century. The concrete slab design, where a monolithic or composite cast-in-place superstructure is supported by a separate substructure, was a common design during the second half of the twentieth century. Engineers found that voids, or pockets of air, helped to reduce the weight of the superstructure, and thus extend span length. The concrete voided-slab design is still used as a structure type in Ontario.

3.3 Highbury Avenue North Overpass Construction and History

The land use history for the Highbury Avenue North Overpass was produced using historical mapping, and other primary and secondary sources where available. This section identifies the history of bridge crossings in the study area and has generally been divided into periods of change identified in mapping and bridge construction. The subject property is located between the former Lot 8 and 9 of Concession 1 in London Township (Figures 2-3).

3.3.1 1796 – 1958

The Highbury Avenue North Overpass is located between the former Lot 8 and 9 of Concession 1 in London Township. Highbury Avenue North is an historically surveyed road located in the former Town of London East. London East was first surveyed by Abraham Iredell in 1796, with a more complete survey completed in 1810 by Mahlon Burwell.. This section of Highbury Avenue North, north of Dundas Street, was previously identified as Asylum Side Road. The former London Asylum for the Insane, which first opened 1870 in the rural area just outside of East London, is located immediately northeast of the Highbury Avenue North Overpass. The hospital was renamed Ontario Hospital London in 1932, The London Psychiatric Hospital in 1968 and Regional Mental Health Care London in 2001. (St. Joseph's Health Care London, n.d.) The rail crossing at this location was first established in 1887 as a part of the WOPR. An overpass was built circa 1887 to bring Highbury Avenue North over the rail line. The rail line was leased to the O&Q, which was subsequently leased to the CPR on a 999-year lease.

(Kennedy, 2017) Previous crossings included an overpass, visible in the 1926 Geodetic Survey of London (Figure 4), for which the extant embankments over the railline appear to have been established. Archival research at the University of Western Ontario Archives, as well as the London Public Library Ivey Family London Room, yielded no additional information regarding previous crossings.

3.3.2 1958 - PRESENT

The Highbury Avenue North Overpass was built in 1958 over the CPR rail line, replacing the previous structure. It was designed by consulting engineers M.M. Dillon and Co., a London based engineering firm, now known as Dillon Consulting. M.M. Dillon was formed in 1946 by engineers Marmaduke Murray Dillon and George Humphries, who both served as officers during World War II. (Dillon, n.d.)

Marmaduke Murray Dillon was born in 1894, the son of Maurice Ashurst Dillon. He married Muriel Hicks in 1919, and later married Mildred Whitley in 1956, and died in 1976. Dillon was awarded the Military Cross and the Efficiency Decoration for his services as a General in World War II. His son, Richard M. Dillon was the dean of engineering at the University of Western Ontario from 1960-1970, a president of The London Club, a church warden at Bishop Cronyn Church and a president of the Progressive Conservative Association. (OGS 2008)

George E. Humphries was born in Wolverhampton England in December 1907. He studied mechanical and civil engineering at The Technical College and received a National Certificate. He moved to Canada permanently in 1931, where he worked as a draftsman and engineer in the mining industry. In World War II he served as a captain, and became a Member of the Order of the British Empire (Wilson, 2010).

When they returned to Canada, Marmaduke Murray Dillon and George E. Humphries were introduced to each other by a former commanding officer. They formed a consulting practice, which was launched in the basement of a house in London in January 1946, with a draftsman, a part-time stenographer and bookkeeper. (Dillon, n.d.) George E. Humphries served as the chief engineer of M.M. Dillon and Co. from 1946 to 1959, when he was named president. He died in March 1993 (Wilson, 2010).

The overpass was built by the City of London and has been maintained by the City since its construction. A review of existing municipal records was conducted to establish a detailed account of the construction of the overpass. However, no clear understanding of the details of construction could be confirmed. In 1988, repairs totalling \$375,000 were completed and consisted of a latex concrete deck overlay, new deck joint seals, the installation of new railings, and cleaning and coating of the structural steel. In 1991 the concrete end dams at the south abutment joint were repaired for \$3,400. In 2006 the expansion joint at the northwest corner was repaired for \$3,296 and in 2009 a slider plate damaged by a plow was repaired for \$554.

4 EXISTING CONDITIONS

4.1 DESCRIPTION OF STUDY AREA AND LANDSCAPE CONTEXT

The study area consists of the Highbury Avenue North Overpass and approaches (Figure 1). The overpass is located on Highbury Avenue North and crosses the CPR railway tracks. Highbury Avenue is a four-lane main north-south thoroughfare through London with two lanes of traffic traveling in both directions. It is located within a predominantly institutional and industrial area of London (Images 15-18).

The Highbury Avenue North Overpass is located immediately north of the intersection of Highbury Avenue North and Dundas Street and spans the CPR tracks. The area is dominated by one- to two-storey institutional and industrial buildings. The former London Psychiatric Hospital, a Part IV designated property, is located immediately adjacent to the northeast of the overpass and now known as Regional Mental Health Care London. The property includes a complex landscape, with multiple heritage features, none of which are visible from the Highbury Avenue North Overpass.

A Salvation Army community facility is located to the southeast of the overpass, while a school is located to the southwest. An industrial area, containing a collection of industrial and commercial businesses, is located to the northwest. A gas station is located to the south of the overpass, south of Dundas Street, along Highbury Avenue. Sidewalks are located on either side of the road, and over the overpass. A significant change in grade facilitates the overpass.

Highbury Avenue consists of four lanes, two northbound and two southbound. Highbury Avenue begins at South Edgeware Road in St. Thomas where it proceeds north as Elgin County Road 30 until Wilton Grove Road in London. From there it briefly becomes a four-lane expressway north from Highway 401 to Hamilton Road, where it continues north as a four-lane arterial street through the City of London. North of Fanshawe Park Road, Highbury Avenue continues as a two-lane county road as Middlesex County Road 23 until it terminates at Elginfield Road (Highway 7).

4.2 BRIDGE DESCRIPTION

The Highbury Avenue North Overpass is a road over rail grade separation, consisting of a three-span continuous beam and concrete slab framing system. Its materials include a reinforced concrete deck over steel superstructure on reinforced concrete piers and abutments. It was built in 1958 at an original cost of \$178,000, and is owned and maintained by the City of London. It was designed by consulting engineers M.M. Dillion and Co., a London-based engineering company. See Appendix B and C for engineering drawings and the structural inspection report.

4.2.1 APPROACHES

Both approaches to the bridge consist of significant grade changes to bring Highbury Avenue over the CPR line and consist of earthen embankments and concrete sloped paving, covered in grass, trees, and other vegetation. (Images 2, 8) Highbury Avenue North consists of four lanes, two northbound and two southbound. (Images 9-11)

4.2.2 ABUTMENTS AND PEIRS

The overpass consists of two concrete abutments to the north and south and embankments with visible concrete patches and graffiti. The structure has two wingwalls, one located at the northeast and northwest quadrants, and headwalls at the southeast and southwest quadrants. These wing walls consist of reinforced steel concrete that displays scaling, light delamination, and small light spalling with exposed reinforcing steel at the northwest wingwall (Images 4, 6, 7 8). The structure has two forked rocker piers over the CPR rail line (Images 3, 4). The piers consist of reinforced steel concrete and have minor corrosion staining at the underside of the pier cap due to the exposed rebar chairs.

4.2.3 GIRDERS/DECK/RAILINGS

The steel girders sit on elastomeric bearings at the north and south abutment and at the rocker piers. The steel girders are riveted plate girders (Image 5) arched at the north and south ends, with a variable depth, and with steel stringers and supporting members. The deck slab soffit and fascia consist of steel and reinforced steel concrete and have previous concrete patches at several locations (Images 4, 7). The road surface consists of two lanes of black asphalt with form and fill grooves at both ends of the wearing surface (Images 9-11). Concrete sidewalks are located on the west and east side of the overpass and are separated from vehicular traffic with concrete curbs. (Image 12) A steel box beam railing forms the railing, and runs along the west and east side of the overpass. A steel beam guiderail with wooden posts and blocks is connected to concrete end walls at all four corners while a chain link fence has been constructed behind the railing systems on the overpass (Images 13, 14).

5 HERITAGE EVALUATION

5.1 ONTARIO REGULATION 9/06 EVALUATION

Table 1: Ontario Regulation 9/06 Evaluation

CATEGORY	CRITERIA	Y/N	COMMENTS
Design/ Physical Value	Is a rare, unique, representative or early example of a style, type, expression, material or construction method	N	The Highbury Avenue North Overpass is a road over rail grade separation, consisting of a three-span continuous beam and concrete slab. Continuous deck slab structures are common in this region of Ontario, and the Highbury Avenue North Overpass is typical age, length, and size for this type of structure. Accordingly, the structure does not meet this criterion.
	Displays a high degree of craftsmanship or artistic merit	N	The Overpass displays era-typical design, craftsmanship and artistic merit, as a reinforced concrete overpass. Accordingly, the structure does not meet this criterion.
	Demonstrates a high degree of technical or scientific achievement	N	The Overpass displays a typical design for its era and uses common technologies, approaches and techniques for a reinforced concrete overpass. Accordingly, the structure does not meet this criterion.
Historical/ Associative Value	Has direct associations with a theme, event, belief, person, activity, organization or institution that is significant to a community	N	The Overpass is associated with the WOPR and CPR rail lines, however the Overpass does not define or contribute to the understanding of these lines. Though the Overpass is adjacent to the London Psychiatric Hospital grounds, , it does not retain a clear relationship or association with this property. Neither the rail line nor the subject Overpass is considered to have significance to a community. Accordingly, the structure does not meet this criterion.
	Yields, or has the potential to yield, information that contributes to an understanding of a	N	The Overpass does not have the potential to yield any further information that may contribute to an understanding of its context, community or culture. Accordingly, the structure does not meet this criterion.

	community or culture,		
	Demonstrates or reflects the work or ideas of an architect, artist, builder, designer or theorist who is significant to a community	N	The Overpass was designed by consulting engineers M.M. Dillon and Co of London. The firm was founded in London, Ontario in 1946, and continues to operate as Dillon Consulting with offices across Canada. However, the overpass is a typical design and does not demonstrate or reflect the work Marmaduke Murray Dillon, Richard M. Dillion or George E. Humphries. Accordingly, the structure does not meet this criterion.
Contextual Value	Is important in defining, maintaining or supporting the character of an area	N	The overpass connects southeast London to the 401 and to other parts of the City . It is located within a predominantly industrial and institutional area over the CPR rail line. Although the overpass is consistent with its context, it is not important in defining, maintaining or supporting the character of the area. Accordingly, the structure does not meet this criterion.
	Is physically, functionally, visually or historically linked to its surroundings	N	The overpass is not meaningfully linked to its surroundings physically, functionally, visually, or historically. Accordingly, the structure does not meet this criterion.
	Is a landmark	N	The overpass is not a landmark. Accordingly, the structure does not meet this criterion.

5.2 COMPARATIVE ANALYSIS

A comparative analysis was undertaken to establish a baseline understanding of similar structures within the City of London, and to determine if the property *“is a rare, unique, representative or early example of a style, type, expression, material or construction method”* as described in O. Reg. 9/06. Comparative examples were drawn from the City of London Bridge Inventory (January 2019) which included information about bridge type, age and materials, of bridges owned by the City of London. The City of London Bridge Inventory is not a comprehensive list of bridges in the City of London, but rather a list of bridges owned by the City of London. Comparative examples were also drawn

from the Ministry of Transportation's (MTO) West Region inventory of bridges (2013), selecting for the type of structure to compare the number of spans and length of similar bridges as this information was not included in the City of London's Bridge Inventory. This additional comparative data is included to establish the heritage value of the Overpass within a regional context.

The City of London Bridge Inventory identifies 18 continuous beam and slab structures in the City of London, built between 1958 and 2005. Of these, three are two-span, ten are three-span, like the Highbury Avenue North Overpass, and five are four-span. Of the 18 beam and slab structures in the City of London, 14 are made of reinforced concrete, while four are made of a combination of precast concrete and reinforced concrete. Therefore, the Highbury Avenue North Overpass is not considered significant when compared to similar bridges in a local context.

According to the MTO inventory of bridges, there are 13 continuous deck slab structures in West Region, all built between 1930 and 1961. One structure was built in the 1930s, three were built in the 1950s and 9 were built in the 1960s. The Highbury Avenue North Overpass is the oldest of this structure type in London. While the Highbury Avenue North Overpass is the oldest of this structure type in London Inventory, the majority of these beam/girder reinforced cast-in-place concrete bridges were built in the 1950s and 1960s, when the Highbury Avenue North Overpass was constructed. Therefore, the Highbury Avenue North Overpass is not considered significant in terms of its date of construction.

Of the 13 continuous deck slab structures, four bridges have one span, one has 16 spans, two have two spans, three have three spans, as the Highbury Avenue North Overpass does, and seven have 4 spans. Therefore, the Highbury Avenue North Overpass is not considered significant in terms of number of spans.

The 13 continuous deck slab structures reviewed range in length from 12m to 122m, with span lengths varying from 6m to 22m. The Highbury Avenue North consists of 16 m spans with a total length of 48.095 m. Therefore, the Highbury Avenue North Overpass is not considered significant in terms of individual span length or overall length.

In summary, the Highbury Avenue North Overpass is typical in terms of its age, length, materials, and size for this type of structure.

5.3 DISCUSSION OF INTEGRITY

According to the Ontario Heritage Toolkit, Heritage Property Evaluation (MTCS 2006), *"Integrity is a question of whether the surviving physical features (heritage attributes) continue to represent or support the cultural heritage value or interest of the property."* The following discussion of integrity was prepared to consider the ability of the structure to represent and retain its value over time. It does not consider the structural integrity of the structure, or the overall condition of the structure. Observations have been made from the public right-of-way. Structural integrity, should it be identified as a concern, should be determined by a qualified heritage engineer, building scientist, or architect.

The Highbury Avenue North Overpass has not been significantly altered or modified since its construction in 1958. Minor repairs and ongoing maintenance has been completed for the structure to retain and support its use as an overpass. Graffiti covers the overpass, but is removable, and therefore does not detract from the integrity of the structure. A chain link fence not original to the structure has been installed for public safety, but only mildly detracts from the integrity of the structure. Overall, the structure retains the majority of its built character and integrity.

6 CONCLUSIONS

Based on the evaluation of background historical research, site investigation and application of criteria from *Ontario Regulation 9/06*, the Highbury Avenue North Overpass was determined to have no significant cultural heritage value or interest. Accordingly, no Statement of Cultural Heritage Value or Interest and list of Attributes has been prepared.

7 RECOMMENDATIONS

WSP Canada Inc. (WSP) was retained by the City of London to complete a Cultural Heritage Evaluation Report (CHER) for the Highbury Avenue North Overpass as part of the Preliminary Design and Class Environmental Assessment Study for the proposed London Bus Rapid Transit system. The purpose of this report is to identify the cultural heritage value or interest of the structure, which has been identified in the City of London Cultural Heritage Screening Report (October 2018) as being directly impacted and as a heritage property listed on the City of London's Inventory of Heritage Resources.

The subject study area includes the Highbury Avenue North Overpass and its approaches. Based on the results of background historical research, site investigation, and application of Ontario Regulation 9/06 criteria, the Highbury Avenue North Overpass was not determined to retain cultural heritage value or interest.

The completion of the study has resulted in the following recommendation:

- 1. The Highbury Avenue North Overpass was determined not to demonstrate cultural heritage value or interest. As such, no further cultural heritage work is recommended for this structure.**

8 IMAGES



Image 1: View of the Highbury Avenue North Overpass, looking northeast (WSP, 2018).



Image 2: View of the Highbury Avenue North Overpass embankments, looking northeast (WSP, 2018).



Image 3: View of the Highbury Avenue North Overpass piers and substructure, looking northeast (WSP, 2018).



Image 4: View of the Highbury Avenue North Overpass piers and substructure, looking northwest (WSP, 2018).



Image 5: View of the Highbury Avenue North Overpass steel girders and soffit, looking north (WSP, 2018).



Image 6: View of the Highbury Avenue North Overpass soffit and slope protection, looking east (WSP, 2018).



Image 7: View of the Highbury Avenue North Overpass piers and substructure, looking northeast (WSP, 2018).



Image 8: View of the Highbury Avenue North Overpass, looking northwest (WSP, 2018).



Image 9: View of the Highbury Avenue North Overpass southern approach, looking north (WSP, 2018).



Image 10: View of the Highbury Avenue North Overpass deck, from atop bridge, looking north (WSP, 2018).



Image 11: View of the Highbury Avenue North Overpass asphalt deck surface, from atop overpass, looking northwest (WSP, 2018).



Image 12: Detail of sidewalk and guardrail, Highbury Avenue North Overpass deck (WSP, 2018).



Image 13: Detail of guardrail and chain link fence, Highbury Avenue North Overpass, looking northeast (WSP, 2018).



Image 14: View of the Highbury Avenue North Overpass deck, from atop bridge, looking south (WSP, 2018).



Image 15: View of Académie de la Tamise, Highbury Avenue North context, south of the overpass, looking northwest (WSP, 2018).



Image 16: View of industrial and commercial area, Highbury Avenue North context, north of the overpass looking northwest (WSP, 2018).

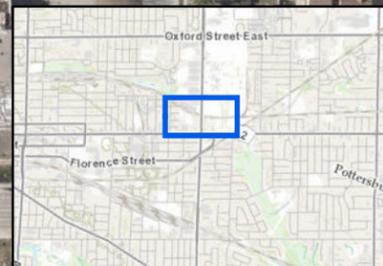


Image 17: View of CPR rail line, with London Psychiatric Hospital grounds to the north and south, from the overpass, looking east (WSP, 2018).



Image 18: View of Salvation Army, The London Village, community centre, Highbury Avenue North context, north of the overpass looking northeast (WSP, 2018).

9 HISTORICAL PHOTOS AND MAPPING



582 LANCASTER STREET WEST
 KITCHENER, ONTARIO CANADA N2K 1M3
 TEL.: 519-743-8777 | WWW.WSP.COM

LEGEND

 STUDY AREA



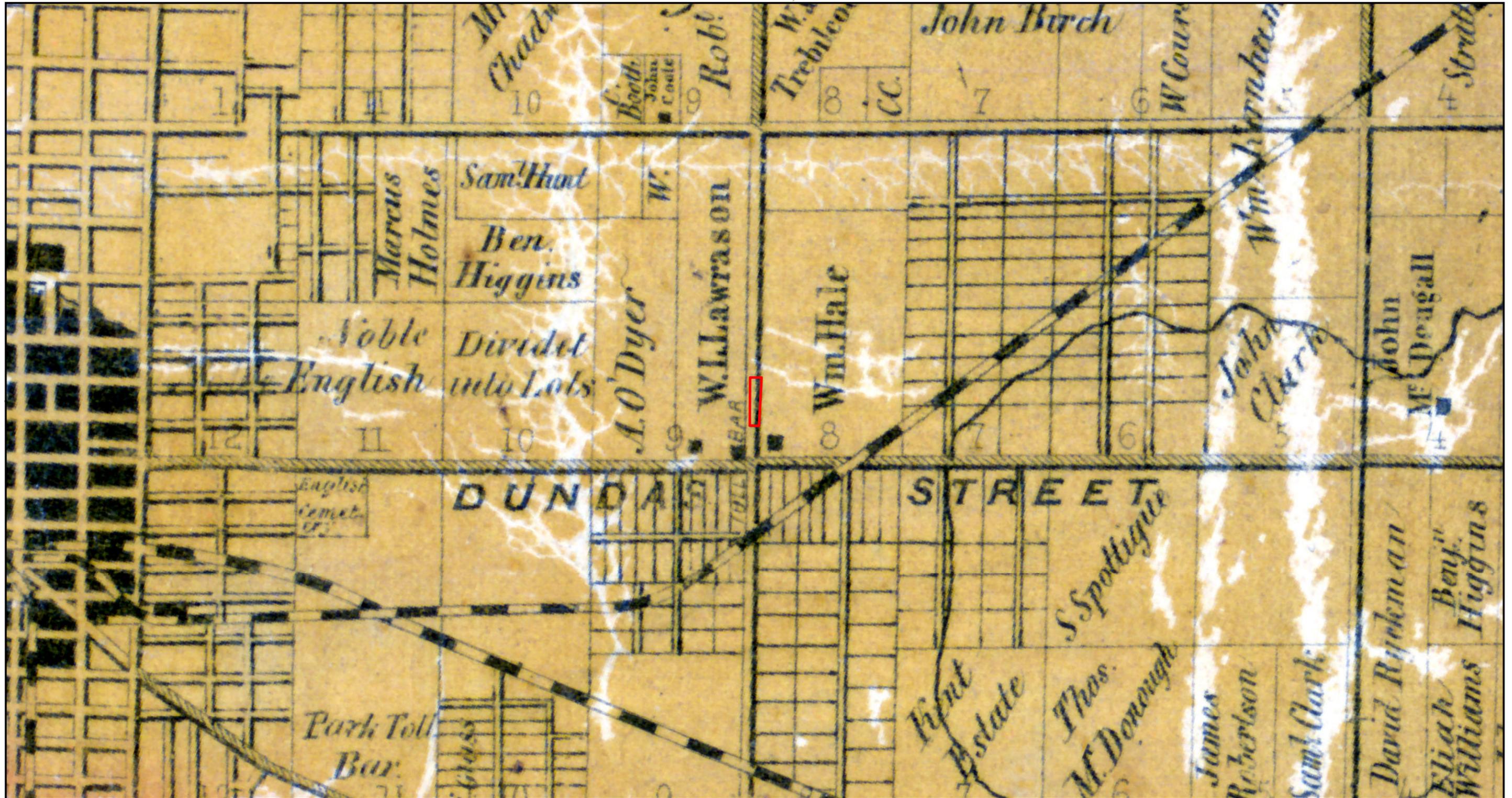
TITLE:
 FIGURE 1: LOCATION AND CONTEXT OF HIGHBURY AVENUE
 NORTH OVERPASS, CITY OF LONDON, ONTARIO

PROJECT:
 CULTURAL HERITAGE EVALUATION REPORT
 LONDON RAPID TRANSIT CORRIDOR
 HIGHBURY AVENUE NORTH OVERPASS

SCALE: 1:2,500	PROJECT NO: 141-21085-00	DATE: JANUARY 2019
-------------------	-----------------------------	-----------------------

DRAWN BY: JAS	CLIENT: CITY OF LONDON
------------------	---------------------------

CREDITS:



582 LANCASTER STREET WEST
 KITCHENER, ONTARIO CANADA N2K 1M3
 TEL.: 519-743-8777 | WWW.WSP.COM

LEGEND

STUDY AREA



TITLE:
 FIGURE 2: HIGHBURY AVENUE NORTH OVERPASS,
 CITY OF LONDON, ONTARIO, 1862 TREMAINE'S MAP OF
 THE COUNTY OF MIDDLESEX, CANADA WEST

PROJECT:
 CULTURAL HERITAGE EVALUATION REPORT
 LONDON RAPID TRANSIT CORRIDOR
 HIGHBURY AVENUE NORTH OVERPASS

SCALE:
 1:15,000

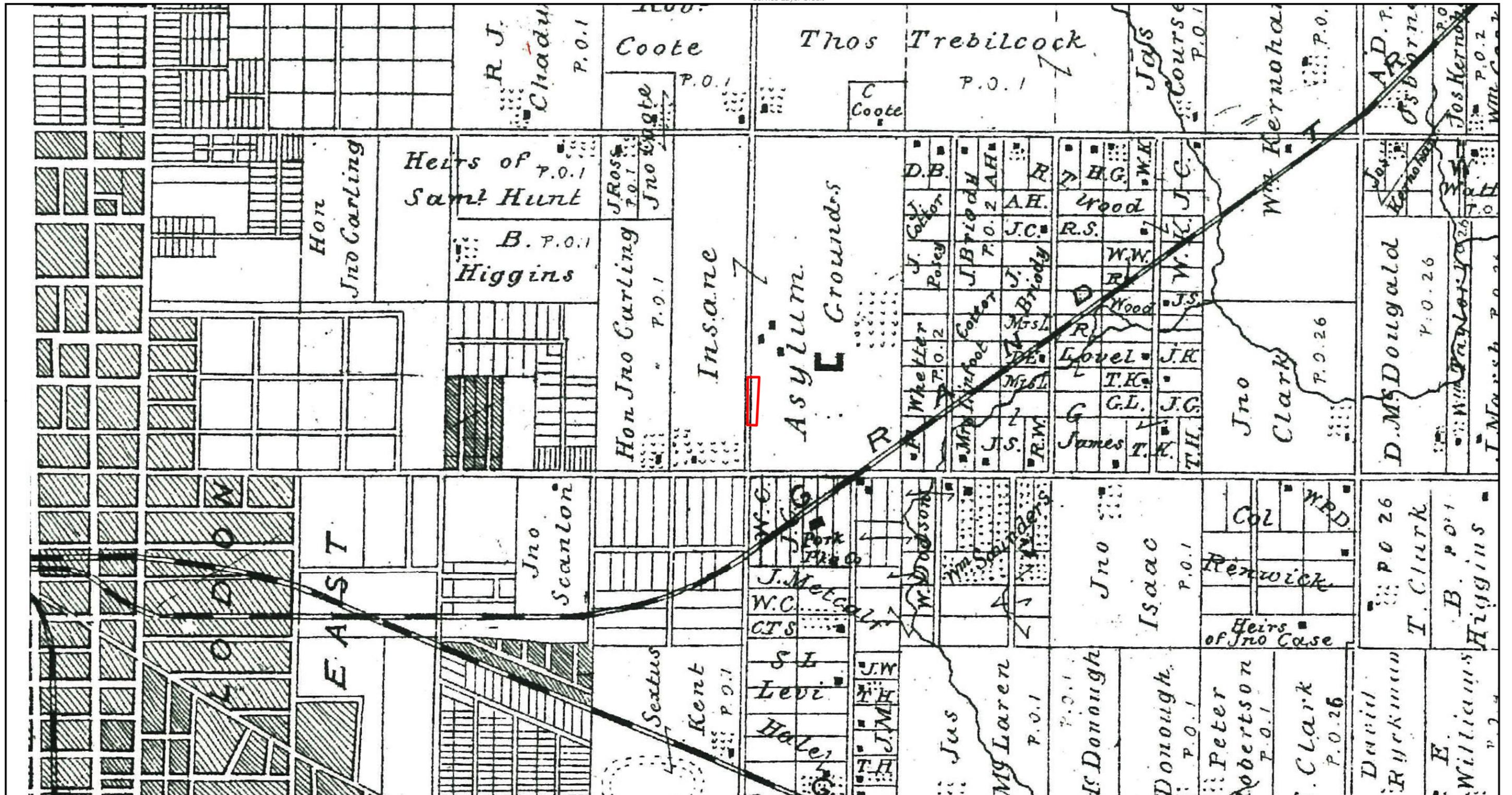
PROJECT NO:
 141-21085-00

DATE:
 JANUARY 2019

DRAWN BY:
 JAS

CLIENT:
 CITY OF LONDON

CREDITS:
 TREMAINE, 1862
 ArcGIS User fortinm



582 LANCASTER STREET WEST
 KITCHENER, ONTARIO CANADA N2K 1M3
 TEL.: 519-743-8777 | WWW.WSP.COM

LEGEND

STUDY AREA



TITLE:

