



THE CITY OF WINNIPEG

TENDER

TENDER NO. 442-2024

ARLINGTON BRIDGE – PIER 2, 4 AND 6 BEARING REPLACEMENT

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PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

B1.1 ARLINGTON BRIDGE – PIER 2, 4 AND 6 BEARING REPLACEMENT

B2. SUBMISSION DEADLINE

B2.1 The Submission Deadline is 12:00 noon Winnipeg time, June 11th, 2024 .

B2.2 The Contract Administrator or the Manager of Purchasing may extend the Submission Deadline by issuing an addendum at any time prior to the time and date specified in B2.1.

B3. SITE INVESTIGATION

B3.1 Further to C3.1, the Bidder may make an appointment to view the Site by contacting the Contract Administrator.

B3.2 The Bidder is advised that The City has access to the top of west end of Piers 2, 4 and 6 via hatches from the existing bridge. The City will provide access to the Contractor by appointment only. The Contractor must provide their own safety equipment, including fall arrest equipment and personnel with the documented training to utilize the equipment. To make an appointment contact Contract Administrator.

B3.3 The Bidder shall not be entitled to rely on any information or interpretation received at the Site investigation unless that information or interpretation is the Bidder's direct observation, or is provided by the Contract Administrator in writing.

B4. ENQUIRIES

B4.1 All enquiries shall be directed to the Contract Administrator identified in D6.1.

B4.2 If the Bidder finds errors, discrepancies or omissions in the Tender, or is unsure of the meaning or intent of any provision therein, the Bidder shall notify the Contract Administrator of the error, discrepancy or omission, or request a clarification as to the meaning or intent of the provision at least five (5) Business Days prior to the Submission Deadline.

B4.3 Responses to enquiries which, in the sole judgment of the Contract Administrator, require a correction to or a clarification of the Tender will be provided by the Contract Administrator to all Bidders by issuing an addendum.

B4.4 Responses to enquiries which, in the sole judgment of the Contract Administrator, do not require a correction to or a clarification of the Tender will be provided by the Contract Administrator only to the Bidder who made the enquiry.

B4.5 The Bidder shall not be entitled to rely on any response or interpretation received pursuant to B4 unless that response or interpretation is provided by the Contract Administrator in writing.

B4.6 Any enquiries concerning submitting through MERX should be addressed to:
MERX Customer Support
Phone: 1-800-964-6379
Email: merx@merx.com

B5. CONFIDENTIALITY

B5.1 Information provided to a Bidder by the City or acquired by a Bidder by way of further enquiries or through investigation is confidential. Such information shall not be used or disclosed in any way without the prior written authorization of the Contract Administrator. The use and disclosure of the confidential information shall not apply to information which:

- (a) was known to the Bidder before receipt hereof; or
- (b) becomes publicly known other than through the Bidder; or
- (c) is disclosed pursuant to the requirements of a governmental authority or judicial order.

B5.2 The Bidder shall not make any statement of fact or opinion regarding any aspect of the Tender to the media or any member of the public without the prior written authorization of the Contract Administrator.

B6. ADDENDA

B6.1 The Contract Administrator may, at any time prior to the Submission Deadline, issue addenda correcting errors, discrepancies or omissions in the Tender, or clarifying the meaning or intent of any provision therein.

B6.2 The Contract Administrator will issue each addendum at least two (2) Business Days prior to the Submission Deadline, or provide at least two (2) Business Days by extending the Submission Deadline.

B6.3 Addenda will be available on the MERX website at www.merx.com.

B6.4 The Bidder is responsible for ensuring that they have received all addenda and is advised to check the MERX website for addenda regularly and shortly before the Submission Deadline, as may be amended by addendum.

B6.5 The Bidder shall acknowledge receipt of each addendum in Paragraph 10 of Form A: Bid/Proposal. Failure to acknowledge receipt of an addendum may render a Bid non-responsive.

B6.6 Notwithstanding B4, enquiries related to an Addendum may be directed to the Contract Administrator indicated in D6.

B7. SUBSTITUTES

B7.1 The Work is based on the Plant, Materials and methods specified in the Tender.

B7.2 Substitutions shall not be allowed unless application has been made to and prior approval has been granted by the Contract Administrator in writing.

B7.3 Requests for approval of a substitute will not be considered unless received in writing by the Contract Administrator at least five (5) Business Days prior to the Submission Deadline.

B7.4 The Bidder shall ensure that any and all requests for approval of a substitute:

- (a) provide sufficient information and details to enable the Contract Administrator to determine the acceptability of the Plant, Material or method as either an approved equal or alternative;
- (b) identify any and all changes required in the applicable Work, and all changes to any other Work, which would become necessary to accommodate the substitute;
- (c) identify any anticipated cost or time savings that may be associated with the substitute;
- (d) certify that, in the case of a request for approval as an approved equal, the substitute will fully perform the functions called for by the general design, be of equal or superior substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule and the dates specified in the Supplemental Conditions for Substantial Performance and Total Performance;
- (e) certify that, in the case of a request for approval as an approved alternative, the substitute will adequately perform the functions called for by the general design, be similar in substance to that specified, is suited to the same use and capable of performing the same

function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule and the dates specified in the Supplemental Conditions for Substantial Performance and Total Performance.

- B7.5 The Contract Administrator, after assessing the request for approval of a substitute, may in their sole discretion grant approval for the use of a substitute as an “approved equal” or as an “approved alternative”, or may refuse to grant approval of the substitute.
- B7.6 The Contract Administrator will provide a response in writing, at least two (2) Business Days prior to the Submission Deadline, to the Bidder who requested approval of the substitute.
- B7.6.1 The Contract Administrator will issue an Addendum, disclosing the approved materials, equipment, methods and products to all potential Bidders. The Bidder requesting and obtaining the approval of a substitute shall be responsible for disseminating information regarding the approval to any person or persons they wish to inform.
- B7.7 If the Contract Administrator approves a substitute as an “approved equal”, any Bidder may use the approved equal in place of the specified item.
- B7.8 If the Contract Administrator approves a substitute as an “approved alternative”, any Bidder bidding that approved alternative may base their Total Bid Price upon the specified item but may also indicate an alternative price based upon the approved alternative. Such alternatives will be evaluated in accordance with B18.
- B7.9 No later claim by the Contractor for an addition to the Total Bid Price because of any other changes in the Work necessitated by the use of an approved equal or an approved alternative will be considered.

B8. BID COMPONENTS

- B8.1 The Bid shall consist of the following components:
- (a) Form A: Bid/Proposal;
 - (b) Form B: Prices;
 - (c) Form G1: Bid Bond and Agreement to Bond.
- B8.2 All components of the Bid shall be fully completed or provided, and submitted by the Bidder no later than the Submission Deadline, with all required entries made clearly and completely.
- B8.3 The Bid shall be submitted electronically through MERX at www.merx.com.
- B8.3.1 Bids will **only** be accepted electronically through MERX.
- B8.4 Bidders are advised that inclusion of terms and conditions inconsistent with the Tender document, including the General Conditions, will be evaluated in accordance with B18.1(a).

B9. BID

- B9.1 The Bidder shall complete Form A: Bid/Proposal, making all required entries.
- B9.2 Paragraph 2 of Form A: Bid/Proposal shall be completed in accordance with the following requirements:
- (a) if the Bidder is a sole proprietor carrying on business in their own name, their name shall be inserted;
 - (b) if the Bidder is a partnership, the full name of the partnership shall be inserted;
 - (c) if the Bidder is a corporation, the full name of the corporation shall be inserted;
 - (d) if the Bidder is carrying on business under a name other than their own, the business name and the name of every partner or corporation who is the owner of such business name shall be inserted.

- B9.2.1 If a Bid is submitted jointly by two or more persons, each and all such persons shall identify themselves in accordance with B9.2.
- B9.3 In Paragraph 3 of Form A: Bid/Proposal, the Bidder shall identify a contact person who is authorized to represent the Bidder for purposes of the Bid.
- B9.4 Paragraph 13 of Form A: Bid/Proposal shall be signed in accordance with the following requirements:
- (a) if the Bidder is a sole proprietor carrying on business in their own name, it shall be signed by the Bidder;
 - (b) if the Bidder is a partnership, it shall be signed by the partner or partners who have authority to sign for the partnership;
 - (c) if the Bidder is a corporation, it shall be signed by their duly authorized officer or officers;
 - (d) if the Bidder is carrying on business under a name other than their own, it shall be signed by the registered owner of the business name, or by the registered owner's authorized officials if the owner is a partnership or a corporation.
- B9.4.1 The name and official capacity of all individuals signing Form A: Bid/Proposal should be entered below such signatures.
- B9.5 If a Bid is submitted jointly by two or more persons, the word "Bidder" shall mean each and all such persons, and the undertakings, covenants and obligations of such joint Bidders in the Bid and the Contract, when awarded, shall be both joint and several.