FIGURE 3: Highbury Avenue North Overpass,
 City of London, Ontario, 1878 Illustrated
 Historical Atlas of the County of Middlesex

PROJECT:

Cultural Heritage Evaluation Report
 London Rapid Transit Corridor
 Highbury Avenue North Overpass

SCALE:
 1:15,000

PROJECT NO:
 141-21085-00

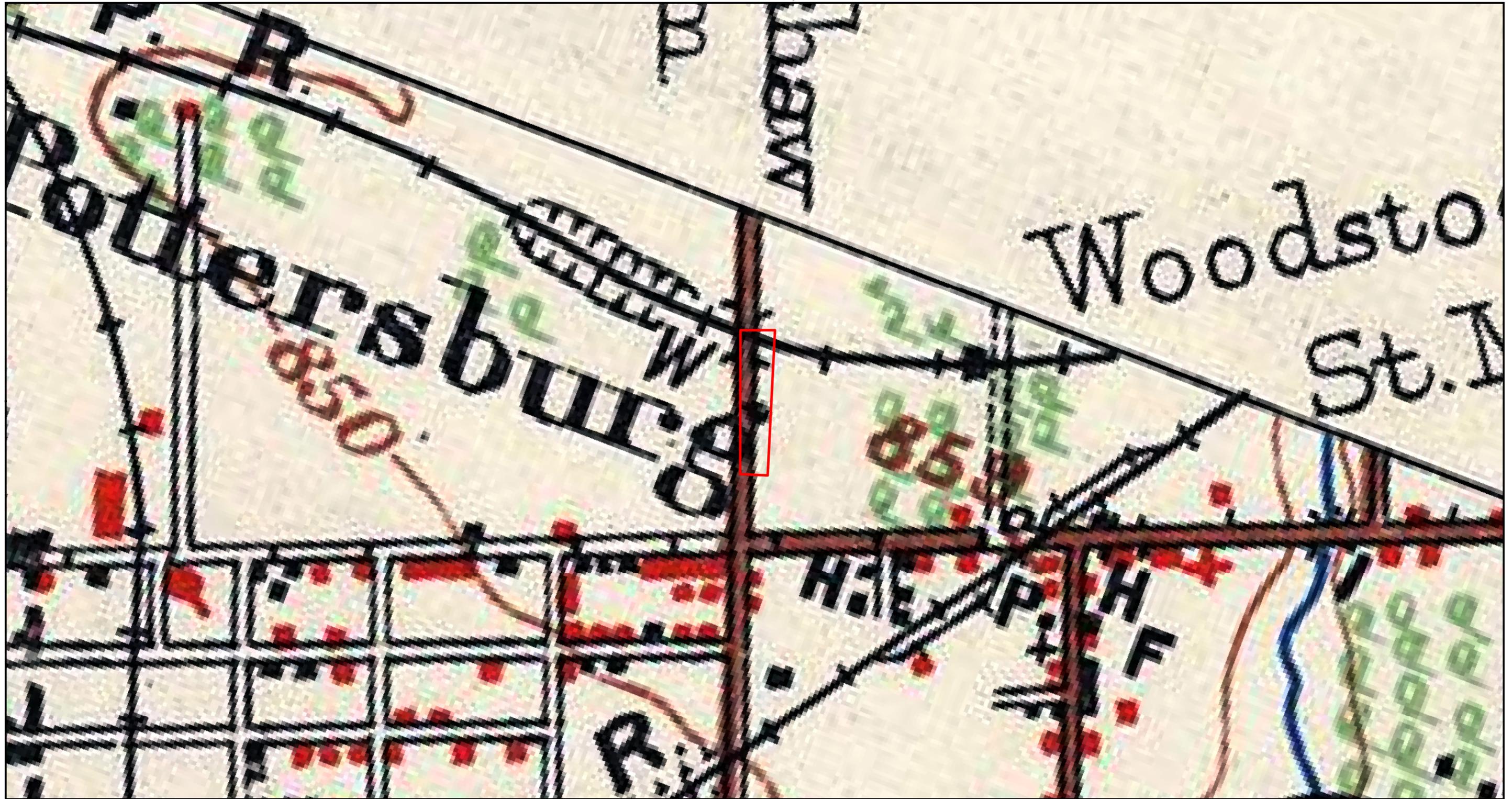
DATE:
 JANUARY 2019

DRAWN BY:
 JAS

CLIENT:
 CITY OF LONDON

CREDITS:

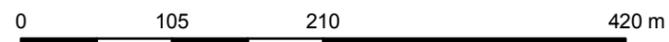
H.R. PAGE & CO, 1878



582 LANCASTER STREET WEST
 KITCHENER, ONTARIO CANADA N2K 1M3
 TEL.: 519-743-8777 | WWW.WSP.COM

LEGEND

 STUDY AREA



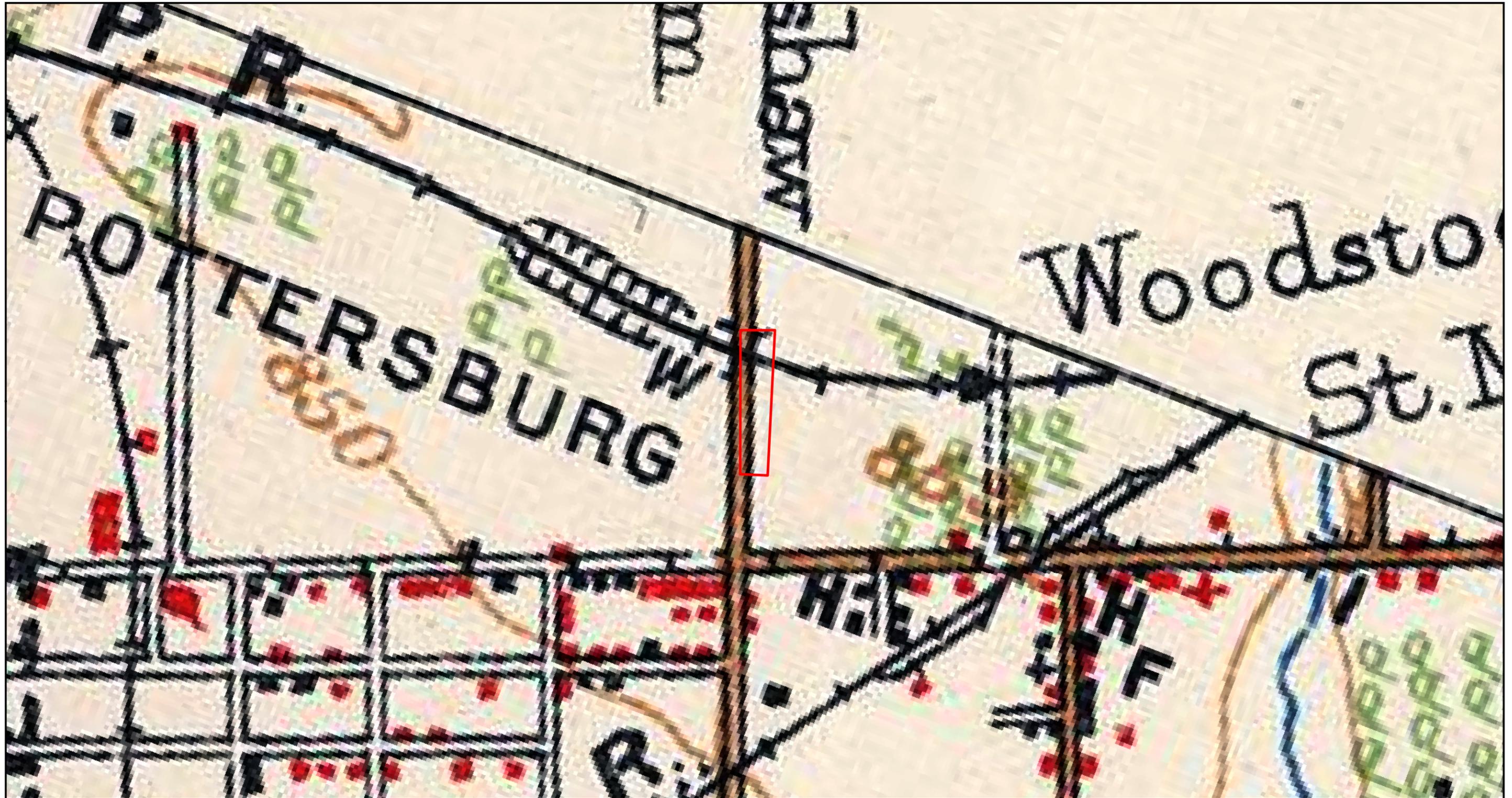
TITLE:
 FIGURE 4: Highbury Avenue North Overpass,
 City of London, 1913 Topographic Map, St. Thomas

PROJECT:
 CULTURAL HERITAGE EVALUATION REPORT
 LONDON RAPID TRANSIT CORRIDOR
 Highbury Avenue North Overpass

SCALE: 1:5,000	PROJECT NO: 141-21085-00	DATE: JANUARY 2019
-------------------	-----------------------------	-----------------------

DRAWN BY: JAS	CLIENT: CITY OF LONDON
------------------	---------------------------

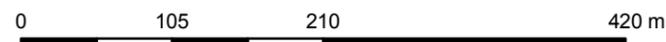
CREDITS:
 DEPARTMENT OF MILITIA AND
 DEFENCE 1913, SHEET 04014 [ed. 1]
 ONTARIO COUNCIL OF UNIVERSITY
 LIBRARIES



582 LANCASTER STREET WEST
 KITCHENER, ONTARIO CANADA N2K 1M3
 TEL.: 519-743-8777 | WWW.WSP.COM

LEGEND

 STUDY AREA



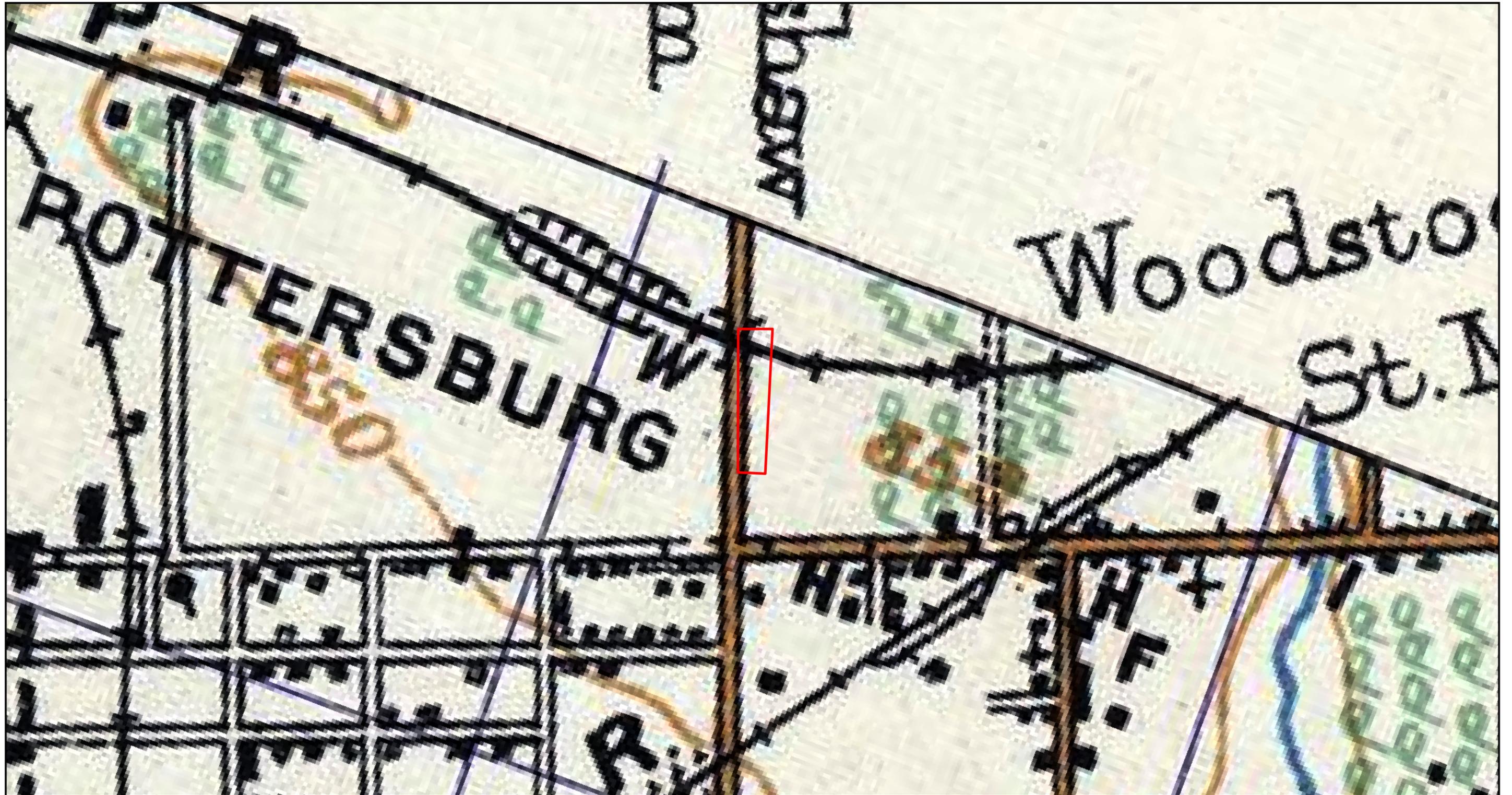
TITLE:
 FIGURE 5: Highbury Avenue North Overpass,
 City of London, 1919 Topographic Map, St. Thomas

PROJECT:
 CULTURAL HERITAGE EVALUATION REPORT
 LONDON RAPID TRANSIT CORRIDOR
 Highbury Avenue North Overpass

SCALE: 1:5,000	PROJECT NO: 141-21085-00	DATE: JANUARY 2019
-------------------	-----------------------------	-----------------------

DRAWN BY: JAS	CLIENT: CITY OF LONDON
------------------	---------------------------

CREDITS:
 DEPARTMENT OF MILITIA AND
 DEFENCE 1919, SHEET 04014 [ed. 1]
 ONTARIO COUNCIL OF UNIVERSITY
 LIBRARIES



582 LANCASTER STREET WEST
 KITCHENER, ONTARIO CANADA N2K 1M3
 TEL.: 519-743-8777 | WWW.WSP.COM

LEGEND

 STUDY AREA



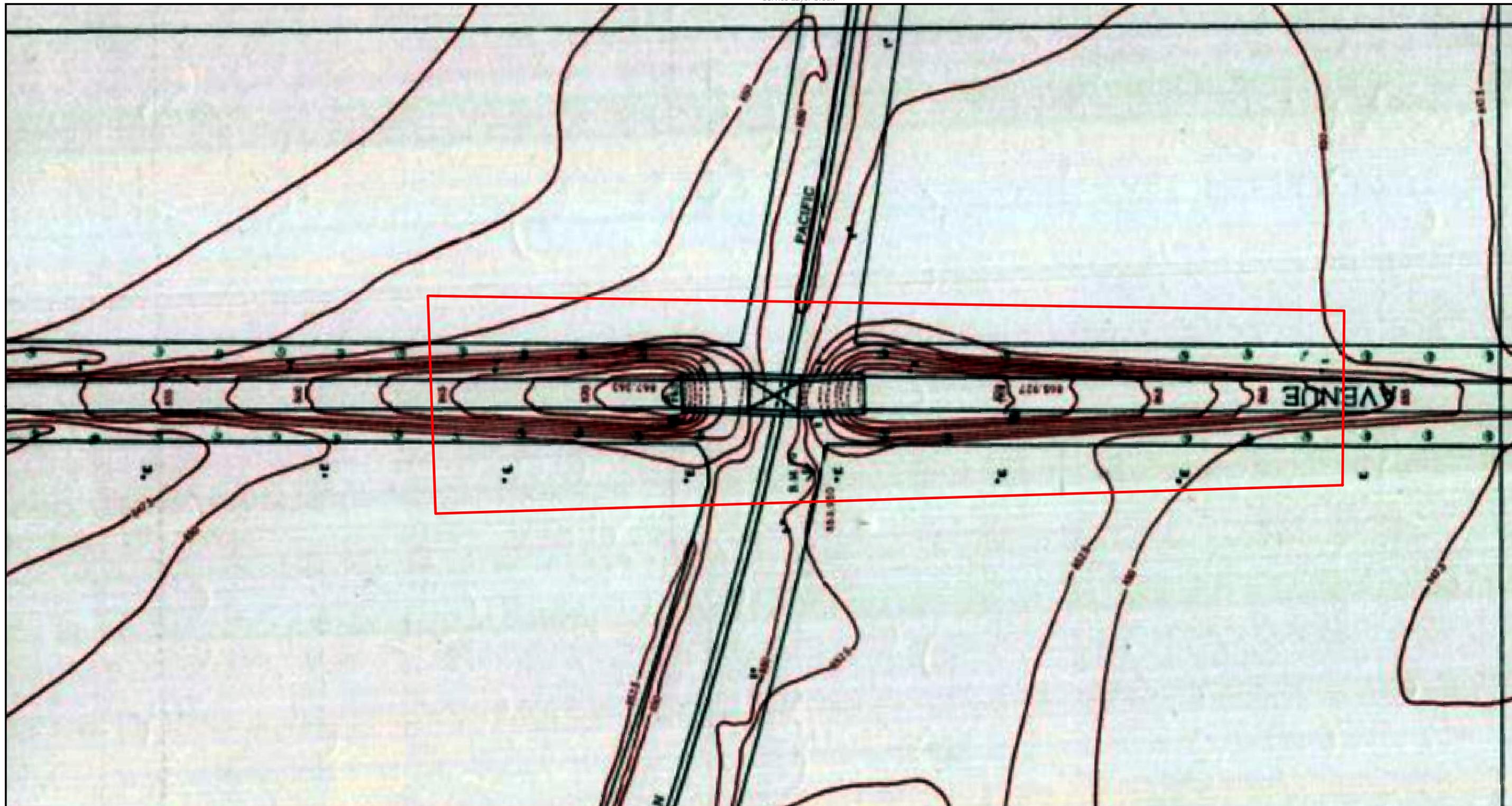
TITLE:
 FIGURE 6: Highbury Avenue North Overpass,
 City of London, 1924 Topographic Map, St. Thomas

PROJECT:
 CULTURAL HERITAGE EVALUATION REPORT
 LONDON RAPID TRANSIT CORRIDOR
 Highbury Avenue North Overpass

SCALE: 1:5,000	PROJECT NO: 141-21085-00	DATE: JANUARY 2019
-------------------	-----------------------------	-----------------------

DRAWN BY: JAS	CLIENT: CITY OF LONDON
------------------	---------------------------

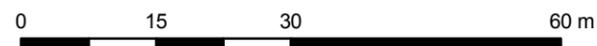
CREDITS:
 DEPARTMENT OF MILITIA AND
 DEFENCE 1924, SHEET 04014 [ed. 1]
 ONTARIO COUNCIL OF UNIVERSITY
 LIBRARIES



582 LANCASTER STREET WEST
 KITCHENER, ONTARIO CANADA N2K 1M3
 TEL.: 519-743-8777 | WWW.WSP.COM

LEGEND

 STUDY AREA



TITLE:

FIGURE 7: Highbury Avenue North Overpass,
 City of London, 1926 Geodetic Survey of London

PROJECT:

CULTURAL HERITAGE EVALUATION REPORT
 LONDON RAPID TRANSIT CORRIDOR
 Highbury Avenue North Overpass

SCALE:
 1:800

PROJECT NO:
 141-21085-00

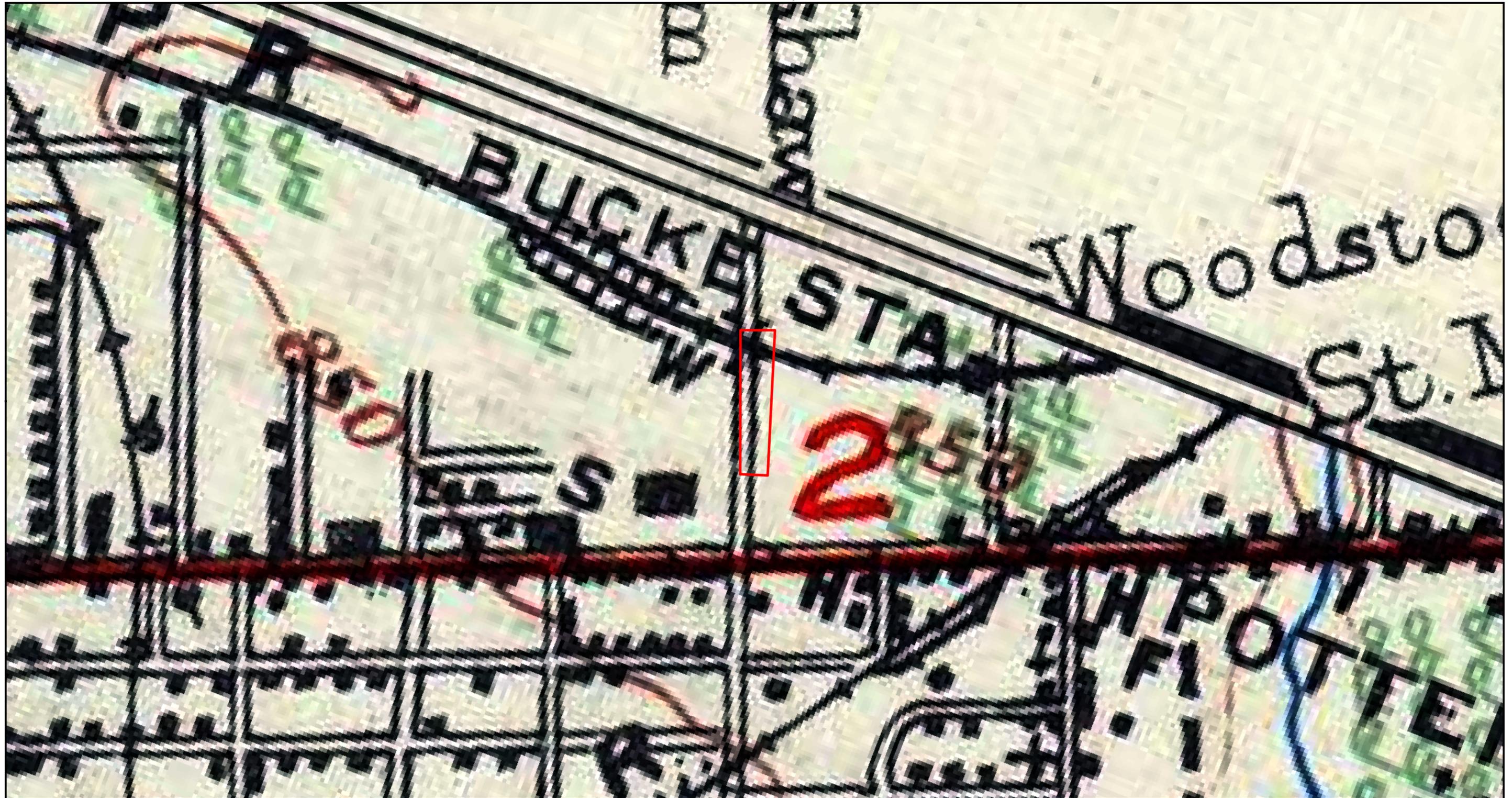
DATE:
 JANUARY 2019

DRAWN BY:
 JAS

CLIENT:
 CITY OF LONDON

CREDITS:

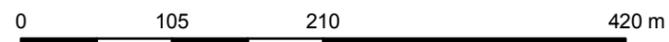
GEODETIC SURVEY OF CANADA
 1926 SHEET 91
 WESTERN UNIVERSITY



582 LANCASTER STREET WEST
 KITCHENER, ONTARIO CANADA N2K 1M3
 TEL.: 519-743-8777 | WWW.WSP.COM

LEGEND

 STUDY AREA



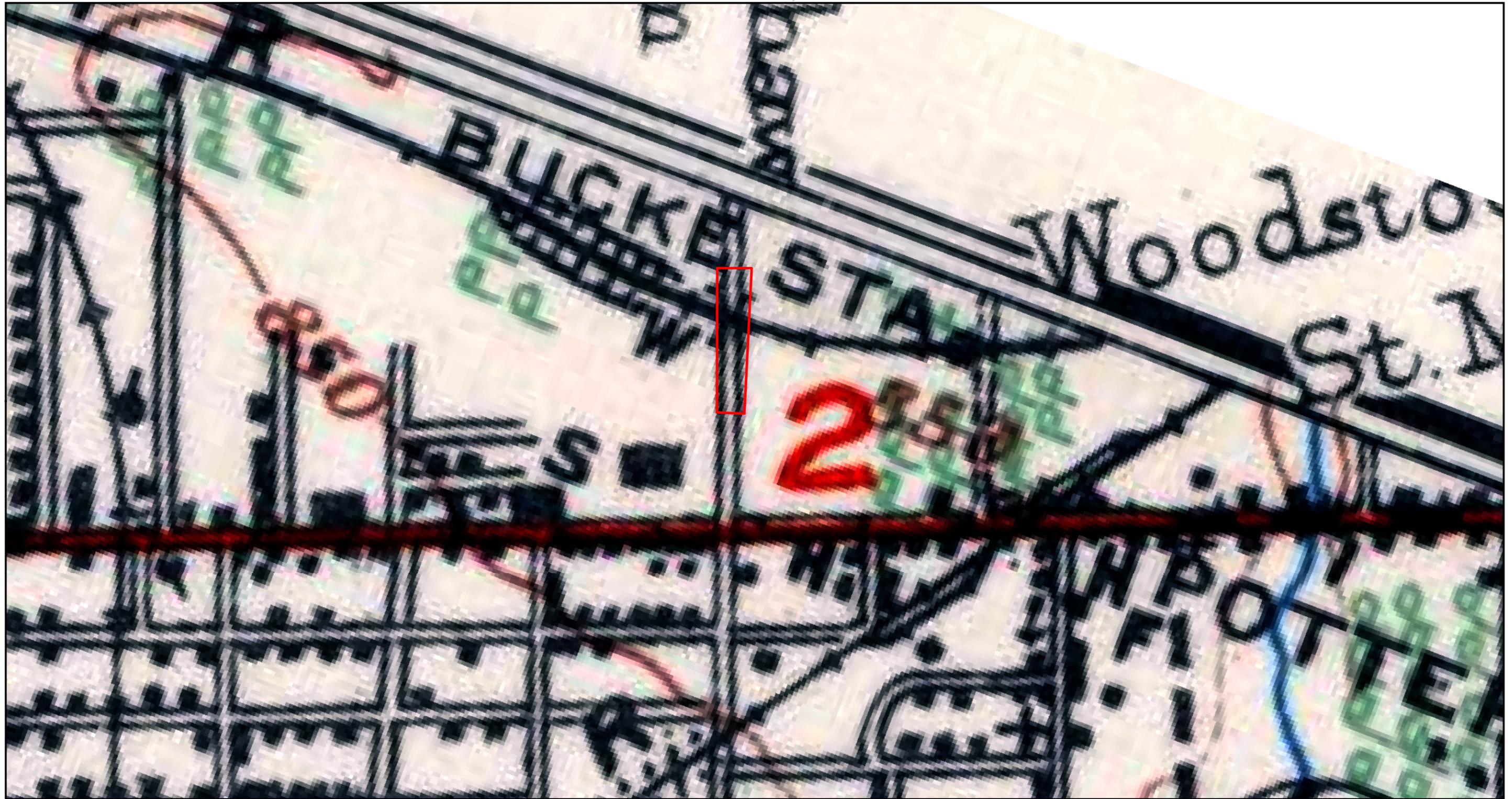
TITLE:
 FIGURE 8: Highbury Avenue North Overpass,
 City of London, 1929 Topographic Map, St. Thomas