B10. PRICES

- B10.1 The Bidder shall state a price in Canadian funds for each item of the Work identified on Form B: Prices.
- B10.1.1 Prices stated on Form B: Prices shall not include any costs which may be incurred by the Contractor with respect to any applicable funding agreement obligations as outlined in D37. Any such costs shall be determined in accordance with D37.
- B10.2 The quantities listed on Form B: Prices are to be considered approximate only. The City will use said quantities for the purpose of comparing Bids.
- B10.3 The quantities for which payment will be made to the Contractor are to be determined by the Work actually performed and completed by the Contractor, to be measured as specified in the applicable Specifications.
- B10.4 Payments to Non-Resident Contractors are subject to Non-Resident Withholding Tax pursuant to the Income Tax Act (Canada).
- B10.5 The Bidder shall enter the Total Bid Price from Form B: Prices into the Total Bid Price field in MERX.
- B10.5.1 Bidders are advised that the calculation indicated in B18.4 will prevail over the Total Bid Price entered in MERX.

B11. DISCLOSURE

- B11.1 Various Persons provided information or services with respect to this Work. In the City's opinion, this relationship or association does not create a conflict of interest because of this full disclosure. Where applicable, additional material available as a result of contact with these Persons is listed below.
- B11.2 The Persons are:
- (a) N/A

B12. CONFLICT OF INTEREST AND GOOD FAITH

- B12.1** Further to C3.2, Bidders, by responding to this Tender, declare that no Conflict of Interest currently exists, or is reasonably expected to exist in the future.
- B12.2** Conflict of Interest means any situation or circumstance where a Bidder or employee of the Bidder proposed for the Work has:
- (a) other commitments;
 - (b) relationships;
 - (c) financial interests; or
 - (d) involvement in ongoing litigation;
- that could or would be seen to:
- (i) exercise an improper influence over the objective, unbiased and impartial exercise of the independent judgment of the City with respect to the evaluation of Bids or award of the Contract; or
 - (ii) compromise, impair or be incompatible with the effective performance of a Bidder's obligations under the Contract;
- (e) has contractual or other obligations to the City that could or would be seen to have been compromised or impaired as a result of their participation in the Tender process or the Work; or
 - (f) has knowledge of confidential information (other than confidential information disclosed by the City in the normal course of the Tender process) of strategic and/or material relevance to the Tender process or to the Work that is not available to other bidders and that could or would be seen to give that Bidder an unfair competitive advantage.
- B12.3** In connection with their Bid, each entity identified in B12.2 shall:
- (a) avoid any perceived, potential or actual Conflict of Interest in relation to the procurement process and the Work;
 - (b) upon discovering any perceived, potential or actual Conflict of Interest at any time during the Tender process, promptly disclose a detailed description of the Conflict of Interest to the City in a written statement to the Contract Administrator; and
 - (c) provide the City with the proposed means to avoid or mitigate, to the greatest extent practicable, any perceived, potential or actual Conflict of Interest and shall submit any additional information to the City that the City considers necessary to properly assess the perceived, potential or actual Conflict of Interest.
- B12.4** Without limiting B12.3, the City may, in their sole discretion, waive any and all perceived, potential or actual Conflicts of Interest. The City's waiver may be based upon such terms and conditions as the City, in their sole discretion, requires to satisfy itself that the Conflict of Interest has been appropriately avoided or mitigated, including requiring the Bidder to put into place such policies, procedures, measures and other safeguards as may be required by and be acceptable to the City, in their sole discretion, to avoid or mitigate the impact of such Conflict of Interest.
- B12.5** Without limiting B12.3, and in addition to all contractual or other rights or rights at law or in equity or legislation that may be available to the City, the City may, in their sole discretion:
- (a) disqualify a Bidder that fails to disclose a perceived, potential or actual Conflict of Interest of the Bidder or any of their employees proposed for the Work;
 - (b) require the removal or replacement of any employees proposed for the Work that has a perceived, actual or potential Conflict of Interest that the City, in their sole discretion, determines cannot be avoided or mitigated;

- (c) disqualify a Bidder or employees proposed for the Work that fails to comply with any requirements prescribed by the City pursuant to B12.4 to avoid or mitigate a Conflict of Interest; and
- (d) disqualify a Bidder if the Bidder, or one of their employees proposed for the Work, has a perceived, potential or actual Conflict of Interest that, in the City's sole discretion, cannot be avoided or mitigated, or otherwise resolved.

B12.6 The final determination of whether a perceived, potential or actual Conflict of Interest exists shall be made by the City, in their sole discretion.

B13. QUALIFICATION

B13.1 The Bidder shall:

- (a) undertake to be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba; and
- (b) be financially capable of carrying out the terms of the Contract; and
- (c) have all the necessary experience, capital, organization, and equipment to perform the Work in strict accordance with the terms and provisions of the Contract.

B13.2 The Bidder and any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:

- (a) be responsible and not be suspended, debarred or in default of any obligations to the City. A list of suspended or debarred individuals and companies is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Purchasing Division website <https://www.winnipeg.ca/matmgt/Templates/files/debar.pdf>

B13.3 The Bidder and/or any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:

- (a) have successfully carried out work similar in nature, scope and value to the Work; and
- (b) be fully capable of performing the Work required to be in strict accordance with the terms and provisions of the Contract; and
- (c) have a written workplace safety and health program if required pursuant to The Workplace Safety and Health Act (Manitoba);
- (d) have completed the Accessible Customer Service online training required by the Accessibility for Manitobans Act (AMA) (see B13.5 and D8).

B13.4 Further to B13.3(c), the Bidder shall, within five (5) Business Days of a request by the Contract Administrator, provide proof satisfactory to the Contract Administrator that the Bidder/Subcontractor has a workplace safety and health program meeting the requirements of The Workplace Safety and Health Act (Manitoba), by providing:

- (a) Written confirmation of a safety and health certification meeting SAFE Work Manitoba's SAFE Work Certified Standard (e.g., COR™ and SECOR™) in the form of:
 - (i) a copy of their valid Manitoba COR certificate and Letter of Good Standing (or Manitoba equivalency) as issued under the Certificate of Recognition (COR) Program administered by the Construction Safety Association of Manitoba or by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ Program; or
 - (ii) a copy of their valid Manitoba SECOR™ certificate and Letter of Good Standing (or Manitoba equivalency) as issued under the Small Employer Certificate of Recognition Program (SECOR™) administered by the Construction Safety Association of Manitoba or by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ Program; or

- (b) a report or letter to that effect from an independent reviewer acceptable to the City. (A list of acceptable reviewers and the review template are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Purchasing Division website at <http://www.winnipeg.ca/matmgt/>).

B13.5 Further to B13.3(d), the Bidder acknowledges they and all Subcontractors have obtained training required by the Accessibility for Manitobans Act (AMA) available at [Accessibility Training](#) for anyone that may have any interaction with the public on behalf of the City of Winnipeg.

B13.6 The Bidder shall submit, within three (3) Business Days of a request by the Contract Administrator, proof satisfactory to the Contract Administrator of the qualifications of the Bidder and of any proposed Subcontractor.

B13.7 The Bidder shall provide, on the request of the Contract Administrator, full access to any of the Bidder's equipment and facilities to confirm, to the Contract Administrator's satisfaction, that the Bidder's equipment and facilities are adequate to perform the Work.

B14. BID SECURITY

B14.1 The Bidder shall include in their Bid Submission bid security in the form of a digital bid bond, in the amount of at least ten percent (10%) of the Total Bid Price, and agreement to bond of a company registered to conduct the business of a surety in Manitoba, in Form G1: Bid Bond and Agreement to Bond, available on The City of Winnipeg, Corporate Finance, Purchasing Division website at <https://www.winnipeg.ca/MatMgt/templates/files/Bidsecurity.pdf>.

B14.2 Bid security shall be submitted in a digital format meeting the following criteria:

- (a) The version submitted by the Bidder must have valid digital signatures and seals;
- (b) The version submitted by the Bidder must be verifiable by the City with respect to the totality and wholeness of the bond form, including: the content; all digital signatures and digital seals; with the surety company, or an approved verification service provider of the surety company.
- (c) The version submitted must be viewable, printable and storable in standard electronic file formats compatible with the City, and in a single file. Allowable formats include pdf.
- (d) The verification may be conducted by the City immediately or at any time during the life of the bond and at the discretion of the City with no requirement for passwords or fees.
- (e) The results of the verification must provide a clear, immediate and printable indication of pass or fail regarding B14.2(b).