PROJECT:
 CULTURAL HERITAGE EVALUATION REPORT
 LONDON RAPID TRANSIT CORRIDOR
 Highbury Avenue North Overpass

SCALE: 1:5,000	PROJECT NO: 141-21085-00	DATE: JANUARY 2019
-------------------	-----------------------------	-----------------------

DRAWN BY: JAS	CLIENT: CITY OF LONDON
------------------	---------------------------

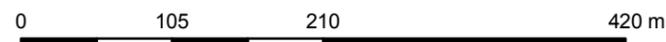
CREDITS:
 DEPARTMENT OF MILITIA AND
 DEFENCE 1929, SHEET 04014 [ed. 1]
 ONTARIO COUNCIL OF UNIVERSITY
 LIBRARIES



582 LANCASTER STREET WEST
 KITCHENER, ONTARIO CANADA N2K 1M3
 TEL.: 519-743-8777 | WWW.WSP.COM

LEGEND

 STUDY AREA



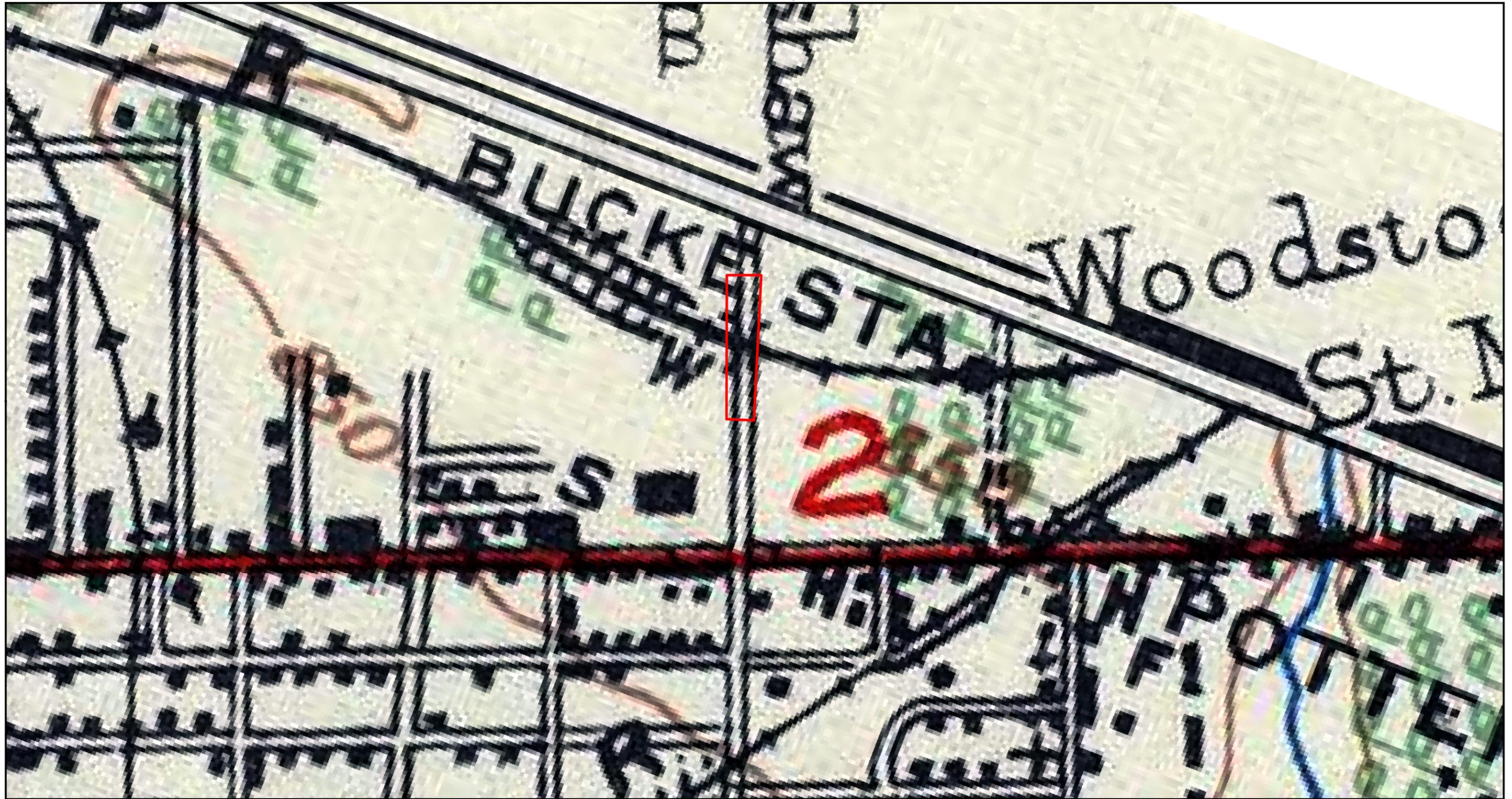
TITLE:
 FIGURE 9: Highbury Avenue North Overpass,
 City of London, 1934 Topographic Map, St. Thomas

PROJECT:
 CULTURAL HERITAGE EVALUATION REPORT
 LONDON RAPID TRANSIT CORRIDOR
 Highbury Avenue North Overpass

SCALE: 1:5,000	PROJECT NO: 141-21085-00	DATE: JANUARY 2019
-------------------	-----------------------------	-----------------------

DRAWN BY: JAS	CLIENT: CITY OF LONDON
------------------	---------------------------

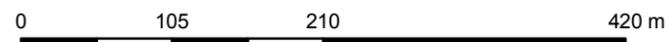
CREDITS:
 DEPARTMENT OF MILITIA AND
 DEFENCE 1934, SHEET 04014 [ed. 1]
 ONTARIO COUNCIL OF UNIVERSITY
 LIBRARIES



582 LANCASTER STREET WEST
 KITCHENER, ONTARIO CANADA N2K 1M3
 TEL.: 519-743-8777 | WWW.WSP.COM

LEGEND

 STUDY AREA



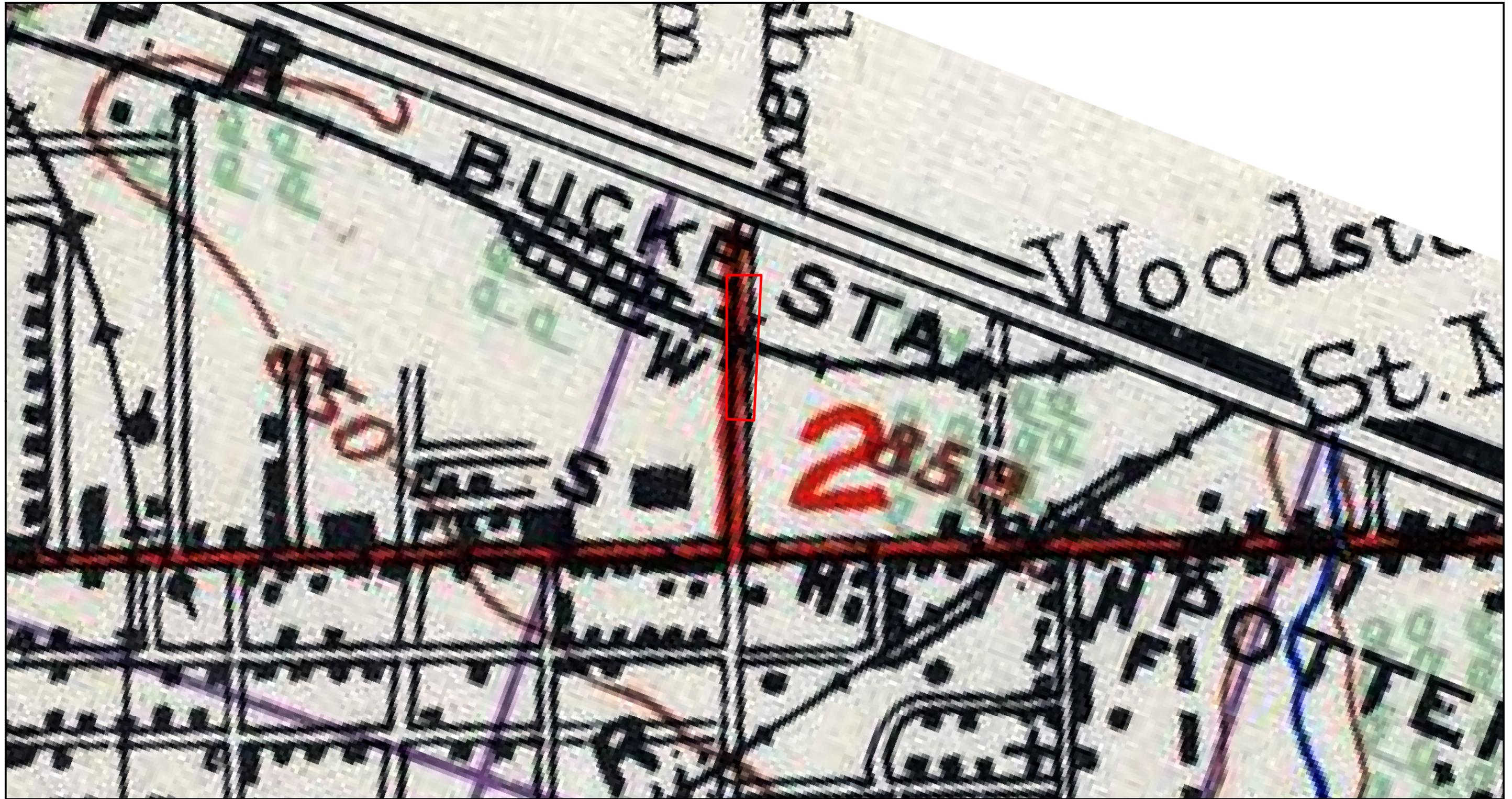
TITLE:
 FIGURE 10: Highbury Avenue North Overpass,
 City of London, 1938 Topographic Map, St. Thomas

PROJECT:
 CULTURAL HERITAGE EVALUATION REPORT
 LONDON RAPID TRANSIT CORRIDOR
 Highbury Avenue North Overpass

SCALE: 1:5,000	PROJECT NO: 141-21085-00	DATE: JANUARY 2019
-------------------	-----------------------------	-----------------------

DRAWN BY: JAS	CLIENT: CITY OF LONDON
------------------	---------------------------

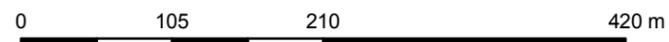
CREDITS:
 DEPARTMENT OF MILITIA AND
 DEFENCE 1938, SHEET 04014 [ed. 1]
 ONTARIO COUNCIL OF UNIVERSITY
 LIBRARIES



582 LANCASTER STREET WEST
 KITCHENER, ONTARIO CANADA N2K 1M3
 TEL.: 519-743-8777 | WWW.WSP.COM

LEGEND

 STUDY AREA



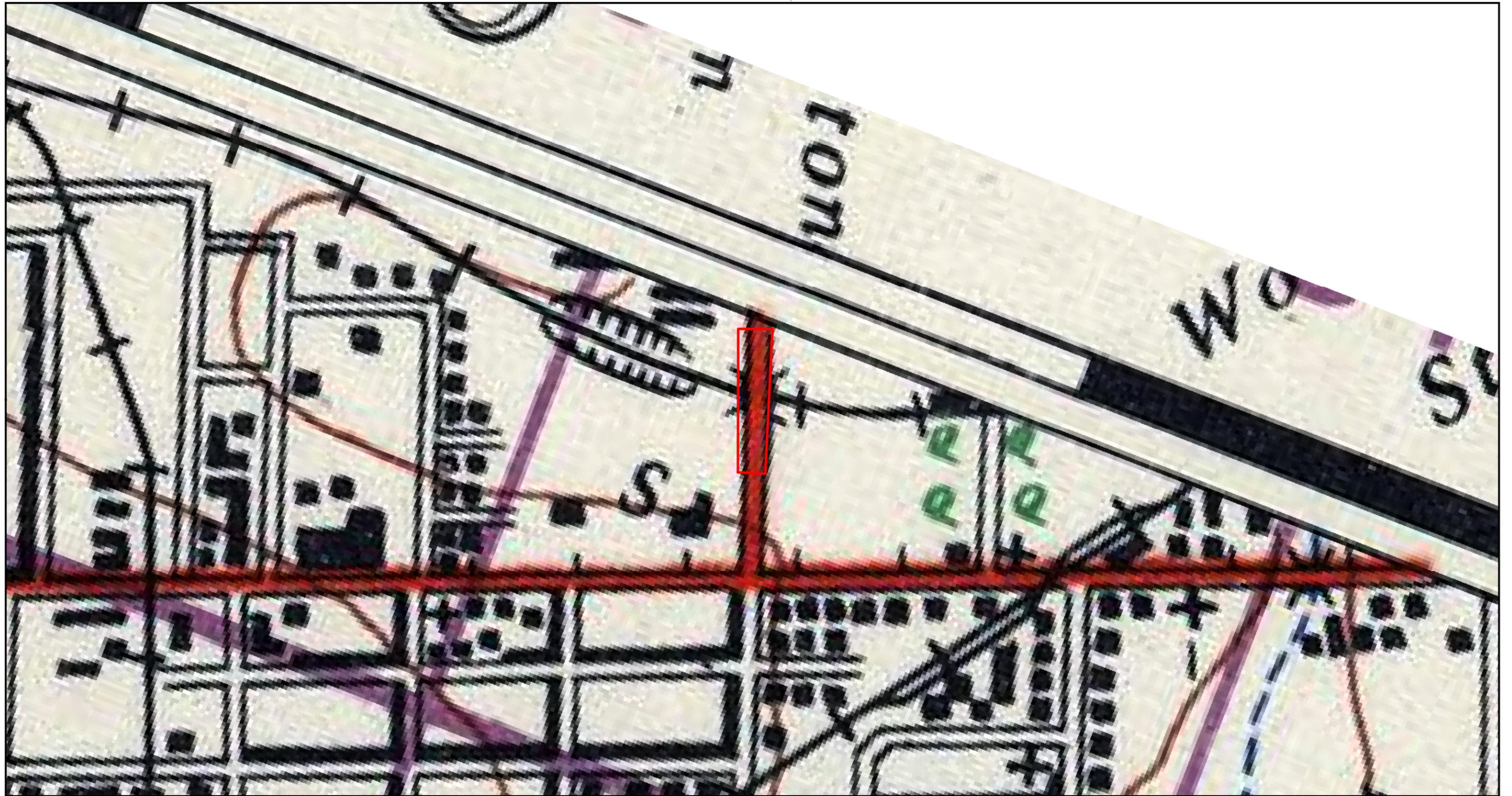
TITLE:
 FIGURE 11: Highbury Avenue North Overpass,
 City of London, 1941 Topographic Map, St. Thomas

PROJECT:
 CULTURAL HERITAGE EVALUATION REPORT
 LONDON RAPID TRANSIT CORRIDOR
 Highbury Avenue North Overpass

SCALE: 1:5,000	PROJECT NO: 141-21085-00	DATE: JANUARY 2019
-------------------	-----------------------------	-----------------------

DRAWN BY: JAS	CLIENT: CITY OF LONDON
------------------	---------------------------

CREDITS:
 DEPARTMENT OF MILITIA AND
 DEFENCE 1941, SHEET 04014 [ed. 1]
 ONTARIO COUNCIL OF UNIVERSITY
 LIBRARIES



582 LANCASTER STREET WEST
 KITCHENER, ONTARIO CANADA N2K 1M3
 TEL.: 519-743-8777 | WWW.WSP.COM

LEGEND

 STUDY AREA



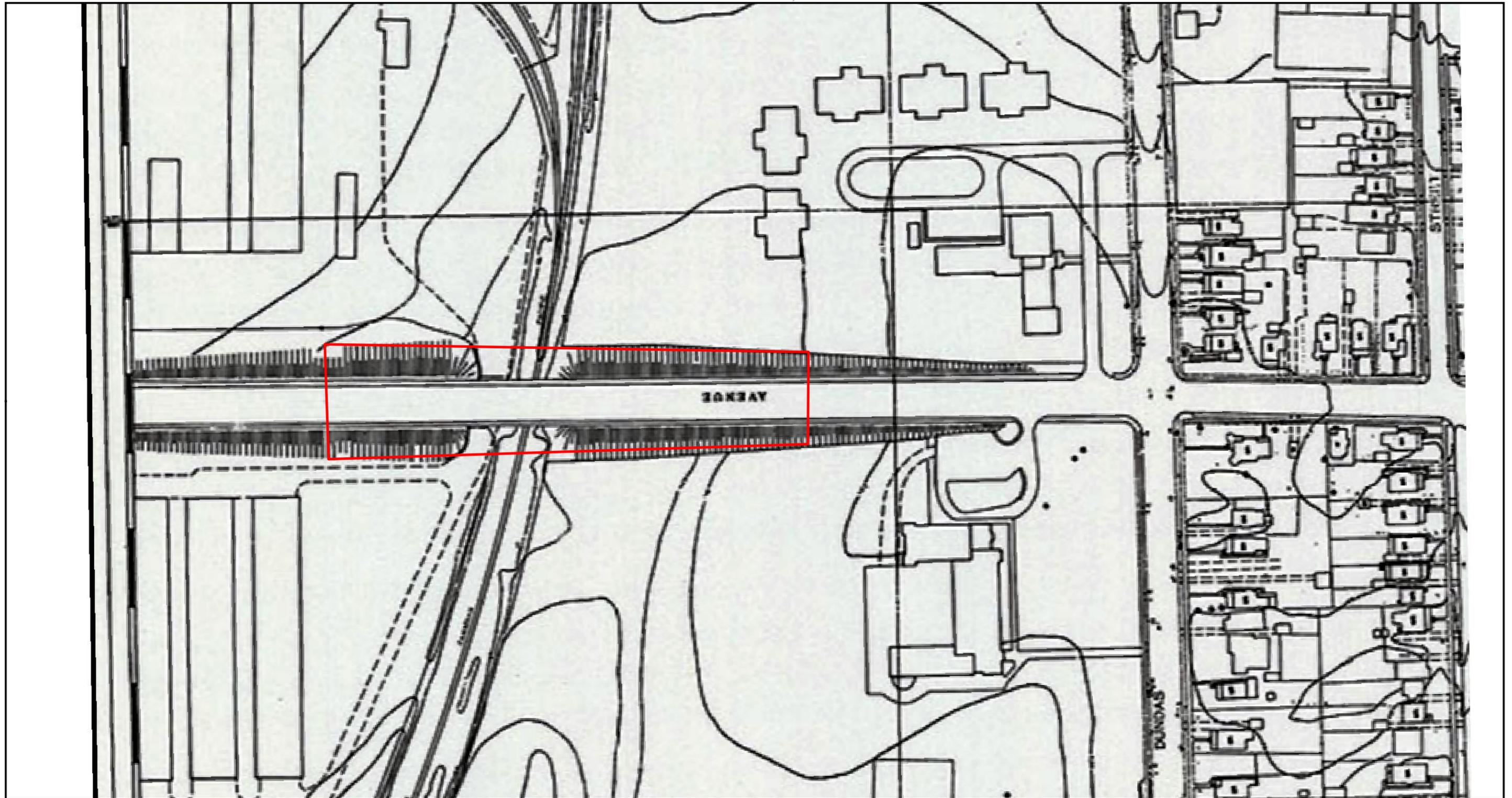
TITLE:
 FIGURE 12: Highbury Avenue North Overpass,
 City of London, 1948 Topographic Map, St. Thomas

PROJECT:
 CULTURAL HERITAGE EVALUATION REPORT
 LONDON RAPID TRANSIT CORRIDOR
 Highbury Avenue North Overpass

SCALE: 1:5,000	PROJECT NO: 141-21085-00	DATE: JANUARY 2019
-------------------	-----------------------------	-----------------------

DRAWN BY: JAS	CLIENT: CITY OF LONDON
------------------	---------------------------

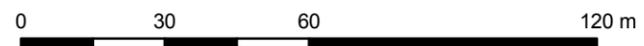
CREDITS:
 DEPARTMENT OF MILITIA AND
 DEFENCE 1948, SHEET 04014f [ed. 1]
 ONTARIO COUNCIL OF UNIVERSITY
 LIBRARIES



582 LANCASTER STREET WEST
 KITCHENER, ONTARIO CANADA N2K 1M3
 TEL.: 519-743-8777 | WWW.WSP.COM

LEGEND

 STUDY AREA



TITLE:

FIGURE 13: Highbury Avenue North Overpass,
 City of London, 1957 Geodetic Survey of London

PROJECT:

CULTURAL HERITAGE EVALUATION REPORT
 LONDON RAPID TRANSIT CORRIDOR
 Highbury Avenue North Overpass

SCALE:
 1:1,500

PROJECT NO:
 141-21085-00

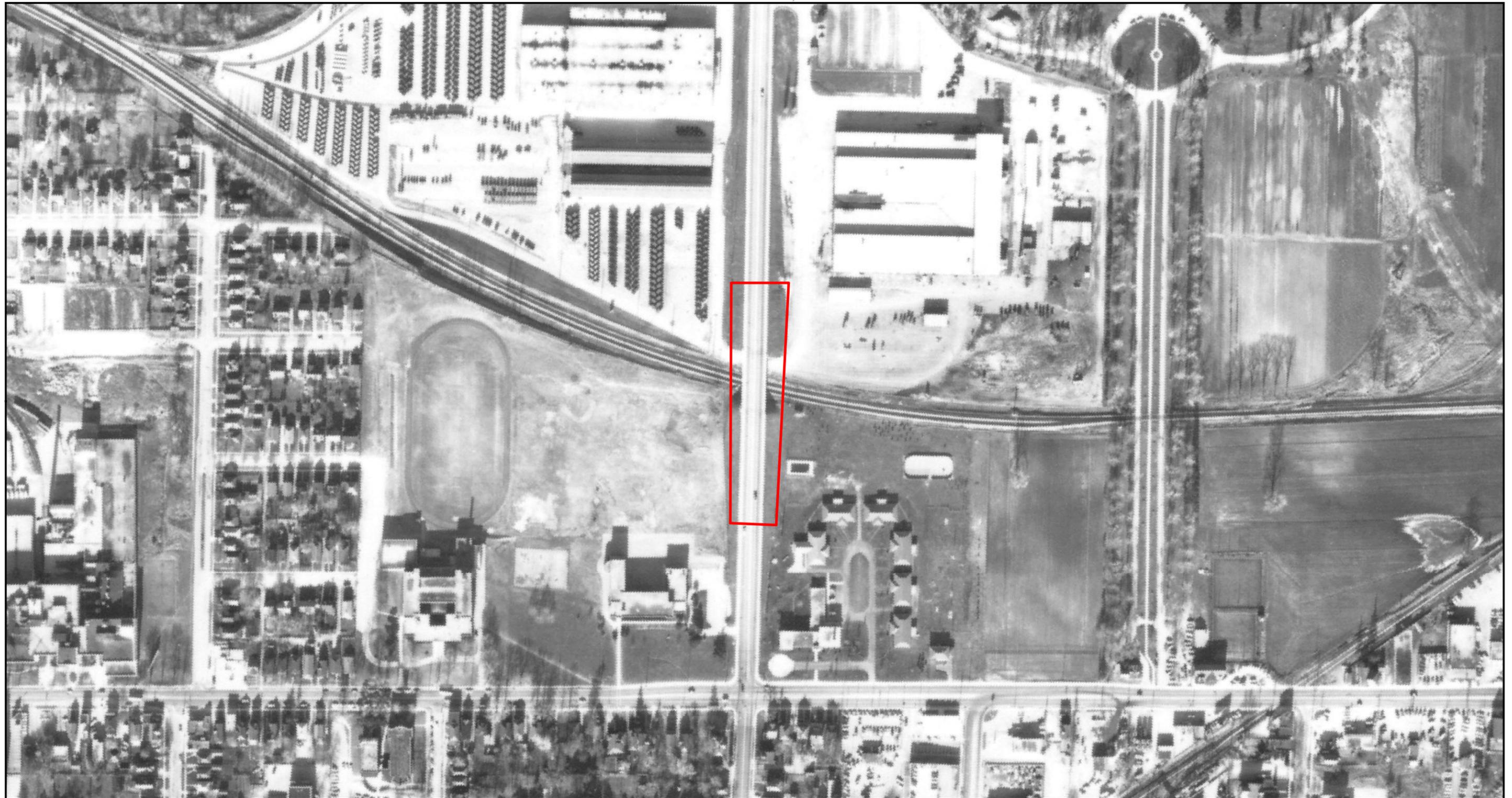
DATE:
 JANUARY 2019

DRAWN BY:
 JAS

CLIENT:
 CITY OF LONDON

CREDITS:

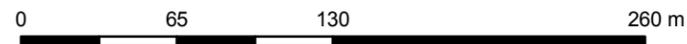
GEODETIC SURVEY OF CANADA
 1957 SHEET 91
 WESTERN UNIVERSITY



582 LANCASTER STREET WEST
 KITCHENER, ONTARIO CANADA N2K 1M3
 TEL.: 519-743-8777 | WWW.WSP.COM

LEGEND

 STUDY AREA



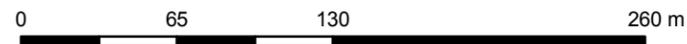
TITLE: FIGURE 14: Highbury Avenue North Overpass, City of London, Aerial Imagery 1967	SCALE: 1:3,000	PROJECT NO: 141-21085-00	DATE: JANUARY 2019
	DRAWN BY: JAS	CLIENT: CITY OF LONDON	
PROJECT: CULTURAL HERITAGE EVALUATION REPORT LONDON RAPID TRANSIT CORRIDOR Highbury Avenue North Overpass	CREDITS: LOCKWOOD SURVEY CORP DATE 12/12/1967 LINE 3, PHOTO 104 WESTERN UNIVERSITY		



582 LANCASTER STREET WEST
 KITCHENER, ONTARIO CANADA N2K 1M3
 TEL.: 519-743-8777 | WWW.WSP.COM

LEGEND

 STUDY AREA



TITLE:
 FIGURE 15: Highbury Avenue North Overpass,
 City of London, Aerial Imagery 1998

PROJECT:
 CULTURAL HERITAGE EVALUATION REPORT
 LONDON RAPID TRANSIT CORRIDOR
 Highbury Avenue North Overpass

SCALE: 1:3,000	PROJECT NO: 141-21085-00	DATE: JANUARY 2019
-------------------	-----------------------------	-----------------------

DRAWN BY: JAS	CLIENT: CITY OF LONDON
------------------	---------------------------

CREDITS:
 CITY OF LONDON

10 BIBLIOGRAPHY AND SOURCES

- Armstrong, Frederick H. (1986). *The Forest City: An Illustrated History of London, Canada*. Windsor Publications, London, Ontario.
- Baker, M. & Neary, H. B. (2003). *London Street Names: An Illustrated Guide*. Toronto: J. Lorimer & Company Ltd.
- Bothwell, Robert. (1986). *A Short History of Ontario*. Hurtig Publishers, Edmonton, Alberta.
- Brock, Daniel (1972). *History of the County of Middlesex, Canada*. Mika Studio, Belleville, Ontario.
- Brock, D. J., & McEwen, C. B. (2011). *Fragments from the Forks: London, Ontario's legacy*. London, Ont.: London & Middlesex Historical Society.
- City of London (2016). *Founding of the Forest City*. Retrieved From <http://www.london.ca/about-london/london-history/pages/overview.aspx>
- Craig, Gerald M. (1963). *Upper Canada: The Formative Years*. McClelland and Stewart, Toronto, Ontario.
- Dillon Consulting (n.d.) History and Community <http://www.dillon.ca/about/history-and-community>
- Errington, Jane (1987). *The Lion, the Eagle, and Upper Canada: A Developing Ideology*. McGill-Queen's University Press, Kingston and Montreal.
- Firth, Edith G. ed. (1962). *The Town of York 1793-1918, A Collection of Documents of Early Toronto*. The Champlain Society, Toronto, Ontario.
- Goodden, Herman. (2012). *London*. The Canadian Encyclopedia. <http://www.thecanadianencyclopedia.ca/en/article/london/>
- Grainger, Jennifer (2002). *Vanished Village of Middlesex*. Dundurn Publishers, Toronto, Ontario.
- Kennedy, R.L. (2017) *Canadian Pacific Railway - London Division* http://www.trainweb.org/oldtimetrains/CPR_London/history_Main.htm
- Lutman, John (1977). *The Historic Heart of London*. Corporation of the City of London, London, Ontario.
- London and Middlesex Historical Society, The, (2009) *London East*, <https://web.archive.org/web/20090131092251/http://londonhistory.org/Londoneast.htm>

Meligrana, John F. (2000). *The Politics of Municipal Annexation: The Case of the City of London's Territorial Ambitions during the 1950s and 1960s*. *Urban History Review* 29, no. 1, pp. 3-20.

Ontario Genealogical Society (OGS) (2008), *2008 Obituaries*,
https://ogs.on.ca/ogspi_pages/2008/o2008hic.htm

Sancton, Andrew. (1994). *Governing Canada's City-Regions: Adapting Form to Function*. The Institute for Research on Public Policy, Montreal, Quebec.

Sancton, Andrew and Montgomery Byron. (1994). *Municipal Government and Residential Land Development: A Comparative Study of London, Ontario, in the 1920s and 1980s*. In *The Changing Canadian Metropolis*. Ed Frances Frisken, The Institute of Intergovernmental Studies Press, University of California, Berkeley and Toronto.

Schull, Joseph. (1978). *Ontario Since 1867*. McClelland and Stewart, Toronto, Ontario.

St. Joseph's Health Care London, (n.d.) *Legacy of Mental Health Care in London: History* <https://www.sjhc.london.on.ca/mental-health-care/legacy/history>

Surtees, Robert J. (1994). *Land Cessions, 1763-1830*. In *Aboriginal Ontario: Historical Perspectives on the First Nations*, Ed Edward S. Rogers and Donald B. Smith, pp. 92-121. Dundurn Press for the Government of Ontario, Toronto, Ontario.

St-Denis, Guy (1992). *Simcoe's Choice, Celebrating London's Bicentennial 1793-1993*. Dundurn Press, Toronto, Ontario.

Unknown Author (1889). *History of the County of Middlesex*. W.A. and C.L. Goodspeed Publishers, Toronto.

Wilson, Andrew H. (2017) EIC Presidential Biographies, 1937 - 2010 Part One, EIC History and Archives. <https://eic-ici.ca/PDFs/history/EIC%20Paper%2042%20-%20Presidential%20Bios%20One.pdf>

Worrall, Reid Alan. (1980). *The evolution of the boundaries of the City of London, Ontario*. Undergraduate thesis, Department of Geography, University of Western Ontario.

Provincial Standards and Resources

Ontario Heritage Tool Kit

<http://www.culture.gov.on.ca/english/heritage/Toolkit/toolkit.ht>

Ontario Ministry of Tourism, Culture and Sport: Heritage Conservation Principle's for Land Use Planning

http://www.culture.gov.on.ca/english/heritage/info_sheets/info_sheet_landuse_planning.htm

Ontario Ministry of Tourism, Culture and Sport: Eight Guiding Principles in the Conservation of Historic Properties
http://www.culture.gov.on.ca/english/heritage/info_sheets/info_sheet_8principles.htm

Ontario Ministry of Culture, Tourism and Sport: Archaeological Assessments
http://www.mtc.gov.on.ca/en/archaeology/archaeology_assessments.shtml

Municipal Heritage Bridges Cultural, Heritage and Archaeological Resources Assessment Checklist (Revised April 11, 2014)

Ontario Heritage Act (2006)

Ontario Heritage Bridge Guidelines (2008)

Reference Guide on Physical and Cultural Heritage Resources (1996)

Guidelines for Preparing the Cultural Heritage Resource Component of Environmental Assessments (1992)

Guidelines on the Man-Made Heritage Component of Environmental Assessments (1981)

Environmental Guide for Built Heritage and Cultural Heritage Landscapes (2007)

National and International Standards and Resources

Canadian Register of Historic Places
http://www.historicplaces.ca/visit-visite/rep-reg_e.aspx

Parks Canada Standards and Guidelines for the Conservation of Historic Places in Canada
http://www.pc.gc.ca/docs/pc/guide/nldclpc-sgchpc/index_E.asp

Parks Canada National Historic Sites of Canada
http://www.pc.gc.ca/progs/lhn-nhs/index_e.asp

International Council of Monuments and Sites (ICOMOS): Appleton Charter
<http://www.international.icomos.org/charters/appleton.pdf>

A DRAFT TERMS OF REFERENCE FOR CULTURAL HERITAGE EVALUATIONS

Terms of Reference:

Cultural Heritage Evaluation Report

A Cultural Heritage Evaluation Report will be prepared by a qualified heritage consultant as required by the recommendations of the Cultural Heritage Screening Report.

The Cultural Heritage Evaluation Report will include:

- an executive summary, describing a summary of the outcome of the cultural heritage evaluation;
- an introduction providing context for the report and providing a brief overview of how and why the research was undertaken;
- a general description of the history of the immediate context, considering the unique setting of the property, which may consist of a village, neighborhood, commercial district, and/or street the property is located within;
- a land use history of the property parcel describing key transfers of land and milestones, informed by Land Registry records and additional archival research into prominent owners or tenants, including but not limited to the use of tax assessments or City Directories, if identified;
- a description of the character of the immediate landscape context, including views and/or vistas;
- a description of the exterior of a resource visible from the public right-of-way for a building, and if an engineering work, a description of its structural design and materials;
- representative photographs of the exterior of a building or structure, character-defining architectural details taken during a site visit from the public right-of-way, or, of a structure, representative photographs of the elevations and structural details of a bridge or engineering work;
- a comparative analysis, using resources of a similar age, style, typology, context and/or history, informed by a search of the City of London Inventory of Heritage Resources
- a qualified statement about integrity, including observations from the public right-of-way, description of limitations, and recommendations for future work by a qualified heritage engineer, building scientist, or architect;
- evaluation under O. Reg. 9/06, guided by the Ontario Heritage Toolkit (2006) and the Ministry of Tourism, Culture and Sport's Standards and Guidelines for the Conservation of Provincial Heritage Properties (2014);
- a statement of cultural heritage value or interest (if applicable);
- a description of the heritage attributes (if applicable);
- historical mapping, photographs of the property if available;
- a location plan;
- a description of consultation undertaken;
- recommendations for further work; and
- sources cited.

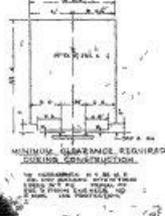
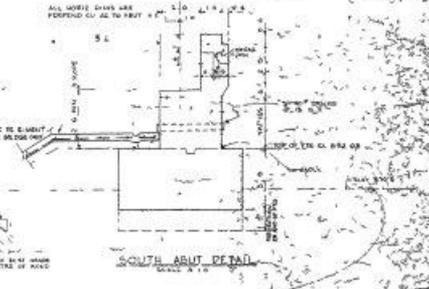
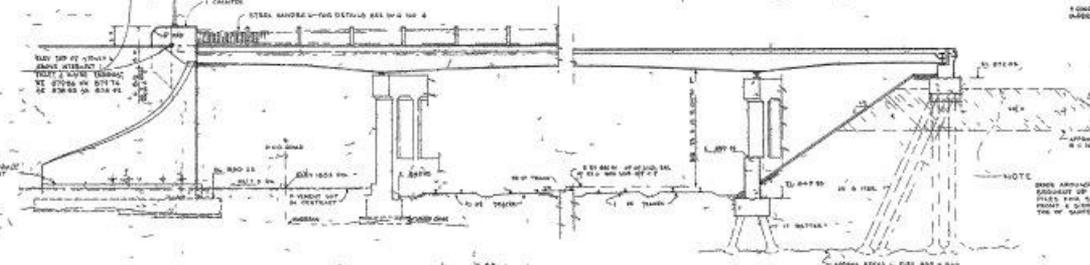
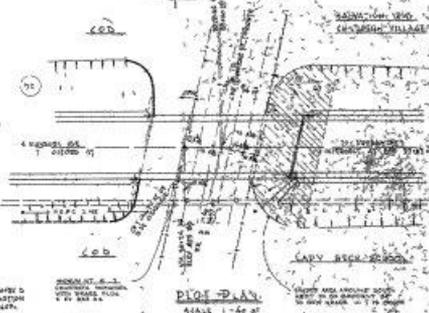
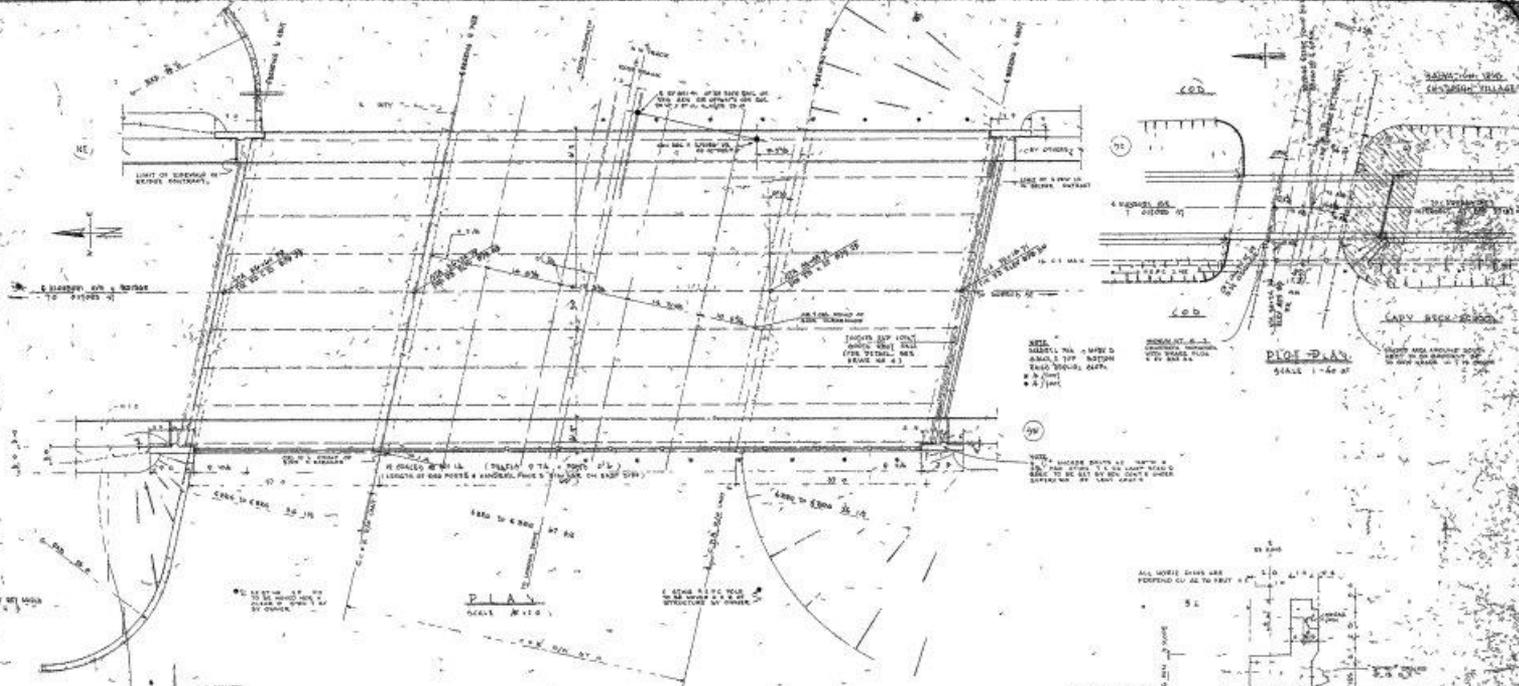
Group Cultural Heritage Evaluation Report

A group Cultural Heritage Evaluation Report will be prepared by a qualified heritage consultant as required by the recommendations of the Cultural Heritage Screening Report for contiguous properties which share a geography, style, age, use and typology.

A Grouped Cultural Heritage Evaluation Report will include:

- an executive summary, describing a summary of the outcome of the cultural heritage evaluation(s);
- an introduction providing context for the report and providing a brief overview of how and why the research was undertaken;
- a shared general description of the history of the of the immediate context, considering the unique setting of the property, which may consist of the village, neighborhood, commercial district, and/or street the properties are located within;
- a shared description of the character of the immediate landscape context, including views and/or vistas;
- a land use history of the property parcel describing key transfers of land and milestones, informed by Land Registry records and additional archival research into prominent owners or tenants, including but not limited to the use of tax assessments or City Directories, if identified;
- a description of the exterior of each resource visible from the public right-of-way for a building, and if an engineering work, a description of its structural design and materials;
- representative photographs of the exterior of each resource, including architectural details, taken during a site visit from the public right-of-way, or, of a structure, representative photographs of the elevations and structural details of a bridge or engineering work;
- a comparative analysis for each resource, using resources of a similar age, style, typology, context and/or history, informed by a search of the City of London Inventory of Heritage Resources;
- a qualified statement about integrity for each resource, including observations from the public right-of-way, description of limitations, and recommendations for future work by a qualified heritage engineer, building scientist, or architect;
- evaluation under O. Reg. 9/06 for each property, guided by the Ontario Heritage Toolkit (2006) and the Ministry of Tourism, Culture and Sport's Standards and Guidelines for the Conservation of Provincial Heritage Properties (2014);
- a statement of cultural heritage value or interest for each property that meets O. Reg. 9/06 (if applicable);
- a description of the heritage attributes for each property that meets O. Reg. 9/06 (if applicable);
- historical mapping, photographs of the property if available;
- a location plan;
- a description of consultation undertaken; and
- recommendations for further work; and
- sources cited.

B ENGINEERING DRAWINGS



HALF SECTION

THIS BRIDGE AND GIRDERS ARE BY COMPANY AND ITS LESSEE THE GENERAL PARTS AND THE GIRDERS OWNED BY THE COMPANY AND THE GIRDERS OWNED BY THE COMPANY.

PLAN REFERENCE TO A GIRDERS ALL THE GIRDERS.

SCALE AS SHOWN.

W. M. DILLON & CO. LTD.
LONDON

AS BUILT
W. M. DILLON & CO. LTD.
LONDON

NO.	DESCRIPTION	DATE	BY	CHECKED
1	DESIGNED	1911	W. M. DILLON	W. M. DILLON
2	CONTRACT	1911	W. M. DILLON	W. M. DILLON
3	DESIGNED	1911	W. M. DILLON	W. M. DILLON
4	CONTRACT	1911	W. M. DILLON	W. M. DILLON
5	DESIGNED	1911	W. M. DILLON	W. M. DILLON
6	CONTRACT	1911	W. M. DILLON	W. M. DILLON
7	DESIGNED	1911	W. M. DILLON	W. M. DILLON
8	CONTRACT	1911	W. M. DILLON	W. M. DILLON
9	DESIGNED	1911	W. M. DILLON	W. M. DILLON
10	CONTRACT	1911	W. M. DILLON	W. M. DILLON

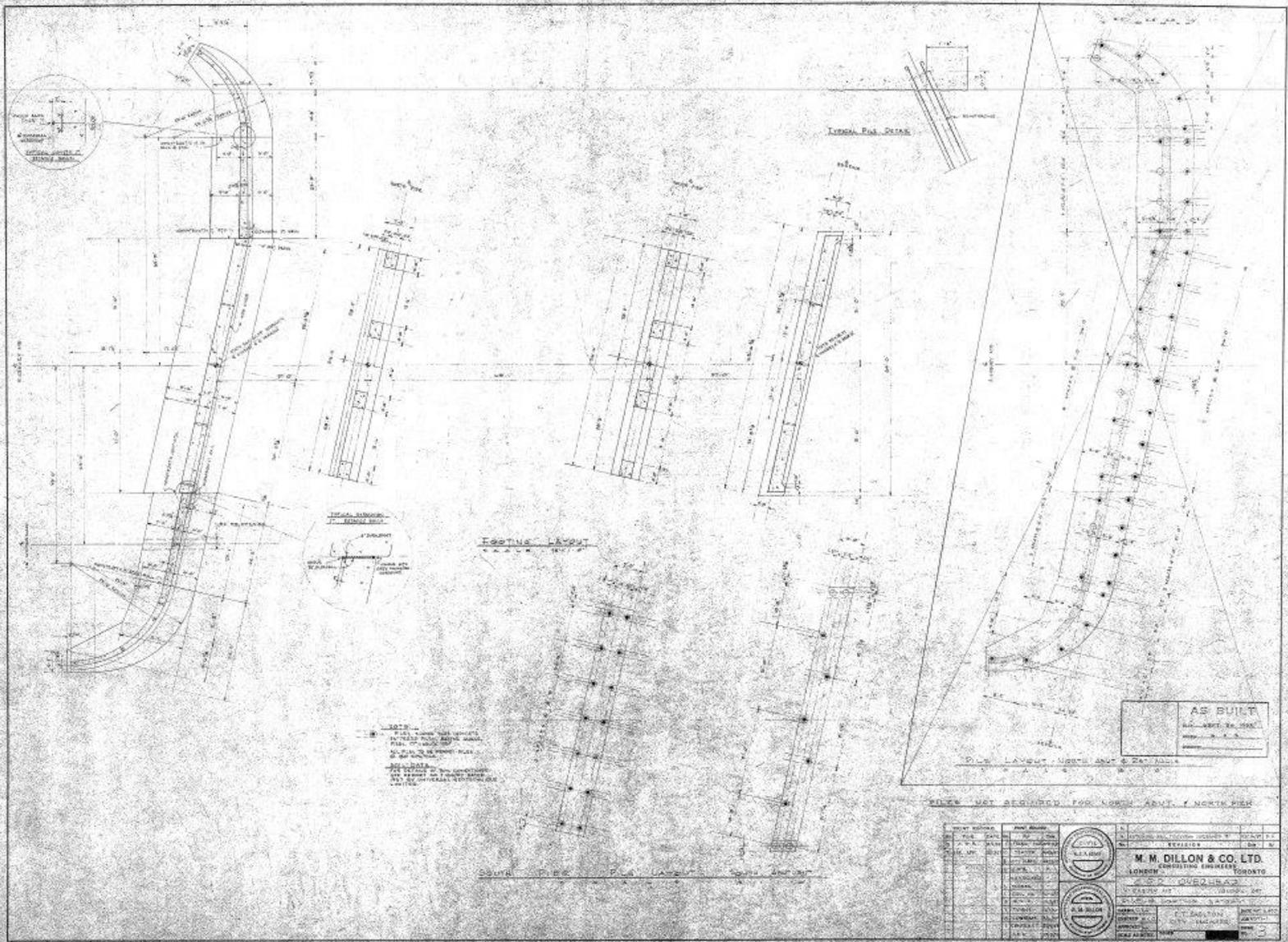
LIST OF CHANGES

NO.	DESCRIPTION	DATE
1	DESIGNED	1911
2	CONTRACT	1911
3	DESIGNED	1911
4	CONTRACT	1911
5	DESIGNED	1911
6	CONTRACT	1911
7	DESIGNED	1911
8	CONTRACT	1911
9	DESIGNED	1911
10	CONTRACT	1911

W. M. DILLON & CO. LTD.
LONDON

C. P. R. DURKIN
SUPERVISOR OF BRIDGE ENGINEERING

C. P. R. DURKIN
SUPERVISOR OF BRIDGE ENGINEERING



NOTES:
 1. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.
 2. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.
 3. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.
 4. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.

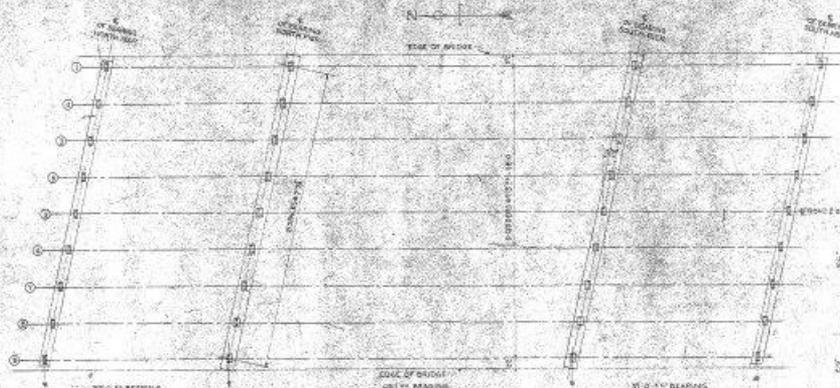
AS BUILT
 No. 1007, 7th Street
 TORONTO

SIZE NOT REQUIRED FOR NORTH AND NORTH PIER

NO.	DATE	BY	CHKD.	REVISION
1	1911			
2	1912			
3	1913			
4	1914			
5	1915			
6	1916			
7	1917			
8	1918			
9	1919			
10	1920			




M. M. DILLON & CO. LTD.
 CONSULTING ENGINEERS
 LONDON TORONTO
 1007, 7th Street
 TORONTO

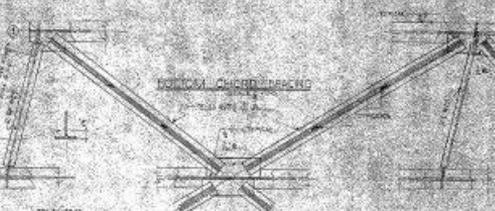


BASE B LAYOUT (EVERY ABUT.)

ITEM	DESCRIPTION	QUANTITY	UNIT	REMARKS
1	STEEL PLATE	10	SQ. FT.	
2	ANGLE IRON	20	LB.	
3	BOLTS	100	PCS.	
4	NUTS	100	PCS.	
5	WELDS	100	LINEAL FT.	



DECK PLAN



NORTH CHORD MEMBER

WAY-PACKING

SCALE 1/20



SCALE 1/20

ITEM	DESCRIPTION	QUANTITY	UNIT
1	STEEL PLATE	10	SQ. FT.
2	ANGLE IRON	20	LB.
3	BOLTS	100	PCS.
4	NUTS	100	PCS.

CURVE DATA

OFFSET DIAGRAM

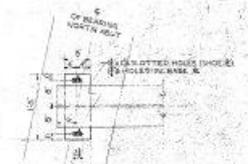
SCALE 1/20



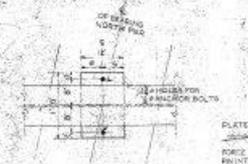
TYPICAL GIRDER

TYPICAL SECTION

SCALE 1/20



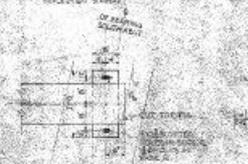
NORTH ABUT



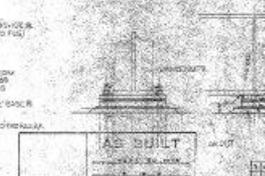
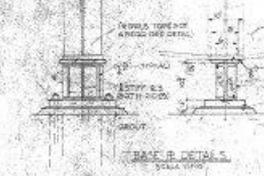
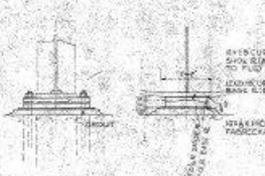
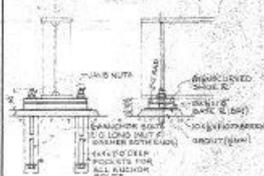
NORTH PIER



SOUTH PIER



SOUTH ABUT



BASE B DETAILS

SCALE 1/20

AS BUILT

SCALE 1/20

ITEM	DESCRIPTION	QUANTITY	UNIT
1	STEEL PLATE	10	SQ. FT.
2	ANGLE IRON	20	LB.
3	BOLTS	100	PCS.
4	NUTS	100	PCS.
5	WELDS	100	LINEAL FT.