B14.3 Bonds failing the verification process will not be considered to be valid and the bid shall be determined to be non-responsive in accordance with B18.1(a).

B14.4 Bonds passing the verification process will be treated as original and authentic.

B14.4.1 If the Bidder submits alternative bids, the bid security shall be in the amount of the specified percentage of the highest Total Bid Price submitted.

B14.5 The bid security of the successful Bidder and the next two lowest evaluated responsive and responsible Bidders will be released by the City when a Contract for the Work has been duly formed with the successful Bidder and the contract securities are furnished as provided herein. The bid securities of all other Bidders will be released when a Contract is awarded.

B14.6 The bid securities of all Bidders will be released by the City as soon as practicable following notification by the Contract Administrator to the Bidders that no award of Contract will be made pursuant to the Tender.

B15. OPENING OF BIDS AND RELEASE OF INFORMATION

- B15.1 Bids will not be opened publicly.
- B15.2 Following the Submission Deadline, the names of the Bidders and their Total Bid Prices (unevaluated and pending review and verification of conformance with requirements) will be available on the MERX website at www.merx.com.
- B15.3 After award of Contract, the name(s) of the successful Bidder(s) and their Contract amount(s) will be available on the MERX website at www.merx.com.
- B15.4 The Bidder is advised that any information contained in any Bid may be released if required by The Freedom of Information and Protection of Privacy Act (Manitoba), by other authorities having jurisdiction, or by law or by City policy or procedures (which may include access by members of City Council).
- B15.4.1 To the extent permitted, the City shall treat as confidential information, those aspects of a Bid Submission identified by the Bidder as such in accordance with and by reference to Part 2, Section 17 or Section 18 or Section 26 of The Freedom of Information and Protection of Privacy Act (Manitoba), as amended.

B16. IRREVOCABLE BID

- B16.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 11 of Form A: Bid/Proposal.
- B16.2 The acceptance by the City of any Bid shall not release the Bids of the next two lowest evaluated responsive Bidders and these Bidders shall be bound by their Bids on such Work until a Contract for the Work has been duly formed and the contract securities have been furnished as herein provided, but any Bid shall be deemed to have lapsed unless accepted within the time period specified in Paragraph 11 of Form A: Bid/Proposal.

B17. WITHDRAWAL OF BIDS

- B17.1 A Bidder may withdraw their Bid without penalty at any time prior to the Submission Deadline.

B18. EVALUATION OF BIDS

- B18.1 Award of the Contract shall be based on the following bid evaluation criteria:
- (a) compliance by the Bidder with the requirements of the Tender, or acceptable deviation there from (pass/fail);
 - (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B13 (pass/fail);
 - (c) Total Bid Price;
 - (d) economic analysis of any approved alternative pursuant to B7.
- B18.2 Further to B18.1(a), the Award Authority may reject a Bid as being non-responsive if the Bid is incomplete, obscure or conditional, or contains additions, deletions, alterations or other irregularities. The Award Authority may reject all or any part of any Bid, or waive technical requirements or minor informalities or irregularities, if the interests of the City so require.
- B18.3 Further to B18.1(b), the Award Authority shall reject any Bid submitted by a Bidder who does not demonstrate, in their Bid or in other information required to be submitted, that they are qualified.
- B18.4 Further to B18.1(c), the Total Bid Price shall be the sum of the quantities multiplied by the unit prices for each item shown on Form B: Prices.

B18.4.1 Further to B18.1(a), in the event that a unit price is not provided on Form B: Prices, the City may determine the unit price by dividing the Amount (extended price) by the approximate quantity, for the purposes of evaluation and payment.

B18.4.2 Bidders are advised that the calculation indicated in B18.4 will prevail over the Total Bid Price entered in MERX.

B19. AWARD OF CONTRACT

B19.1 The City will give notice of the award of the Contract or will give notice that no award will be made.

B19.2 The City will have no obligation to award a Contract to a Bidder, even though one or all of the Bidders are determined to be qualified, and the Bids are determined to be responsive.

B19.2.1 Without limiting the generality of B19.2, the City will have no obligation to award a Contract where:

- (a) the prices exceed the available City funds for the Work;
- (b) the prices are materially in excess of the prices received for similar work in the past;
- (c) the prices are materially in excess of the City's cost to perform the Work, or a significant portion thereof, with their own forces;
- (d) only one Bid is received; or
- (e) in the judgment of the Award Authority, the interests of the City would best be served by not awarding a Contract.

B19.3 The Work of this Contract is contingent upon Council approval of sufficient funding in the ^ Capital Budget. If the Capital Budget approved by Council does not include sufficient funding for the Work, the City will have no obligation to award a Contract.

B19.4 If funding for the Work is provided to the City of Winnipeg by the Government of Manitoba and/or the Government of Canada, Bidders are advised that the terms of D37 shall immediately take effect upon confirmation of such funding, regardless of when funding is confirmed.

B19.5 Where an award of Contract is made by the City, the award shall be made to the qualified Bidder submitting the lowest evaluated responsive Bid, in accordance with B18.

B19.5.1 Following the award of contract, a Bidder will be provided with information related to the evaluation of their Bid upon written request to the Contract Administrator.

PART C - GENERAL CONDITIONS

C0. GENERAL CONDITIONS

- C0.1 The *General Conditions for Construction* (Revision 2020 01 31) are applicable to the Work of the Contract.
- C0.1.1 The *General Conditions for Construction* are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Purchasing Division website at http://www.winnipeg.ca/matmgt/gen_cond.stm
- C0.2 A reference in the Tender to a section, clause or subclause with the prefix “**C**” designates a section, clause or subclause in the *General Conditions for Construction*.

PART D - SUPPLEMENTAL CONDITIONS

GENERAL

D1. GENERAL CONDITIONS

D1.1 In addition to the *General Conditions for Construction*, these Supplemental Conditions are applicable to the Work of the Contract.

D2. FORM OF CONTRACT DOCUMENTS

D2.1 Notwithstanding C4.1(c) and C4.4, the Contract Documents will be provided to the Contractor electronically and there will be no requirement for execution and return to the City by the Contractor. Accordingly, the provisions under C4.4(a) and C4.4(b) are no longer applicable.

D3. SCOPE OF WORK

D3.1 The Work to be done under the Contract shall consist of Bearing Replacement at Piers 2, 4 and 6 on the Arlington Bridge.

D3.2 The major components of the Work are as follows:

- (a) Supply Type A jack assemblies (10 Total);
- (b) Install Type A jack assemblies at Piers 2 and 4;
- (c) Install Type A jack assembly at Pier 6, south bearings;
- (d) Structural removals to facilitate jacking as per the Drawings;
- (e) Jack Spans 14, 15, 16, 17 and 18 to facilitate bearing removals;
- (f) Complete required bearing component removals as per the Drawings;
- (g) Install new Elastomeric Bearing Pads at Piers 2, 4 and Pier 6 (south);
 - (i) **Elastomeric Bearing Pad Assemblies Supplied by Others.**
- (h) Lower spans onto new bearing pads;

D4. SITE INVESTIGATION DUE DILIGENCE AND RISK

D4.1 Notwithstanding C3.1, the Contractor acknowledges that the site investigation reports and other site information included in this Tender have been provided to it and may be relied upon by the Contractor to the extent that the Contractor uses Good Industry Practice in interpreting such report(s) and site information and carries out the Work in accordance with Good Industry Practice based upon such report(s) and the information contained in them and such other site information. In the event that a site condition related to:

- (a) the location of any utility which can be determined from the records or other information available at the offices of any public authority or person, including a municipal corporation and any board or commission thereof, having jurisdiction or control over the utility;
- (b) the Site conditions, including but not limited to subsurface hazardous materials or other concealed physical conditions;
- (c) the location, nature, quality or quantity of the materials to be removed or to be employed in the performance of the Work;
- (d) the nature, quality or quantity of the Plant needed to perform the Work;
- (e) all matters concerning access to the Site, power supplies, location of existing services, utilities or materials necessary for the completion of the Work; and
- (f) all other matters which could in any way affect the performance of the Work;

that could not have been “properly inferable”, “readily apparent” and readily discoverable” using Good Industry Practice by the Contractor, results in additional Work which is a direct result of this newly discovered site condition, such additional Work will be considered by the City under Changes in Work.