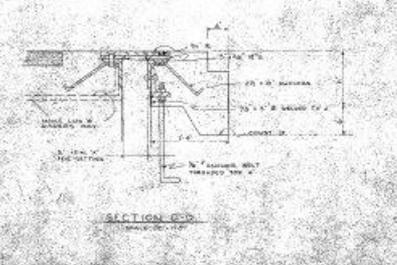
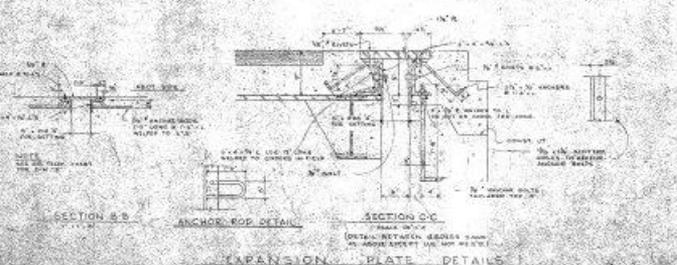
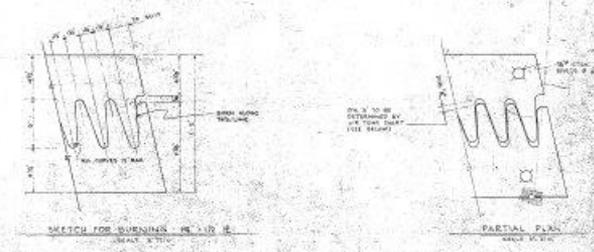
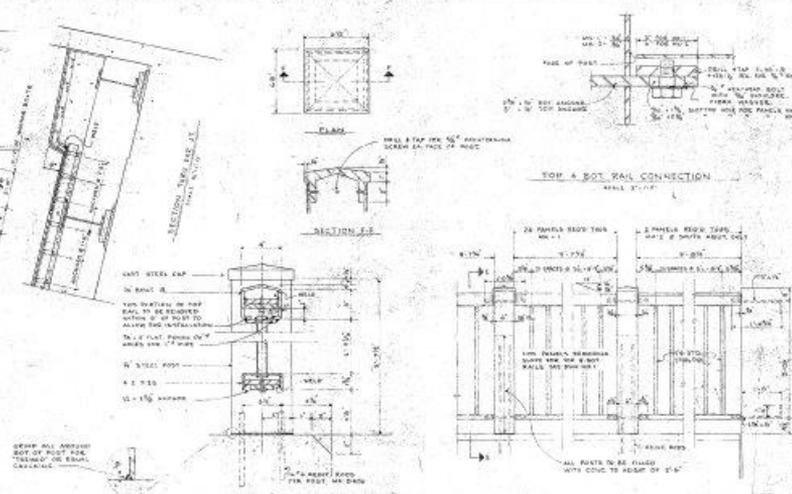
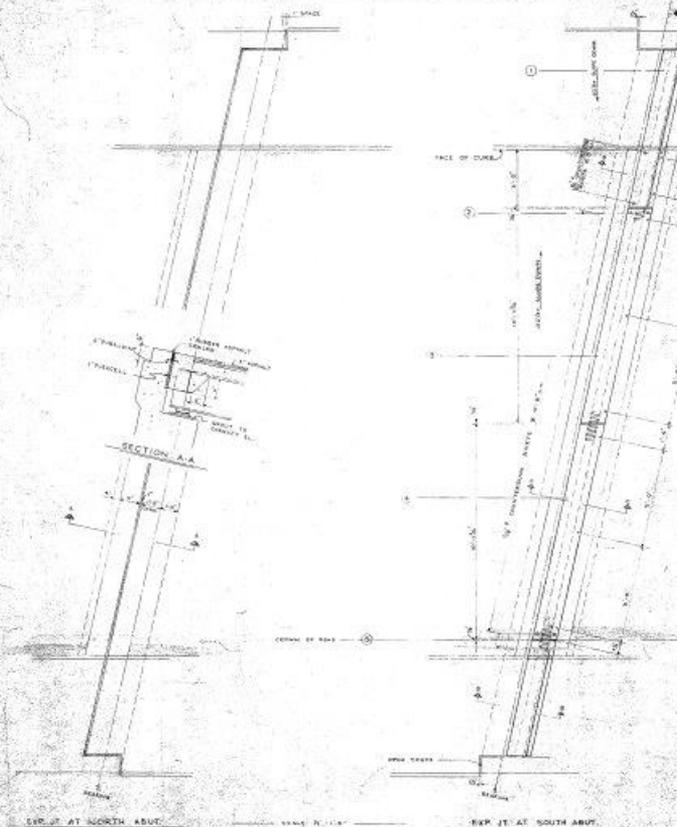
GREEN FIELD PIER

SCALE 1/20

M. N. DILLON & CO. LTD.
CONSULTING ENGINEERS

10, ABchurch Lane, LONDON, E.C. 4

1928



AS BUILT

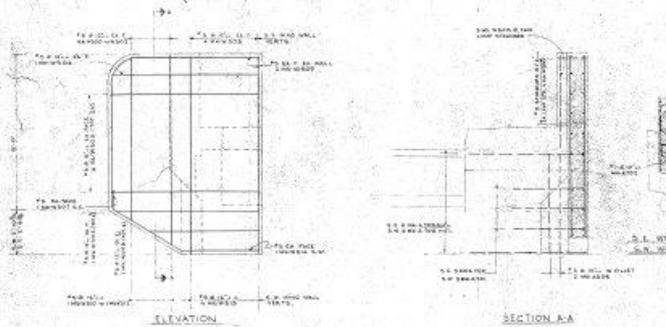
AS BUILT

AS BUILT

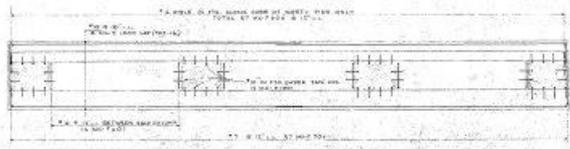
NO.	DESCRIPTION	QUANTITY	UNIT	PRICE	TOTAL
1	STEEL RAILS	100	LB	0.15	15.00
2	STEEL HANDRAILS	100	LB	0.20	20.00
3	STEEL GUSSETING	100	LB	0.30	30.00
4	STEEL ANCHOR RODS	100	LB	0.40	40.00
5	STEEL EXPANSION PLATES	100	LB	0.50	50.00
6	STEEL BOLTS	100	LB	0.10	10.00
7	STEEL NUTS	100	LB	0.10	10.00
8	STEEL WASHERS	100	LB	0.10	10.00
9	STEEL BRACKETS	100	LB	0.20	20.00
10	STEEL PLATES	100	LB	0.30	30.00
11	STEEL CHANNELS	100	LB	0.40	40.00
12	STEEL ANGLES	100	LB	0.30	30.00
13	STEEL SHIMS	100	LB	0.10	10.00
14	STEEL BOLTS	100	LB	0.10	10.00
15	STEEL NUTS	100	LB	0.10	10.00
16	STEEL WASHERS	100	LB	0.10	10.00
17	STEEL BRACKETS	100	LB	0.20	20.00
18	STEEL PLATES	100	LB	0.30	30.00
19	STEEL CHANNELS	100	LB	0.40	40.00
20	STEEL ANGLES	100	LB	0.30	30.00
21	STEEL SHIMS	100	LB	0.10	10.00
22	STEEL BOLTS	100	LB	0.10	10.00
23	STEEL NUTS	100	LB	0.10	10.00
24	STEEL WASHERS	100	LB	0.10	10.00
25	STEEL BRACKETS	100	LB	0.20	20.00
26	STEEL PLATES	100	LB	0.30	30.00
27	STEEL CHANNELS	100	LB	0.40	40.00
28	STEEL ANGLES	100	LB	0.30	30.00
29	STEEL SHIMS	100	LB	0.10	10.00
30	STEEL BOLTS	100	LB	0.10	10.00
31	STEEL NUTS	100	LB	0.10	10.00
32	STEEL WASHERS	100	LB	0.10	10.00
33	STEEL BRACKETS	100	LB	0.20	20.00
34	STEEL PLATES	100	LB	0.30	30.00
35	STEEL CHANNELS	100	LB	0.40	40.00
36	STEEL ANGLES	100	LB	0.30	30.00
37	STEEL SHIMS	100	LB	0.10	10.00
38	STEEL BOLTS	100	LB	0.10	10.00
39	STEEL NUTS	100	LB	0.10	10.00
40	STEEL WASHERS	100	LB	0.10	10.00
41	STEEL BRACKETS	100	LB	0.20	20.00
42	STEEL PLATES	100	LB	0.30	30.00
43	STEEL CHANNELS	100	LB	0.40	40.00
44	STEEL ANGLES	100	LB	0.30	30.00
45	STEEL SHIMS	100	LB	0.10	10.00
46	STEEL BOLTS	100	LB	0.10	10.00
47	STEEL NUTS	100	LB	0.10	10.00
48	STEEL WASHERS	100	LB	0.10	10.00
49	STEEL BRACKETS	100	LB	0.20	20.00
50	STEEL PLATES	100	LB	0.30	30.00

M. M. DILLON & CO. LTD.
CONSULTING ENGINEERS
TORONTO

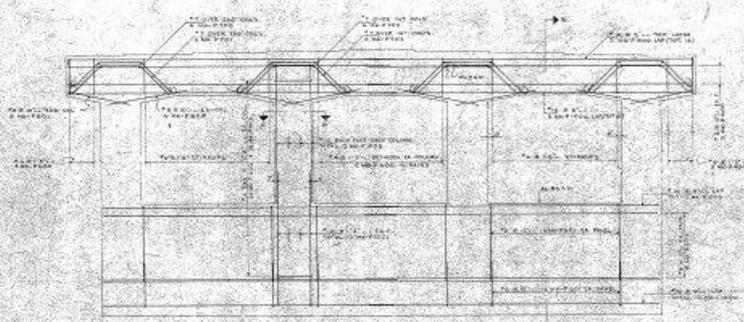
C. P. R. OVERHEAD
ELECTRICITY SUPPLY & MECHANICAL DEPARTMENT
TORONTO



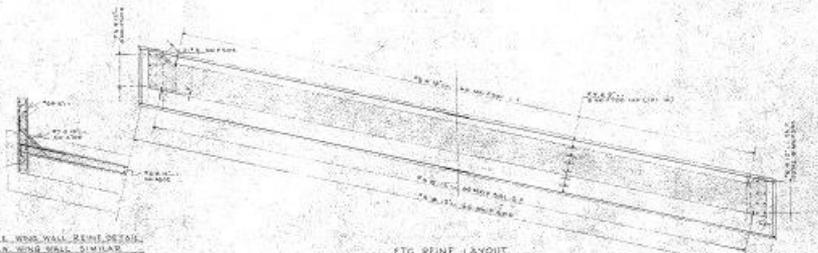
WING WALLS SOUTH ABUT
SCALE 1/4" = 1'-0"



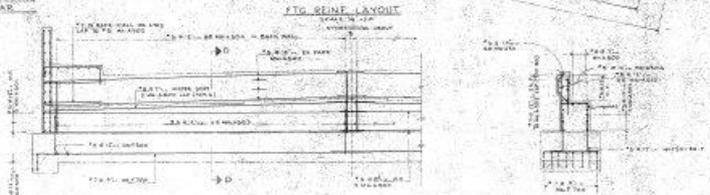
PIER FOOTING REINFORCING
SCALE 1/4" = 1'-0"



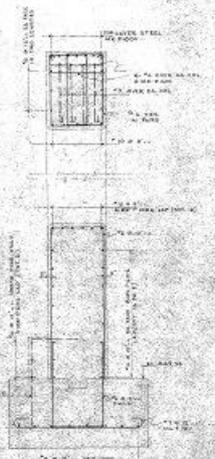
PIER REINFORCING
SCALE 1/4" = 1'-0"



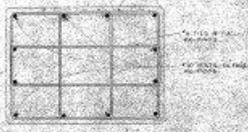
S.L. WING WALL REINFORCING
S.L. WING WALL SIMILAR



SOUTH ABUT REINFORCING DETAILS
SCALE 1/4" = 1'-0"



SECTION D-D
SCALE 1/4" = 1'-0"

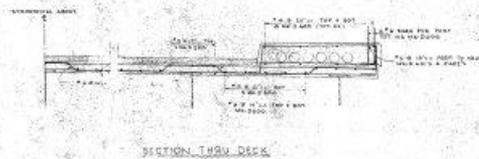


SECTION E-E
SCALE 1/4" = 1'-0"

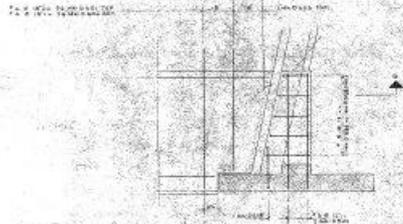
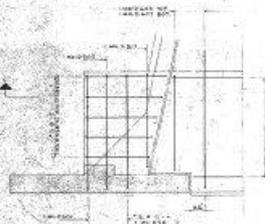
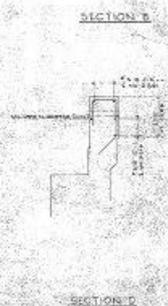
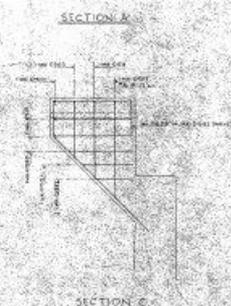
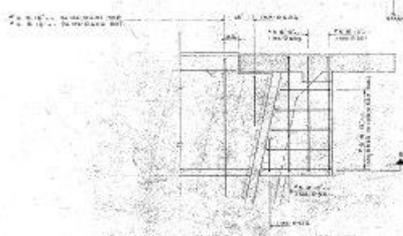
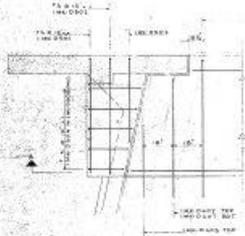
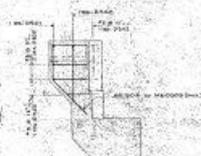
AS BUILT
DATE: 11-1-1910
BY: M. M. DILLON

NO.	DESCRIPTION	DATE	BY
1	DESIGNED	11-1-1910	M. M. DILLON
2	CHECKED	11-1-1910	M. M. DILLON
3	APPROVED	11-1-1910	M. M. DILLON
4	CONSTRUCTION	11-1-1910	M. M. DILLON
5	AS BUILT	11-1-1910	M. M. DILLON

M. M. DILLON & CO. LTD.
CONSULTING ENGINEERS
10, BROADWAY, LONDON, E.C. 4



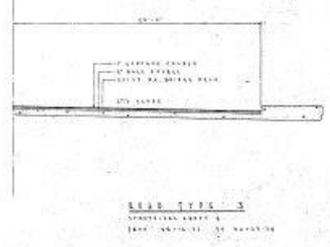
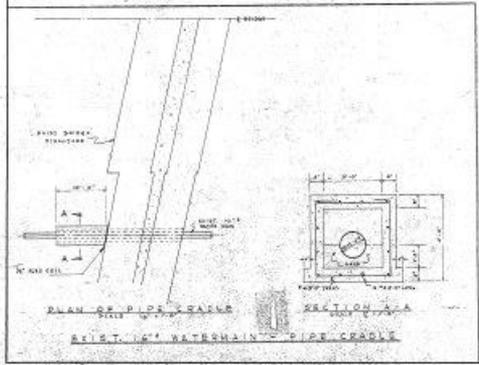
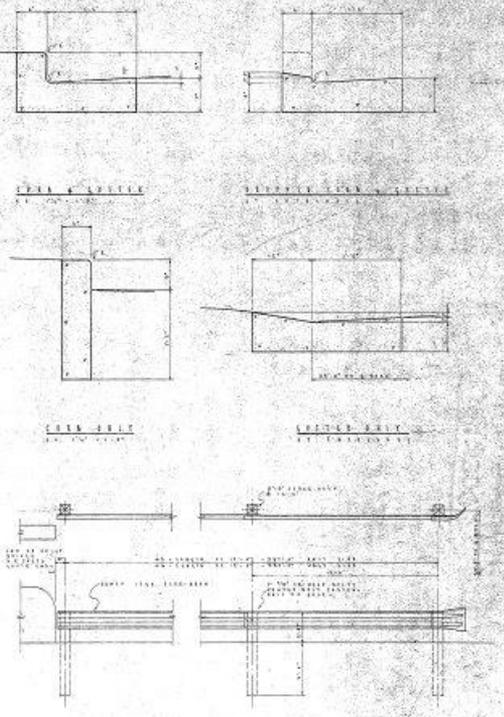
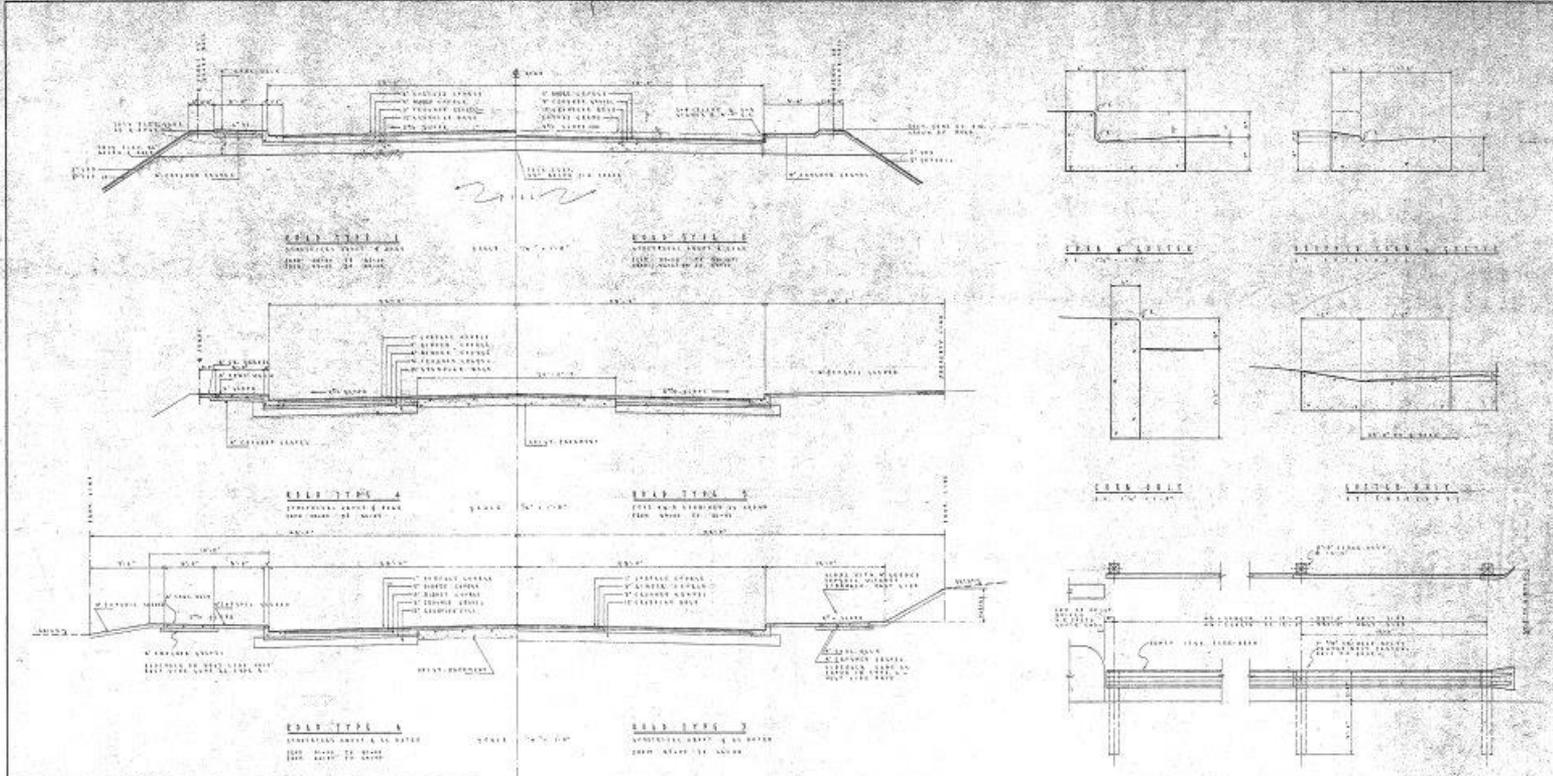
PLAN OF DECK REINFORCING
SCALE 1/4" = 1'-0"



SIDEWALK DETAILS
SCALE 1/4" = 1'-0"

AS BUILT
NO. 1000
DATE 1914

M. M. DILLON & CO. LTD. CONSULTING ENGINEERS LONDON TORONTO 100 BAYVIEW AVE. TORONTO, ONT. CIVIL & STRUCTURAL ENGINEERING	AS BUILT NO. 1000 DATE 1914
---	-----------------------------------



PIPE & JOINT
 1 1/2" DIA. 12" DIA.

FITTING END
 1 1/2" DIA. 12" DIA.

PIPE & JOINT
 1 1/2" DIA. 12" DIA.

FITTING END
 1 1/2" DIA. 12" DIA.

PIPE & JOINT
 1 1/2" DIA. 12" DIA.

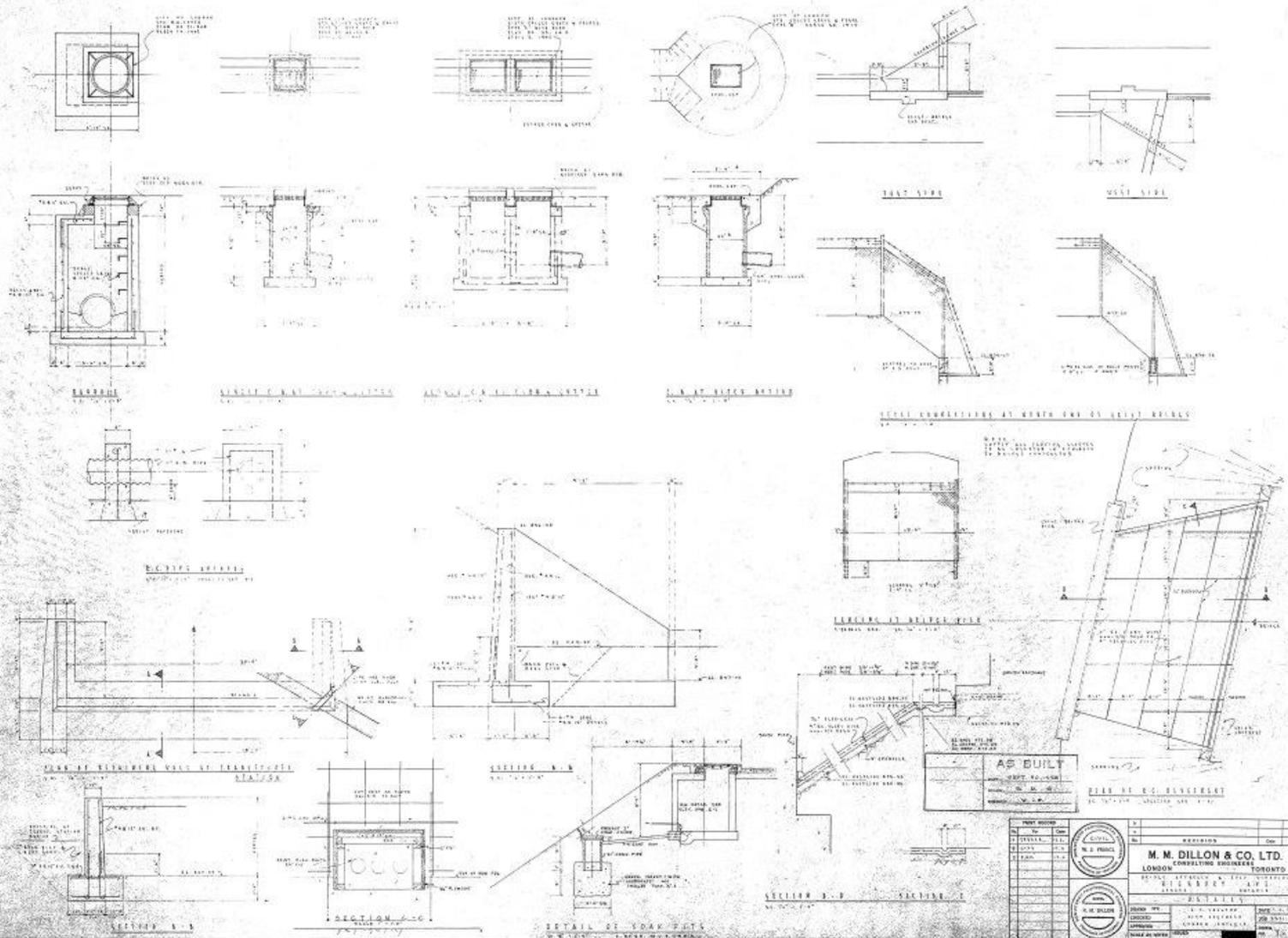
FITTING END
 1 1/2" DIA. 12" DIA.

AS BUILT
 M. M. DILLON & CO. LTD.
 LONDON TORONTO

REV.	NO.	DATE	BY	CHKD.	DESCRIPTION
1	1				
2	2				
3	3				
4	4				
5	5				
6	6				
7	7				
8	8				
9	9				
10	10				

M. M. DILLON & CO. LTD.
 LONDON TORONTO

12" DIA. WATERMAIN PIPE CABLE

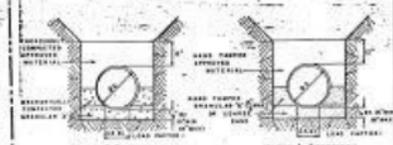
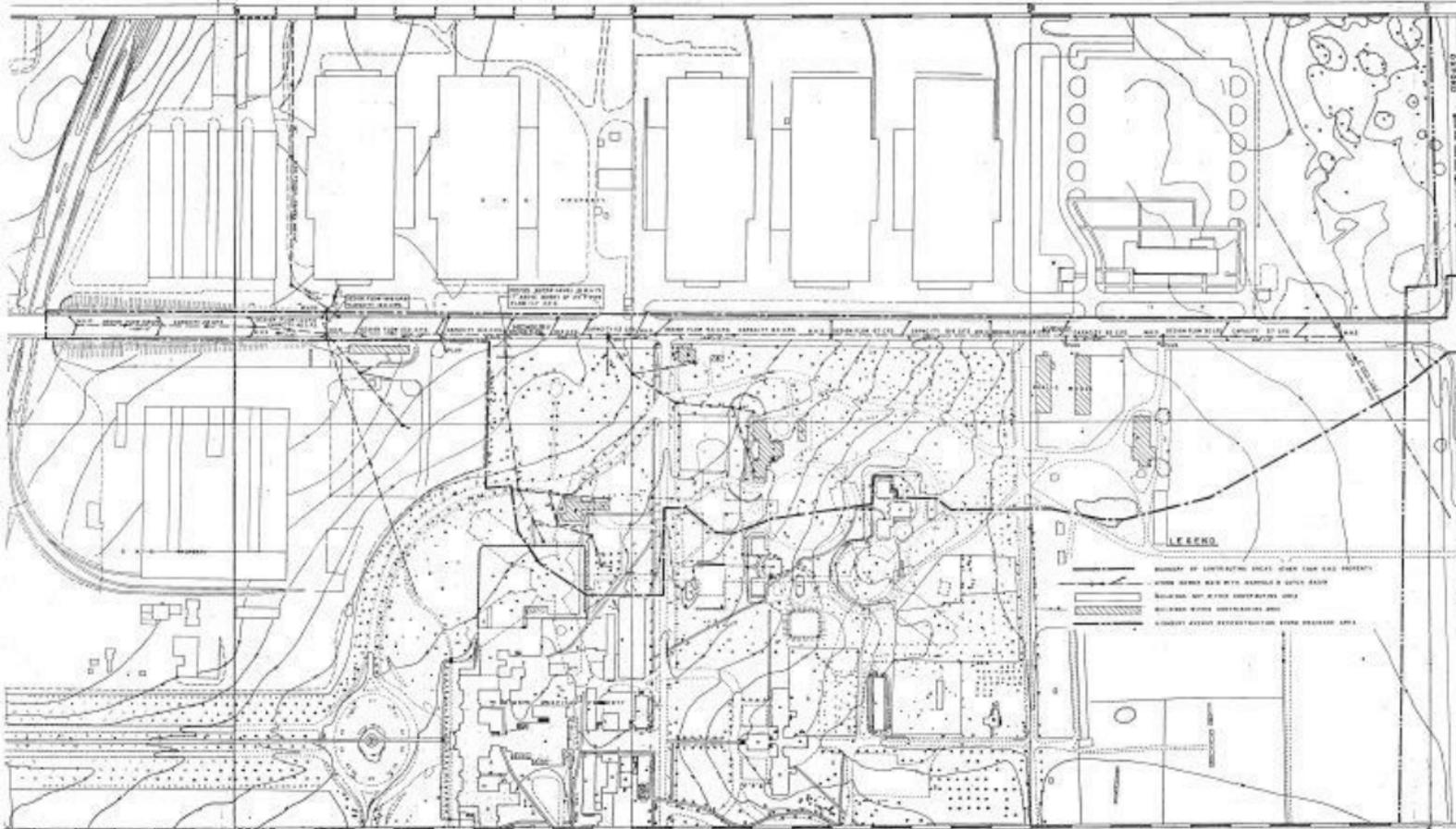


AS BUILT
 DRAWN BY: [Name]
 CHECKED BY: [Name]
 APPROVED BY: [Name]

NO.	DATE	REVISION	BY
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

M. M. DILLON & CO. LTD.
 CONSULTING ENGINEERS
 LONDON TORONTO
 100 BAY ST. TORONTO
 100 BAY ST. TORONTO
 100 BAY ST. TORONTO

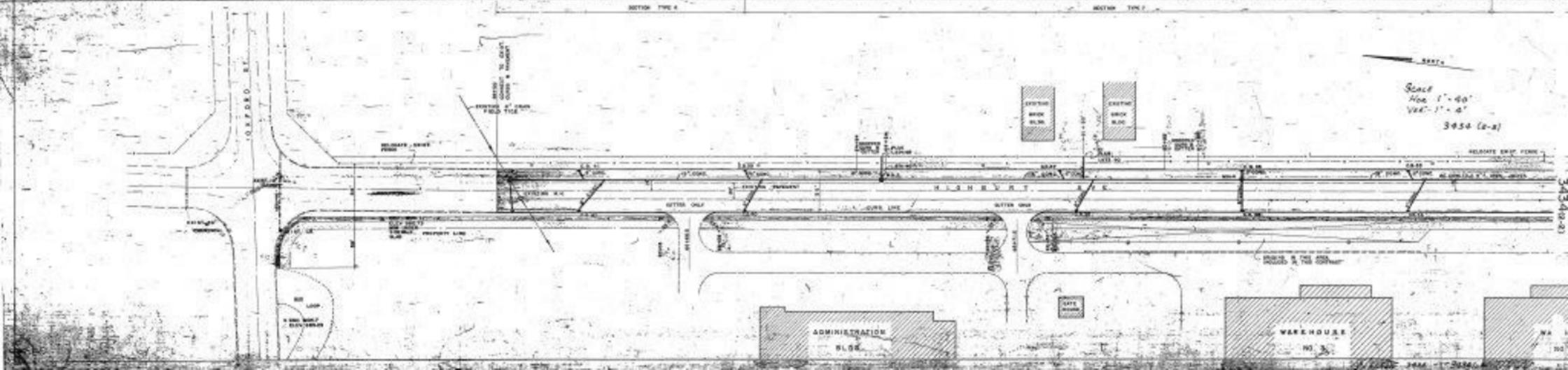
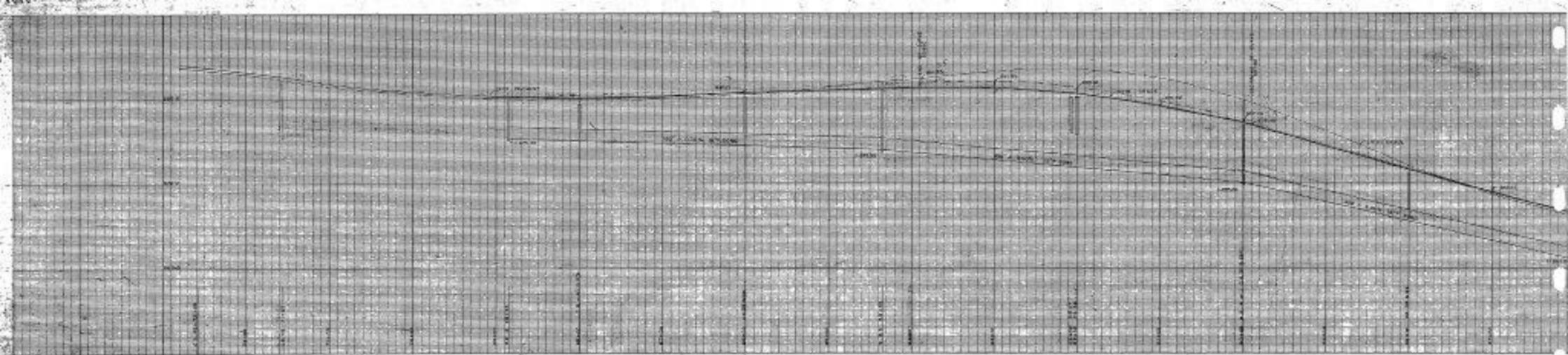
DATE: 1911
 SHEET NO. 10 OF 11

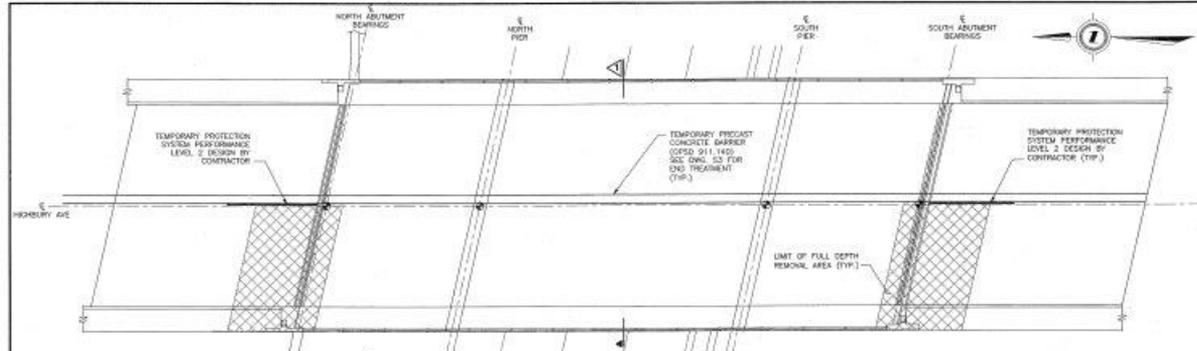


- CLASS "A" MANHOLES**
- 1. MANHOLES SHALL BE CONSTRUCTED OF CAST IRON OR STEEL PIPE WITH A MINIMUM WALL THICKNESS OF 1/2" AND SHALL BE SET IN A 6" SAND BED.
 - 2. MANHOLES SHALL BE SET IN A 6" SAND BED AND SHALL BE SET IN A 6" SAND BED.
 - 3. MANHOLES SHALL BE SET IN A 6" SAND BED AND SHALL BE SET IN A 6" SAND BED.
 - 4. MANHOLES SHALL BE SET IN A 6" SAND BED AND SHALL BE SET IN A 6" SAND BED.
 - 5. MANHOLES SHALL BE SET IN A 6" SAND BED AND SHALL BE SET IN A 6" SAND BED.
- CLASS "B" MANHOLES**
- 1. MANHOLES SHALL BE CONSTRUCTED OF CAST IRON OR STEEL PIPE WITH A MINIMUM WALL THICKNESS OF 1/2" AND SHALL BE SET IN A 6" SAND BED.
 - 2. MANHOLES SHALL BE SET IN A 6" SAND BED AND SHALL BE SET IN A 6" SAND BED.
 - 3. MANHOLES SHALL BE SET IN A 6" SAND BED AND SHALL BE SET IN A 6" SAND BED.
 - 4. MANHOLES SHALL BE SET IN A 6" SAND BED AND SHALL BE SET IN A 6" SAND BED.
 - 5. MANHOLES SHALL BE SET IN A 6" SAND BED AND SHALL BE SET IN A 6" SAND BED.

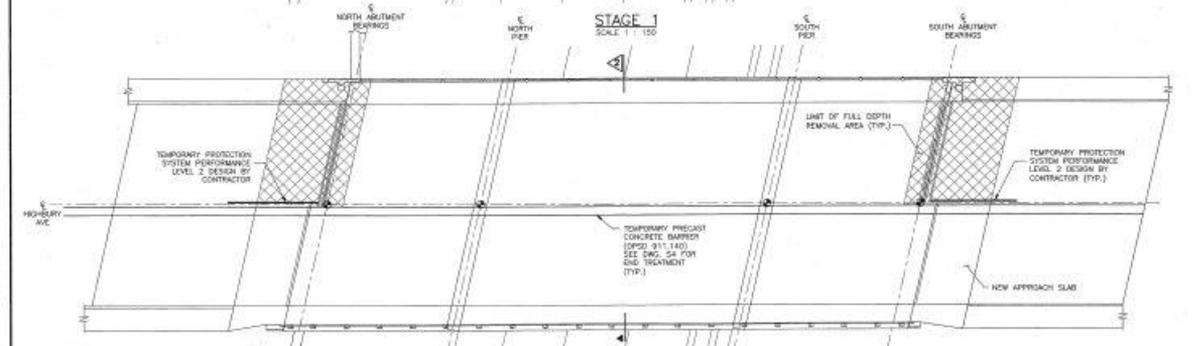
MANHOLE SCHEDULE

NO.	CLASS	DIAMETER	DEPTH	CONCRETE	CAST IRON	STEEL
1	A	30"	48"	1	0	0
2	A	30"	60"	0	1	0
3	A	30"	72"	0	0	1
4	A	30"	84"	0	0	1
5	A	30"	96"	0	0	1
6	A	30"	108"	0	0	1
7	A	30"	120"	0	0	1
8	A	30"	132"	0	0	1
9	A	30"	144"	0	0	1
10	A	30"	156"	0	0	1
11	A	30"	168"	0	0	1
12	A	30"	180"	0	0	1
13	A	30"	192"	0	0	1
14	A	30"	204"	0	0	1
15	A	30"	216"	0	0	1
16	A	30"	228"	0	0	1
17	A	30"	240"	0	0	1
18	A	30"	252"	0	0	1
19	A	30"	264"	0	0	1
20	A	30"	276"	0	0	1
21	A	30"	288"	0	0	1
22	A	30"	300"	0	0	1
23	A	30"	312"	0	0	1
24	A	30"	324"	0	0	1
25	A	30"	336"	0	0	1
26	A	30"	348"	0	0	1
27	A	30"	360"	0	0	1
28	A	30"	372"	0	0	1
29	A	30"	384"	0	0	1
30	A	30"	396"	0	0	1
31	A	30"	408"	0	0	1
32	A	30"	420"	0	0	1
33	A	30"	432"	0	0	1
34	A	30"	444"	0	0	1
35	A	30"	456"	0	0	1
36	A	30"	468"	0	0	1
37	A	30"	480"	0	0	1
38	A	30"	492"	0	0	1
39	A	30"	504"	0	0	1
40	A	30"	516"	0	0	1
41	A	30"	528"	0	0	1
42	A	30"	540"	0	0	1
43	A	30"	552"	0	0	1
44	A	30"	564"	0	0	1
45	A	30"	576"	0	0	1
46	A	30"	588"	0	0	1
47	A	30"	600"	0	0	1
48	A	30"	612"	0	0	1
49	A	30"	624"	0	0	1
50	A	30"	636"	0	0	1
51	A	30"	648"	0	0	1
52	A	30"	660"	0	0	1
53	A	30"	672"	0	0	1
54	A	30"	684"	0	0	1
55	A	30"	696"	0	0	1
56	A	30"	708"	0	0	1
57	A	30"	720"	0	0	1
58	A	30"	732"	0	0	1
59	A	30"	744"	0	0	1
60	A	30"	756"	0	0	1
61	A	30"	768"	0	0	1
62	A	30"	780"	0	0	1
63	A	30"	792"	0	0	1
64	A	30"	804"	0	0	1
65	A	30"	816"	0	0	1
66	A	30"	828"	0	0	1
67	A	30"	840"	0	0	1
68	A	30"	852"	0	0	1
69	A	30"	864"	0	0	1
70	A	30"	876"	0	0	1
71	A	30"	888"	0	0	1
72	A	30"	900"	0	0	1
73	A	30"	912"	0	0	1
74	A	30"	924"	0	0	1
75	A	30"	936"	0	0	1
76	A	30"	948"	0	0	1
77	A	30"	960"	0	0	1
78	A	30"	972"	0	0	1
79	A	30"	984"	0	0	1
80	A	30"	996"	0	0	1
81	A	30"	1008"	0	0	1
82	A	30"	1020"	0	0	1
83	A	30"	1032"	0	0	1
84	A	30"	1044"	0	0	1
85	A	30"	1056"	0	0	1
86	A	30"	1068"	0	0	1
87	A	30"	1080"	0	0	1
88	A	30"	1092"	0	0	1
89	A	30"	1104"	0	0	1
90	A	30"	1116"	0	0	1
91	A	30"	1128"	0	0	1
92	A	30"	1140"	0	0	1
93	A	30"	1152"	0	0	1
94	A	30"	1164"	0	0	1
95	A	30"	1176"	0	0	1
96	A	30"	1188"	0	0	1
97	A	30"	1200"	0	0	1
98	A	30"	1212"	0	0	1
99	A	30"	1224"	0	0	1
100	A	30"	1236"	0	0	1
101	A	30"	1248"	0	0	1
102	A	30"	1260"	0	0	1
103	A	30"	1272"	0	0	1
104	A	30"	1284"	0	0	1
105	A	30"	1296"	0	0	1
106	A	30"	1308"	0	0	1
107	A	30"	1320"	0	0	1
108	A	30"	1332"	0	0	1
109	A	30"	1344"	0	0	1
110	A	30"	1356"	0	0	1
111	A	30"	1368"	0	0	1
112	A	30"	1380"	0	0	1
113	A	30"	1392"	0	0	1
114	A	30"	1404"	0	0	1
115	A	30"	1416"	0	0	1
116	A	30"	1428"	0	0	1
117	A	30"	1440"	0	0	1
118	A	30"	1452"	0	0	1
119	A	30"	1464"	0	0	1
120	A	30"	1476"	0	0	1
121	A	30"	1488"	0	0	1
122	A	30"	1500"	0	0	1
123	A	30"	1512"	0	0	1
124	A	30"	1524"	0	0	1
125	A	30"	1536"	0	0	1
126	A	30"	1548"	0	0	1
127	A	30"	1560"	0	0	1
128	A	30"	1572"	0	0	1
129	A	30"	1584"	0	0	1
130	A	30"	1596"	0	0	1
131	A	30"	1608"	0	0	1
132	A	30"	1620"	0	0	1
133	A	30"	1632"	0	0	1
134	A	30"	1644"	0	0	1
135	A	30"	1656"	0	0	1
136	A	30"	1668"	0	0	1
137	A	30"	1680"	0	0	1
138	A	30"	1692"	0	0	1
139	A	30"	1704"	0	0	1
140	A	30"	1716"	0	0	1
141	A	30"	1728"	0	0	1
142	A	30"	1740"	0	0	1
143	A	30"	1752"	0	0	1
144	A	30"	1764"	0	0	1
145	A	30"	1776"	0	0	1
146	A	30"	1788"	0	0	1
147	A	30"	1800"	0	0	1
148	A	30"	1812"	0	0	1
149	A	30"	1824"	0	0	1
150	A	30"	1836"	0	0	1
151	A	30"	1848"	0	0	1
152	A	30"	1860"	0	0	1
153	A	30"	1872"	0	0	1
154	A	30"	1884"	0	0	1
155	A	30"	1896"	0	0	1
156	A	30"	1908"	0	0	1
157	A	30"	1920"	0	0	1
158	A	30"	1932"	0	0	1
159	A	30"	1944"	0	0	1
160	A	30"	1956"	0	0	1
161	A	30"	1968"	0	0	1
162	A	30"	1980"	0	0	1
163	A	30"	1992"	0	0	1
164	A	30"	2004"	0	0	1
165	A	30"	2016"	0	0	1
166	A	30"	2028"	0	0	1
167	A	30"	2040"	0	0	1
168	A	30"	2052"	0	0	1
169	A	30"	2064"	0	0	1
170	A	30"	2076"	0	0	1
171	A	30"	2088"	0	0	1
172	A	30"	2100"	0	0	1
173	A	30"	2112"	0	0	1
174	A	30"	2124"	0	0	1
175	A	30"	2136"	0	0	1
176	A	30"	2148"	0	0	1
177	A	30"	2160"	0	0	1
178	A	30"	2172"	0	0	1
179	A	30"	2184"	0	0	1
180	A	30"	2196"	0	0	1
181	A	30"	2208"	0	0	1
182	A	30"	2220"	0	0	1
183	A	30"	2232"	0	0	1
184	A	30"	2244"	0	0	1
185	A	30"	2256"	0	0	1
186	A	30"	2268"	0	0	1
187	A	30"	2280"	0	0	1
188	A	30"	2292"	0	0	1
189	A	30"	2304"	0	0	1
190	A	30"	2316"	0	0	1
191	A	30"	2328"	0	0	1
192	A	30"	2340"	0	0	1
193	A	30"	2352"	0	0	1
194	A	30"	2364"	0	0	1



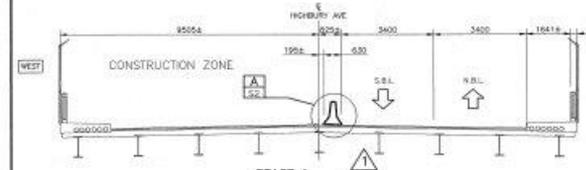


STAGE 1
SCALE 1:150

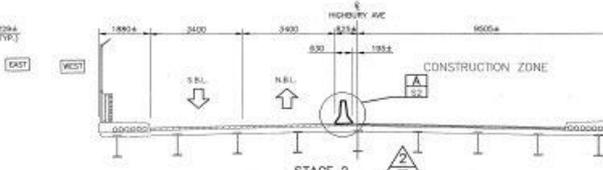


STAGE 2
SCALE 1:150

APPLICABLE STANDARD DRAWINGS
 DPD- 011.140 TEMPORARY CONCRETE BARRIER
 DPD- 011.233 GUIDE RAIL SYSTEM, CONCRETE BARRIER PRECAST TEMPORARY END SECTION INSTALLATION



STAGE 1
SCALE 1:750



STAGE 2
SCALE 1:750

- NOTES**
- TEMPORARY TRAFFIC CONTROL AND SIGNAGE SHALL BE IN ACCORDANCE WITH THE ONTARIO TRAFFIC MANUAL, BOOK 7.
 - ALL SIGNAGE, SURFACES AND LIGHTS SHALL BE INSPECTED AND MAINTAINED DAILY BY THE CONTRACTOR.
 - REFLECTORIZED MATERIALS ARE TO BE USED IN THE MANUFACTURING OF THESE SIGNS IN ACCORDANCE WITH THE ONTARIO TRAFFIC MANUAL, BOOK 7.
 - THIS SIGNAGE SHALL BE READ IN CONJUNCTION WITH DWG. 53 & 54.

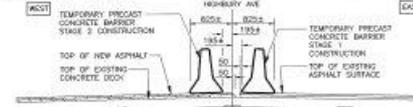
- CONSTRUCTION STAGING SURVEY**
- THIS WORK SHALL BE CARRIED OUT DURING STAGE 1, PRIOR TO ANY WORK.
 - SURVEY AND RECORD TOP OF DECK END GAN ELEVATIONS AT THE ABUTMENT BEARING CENTRES.
 - SURVEY RECORD TOP OF ASSUMED BEARING SEAT AND CORRESPONDING UNDERLIE OF BRIDGE ELEMENTS, AT EACH BRIDGE.
 - IDENTIFY AND SURVEY TO THE CONTRACT ADMINISTRATOR, EXISTING ELEVATIONS AND PROPOSED ELEVATIONS FOR THE RECONSTRUCTED BALLAST RAIL AND BEARING PROFILES.
 - COMPARE ELEVATIONS OF RECONSTRUCTION BY RESURVEYING AND SURVEYING RESULTS TO THE CONTRACT ADMINISTRATOR.

- ABUTMENT BEARING REPLACEMENT**
- THE REPLACEMENT OF ALL BEARINGS SHALL BE COMPLETED DURING STAGE 1, PRIOR TO THE PLACEMENT OF CONCRETE IN THE DECK. CONTRACTOR SHALL NOT CARRY OUT ANY ASPHALT WORKING ON THE DECK UNTIL THE BRIDGE IS BEING JACKED OR WHILE THE BRIDGE IS TEMPORARILY SUPPORTED.
 - CONSTRUCT TEMPORARY SUPPORT SYSTEM AND INSTALL NEW BEARING SYSTEMS AND JACKING PLATES.
 - JACK BRIDGE AT ABUTMENTS AND REMOVE BEARINGS.
 - LOWER BRIDGE ONTO TEMPORARY SUPPORTS.
 - REMOVE BEARING PROFILES AND ANY REMAINING BEARING COMPONENTS.
 - REPAIR BEARING SEATS, AS REQUIRED.
 - CONSTRUCT NEW BEARING PROFILES.
 - JACK BRIDGE AND INSTALL NEW BEARINGS.
 - SET BRIDGE ON NEW BEARINGS AND REMOVE TEMPORARY SUPPORTS.

- SUBSTRUCTURE AND DECK SOFFIT REPAIRS**
- THIS WORK CAN BE CARRIED OUT DURING STAGE 1 AND/OR 2, BUT SHOULD BE CARRIED OUT CONCURRENTLY WITH OTHER ACTIVITIES WHICH REQUIRE END FLAGGING IN ORDER TO MARKED THE NUMBER OF WORKING DAYS REQUIRING FLAGGING.
 - REPAIR DECK SOFFIT, DECK FLECK, PER. SHEETS AND ABUTMENT WALLS.

- STAGE 1**
- OBSTITUTE EXISTING ABUTMENT MARKERS AND PLACE TEMPORARY PAVEMENT MARKINGS, TEMPORARY CONCRETE BARRIERS ETC. IN ACCORDANCE WITH DWG. 53. (LIMIT TRAFFIC TO EAST SIDE OF BRIDGE.)
 - REMOVE ASPHALT AND MACRODRIPPING ON BRIDGE DECK AND APPROACH ON APPROACHES.
 - REMOVE RAILING SYSTEM AND RELOCATE TO EAST SIDE OF BRIDGE.
 - REMOVE EXISTING CONCRETE DECK AND SIDEWALKS AT UNITS OF BRIDGE.
 - REMOVE DISTURBED CONCRETE ON BRIDGE DECK AND SIDEWALKS AND RECONSTRUCT CURBS AND SIDEWALKS ON APPROACHES.
 - INSTALL TEMPORARY PROTECTION SYSTEMS AND EDGECAPE AT ABUTMENTS.
 - REMOVE EXISTING CONCRETE BALLAST WALL AND SIDEWALKS.
 - CLEAN AND COAT TOP OF EXISTING CURBWAYS.
 - RECONSTRUCT CONCRETE BALLAST WALLS, SIDEWALKS AND END WALLS.
 - RECONSTRUCT CONCRETE DECK AND SIDEWALKS.
 - REPAIR BRIDGE DECK AND SIDEWALKS.
 - CONSTRUCT APPROACH SLABS, APPROACH SLAB CURBS AND SIDEWALKS.
 - RECONSTRUCT APPROACH CURBS AND SIDEWALKS.
 - INSTALL NEW BRIDGE RAILING AND SECURITY FENCING.
 - INSTALL STEEL BEAM AND CHANNEL SUBSTRUCTURE.
 - WATERPROOF AND FINE DECK AND FINE APPROACHES.

- STAGE 2**
- OBSTITUTE/REMOVE EXISTING/TEMPORARY PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKINGS, RELOCATE TEMPORARY CONCRETE BARRIERS ETC. IN ACCORDANCE WITH DWG. 54. (LIMIT TRAFFIC TO WEST SIDE OF THE BRIDGE. ALL CONSTRUCTION TO TAKE PLACE ON EAST SIDE OF BRIDGE.)
 - REPAIR CURBS 2 TO 5.
 - RELOCATE/REMOVE PROTECTION SYSTEM AND EDGECAPE AT ABUTMENTS.
 - REPAIR CURBS 7 TO 16.
 - REMOVE TEMPORARY CONCRETE BARRIERS AND TEMPORARY PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKINGS.
 - OPEN BRIDGE TO TRAFFIC.



DETAIL A
SCALE 1:30

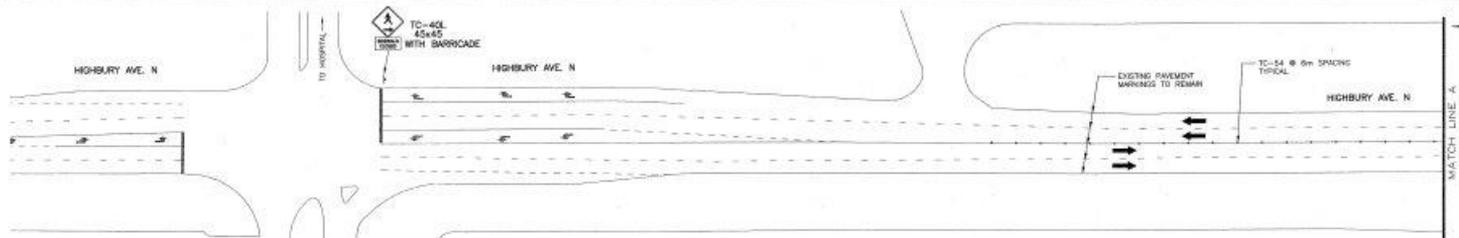
METRIC
DIMENSIONS ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE SHOWN

DRAWING NOT TO BE SCALED
100 mm ON ORIGINAL DRAWING

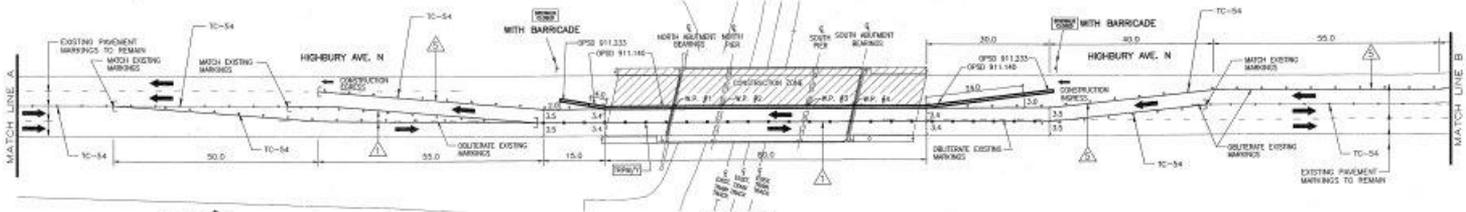
NO.	REVISIONS	BY	DATE	DESCRIPTION
1	ISSUED FOR CONSTRUCTION	...	...	...
2	...	...	...	...
3	...	...	...	...