D5. DEFINITIONS

D5.1 When used in this Tender:

- (a) **”Supply Chain Disruption”** means an inability by the Contractor to obtain goods or services from third parties necessary to perform the Work of the Contract within the schedule specified therein, despite the Contractor making all reasonable commercial efforts to procure same. Contractors are advised that increased costs do not, in and of themselves, amount to a Supply Chain Disruption;

D6. CONTRACT ADMINISTRATOR

D6.1 The Contract Administrator is Tetra Tech Canada Inc., represented by:

Mike Lyseyko, P.Eng.
Bridge Engineer.

Telephone No. 204-298-3866

Email Address mike.lyseyko@tetrattech.com

D6.2 At the pre-construction meeting, the Contract Administrator will identify additional personnel representing the Contract Administrator and their respective roles and responsibilities for the Work.

D7. CONTRACTOR'S SUPERVISOR

D7.1 At the pre-construction meeting, the Contractor shall identify their designated supervisor and any additional personnel representing the Contractor and their respective roles and responsibilities for the Work.

D8. ACCESSIBLE CUSTOMER SERVICE REQUIREMENTS

D8.1 The Accessibility for Manitobans Act (AMA) imposes obligations on The City of Winnipeg to provide accessible customer service to all persons in accordance with the Customer Service Standard Regulation (“CSSR”) to ensure inclusive access and participation for all people who live, work or visit Winnipeg regardless of their abilities.

D8.1.1 The Contractor agrees to comply with the accessible customer service obligations under the CSSR and further agrees that when providing the Goods or Services or otherwise acting on the City of Winnipeg's behalf, shall comply with all obligations under the AMA applicable to public sector bodies.

D8.1.2 The accessible customer service obligations include, but are not limited to:

- (a) providing barrier-free access to goods and services;
- (b) providing reasonable accommodations;
- (c) reasonably accommodating assistive devices, support persons, and support animals;
- (d) providing accessibility features e.g. ramps, wide aisles, accessible washrooms, power doors and elevators;
- (e) inform the public when accessibility features are not available;
- (f) providing a mechanism or process for receiving and responding to public feedback on the accessibility of all goods and services; and
- (g) providing adequate training of staff and documentation of same.

D9. UNFAIR LABOUR PRACTICES

- D9.1 Further to C3.2, the Contractor declares that in bidding for the Work and in entering into this Contract, the Contractor and any proposed Subcontractor(s) conduct their respective business in accordance with established international codes embodied in United Nations Universal Declaration of Human Rights (UDHR) <https://www.un.org/en/about-us/universal-declaration-of-human-rights> International Labour Organization (ILO) [https://www.ilo.org/global/lang--en/index.htm](https://www.ilo.org/global/lang-en/index.htm) conventions as ratified by Canada.
- D9.2 The City of Winnipeg is committed and requires its Contractors and their Subcontractors, to be committed to upholding and promoting international human and labour rights, including fundamental principles and rights at work covered by ILO eight (8) fundamental conventions and the United Nations Universal Declaration of Human Rights which includes child and forced labour.
- D9.3 Upon request from the Contract Administrator, the Contractor shall provide disclosure of the sources (by company and country) of the raw materials used in the Work and a description of the manufacturing environment or processes (labour unions, minimum wages, safety, etc.).
- D9.4 Failure to provide the evidence required under D9.3, may be determined to be an event of default in accordance with C18.
- D9.5 In the event that the City, in its sole discretion, determines the Contractor to have violated the requirements of this section, it will be considered a fundamental breach of the Contract and the Contractor shall pay to the City a sum specified by the Contract Administrator in writing ("Unfair Labour Practice Penalty"). Such a violation shall also be considered an Event of Default, and shall entitle the City to pursue all other remedies it is entitled to in connection with same pursuant to the Contract.
- D9.5.1 The Unfair Labour Practice Penalty shall be such a sum as determined appropriate by the City, having due regard to the gravity of the Contractor's violation of the above requirements, any cost of obtaining replacement goods/ services or rectification of the breach, and the impact upon the City's reputation in the eyes of the public as a result of same.
- D9.5.2 The Contractor shall pay the Unfair Labour Practice Penalty to the City within thirty (30) Calendar Days of receiving a demand for same in accordance with D9.5. The City may also hold back the amount of the Unfair Labour Practice Penalty from payment for any amount it owes the Contractor.
- D9.5.3 The obligations and rights conveyed by this clause survive the expiry or termination of this Contract, and may be exercised by the City following the performance of the Work, should the City determine, that a violation by the Contractor of the above clauses has occurred following same. In no instance shall the Unfair Labour Practice Penalty exceed the total of twice the Contract value.

D10. FURNISHING OF DOCUMENTS

- D10.1 Upon award of the Contract, the Contractor will be provided with 'issued for construction' Contract Documents electronically, including Drawings in PDF format only.

SUBMISSIONS

D11. AUTHORITY TO CARRY ON BUSINESS

- D11.1 The Contractor shall be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba, or if the Contractor does not carry on business in Manitoba, in the jurisdiction where the Contractor does carry on

business, throughout the term of the Contract, and shall provide the Contract Administrator with evidence thereof upon request.

D12. SAFE WORK PLAN

- D12.1 The Contractor shall provide the Contract Administrator with a Safe Work Plan at least five (5) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract Documents, if applicable.
- D12.2 The Safe Work Plan should be prepared and submitted in the format shown in the City's template which is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Purchasing Division website at <http://www.winnipeg.ca/matmgt/Safety/default.stm>
- D12.3 Notwithstanding B13.4 at any time during the term of the Contract, the City may, at their sole discretion and acting reasonably, require an updated COR Certificate or Annual Letter of good Standing. A Contractor, who fails to provide a satisfactory COR Certificate or Annual Letter of good Standing, will not be permitted to continue to perform any Work.
- D12.4 Safe Work Plan will be subject to CPKC review and acceptance.

D13. INSURANCE

- D13.1 The Contractor shall provide and maintain the following insurance coverage:
- (a) commercial general liability insurance, in the amount of at least ten million dollars (\$10,000,000.00) inclusive, with The City of Winnipeg added as an additional insured, with a cross-liability clause, such liability policy to also contain contractual liability, unlicensed motor vehicle liability, non-owned automobile liability and products and completed operations, to remain in place at all times during the performance of the Work and throughout the warranty period;
 - (b) Automobile Liability Insurance covering all motor vehicles, owned and operated and used or to be used by the Contractor directly or indirectly in the performance of the Work. The Limit of Liability shall not be less than \$2,000,000 inclusive for loss or damage including personal injuries and death resulting from any one accident or occurrence.
 - (c) all risks course of construction insurance in the amount of one hundred percent (100%) of the total Contract Price, written in the name of the Contractor and The City of Winnipeg, at all times during the performance of the Work and until the date of Total Performance.
- D13.2 Deductibles shall be borne by the Contractor.
- D13.3 The Contractor shall provide the City Solicitor with a certificate(s) of insurance, in a form satisfactory to the City Solicitor, at least two (2) Business Days prior to the commencement of any Work but in no event later than the date specified in C4.1 for the return of the executed Contract Documents, as applicable.
- D13.4 The Contractor shall not cancel, materially alter, or cause each policy to lapse without providing at least thirty (30) Calendar Days prior written notice to the Contract Administrator.

D14. CONTRACT SECURITY

- D14.1 The Contractor shall provide and maintain the performance bond and the labour and material payment bond until the expiration of the warranty period in the form of:
- (a) a performance bond of a company registered to conduct the business of a surety in Manitoba, in the form attached to these Supplemental Conditions (Form H1: Performance Bond), in the amount of fifty percent (50%) of the Contract Price; and
 - (b) a labour and material payment bond of a company registered to conduct the business of a surety in Manitoba, in the form attached to these Supplemental Conditions (Form H2:

Labour and Material Payment Bond), in an amount equal to fifty percent (50%) of the Contract Price.

D14.1.1 Where the contract security is a performance bond, it may be submitted in hard copy or digital format. If submitted in digital format the contract security must meet the following criteria:

- (a) the version submitted by the Contractor must have valid digital signatures and seals;
- (b) the version submitted by the Contractor must be verifiable by the City with respect to the totality and wholeness of the bond form, including: the content; all digital signatures and digital seals; with the surety company, or an approved verification service provider of the surety company.
- (c) the version submitted must be viewable, printable and storable in standard electronic file formats compatible with the City, and in a single file. Allowable formats include pdf.
- (d) the verification may be conducted by the City immediately or at any time during the life of the bond and at the discretion of the City with no requirement for passwords or fees.
- (e) the results of the verification must provide a clear, immediate and printable indication of pass or fail regarding D14.1(b).