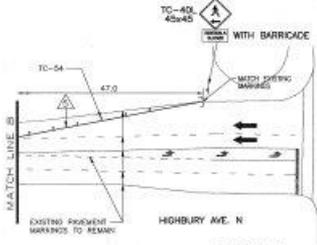
PROJECT NO: **06-6632**
 HIGHBURY AVENUE/CPR OVERHEAD STRUCTURE REHABILITATION
 DRAWN BY: **S2**
 CHECKED BY: **DIVISION MANAGER**
 DATE: **20823**
 CITY: **ENGERER**



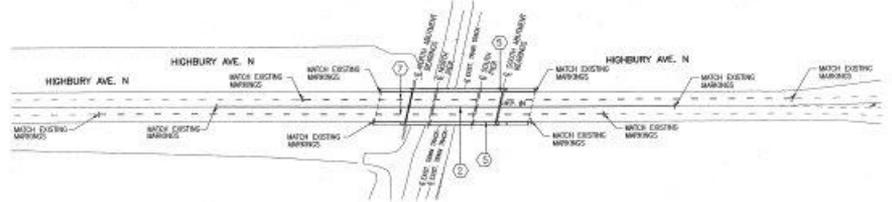
STAGE 2
SCALE 1 : 500



STAGE 2
SCALE 1 : 500



STAGE 3
SCALE 1 : 500



PERMANENT PAVEMENT MARKINGS
SCALE 1 : 1000

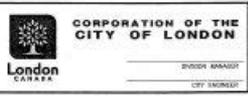
- NOTES:**
1. TEMPORARY TRAFFIC CONTROL AND SIGNING SHALL BE IN ACCORDANCE WITH THE OXFORD TRAFFIC MANUAL, BOOK 7.
 2. ALL SIGNS, BARRICADES AND LIGHTS SHALL BE SPECIFIED DAILY AND SUPPLIED BY THE CONTRACTOR.
 3. REFLECTED MATERIALS ARE TO BE USED IN THE MANUFACTURING OF THE SIGNS IN ACCORDANCE WITH THE OXFORD TRAFFIC MANUAL, BOOK 7.

- PAVEMENT MARKING LEGEND:**
- 1 55x50 YELLOW, 150mm
 - 2 50x50 DOUBLE YELLOW, 150mm
 - 3 SOLID WHITE, 150mm
 - 4 2x3 BROKEN LAG, WHITE, 150mm
 - 5 LIMITS OF MARKINGS
- DENOTES PAVEMENT MARKING, TEMPORARY - REMOVABLE
 DENOTES PAVEMENT MARKING, DURABLE
 TEMPORARY PAVED PAVEMENT MARKERS (YELLOW) 5x6 SPACING
 TRAFFIC FLOW DIRECTION (NOT TO BE PRINTED)

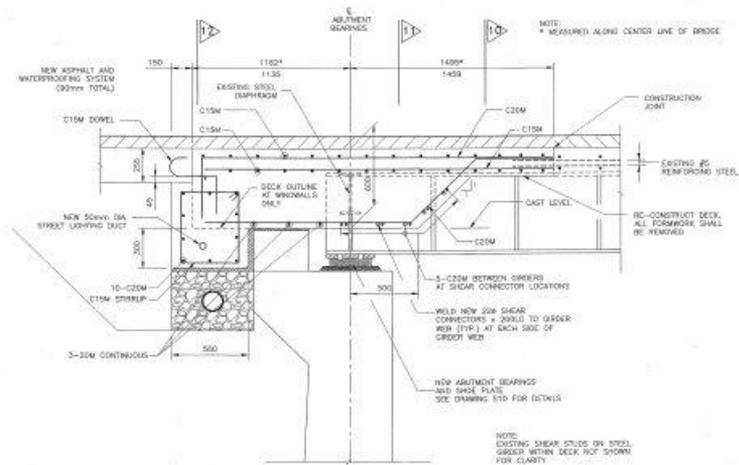
METRIC
DIMENSIONS ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE SHOWN

DRAWING NOT TO BE SCALED
1:500 NOT ON ORIGINAL DRAWING

NO	AS ORDERED	AS ORDERED	REVISIONS	DATE	BY
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

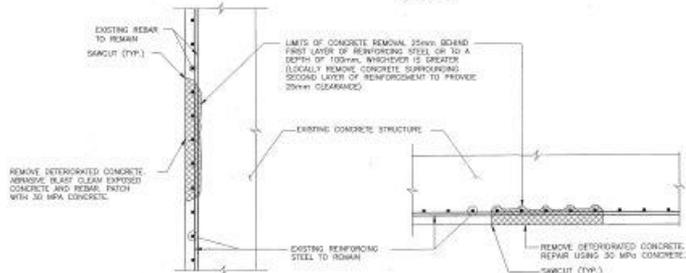
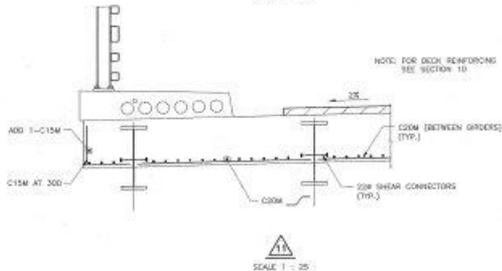
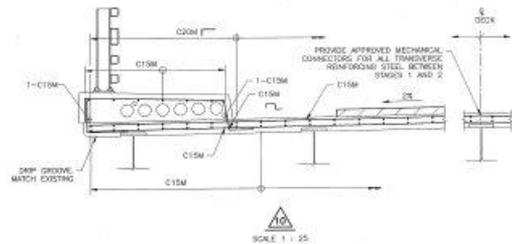


PROJECT NO:	06-6632
PROJECT NAME:	HIGHBURY AVENUE/CPR OVERHEAD STRUCTURE REHABILITATION
TRAFFIC MANAGEMENT PLAN STAGE 2 AND PERMANENT PAVEMENT MARKINGS	REVISED BY: S4
DATE:	20825



REHABILITATED DECK SHOWING REBAR

SCALE 1 : 15



TYPICAL ABUTMENT AND PIER CAP REPAIR DETAIL

SCALE N.T.S.

DETAIL APPLICABLE TO THE FOLLOWING LOCATIONS:

- ABUTMENT WALLS
- PIER SHEETS
- DECK FASCIA

TYPICAL SOFFIT REPAIR DETAIL

SCALE N.T.S.

DETAIL APPLICABLE TO THE FOLLOWING LOCATIONS:

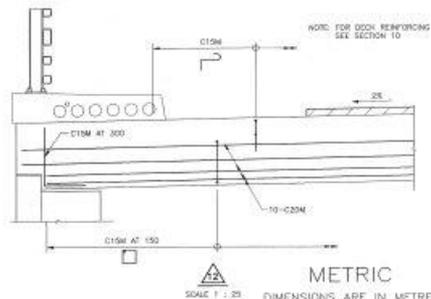
- DECK SOFFIT

TYPICAL HORIZONTAL REPAIR DETAIL

SCALE N.T.S.

DETAIL APPLICABLE TO THE FOLLOWING LOCATIONS:

- TOP OF BEARING SEAT
- TOP OF SIDEWALKS
- TOP OF DECK



METRIC

DIMENSIONS ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE SHOWN

DRAWING NOT TO BE SCALED. 100 mm ON ORIGINAL DRAWING

NO.	REVISIONS	DATE	BY	CHKD.	APP.
1	ISSUED FOR CONSTRUCTION				
2	ISSUED FOR TENDER				



CORPORATION OF THE CITY OF LONDON

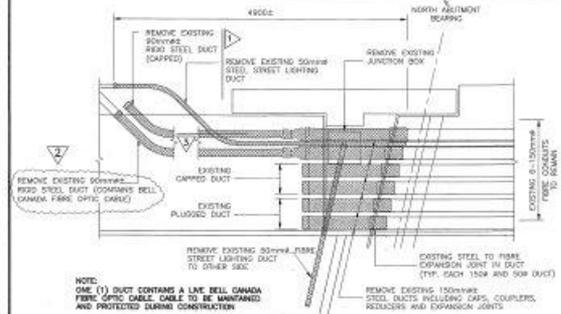
HIGHBURY AVENUE/CPR OVERHEAD STRUCTURE REHABILITATION

06-6632

REMOVE AND REPAIR DETAILS IV

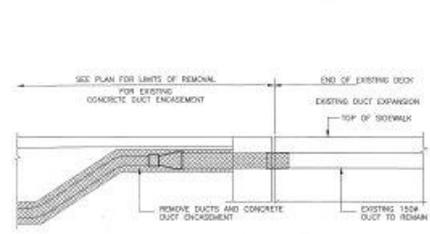
S8

20829



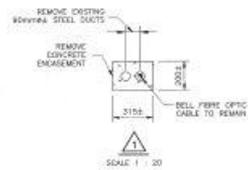
EXISTING DUCT DETAIL ON EAST SIDE OF BRIDGE NORTH AND SOUTH ENDS

SCALE 1 : 20

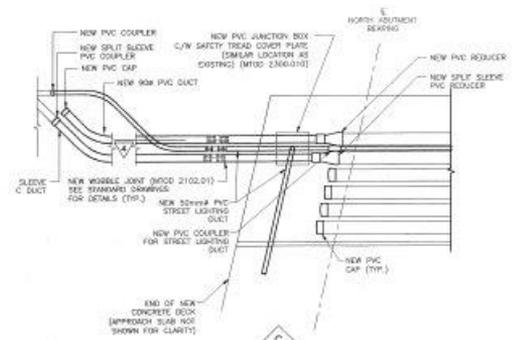


EXISTING AT UTILITY DUCTS

NOT TO SCALE

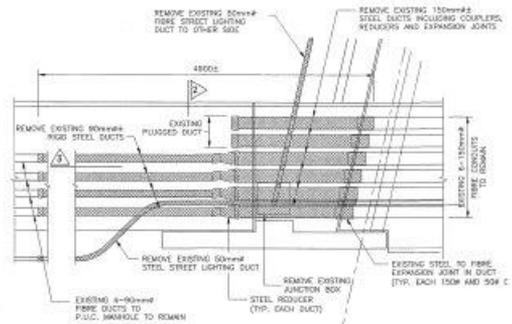


SCALE 1 : 20



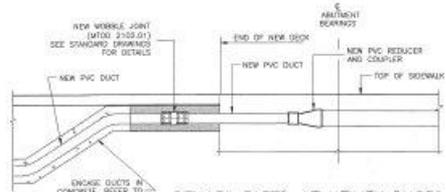
REHABILITATED DUCT DETAIL ON EAST SIDE OF BRIDGE NORTH AND SOUTH ENDS

SCALE 1 : 20



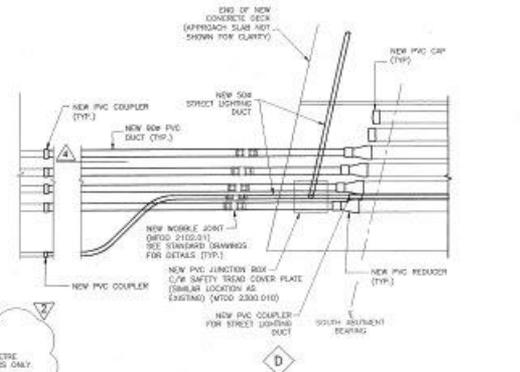
EXISTING DUCT DETAIL ON WEST SIDE OF BRIDGE NORTH AND SOUTH ENDS

SCALE 1 : 20



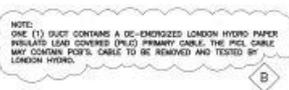
REHABILITATED AT UTILITY DUCTS

NOT TO SCALE



REHABILITATED DUCT DETAIL ON WEST SIDE OF BRIDGE NORTH AND SOUTH ENDS

SCALE 1 : 20



SCALE 1 : 20

- GENERAL NOTES**
1. ALL VERTICAL AND HORIZONTAL TRANSITIONS IN 50 mm DIAMETER UTILITY DUCTS SHALL BE COMPLETED WITH 5 DEGREE COLLARS ONLY.
 2. PRIOR TO INSTALLING NEW UTILITY DUCTS, THE CONTRACTOR SHALL CLEAN ALL DUCTS.
 3. THE CONTRACTOR SHALL PROOF EACH DUCT ON THE WEST SIDE OF THE BRIDGE WITH AN APPROXIMATE 100KG AND INSTALL A 5/8" NYLON PULL ROPE IN EACH DUCT FROM THE MANHOLE ON THE NORTH SIDE OF THE BRIDGE TO THE MANHOLE ON THE SOUTH SIDE OF THE BRIDGE.
 4. THE EXISTING 50 mm AND 100 mm DIAMETER FIBRE DUCTS (CORROSION DAMAGED BY THE BRIDGE SIDEWALK) MAY CONTAIN AGGREGATE. THE EXISTING DUCTS SHALL BE TESTED FOR AGGREGATE DURING CONSTRUCTION.

METRIC
DIMENSIONS ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE SHOWN

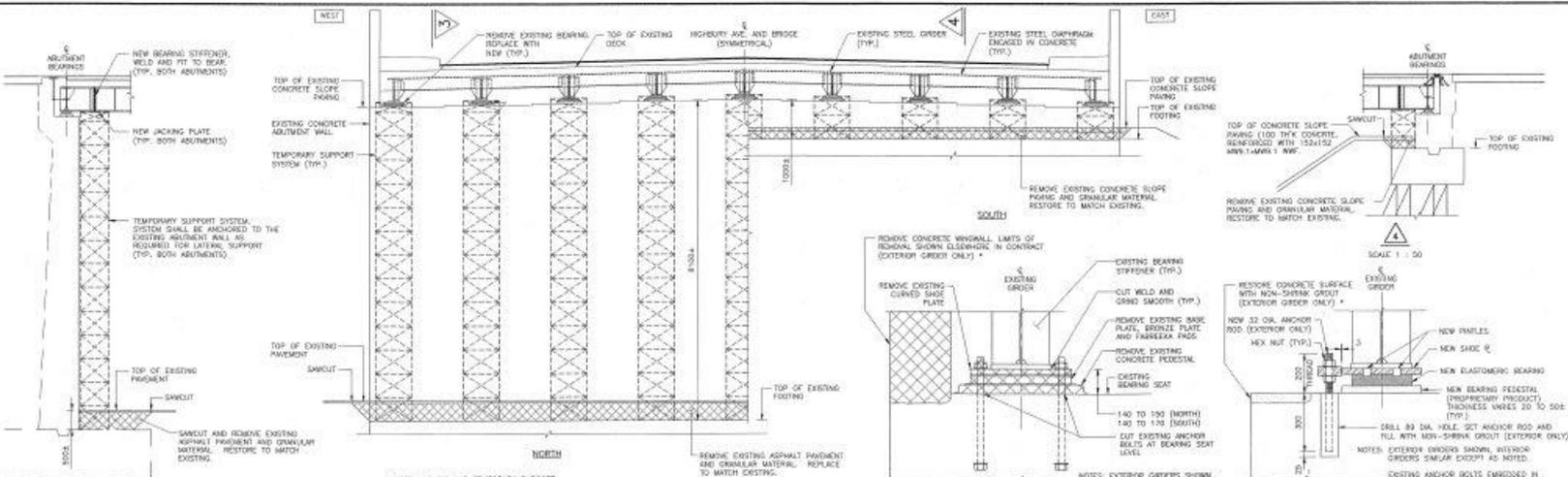
DRAWING NOT TO BE SCALED
100 mm ON ORIGINAL DRAWING

NO.	REVISIONS	DATE	BY	CHKD.	APP'D.
1					
2					
3					
4					
5					



CORPORATION OF THE CITY OF LONDON
LONDON ENGINEER
CITY ENGINEER

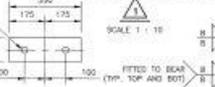
HIGHBURY AVENUE/CPR OVERHEAD STRUCTURE REHABILITATION		PROJECT NO: 06-6632
EMBEDDED WORKS		HEET NO: S9
		TOTAL SHEETS: 20830



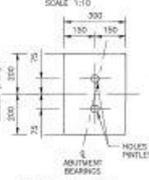
ABUTMENT ELEVATION

SCALE 1:50
(NORTH ABUTMENT SHOWN SOUTH ABUTMENT SIMILAR)

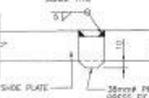
EXISTING CONDITION



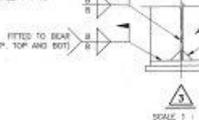
ANCHOR PLATE



SHOE PLATE



REHABILITATED CONDITION



BEARING DATA TABLE

BEARING AND SHOE PLATE DATA	REQUIREMENTS AT SERVICE LIMIT STATES (SLS)	REQUIREMENTS AT ULTIMATE LIMIT STATES (ULS)
DEAD LOAD (kN)	125	180
TOTAL LOAD (kN)	375	575
MEMBERED (mm)	6.00	4.00
SLIP RESIST (mm)	3000(0.00)	3000(0.00)
BEARING SIZE	400(0.00)	400(0.00)
SHOE PLATE SIZE	400(0.00)	400(0.00)
NUMBER REQUIRED	2	2
BEARING TYPE	SLIP RESIST	SLIP RESIST
NUMBER REQUIRED AT NORTH ABUTMENT	2	2
NUMBER REQUIRED AT SOUTH ABUTMENT	2	2

JACKING DATA TABLE

JACKING LOAD AND TEMPORARILY SUPPORT DATA AT EACH GIRDER	REQUIREMENTS AT ULTIMATE LIMIT STATES (ULS)
TOTAL LOAD (kN)	325

*NOTED WORKING CAPACITY OF JACKS AND TEMPORARY SUPPORT SYSTEM SHALL NOT BE LESS THAN 200% OF LOADS SHOWN IN TABLE.

NOTES:

- HARD AND POWER TOOL CLEAN ALL CONTACT SURFACES OF EXISTING STRUCTURAL STEEL TO NEW STEEL CONNECTIONS.
- ALL NEW STRUCTURAL STEEL SHALL CONFORM TO CSA STANDARD CAN/CSA-448.21-M20. NEW STEEL SHALL BE GRADE 350W.
- ALL NEW SIZES SHALL BE EXACTLY THE SPECIFICATIONS.
- NEW ANCHOR RODS SHALL BE 300W.
- NEW ANCHOR RODS SHALL BE GALVANIZED.
- THE CONTRACTOR SHALL ENSURE THE STABILITY OF ALL COMPONENTS DURING JACKING AND WHILE TEMPORARILY SUPPORTED.
- THE CONTRACTOR SHALL DESIGN, FABRICATE AND INSTALL THE TEMPORARY SUPPORT SYSTEM AND RESTORE ALL LOCATIONS TO MATCH EXISTING.
- NEW BEARING STEIFFERS AND JACKING PLATES SHALL REMAIN SUPPORT.
- INSTALLATION OF NEW ANCHORS TO BE COMPLETED AFTER WINDOW AND BEARING REPLACEMENT IS COMPLETE.

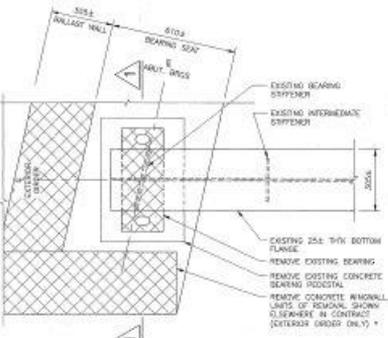
CONSTRUCTION SEQUENCE:

- PRIOR TO ANY WORK, SURVEY AND RECORD ELEVATIONS AS DESCRIBED ON DRAWING 51.
- REINFORCE AND TEMPORARILY SUPPORT BRIDGE AND REMOVE BEARINGS, SHOE PLATES AND BEARING PREDESTALS.
- REMOVE EXISTING BEARING SEAT UNDER NEW BEARING PREDESTALS AS REQUIRED ON DRAWING 51.
- CONSTRUCT NEW BEARING PREDESTALS AND INSTALL NEW SHOE PLATES.
- REMOVE EXISTING BEARING AND BEARING PLATES AND REMOVE TEMPORARY SUPPORT.
- INSTALLATION OF NEW ANCHORS TO BE COMPLETED AFTER WINDOW REMOVALS ARE COMPLETED.

METRIC

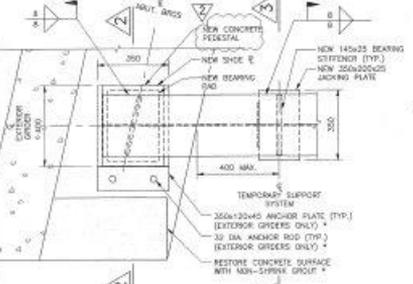
DIMENSIONS ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE SHOWN

DRAWING NOT TO BE SCALED (100 mm ON ORIGINAL DRAWING)



EXISTING BEARING

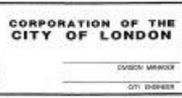
SCALE 1:10



NEW BEARING

SCALE 1:10

NO.	DESCRIPTION	DATE	BY	CHECKED BY	SCALE	STATUS
1	ISSUED FOR PERMIT	15/07/2018	...	...	...	...
2	ISSUED FOR CONSTRUCTION	15/07/2018	...	...	...	...
3	ISSUED FOR TENDER	15/07/2018	...	...	...	...



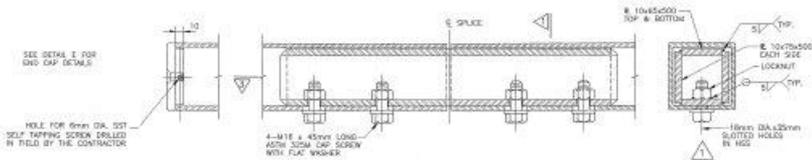
HIGHWAY AVENUE/CPR OVERHEAD STRUCTURE REHABILITATION

JACKING AND BEARING DETAILS

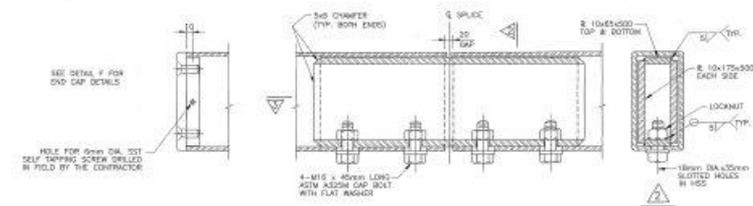
DATE: 06-6632

SCALE: S10

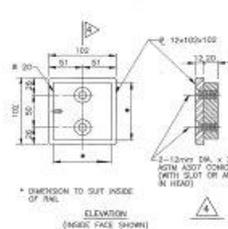
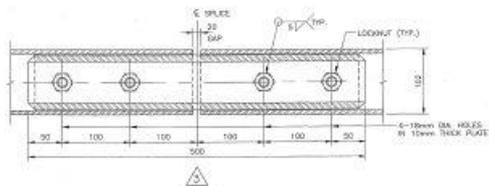
NO: 20831



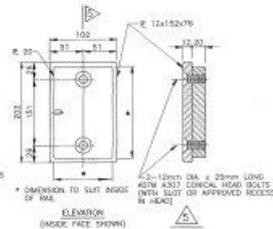
RAIL SPLICE DETAIL
HSS 102x102 RAIL



RAIL SPLICE DETAIL
HSS 203x102 RAIL



END CAP DETAILS
HSS 102x102 RAIL



END CAP DETAILS
HSS 203x102 RAIL

METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES
UNLESS OTHERWISE SHOWN

DRAWING NOT TO BE SCALED
100 mm ON ORIGINAL DRAWING

NO.	DESCRIPTION	DATE	BY	CHECKED	APP. NO.
1	ISSUED FOR CONSTRUCTION	MAY 17/07	WFC		
2	ISSUED FOR REVISION	MAY 30/07	WFC		



CORPORATION OF THE
CITY OF LONDON

DESIGN MANAGER
CITY ENGINEER

HIGHBURY AVENUE/CPR OVERHEAD
STRUCTURE REHABILITATION

4-BAR OPEN STEEL
BRIDGE RAILING DETAILS II

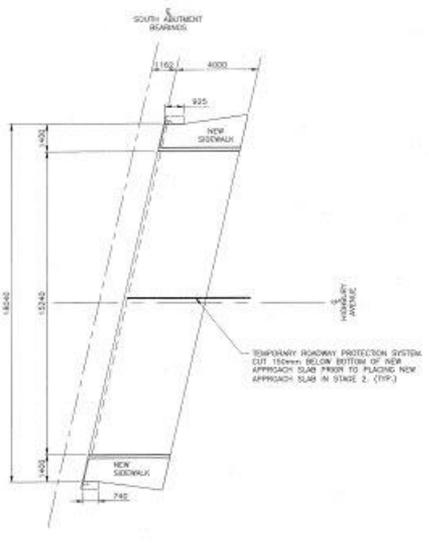
PROJECT NO.
06-6632

REVISION
S12

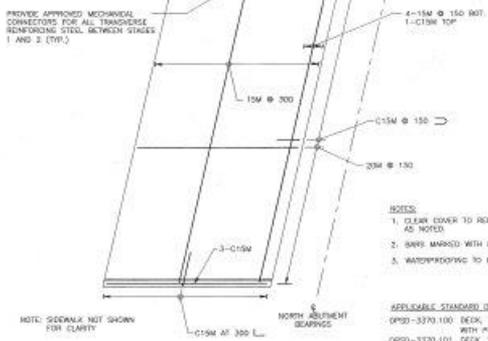
DATE ISSUED
20833



NORTH APPROACH SLAB



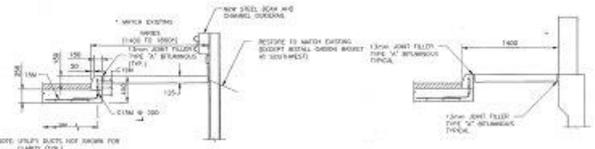
SOUTH APPROACH SLAB



APPROACH SLAB REINFORCEMENT DETAILS
SCALE 1:50

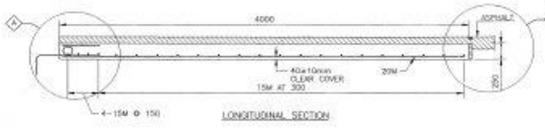
- NOTES:
1. CLEAR COVER TO REINFORCING STEEL 70 & 30 mm EXCEPT AS NOTED.
 2. BARS MARKED WITH PRETEC C DENOTE COATED BARS.
 3. WATERPROOFING TO BE IN ACCORDANCE WITH UFGS-3370.10-10.

APPLICABLE STANDARD DRAWINGS
UFGS-3370.10-10 DECK, WATERPROOFING, HOT APPLIED ASPHALT MEMBRANE WITH PROTECTION BOARD DETAILS
UFGS-3370.10-11 DECK, WATERPROOFING, HOT APPLIED ASPHALT MEMBRANE (MODIFIED) AT ACTIVE CRACKS GREATER THAN 3mm WIDE AND



SECTION BEYOND WINGWALL

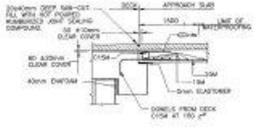
SECTION AT WINGWALL
FOR DETAILS REFER TO SECTION BEYOND WINGWALL EXCEPT AS NOTED.



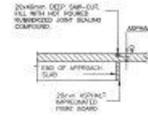
LONGITUDINAL SECTION

LONGITUDINAL SECTION

(SOUTH APPROACH SLAB SHOWN, NORTH APPROACH SLAB SIMILAR)



A



B



DETAIL AT END OF DECK

METRIC

DIMENSIONS ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE SHOWN

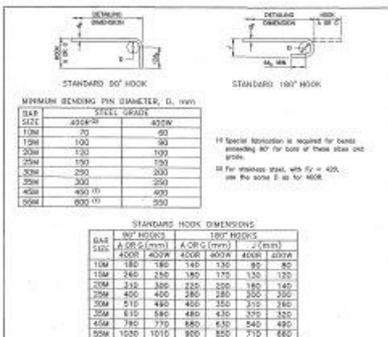
DRAWING NOT TO BE SCALED
100 mm ON ORIGINAL DRAWING

NO	AS CONTRACTED WORK	AS CONTRACTED SERVICE	DESCRIPTION	DATE	BY	CHK	APP
1			ISSUE FOR CONSTRUCTION	04/15/2017	BC		
2			ISSUE FOR DESIGN	04/15/2017	BC		



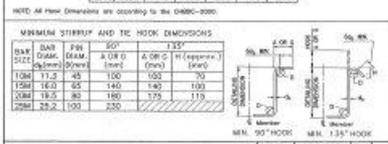
CORPORATION OF THE CITY OF LONDON
DRAWN BY: []
CHK'D BY: []

HIGHBURY AVENUE/CPR OVERHEAD STRUCTURE REHABILITATION	PROJECT NO: 06-6632
4000mm APPROACH SLAB	SHEET NO: S13
	DATE: 20834



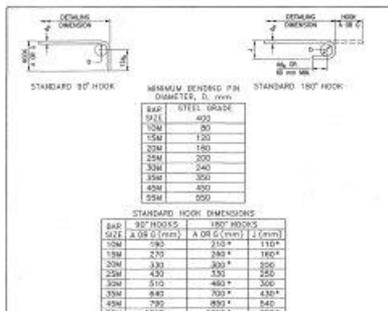
If Special fabrication is required for bends exceeding 90° for bars of these sizes and weights.

18 For minimum steel, with $F_y = 400$, use the same B as for 40M.

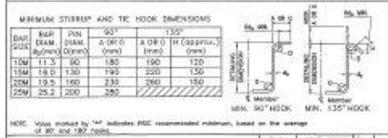


HOOK DIMENSIONS FOR UNCOATED BARS

SS12-1

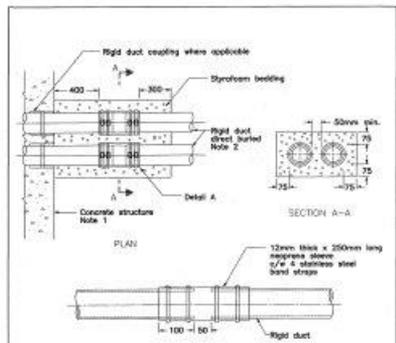


NOTE: Tabulated values for Standard Hook Dimensions are the larger of tabulated (according to CAN2000-3000) and tabulated (according to CANADA 3000) requirements. Values marked by * indicate RECOMMENDED minimums.



HOOK DIMENSIONS FOR COATED BARS

SS12-2



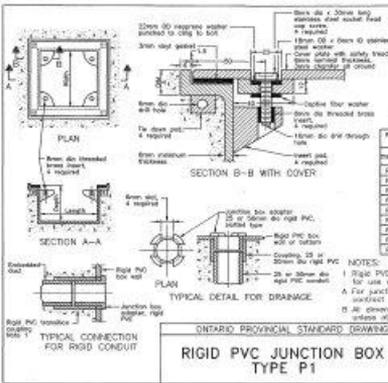
NOTES:

- Concrete structures include bridge structures, concrete footing, drilled foundations, basins, concrete duct banks, etc.
- For number, size and availability of ducts refer to contract drawings.
- All dimensions are in millimetres unless otherwise shown.

MINISTRY OF TRANSPORTATION, ONTARIO DRAWING March 2001 Rev 1

UNDERGROUND RIGID DUCT CONNECTION AT CONCRETE STRUCTURE

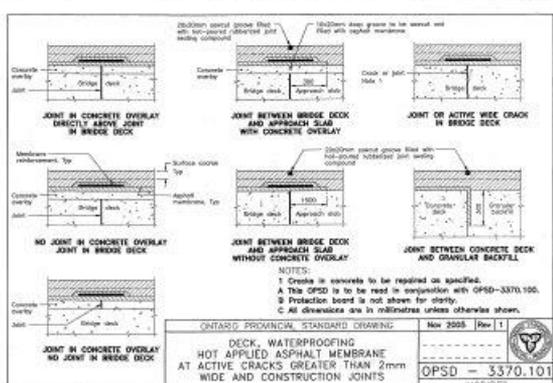
MT02 - 2102.01



ONTARIO PROVINCIAL STANDARD DRAWING 1290 25 10 Rev 1

RIGID PVC JUNCTION BOX TYPE P1

OPSD - 2300.010



ONTARIO PROVINCIAL STANDARD DRAWING Nov 2005 Rev 1

DECK, WATERPROOFING HOT APPLIED ASPHALT MEMBRANE AT ACTIVE CRACKS GREATER THAN 2mm WIDE AND CONSTRUCTION JOINTS

OPSD - 3370.101 MODIFIED

NO.	DESCRIPTION	DATE	BY	CHKD.	APP'D.
1	DESIGNED FOR CONSTRUCTION				
2	DESIGNED FOR BRIDGE				

DILLON CONSULTING

CORPORATION OF THE CITY OF LONDON

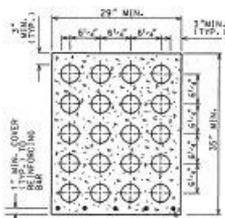
London

HIGHWAY AVENUE/CPR OVERHEAD STRUCTURE REHABILITATION

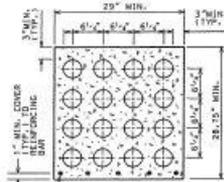
SECTION NUMBER

DATE: S14

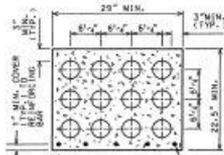
20835



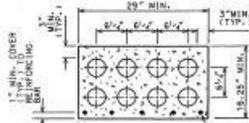
TYPICAL 4" P.V.C. DUCT STRUCTURE ARRANGEMENT
SHOWING 20" - 4" DUCT



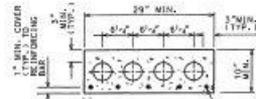
TYPICAL 4" P.V.C. DUCT STRUCTURE ARRANGEMENT
SHOWING 16" - 4" DUCT



TYPICAL 4" P.V.C. DUCT STRUCTURE ARRANGEMENT
SHOWING 12" - 4" DUCT



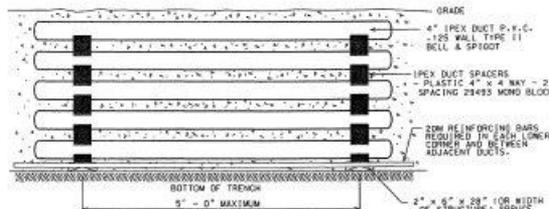
TYPICAL 4" P.V.C. DUCT STRUCTURE ARRANGEMENT
SHOWING 8" - 4" DUCT



TYPICAL 4" P.V.C. DUCT STRUCTURE ARRANGEMENT
SHOWING 4" - 4" DUCT

GENERAL NOTES AND SPECIFICATIONS

- ALL DUCT STRUCTURES ARE TO HAVE 30" MINIMUM COVER UNDER GRASS AREAS AND 42" UNDER ASPHALT (ROADWAYS, DRIVEWAYS, PARKING LOTS, TRAVELLED PORTIONS, ETC.)
- CONCRETE ENCASEMENT SPECIFICATIONS FOR PRE-MIXED CONCRETE:
 - SIZE AGGREGATE NOT TO EXCEED 3/4" IN SIZE. CONCRETE TO HAVE MINIMUM STRENGTH OF 25 MPa (1:2000 P.S.), SLUMP TOLERANCES TO BE 4" TO 5". A 3" POWER VIBRATOR IS TO BE USED.
 - NO AIR ENTRAINMENT IS TO BE ADDED TO CONCRETE MIX.
 - ALLOW A MINIMUM OF 24 HOURS FOR CONCRETE TO SET PRIOR TO BACK FILLING.
- ON LARGE, LONG STRUCTURES, A MINIMUM OF 10' - 0" OF DUCT STRUCTURE WILL BE LEFT UNENCASED OVERNIGHT. THIS WILL ALLOW VERTICAL OR LATERAL ADJUSTMENTS THE FOLLOWING DAY IN THE EVENT OBSTRUCTIONS PRESENT THEMSELVES (I.E. OTHER UTILITIES). ALL EXPOSED DUCT STRUCTURE MUST BE PLUGGED (I.E. OVERNIGHT) DURING BACKFILLING.
- THE STRUCTURE IS TO BE FORMED TO WITHIN THE MINIMUM /MAXIMUM DIMENSIONS SHOWN ABOVE.
- DEFLECTIONS OR TRANSITIONS IN DUCT STRUCTURE SHOULD BE MADE AS GENTLY AS POSSIBLE USING 4" - 5% COLLARS. EXTREME VARIATIONS MUST BE APPROVED BY THE LONDON HYDRO ENGINEERING DEPT.
- STRUCTURE IS TO BE PLACED ON BEDDING MATERIAL WHICH IS TO BE LEVEL AND COMPACTED TO 95% STANDARD PROCTOR DENSITY.
- STRUCTURES ARE TO BE SUPPORTED WITH DUCT SPACERS WHICH ARE TO BE PLACED AT A MAXIMUM OF 5' - 0" APART AND SET ON 2" x 6" x 28" STRUCE, OR DUCT SPACERS PLACED HORIZONTAL.
- ALL DUCT JOINTS MUST BE TAPPED HOME AS EACH LENGTH IS LAID AND EACH JOINT OILED. LIMIT UNNECESSARY WALKING ON DUCTS PRIOR TO THE PLACEMENT OF CONCRETE. JOINTS MUST BE ADJACENT TO EACH OTHER AND NOT STAGGERED. DUCT MUST BE TIED AT EACH SPACER LOCATION WITH 3/8" NYLON ROPE.
- DUCTS TO BE INSTALLED MUST BE IPEx 4" P.V.C., 125 BALLTYPE D82 BELL AND SPIGOT DUCTS IN 10' - 0" OR 20' - 0" LENGTHS. FLARED DUCTS ARE TO BE USED WHEN ENTERING MANHOLES AS PER E-CS-413 SHT.2
- ALL BACKFILLING AND COMPACTION SHALL ADVISE:
 - COMPACTION TO 95% OF THE STANDARD PROCTOR DENSITY
 - OBTAIN MOISTURE CONTENT 6%
 - RECONSTITUTED DRY DENSITY NOT LESS THAN 2050 kg/m³
- ACCEPTANCE OF THE DUCT STRUCTURE WILL REQUIRE THAT A 4" HANDBALL IS PULLED THROUGH EACH DUCT C/W INSTALLATION OF 3/16" POLY FISH" ROPE.
- ZOM REINFORCING BARS REQUIRED IN EACH LOWER CORNER AND BETWEEN ADJACENT DUCTS.



CROSS SECTION SHOWING 20-4" P.V.C. DUCT STRUCTURE

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100

NO.	DATE	BY	DESCRIPTION
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
31			
32			
33			
34			
35			
36			
37			
38			
39			
40			
41			
42			
43			
44			
45			
46			
47			
48			
49			
50			
51			
52			
53			
54			
55			
56			
57			
58			
59			
60			
61			
62			
63			
64			
65			
66			
67			
68			
69			
70			
71			
72			
73			
74			
75			
76			
77			
78			
79			
80			
81			
82			
83			
84			
85			
86			
87			
88			
89			
90			
91			
92			
93			
94			
95			
96			
97			
98			
99			
100			


DILLON
 CONSULTING


CORPORATION OF THE CITY OF LONDON
 LONDON MANAGER
 CITY ENGINEER

HIGHBURY AVENUE/CPR OVERHEAD
 STRUCTURE REHABILITATION
STANDARD DRAWINGS II
 06-6632
 SHEET S15
 20836

C BRIDGE

INSPECTION REPORT

City of London Structures Database

Single Structure Condition Report



Inventory No: 3-BR-04
Location: Highbury Avenue over CP Rail
Structure Name: Highbury Avenue Overhead at CP Rail



WEST ELEVATION-AUG'15 (2)

Road Classification: Arterial
Adjacent Road Section:
AADT: 32000 (2014)
Pavement Quality Index:
Structure Type
Function: Grade separation - road over rail
Framing System: 3-span continuous beam and slab
Materials: Reinforced concrete deck over steel superstructure on reinforced concrete piers and abutments
Supported/Suspended Utility: No
Utility Type:
Construction Date: 1958
Weight/Height/Width None
Deck Area: 829
Restrictions:
Original Cost: \$178,000
Waterway Opening: N/A
Replacement Cost: \$3,697,000
Maintained by: City
Ownership: City

Maintenance History and Expenditures:

1988 - Latex concrete deck overlay, deck joint seals, installed new railings, cleaned and coated structural steel - \$375,000
1991 - Repaired concrete end dams at south abutment joint - \$3,400
199_ - Chain link fence installed - \$_____
2006 - Repaired expansion joint at northwest corner - \$3,296
2009 - Repair slider plate damaged by plow - \$554

Inspection Date: 2015
Inspector: Sam Mansor
AECOM Canada Ltd

City of London Structures Database

Single Structure Condition Report



Inventory No: 3-BR-04

CONDITION DATA

Rating:

Foundations or Base Slab:

Foundation is not visible. - Limited inspection.

5

Abutments or Side Walls:

The north and south abutment walls are in fair condition with narrow to medium horizontal and vertical cracking. Previously patched areas were noted. Light scaling and corrosion staining. Graffiti on the walls.

6

Wingwalls/Head Walls:

The wingwalls are in fair to good condition with light scaling, light delaminations, small light spalling with exposed reinforcing steel at the northwest wingwall, narrow to medium cracking with efflorescence staining, and light aggregate pop-outs. The joint seal at the north wingwalls is in fair to poor condition with missing sections.

7

Piers:

The piers are in fair to good condition overall with minor corrosion staining at the underside of the pier cap due to the rebar chairs. Localized light delaminations and narrow to medium vertical cracking at the bottom barrier. Graffiti on the piers.

7

Bearings:

The elastomeric bearings at the south abutment are in good condition. Limited inspection of the bearings at the north abutment and rocker piers bearings due to access.

7

Superstructure:

The steel girders are in fair to good condition with light corrosion staining and the coating is peeling off at several locations. The center span is smoke blackened

7

Deck Structure or Top Slab:

The soffit is in fair to good condition overall. The center span is smoke blackened (limited inspection). Narrow to medium longitudinal, transverse, and pattern cracking with efflorescence staining. The fascia consisted of light scaling, light spalls, corrosion staining and light delaminations with exposed steel. Localized light spalls with exposed steel. Previous concrete patches were noted at several locations. Localized light honeycombing in the north span.

7

Deck Surface or Road Surface:

The asphalt road surface is in good condition with light longitudinal cracks at the center of the road. The form and fill grooves at both ends are in good condition

8

Expansion Joints:

None.

Sidewalks/Safety Curbs/Median:

The sidewalks are in fair to good condition with light transverse shrinkage cracks, longitudinal and pattern cracking. Light scaling and aggregate pop-outs on the sidewalk surface. Light scaling and abrasion on curbs. Previous concrete patches were noted on the curb and sidewalk. Spalling at SE and NE curbs. Minor settlement at approaches, joint caulking is in fair condition with poor areas and missing sections.

7

Railings:

The steel box beam railing on both sides of the bridge are in fair to good condition overall with some corrosion spots. The chain link fence behind the railing systems is in fair to good condition with light to medium corrosion at several areas and few severely corroded connections. Minor impact damage to the west chain link fence near the center span. The bottom end cap at SE rail is missing. The concrete end walls are in fair to good condition.

7

Deck Drains:

N/A

Approaches:

The asphalt approaches are in fair to good condition overall with light transverse, longitudinal and progressive edge cracking. Form and fill grooves are in good condition.

8

Guide Rail:

Steel beam guiderail is connected to concrete end walls at all four corners and is in fair to good condition overall. Light impact damage at SE and SW approaches. The wooden posts and blocks are in fair to good condition with light weathering, checks and splitting.

7

Slope Protection/Miscellaneous:

The concrete slope paving at the south end of the bridge is undermined and settled at several locations and with light to medium scaling. Vegetation is growing between the joints. Gabion baskets installed at the southwest quadrant. Graffiti on the concrete sloped paving.

6

Average Condition Rating: 6.8

City of London Structures Database

Single Structure Condition Report



Inventory No: 3-BR-04

IDENTIFIED PROBLEMS/COMMENTS

Timing

Maintenance:

Rout and seal asphalt.
Remove graffiti.

Medium Term

Minor Rehab:

None.

Major Rehab:

Recoat structural steel.
Replace rocker bearings.
Concrete repairs.
Repair chain-link fence.
Repair concrete sloped paving.
Repair guide rail.
Repair sidewalk and curbs.

Long Term

Replacement:

None.

Additional Inspections:

None.

Next Routine Visual Inspection Date:

2017

City of London Structures Database
Single Structure Condition Report



Inventory No: 3-BR-04

IMAGE SUMMARY



CENTER SPAN SOFFIT-AUG'15 (1)



CENTER SPAN SOFFIT-AUG'15 (2)

City of London Structures Database
Single Structure Condition Report



Inventory No: 3-BR-04



CENTER SPAN SOFFIT-AUG'15 (3)



CENTER SPAN SOFFIT-AUG'15 (4)

City of London Structures Database
Single Structure Condition Report



Inventory No: 3-BR-04



CENTER SPAN SOFFIT-AUG'15 (5)



CENTER SPAN SOFFIT-AUG'15 (6)

City of London Structures Database

Single Structure Condition Report



Inventory No: 3-BR-04



CENTER SPAN, EAST ELEVATION-AUG'15



CORROSION ON THE RAILING-AUG'15

City of London Structures Database
Single Structure Condition Report



Inventory No: 3-BR-04



DECK WEARING SURFACE-AUG'15



DECK, LOOKING SOUTH-AUG'15

City of London Structures Database
Single Structure Condition Report



Inventory No: 3-BR-04



DECK-AUG'15



EAST CHAIN-LINK FENCE-AUG'15 (1)

City of London Structures Database
Single Structure Condition Report



Inventory No: 3-BR-04



EAST CHAIN-LINK FENCE-AUG'15 (2)



EAST ELEVATION-AUG'15

City of London Structures Database
Single Structure Condition Report



Inventory No: 3-BR-04



EAST FASCIA-AUG'15



EAST RAILING AND SIDEWALK-AUG'15

City of London Structures Database
Single Structure Condition Report



Inventory No: 3-BR-04



EAST RAILING-AUG'15 (1)



EAST RAILING-AUG'15 (2)

City of London Structures Database
Single Structure Condition Report



Inventory No: 3-BR-04



EAST RAILING-AUG'15 (3)



EAST RAILING-AUG'15 (5)

City of London Structures Database
Single Structure Condition Report



Inventory No: 3-BR-04



EAST RAILING-AUG'15 (6)



NE BEARING-AUG'15

City of London Structures Database
Single Structure Condition Report



Inventory No: 3-BR-04



NE CHAIN-LINK FENCE-AUG'15



NE GUIDE RAIL-AUG'15

City of London Structures Database
Single Structure Condition Report



Inventory No: 3-BR-04



NE RAILING-AUG'15



NE RETAINING WALL-AUG'15

City of London Structures Database
Single Structure Condition Report



Inventory No: 3-BR-04



NORTH ABUTMENT-AUG'15 (2)



NORTH ABUTMENT-AUG'15

City of London Structures Database
Single Structure Condition Report



Inventory No: 3-BR-04



NORTH APPROACH-AUG'15 (1)



NORTH APPROACH-AUG'15 (2)

City of London Structures Database

Single Structure Condition Report



Inventory No: 3-BR-04



NORTH APPROACH-AUG'15 (3)



NORTH APPROACH-AUG'15 (4)

City of London Structures Database
Single Structure Condition Report



Inventory No: 3-BR-04



NORTH APPROACH-AUG'15 (5)



NORTH APPROACH-AUG'15 (6)

City of London Structures Database
Single Structure Condition Report



Inventory No: 3-BR-04



NORTH APPROACH-AUG'15 (7)



NORTH ELEVATION OF NORTH PIER-AUG'15

City of London Structures Database
Single Structure Condition Report



Inventory No: 3-BR-04



NORTH PIER CAP-AUG'15



NORTH PIER-AUG'15 (2)

City of London Structures Database
Single Structure Condition Report



Inventory No: 3-BR-04



NORTH PIER-AUG'15



NORTH SLOPE PAVING-AUG'15

City of London Structures Database
Single Structure Condition Report



Inventory No: 3-BR-04



NORTH SPAN SOFFIT-AUG'15 (1)



NORTH SPAN SOFFIT-AUG'15 (2)

City of London Structures Database
Single Structure Condition Report



Inventory No: 3-BR-04



NORTH SPAN SOFFIT-AUG'15 (3)



NORTH SPAN SOFFIT-AUG'15 (4)

City of London Structures Database
Single Structure Condition Report



Inventory No: 3-BR-04



NORTH SPAN SOFFIT-AUG'15 (5)



NORTH SPAN SOFFIT-AUG'15 (6)

City of London Structures Database
Single Structure Condition Report



Inventory No: 3-BR-04



NORTH SPAN SOFFIT-AUG'15 (7)



NORTH SPAN SOFFIT-AUG'15 (8)

City of London Structures Database
Single Structure Condition Report



Inventory No: 3-BR-04



NW ABUTMENT BEARING-AUG'15



NW END WALL-AUG'15

City of London Structures Database
Single Structure Condition Report



Inventory No: 3-BR-04



NW GUIDE RAIL-AUG'15



NW RETAINING WALL-AUG'15

City of London Structures Database
Single Structure Condition Report



Inventory No: 3-BR-04



NW RETAINNG WALL JOINT-AUG'15



NW SIDEWALK AND CURB-AUG'15

City of London Structures Database

Single Structure Condition Report



Inventory No: 3-BR-04



NW SPAN ELEVATION-AUG'15



SE APPROACH SIDEWALK-AUG'15

City of London Structures Database
Single Structure Condition Report



Inventory No: 3-BR-04



SE GUIDE RAIL-AUG'15



SE SIDEWALK APPROACH-AUG'15 (1)

City of London Structures Database
Single Structure Condition Report



Inventory No: 3-BR-04



SE SIDEWALK APPROACH-AUG'15 (2)



SOUTH ABUTMENT BEARINGS-AUG'15 (1)

City of London Structures Database
Single Structure Condition Report



Inventory No: 3-BR-04



SOUTH ABUTMENT BEARINGS-AUG'15 (2)



SOUTH ABUTMENT BEARINGS-AUG'15 (3)

City of London Structures Database
Single Structure Condition Report



Inventory No: 3-BR-04



SOUTH ABUTMENT BEARINGS-AUG'15 (4)



SOUTH ABUTMENT BEARINGS-AUG'15

City of London Structures Database
Single Structure Condition Report



Inventory No: 3-BR-04



SOUTH ABUTMENT-AUG'15 (1)



SOUTH ABUTMENT-AUG'15 (2)

City of London Structures Database
Single Structure Condition Report



Inventory No: 3-BR-04



SOUTH ABUTMENT-AUG'15 (3)



SOUTH ABUTMENT-AUG'15 (4)

City of London Structures Database
Single Structure Condition Report



Inventory No: 3-BR-04



SOUTH APPROACH-AUG'15 (1)



SOUTH APPROACH-AUG'15 (2)

City of London Structures Database
Single Structure Condition Report



Inventory No: 3-BR-04



SOUTH ELEVATION OF SOUTH PIER-AUG'15



SOUTH PIER BEARINGS-AUG'15 (1)

City of London Structures Database
Single Structure Condition Report



Inventory No: 3-BR-04



SOUTH PIER BEARINGS-AUG'15 (2)



SOUTH PIER-AUG'15 (2)

City of London Structures Database
Single Structure Condition Report



Inventory No: 3-BR-04



SOUTH PIER-AUG'15



SOUTH SPAN SOFFIT-AUG'15 (1)

City of London Structures Database
Single Structure Condition Report



Inventory No: 3-BR-04



SOUTH SPAN SOFFIT-AUG'15 (2)



SOUTH SPAN SOFFIT-AUG'15 (3)

City of London Structures Database
Single Structure Condition Report



Inventory No: 3-BR-04



SOUTH SPAN SOFFIT-AUG'15 (4)



SOUTH SPAN SOFFIT-AUG'15 (5)

City of London Structures Database
Single Structure Condition Report



Inventory No: 3-BR-04



SOUTH SPAN SOFFIT-AUG'15 (6)



SOUTH SPAN SOFFIT-AUG'15 (7)

City of London Structures Database
Single Structure Condition Report



Inventory No: 3-BR-04



SOUTH SPAN SOFFIT-AUG'15 (8)



SOUTHWEST SLOPE PAVING-AUG'15

City of London Structures Database
Single Structure Condition Report



Inventory No: 3-BR-04



SOUTHWEST WINGWALL-AUG'15



SW GUIDE RAIL-AUG'15

City of London Structures Database
Single Structure Condition Report



Inventory No: 3-BR-04



SW WINGWALL-AUG'15



TOP OF EAST FASCIA-AUG'15

City of London Structures Database
Single Structure Condition Report



Inventory No: 3-BR-04



TOP OF RAILING POST BASE-AUG'15



TOP OF SOUTH SLOPE PAVING-AUG'15

City of London Structures Database
Single Structure Condition Report



Inventory No: 3-BR-04



TOP OF WEST FASCIA-AUG'15 (1)



TOP OF WEST FASCIA-AUG'15 (2)

City of London Structures Database

Single Structure Condition Report



Inventory No: 3-BR-04



WEARING SURFACE ON DECK-AUG'15 (1)



WEARING SURFACE ON DECK-AUG'15 (2)

City of London Structures Database

Single Structure Condition Report



Inventory No: 3-BR-04



WEARING SURFACE ON DECK-AUG'15 (3)



WEST ELEVATION SOFFIT-AUG'15

City of London Structures Database

Single Structure Condition Report



Inventory No: 3-BR-04



WEST ELEVATION-AUG'15 (2)



WEST ELEVATION-AUG'15

City of London Structures Database
Single Structure Condition Report



Inventory No: 3-BR-04



WEST FASCIA-AUG'15 (1)



WEST FASCIA-AUG'15 (2)

City of London Structures Database
Single Structure Condition Report



Inventory No: 3-BR-04



WEST RAILING-AUG'15 (1)



WEST RAILING-AUG'15 (2)

City of London Structures Database
Single Structure Condition Report



Inventory No: 3-BR-04



WEST RAILING-AUG'15 (3)



WEST RAILING-AUG'15 (4)

City of London Structures Database
Single Structure Condition Report



Inventory No: 3-BR-04



WEST RAILING-AUG'15 (5)



WEST RAILING-AUG'15 (6)

City of London Structures Database

Single Structure Condition Report



Inventory No: 3-BR-04



WEST RAILING-AUG'15 (7)



WEST SIDEWALK-AUG'15 (1)

City of London Structures Database

Single Structure Condition Report



Inventory No: 3-BR-04



WEST SIDEWALK-AUG'15 (2)