D14.1.2 Digital bonds failing the verification process will not be considered to be valid and may be determined to be an event of default in accordance with C18.1. If a digital bond fails the verification process, the Contractor may provide a replacement bond (in hard copy or digital format) within seven (7) Calendar Days of the City's request or within such greater period of time as the City in their discretion, exercised reasonably, allows.

D14.1.3 Digital bonds passing the verification process will be treated as original and authentic.

D14.2 The Contractor shall provide the Contract Administrator identified in D6 with the required performance and labour and material payment bonds within seven (7) Calendar Days of notification of the award of the Contract by way of an award letter and prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract Documents, if applicable.

D14.3 The Contractor shall, as soon as practicable after entering into a contract with a Subcontractor:

- (a) give the Subcontractor written notice of the existence of the labour and material payment bond in D14.1(b); and
- (b) post a notice of the bond and/or a copy of that bond in a conspicuous location at the Site of the Work.

D15. SUBCONTRACTOR LIST

D15.1 The Contractor shall provide the Contract Administrator with a complete list of the Subcontractors whom the Contractor proposes to engage (Form J: Subcontractor List) at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract Documents, if applicable.

D16. EQUIPMENT LIST

D16.1 The Contractor shall provide the Contract Administrator with a complete list of the equipment which the Contractor proposes to utilize (Form K: Equipment List) at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract Documents, if applicable.

D17. DETAILED WORK SCHEDULE

- D17.1 The Contractor shall provide the Contract Administrator with a detailed work schedule at least ten (10) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract Documents if applicable.
- D17.2 The schedule shall be based on the specific dates and work blocks stated in the Workplan for work completed on the Arlington Bridge and within the CPKC Winnipeg Yard.
- D17.3 The detailed work schedule shall consist of the following:
- (a) a critical path method (C.P.M.) schedule for the Work;
 - (b) a Gantt chart for the Work based on the C.P.M. schedule;
 - (c) a daily manpower schedule for the Work;
- all acceptable to the Contract Administrator.
- D17.4 Further to D17.3(a), the C.P.M. schedule shall clearly identify the start and completion dates of all of the following activities/tasks making up the Work as well as showing those activities/tasks on the critical path.
- D17.5 Further to D17.3(b), the Gantt chart shall show the time on a weekly basis, required to carry out the Work of each trade, or specification division. The time shall be on the horizontal axis, and the type of trade shall be on the vertical axis.
- D17.6 Further to D17.3(c), the daily manpower schedule shall list the daily number of individuals on the Site for each trade.

SCHEDULE OF WORK

D18. COMMENCEMENT

- D18.1 The Contractor shall not commence any Work until they are in receipt of an award letter from the Award Authority authorizing the commencement of the Work.
- D18.2 The Contractor shall not commence any Work on the Site until:
- (a) the Contract Administrator has confirmed receipt and approval of:
 - (i) evidence of authority to carry on business specified in D11;
 - (ii) evidence of the workers compensation coverage specified in C6.15;
 - (iii) the Safe Work Plan specified in D12;
 - (iv) evidence of the insurance specified in D13;
 - (v) the contract security specified in D14;
 - (vi) the Subcontractor list specified in D15;
 - (vii) the equipment list specified in D16;
 - (viii) the detailed work schedule specified in D17; and
 - (ix) the direct deposit application form specified in D33
 - (b) the Contractor has attended a pre-construction meeting with the Contract Administrator, or the Contract Administrator has waived the requirement for a pre-construction meeting.
- D18.3 The City intends to award this Contract by June 28th, 2024.
- D18.3.1 If the actual date of award is later than the intended date, the dates specified for Commencement, Critical Stages, Substantial Performance, and Total Performance will be adjusted by the difference between the aforementioned intended and actual dates.

D19. WORK BY OTHERS

- D19.1 Further to C6.25, the Contractor's attention is directed to the fact that other Contractors, the personnel of Utilities and the staff of the City may be working within the project limit, approach roadway, adjacent roadways or right-of-way. The activities of these agencies may coincide with the Contractor's execution of Work and it will be the Contractor's responsibility to cooperate to the fullest extent with other personnel working in the area, and such cooperation is an obligation of the Contractor under the terms of Contract.
- D19.2 Work by others on or near the Site will include but not necessarily be limited to:
- (a) CPKC operations;
- D19.3 Further to D19.1 the Contractor shall cooperate and coordinate all activities with all parties performing required Work by Others identified in D19.1 and accommodate the necessary area on Site required for the Work by Others to complete the Work

D20. WORKING DAYS

- D20.1 Further to C1.1(tt), the Contract Administrator's determination of whether or not atmospheric and Site conditions are such that a Working Day is deemed to have elapsed may be based at one time on one type of work while at another time a Working Day may be based on another type of work. When more than one type of major work is involved, the quantity of equipment that must be able to work in order to meet the requirements of a Working Day may vary considerably from that specified in the General Conditions.
- D20.2 In the event that incidental work is behind schedule which, in the opinion of the Contract Administrator, should have been or could have been carried out by the Contractor in conjunction with or immediately following work of a major type, the City hereby reserves the right to charge Working Days on the incidental work until such time as it is up to schedule.
- D20.3 When the major type of work involves restoration of the site to the condition it was prior to rainfall, Working Days shall not be charged.
- D20.4 The Contract Administrator will furnish the Contractor with a daily record for each major type of work showing various information concerning the equipment, the time it worked, could have worked and Working Days charged. This report is to be signed each day by an authorized representative of the Contractor.

D21. CONSTRUCTION SCHEDULE

- D21.1 Time shall be of the essence of the Contract. The Contractor shall provide the necessary material, labour and equipment to ensure that the Works will be completed within the allocated work blocks stated in the Workplan, without change.

D22. CRITICAL STAGES

- D22.1 The Contractor shall achieve critical stages of the Work in accordance with the following requirements:
- (a) Pier 6 Bearing Works – Complete by July 30, 2024.
 - (b) Pier 4 Bearing Works – Complete by August 16, 2024.
 - (c) Pier 2 Bearing Works – Complete by September 4, 2024.
- D22.2 The Critical Stage dates noted above are based on CPKC Yard access date listed below:
- (a) Pier 6 Bearing Works – Commence on July 22, 2024.
 - (b) Pier 4 Bearing Works – Commence on July 31, 2024
 - (c) Pier 2 Bearing Works – Commence on August 19, 2024

- D22.3 Should the Critical Stage dates not be achieved, the work shall continue to achieve the next scheduled item of Work and then return to complete the remaining incomplete items of Work, unless arrangements have been made with CPKC for additional work blocks to complete a Critical Stage. Additional work blocks will be subject the approval and discretion of the CPKC or the Contract Administrator, to be accommodated by the Contractor.
- D22.4 CPKC flagging personnel are not permitted to negotiate or approve altered schedules/work blocks. Additional work blocks to achieve the Critical Stage requirements shall be submitted, in writing to the Contract Administrator by the Contractor. A workplan, providing the same level of information in the Workplan provided, but be developed. The Contract Administrator will provide the information to CPKC for their review and provide a written response to the Contractor.
- D22.5 The Critical Stage date shall remain incomplete until all equipment and personnel are removed from CPKC property or to an area that CPKC no longer requires track protection, including the Contractor to be escorted to the area where the equipment, materials or personnel are located.
- D22.6 When the Contractor considers the Work associated with the Critical Stages to be completed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for the purposes of verifying Competition. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be re-inspected.
- D22.7 The date on which the Critical Stages have been accepted by the Contract Administrator as being completed to the requirements of the Contract is the date on which completion of the Critical Stage has been achieved.

D23. SUBSTANTIAL PERFORMANCE

- D23.1 The Contractor shall achieve Substantial Performance by September 4, 2024.
- D23.2 When the Contractor considers the Work to be substantially performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Substantial Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be reinspected.
- D23.3 The date on which the Work has been certified by the Contract Administrator as being substantially performed to the requirements of the Contract through the issue of a certificate of Substantial Performance is the date on which Substantial Performance has been achieved.
- D23.4 The Contractor shall provide use of a man-lift or scissor lift equipment for the Contract Administrator to undertake periodic and substantial Performance inspection.

D24. TOTAL PERFORMANCE

- D24.1 The Contractor shall achieve Total Performance by September 11, 2024.
- D24.2 When the Contractor or the Contract Administrator considers the Work to be totally performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Total Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be reinspected.
- D24.3 The date on which the Work has been certified by the Contract Administrator as being totally performed to the requirements of the Contract through the issue of a certificate of Total Performance is the date on which Total Performance has been achieved.

D25. LIQUIDATED DAMAGES

- D25.1 If the Contractor fails to achieve Critical Stages, Substantial Performance or Total Performance in accordance with the Contract by the days fixed herein for same, the Contractor shall pay the City the following amounts per Working or Calendar Day for each and every Working or Calendar Day following the days fixed herein for same during which such failure continues:
- (a) Critical Stage as listed in D22 - Five thousand dollars (\$5,000) per Working Day. Where a Working Day is defined as a Calendar Day in which access to the worksite has been permitted by the Contract Administrator;
 - (b) Substantial Performance – Two hundred fifty dollars (\$250) per Calendar Day for each and every Calendar Day following the day fixed herein for Substantial Performance during which such failure continues;
 - (c) Total Performance - Two hundred fifty dollars (\$250) per Calendar Day for each and every Calendar Day following the day fixed herein for Substantial Performance during which such failure continues.
- D25.2 The amounts specified for liquidated damages in D25.1 are based on a genuine pre-estimate of the City's losses in the event that the Contractor does not achieve critical stages, Substantial Performance or Total Performance by the days fixed herein for same.
- D25.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

D26. CPKC DELAYS

- D26.1 In the event CPKC does not provide the track availability or flagging as described in the accepted Work Plan, the Contractor will be provided an equal amount of time, extending the associated Critical Stage deadline and therefore not subject to Liquidated Damages for that Critical Stage. The additional time provided to the Contractor to offset CPKC delays, will need to be arranged and accepted by CPKC.
- D26.2 Delays caused by CPKC shall be documented, in writing, by the Contractor and accepted by the Contract Administrator.

D27. SUPPLY CHAIN DISRUPTION SCHEDULE DELAYS

- D27.1 The City acknowledges that the schedule for this Contract may be impacted by Supply Chain Disruption. Commencement and progress of the Work shall be performed by the Contractor with due consideration to the delivery requirements and schedule identified in the Contract, in close consultation with the Contract Administrator.
- D27.2 If the Contractor is delayed in the performance of the Work by reason of Supply Chain Disruption, the Work schedule may be adjusted by a period of time equal to the time lost due to such delay and costs related to such delay will be determined as identified herein.
- D27.3 A minimum of seven (7) Calendar Days prior to the commencement of Work, the Contractor shall declare whether a Supply Chain Disruption will affect the start date. The Contractor shall provide sufficient evidence that the delay is directly related to a Supply Chain Disruption, including but not limited to evidence related to availability ordering of Material or Goods, production and/or manufacturing schedules or availability of staff as appropriate.
- D27.4 For any delay related to suppl chain disruption and identified after Work has commenced, the Contractor shall within seven (7) Calendar Days of becoming aware of the anticipated delay declare the additional delay and shall provide sufficient evidence as indicated in D27.3. Failure to provide this notice will result in no additional time delays being considered by the City.
- D27.5 The Work schedule, including the durations identified in D21 to D24 where applicable, will be adjusted to reflect delays accepted by the Contract Administrator. No additional payment will be

made for adjustment of schedules except where seasonal work, not previously identified in the Contract, is carried over to the following construction season.

- D27.6 Where Work not previously identified is being carried over solely as a result of delays related to Supply Chain Disruption, as confirmed by the Contract Administrator, the cost of temporary works to maintain the Work in a safe manner until Work recommences, will be considered by the Contract Administrator. Where the Work is carried over only partially due to Supply Chain Disruption, a partial consideration of the cost of temporary works will be considered by the Contract Administrator.
- D27.7 Any time or cost implications as a result of Supply Chain Disruption and in accordance with the above, as confirmed by the Contract Administrator, shall be documented in accordance with C7.

CONTROL OF WORK

D28. JOB MEETINGS

D28.1 Bi-weekly Construction Meetings

- (a) Regular bi-weekly construction meetings will be held at CPKC Headquarters (901 Logan Ave, Winnipeg, MB R3E 1N7). These meetings shall be attended by a minimum of one representative of the Contract Administrator, one representative of the City, one representative of CPKC, and one representative of the Contractor. Each representative shall be a responsible person capable of expressing the position of the Contract Administrator, the City and the Contractor respectively on any matter discussed at the meeting including the Work schedule and the need to make any revisions to the Work schedule. The progress of the Work will be reviewed at each of these meetings.

D28.2 Daily Meetings

- (a) Daily safety meetings will be held at the Site, prior the commencement of the work. These meetings shall be attended by a minimum of one representative of the Contract Administrator, the CPKC flagging personal (as required), one representative of the Contractor and one optional representative of the City. Each representative shall be a responsible person capable of expressing the position of the Contract Administrator, the City and the Contractor respectively on any matter discussed at the meeting including the Work schedule and the need to make any revisions to the Work schedule. The progress of the Work will be reviewed at each of these meetings.

- D28.3 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever he/she deems it necessary.

D29. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)

- D29.1 Further to C6.26, the Contractor shall be the Prime Contractor and shall serve as, and have the duties of the Prime Contractor in accordance with The Workplace Safety and Health Act (Manitoba).

D30. THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA) – QUALIFICATIONS

- D30.1 Further to B13.4, the Contractor/Subcontractor must, throughout the term of the Contract, have a Workplace Safety and Health Program meeting the requirements of The Workplace Safety and Health Act (Manitoba). At any time during the term of the Contract, the City may, at their sole discretion and acting reasonably, require updated proof of compliance, as set out in B13.4.

D31. RESPONSIBILITY FOR PLANT AND MATERIALS

- D31.1 Further to C10, the Contractor shall assume the risk of and responsibility for the following Material from the time that the Contractor collects the Material from the City's Storage Site until the Material is incorporated in the Work or is removed from the Site:

(a) Type A, Elastomeric Bearing Pad Assembly (10 Total, supplied by others)

D31.2 Any Material to be collected from or delivered to the City's Storage Site shall be made to the attention of Mike Terleski (204-794-8510) at the following address by providing a minimum three (3) business days notice:

(a) City of Winnipeg – Public Works Yard at 960 Thomas Avenue, Winnipeg, Manitoba

MEASUREMENT AND PAYMENT

D32. INVOICES

D32.1 Further to C12, the Contractor shall submit an invoice for each portion of Work performed :

The City of Winnipeg
Corporate Finance - Accounts Payable
4th Floor, Administration Building, 510 Main Street
Winnipeg MB R3B 1B9

Facsimile No.: 204 949-0864

Send Invoices to CityWpgAP-INVOICES@winnipeg.ca

Send Invoice Inquiries to CityWpgAP-INQUIRIES@winnipeg.ca

D32.2 Invoices must clearly indicate, as a minimum:

- (a) the City's purchase order number;
- (b) date of delivery;
- (c) delivery address;
- (d) type and quantity of work performed;
- (e) the amount payable with GST and MRST shown as separate amounts; and
- (f) the Contractor's GST registration number.

D32.3 The City will bear no responsibility for delays in approval of invoices which are improperly submitted.

D33. PAYMENT

D33.1 Further to C12, the City shall make payments to the Contractor by direct deposit to the Contractor's banking institution, and by no other means. Payments will not be made until the Contractor has made satisfactory direct deposit arrangements with the City. Direct deposit application forms are at https://winnipeg.ca/finance/files/Direct_Deposit_Form.pdf.

WARRANTY

D34. WARRANTY

D34.1 Warranty is as stated in C13.

D34.1 Notwithstanding C13.2, the warranty period shall begin on the date of Total Performance and shall expire two (2) years thereafter unless extended pursuant to C13.2.1 or C13.2.2, in which case it shall expire when provided for thereunder.

D34.2 Notwithstanding C13.2 or D34.1, the Contract Administrator may permit the warranty period for a portion or portions of the Work to begin prior to the date of Total Performance if:

- (a) a portion of the Work cannot be completed because of unseasonable weather or other conditions reasonably beyond the control of the Contractor but that portion does not prevent the balance of the Work from being put to its intended use.

D34.2.1 In such case, the date specified by the Contract Administrator for the warranty period to begin shall be substituted for the date specified in C13.2 for the warranty period to begin.

DISPUTE RESOLUTION

D35. DISPUTE RESOLUTION

D35.1 If the Contractor disagrees with any opinion, determination, or decision of the Contract Administrator, the Contractor shall act in accordance with the Contract Administrator's opinion, determination, or decision unless and until same is modified by the process followed by the parties pursuant to D35.

D35.2 The entire text of C21.4 is deleted, and amended to read: "Intentionally Deleted"

D35.1 The entire text of C21.5 is deleted, and amended to read:

- (a) If Legal Services has determined that the Disputed Matter may proceed in the Appeal Process, the Contractor must, within ten (10) Business Days of the date of the Legal Services Response Letter, submit their written Appeal Form, in the manner and format set out on the City's Purchasing Website, to the Chief Administrative Officer, and to the Contract Administrator. The Contractor may not raise any other disputes other than the Disputed Matter in their Appeal Form.

D35.2 Further to C21, prior to the Contract Administrator's issuance of a Final Determination, the following informal dispute resolution process shall be followed where the Contractor disagrees with any opinion, determination, or decision of the Contract Administrator ("Dispute"):

- (a) In the event of a Dispute, attempts shall be made by the Contract Administrator and the Contractor's equivalent representative to resolve Disputes within the normal course of project dealings between the Contract Administrator and the Contractor's equivalent representative.
- (b) Disputes which in the reasonable opinion of the Contract Administrator or the Contractor's equivalent representative cannot be resolved within the normal course of project dealings as described above shall be referred to a without prejudice escalating negotiation process consisting of, at a minimum, the position levels as shown below and the equivalent Contractor representative levels:
 - (i) The Contract Administrator;
 - (ii) Supervisory level between the Contract Administrator and applicable Department Head;
 - (iii) Department Head.

D35.3 Names and positions of Contractor representatives equivalent to the above City position levels shall be determined by the Contractor and communicated to the City at the pre-commencement or kick off meeting.

D35.4 As these negotiations are not an adjudicative hearing, neither party may have legal counsel present during the negotiations.

D35.5 Both the City and the Contractor agree to make all reasonable efforts to conduct the above escalating negotiation process within twenty (20) Business Days, unless both parties agree, in writing, to extend that period of time.

D35.6 If the Dispute is not resolved to the City and Contractor's mutual satisfaction after discussions have occurred at the final escalated level as described above, or the time period set out in D35.5, as extended if applicable, has elapsed, the Contract Administrator will issue a Final Determination as defined in C1.1(v), at which point the parties will be governed by the Dispute Resolution process set out in C21.

INDEMNITY

D36. INDEMNITY

D36.1 Indemnity shall be as stated in C17.

D36.2 Notwithstanding C17.1, the Contractor shall save harmless and indemnify the City in the amount of twice the Contract Price or five million dollars (\$5,000,000), whichever is greater, against all costs, damages or expenses arising from actions, claims, demands and proceedings, by whomsoever brought, made or taken as a result of negligent acts or negligent omissions of the Contractor, their Subcontractors, employees or agents in the performance or purported performance of the Work, and more particularly from:

- (a) accidental injury to or death of any person whether retained by or in the employ of the contractor or not, arising directly or indirectly by reason of the performance of the Work, or by reason of any trespass on or damage to property;
- (b) damage to any property owned in whole or in part by the City, or which the City by duty or custom is obliged, directly or indirectly, in any way or to any degree, to construct, repair or maintain;
- (c) damage to, or trespass or encroachment upon, property owned by persons other than the City;
- (d) any claim for lien or trust claim served upon the City pursuant to The Builders' Liens Act;
- (e) failure to pay a Workers Compensation assessment, or Federal or Provincial taxes;
- (f) unauthorized use of any design, device, material or process covered by letters patent, copyright, trademark or trade name in connection with the Work;
- (g) inaccuracies in any information provided to the City by the Contractor.

D36.3 Further to C17, The City shall save harmless and indemnify the Contractor in the amount of twice the Contract Price or five million dollars (\$5,000,000), whichever is greater, against all costs, damages or expenses arising from actions, claims, demands and proceedings, by whomsoever brought, made or taken as a result of negligent acts or negligent omissions of the City, their employees or agents in the performance of its obligation under the Contract.

THIRD PARTY AGREEMENTS

D37. FUNDING AND/OR CONTRIBUTION AGREEMENT OBLIGATIONS

D37.1 In the event that funding for the Work of the Contract is provided to the City of Winnipeg by the Government of Manitoba and/or the Government of Canada, the following terms and conditions shall apply, as required by the applicable funding agreements.

D37.2 Further to D37.1, in the event that the obligations in D37 apply, actual costs legitimately incurred by the Contractor as a direct result of these obligations ("Funding Costs") shall be determined by the actual cost to the Contractor and not by the valuation method(s) outlined in C7.4. In all other respects Funding Costs will be processed in accordance with Changes in Work under C7.

D37.3 For the purposes of D37:

- (a) "**Government of Canada**" includes the authorized officials, auditors, and representatives of the Government of Canada; and
- (b) "**Government of Manitoba**" includes the authorized officials, auditors, and representatives of the Government of Manitoba.

D37.4 Modified Insurance Requirements

D37.4.1 If not already required under the insurance requirements identified in D13, the Contractor will be required to provide wrap-up liability insurance in an amount of no less than two

million dollars (\$2,000,000) inclusive per occurrence. Such policy will be written in the joint names of the City, Contractor, Consultants and all sub-contractors and sub-consultants and include twelve (12) months completed operations. The Government of Manitoba and their Ministers, officers, employees, and agents shall be added as additional insureds.

- D37.4.2 If not already required under the insurance requirements identified in D13, the Contractor will be required to provide builders' risk insurance (including boiler and machinery insurance, as applicable) providing all risks coverage at full replacement cost, or such lower level of insurance that the City may identify on a case-by-case basis, such as an installation floater.
- D37.4.3 The Contractor shall obtain and maintain third party liability insurance with minimum coverage of two million dollars (\$2,000,000.00) per occurrence on all licensed vehicles operated at the Site. In the event that this requirement conflicts with another licensed vehicle insurance requirement in this Contract, then the requirement that provides the higher level of insurance shall apply.
- D37.4.4 Further to D13.3, insurers shall provide satisfactory Certificates of Insurance to the Government of Manitoba prior to commencement of Work as written evidence of the insurance required. The Certificates of Insurance must provide for a minimum of thirty (30) days' prior written notice to the Government of Manitoba in case of insurance cancellation.
- D37.4.5 All policies must be taken out with insurers licensed to carry on business in the Province of Manitoba.

D37.5 Indemnification By Contractor

- D37.5.1 In addition to the indemnity obligations outlined in C17 of the General Conditions for Construction, the Contractor agrees to indemnify and save harmless the Government of Canada and the Government of Manitoba and each of their respective Ministers, officers, servants, employees, and agents from and against all claims and demands, losses, costs, damages, actions, suit or other proceedings brought or pursued in any manner in respect of any matter caused by the Contractor or arising from this Contract or the Work, or from the goods or services provided or required to be provided by the Contractor, except those resulting from the negligence of any of the Government of Canada's or the Government of Manitoba's Ministers, officers, servants, employees, or agents, as the case may be.
- D37.5.2 The Contractor agrees that in no event will Canada or Manitoba, their respective officers, servants, employees or agents be held liable for any damages in contract, tort (including negligence) or otherwise, for:
- (a) any injury to any person, including, but not limited to, death, economic loss or infringement of rights;
 - (b) any damage to or loss or destruction of property of any person; or
 - (c) any obligation of any person, including, but not limited to, any obligation arising from a loan, capital lease or other long term obligation;
- in relation to this Contract or the Work.

D37.6 Records Retention and Audits

- D37.6.1 The Contractor shall maintain and preserve accurate and complete records in respect of this Contract and the Work, including all accounting records, financial documents, copies of contracts with other parties and other records relating to this Contract and the Work during the term of the Contract and for at least six (6) years after Total Performance. Those records bearing original signatures or professional seals or stamps must be preserved in paper form; other records may be retained in electronic form.
- D37.6.2 In addition to the record keeping and inspection obligations outlined in C6 of the General Conditions for Construction, the Contractor shall keep available for inspection and audit at all reasonable times while this Contract is in effect and until at least six (6) years after Total Performance, all records, documents, and contracts referred to in D37.6.1 for inspection, copying and audit by the City of Winnipeg, the Government of Manitoba and/or the

Government of Canada and their respective representatives and auditors, and to produce them on demand; to provide reasonable facilities for such inspections, copying and audits, to provide copies of and extracts from such records, documents, or contracts upon request by the City of Winnipeg, the Government of Manitoba, and/or the Government of Canada and their respective representatives and auditors, and to promptly provide such other information and explanations as may be reasonably requested by the City of Winnipeg, the Government of Manitoba, and/or the Government of Canada from time-to-time.

D37.7 Other Obligations

- D37.7.1 The Contractor consents to the City providing a copy of the Contract Documents to the Government of Manitoba and/or the Government of Canada upon request from either entity.
- D37.7.2 If the Lobbyists Registration Act (Manitoba) applies to the Contractor, the Contractor represents and warrants that it has filed a return and is registered and in full compliance with the obligations of that Act, and covenants that it will continue to comply for the duration of this Contract.
- D37.7.3 The Contractor shall comply with all applicable legislation and standards, whether federal, provincial, or municipal, including (without limitation) labour, environmental, and human rights laws, in the course of providing the Work.
- D37.7.4 The Contractor shall properly account for the Work provided under this Contract and payment received in this respect, prepared in accordance with generally accepted accounting principles in effect in Canada, including those principles and standards approved or recommended from time-to-time by the Chartered Professional Accountants of Canada or the Public Sector Accounting Board, as applicable, applied on a consistent basis.
- D37.7.5 The Contractor represents and warrants that no current or former public servant or public office holder, to whom the Value and Ethics Code for the Public Sector, the Policy on Conflict of Interest and Post Employment, or the Conflict of Interest Act applies, shall derive direct benefit from this Contract, including any employment, payments, or gifts, unless the provision or receipt of such benefits is in compliance with such codes and the legislation.
- D37.7.6 The Contractor represents and warrants that no member of the House of Commons or of the Senate of Canada or of the Legislative Assembly of Manitoba is a shareholder, director or officer of the Contractor or of a Subcontractor, and that no such member is entitled to any benefits arising from this Contract or from a contract with the Contractor or a Subcontractor concerning the Work.

FORM H1: PERFORMANCE BOND
(See D14)

KNOW EVERYONE BY THESE PRESENTS THAT

_____ ,
(hereinafter called the "Principal"), and

_____ ,
(hereinafter called the "Surety"), are held and firmly bound unto **THE CITY OF WINNIPEG** (hereinafter called the "Obligee"), in the sum of

_____ dollars (\$_____.)

of lawful money of Canada to be paid to the Obligee, or its successors or assigns, for the payment of which sum the Principal and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS the Principal has entered into a written contract with the Obligee for

TENDER NO. 442-2024

ARLINGTON BRIDGE – PIER 2, 4 AND 6 BEARING REPLACEMENT

which is by reference made part hereof and is hereinafter referred to as the "Contract".

NOW THEREFORE the condition of the above obligation is such that if the Principal shall:

- (a) carry out and perform the Contract and every part thereof in the manner and within the times set forth in the Contract and in accordance with the terms and conditions specified in the Contract;
- (b) perform the Work in a good, proper, workmanlike manner;
- (c) make all the payments whether to the Obligee or to others as therein provided;
- (d) in every other respect comply with the conditions and perform the covenants contained in the Contract; and
- (e) indemnify and save harmless the Obligee against and from all loss, costs, damages, claims, and demands of every description as set forth in the Contract, and from all penalties, assessments, claims, actions for loss, damages or compensation whether arising under "The Workers Compensation Act", or any other Act or otherwise arising out of or in any way connected with the performance or non-performance of the Contract or any part thereof during the term of the Contract and the warranty period provided for therein;

THEN THIS OBLIGATION SHALL BE VOID, but otherwise shall remain in full force and effect. The Surety shall not, however, be liable for a greater sum than the sum specified above.

AND IT IS HEREBY DECLARED AND AGREED that the Surety shall be liable as Principal, and that nothing of any kind or matter whatsoever that will not discharge the Principal shall operate as a discharge or release of liability of the Surety, any law or usage relating to the liability of Sureties to the contrary notwithstanding.

IN WITNESS WHEREOF the Principal and Surety have signed and sealed this bond the

_____ day of _____, 20____.

SIGNED AND SEALED
in the presence of:

(Witness as to Principal if no seal)

(Name of Principal)

Per: _____ (Seal)

Per: _____

(Name of Surety)

By: _____ (Seal)
(Attorney-in-Fact)

FORM H2: LABOUR AND MATERIAL PAYMENT BOND
(See D14)

KNOW EVERYONE BY THESE PRESENTS THAT

his/its heirs, executors, administrators, successors or assigns (hereinafter called the "Principal"), and

his/its heirs, executors, administrators, successors or assigns (hereinafter called the "Surety"), are held and firmly bound unto **THE CITY OF WINNIPEG** (hereinafter called the "Obligee"), for the use and benefit of claimants as herein below defined, in the amount of

_____ dollars (\$_____)

of lawful money of Canada, for the payment whereof we, the Principal and the Surety jointly and severally bind ourselves firmly by these presents.

WHEREAS the Principal has entered into a written contract with the Obligee for

TENDER NO. 442-2024

ARLINGTON BRIDGE – PIER 2, 4 AND 6 BEARING REPLACEMENT

which is by reference made part hereof and is hereinafter referred to as the "Contract".

NOW THEREFORE the condition of the above obligation is such that if the Principal shall promptly make payment to all claimants as hereinafter defined, for all labour, service and material used or reasonably required for use in the performance of the Contract, then this obligation shall be void, otherwise it shall remain in full force and effect subject, however, to the following conditions:

- (a) A claimant is defined as one having a direct contract with the Principal for labour, service and material, or any of them, used or reasonably required for use in the performance of the contract, labour, service and material being construed to include that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental of equipment (but excluding rent of equipment where the rent pursuant to an agreement is to be applied towards the purchase price thereof) directly applicable to the Contract;
- (b) The above-named Principal and Surety hereby jointly and severally agree with the Obligee that every claimant as herein defined, who has not been paid in full before the expiration of a period of ninety (90) days after the date on which the last of such claimant's work, labour or service was done or performed, or materials were furnished by such claimant, may sue on this bond, prosecute the suit to final judgment for such sum or sums as may be justly due claimant, and have execution thereon;
- (c) No suit or action shall be commenced hereunder by any claimant
 - (i) unless claimant shall have given written notice to the Principal and the Surety above-named, within one hundred and twenty (120) days after such claimant did or performed the last of the work, labour or service, or furnished the last of the materials for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were furnished, or for whom the work, labour or service was done or performed. Such notice shall be served by mailing the same by registered mail to the Principal, and Surety, at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the Province of Manitoba;

- (ii) after the expiration of one (1) year following the date on which Principal ceased work on said Contract; including work performed under the guarantees provided in the Contract;
 - (iii) other than in a court of competent jurisdiction in the Province of Manitoba.
- (d) The amount of this bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder, inclusive of the payment by Surety of mechanics liens which may be filed of record against said improvement, whether or not claim for the amount of such lien be presented under and against this bond.
- (e) The Surety shall not be liable for a greater sum than the specified penalty of this bond.

The Principal and Surety hereby agree that The Guarantors' Liability Act (Manitoba) shall apply to this Bond.

IN TESTIMONY WHEREOF, the Principal has hereunto set its hand affixed its seal, and the Surety has caused these presents to be sealed and with its corporate seal duly attested by the authorized signature of its signing authority this

_____ day of _____, 20____.

SIGNED AND SEALED
in the presence of:

(Witness as to Principal if no seal)

(Name of Principal)

Per: _____ (Seal)

Per: _____

(Name of Surety)

By: _____ (Seal)
(Attorney-in-Fact)

FORM K: EQUIPMENT
(See D16)

ARLINGTON BRIDGE – PIER 2, 4 AND 6 BEARING REPLACEMENT

<p>1. Category/type:</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>
<p>2. Category/type:</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>
<p>3. Category/type:</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>

FORM K: EQUIPMENT
(See D16)

ARLINGTON BRIDGE – PIER 2, 4 AND 6 BEARING REPLACEMENT

<p>4. Category/type:</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>
<p>5. Category/type:</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>
<p>6. Category/type:</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>

PART E - SPECIFICATIONS

GENERAL

E1. APPLICABLE SPECIFICATIONS AND DRAWINGS

- E1.1 These Specifications shall apply to the Work.
- E1.2 *The City of Winnipeg Standard Construction Specifications* in their entirety, whether or not specifically listed on Form B: Prices, shall apply to the Work.
- E1.2.1 *The City of Winnipeg Standard Construction Specifications* is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Purchasing Division website at <http://www.winnipeg.ca/matmgt/Spec/Default.stm>.
- E1.2.2 The version in effect three (3) Business Days before the Submission Deadline shall apply.
- E1.2.3 Further to C2.4(d), Specifications included in the Tender shall govern over *The City of Winnipeg Standard Construction Specifications*.
- E1.3 Bidders are reminded that requests for approval of substitutes as an approved equal or an approved alternative shall be made in accordance with B7. In every instance where a brand name or design specification is used, the City will also consider approved equals and/or approved alternatives in accordance with B7.
- E1.4 The following are applicable to the Work:

<u>Specification No.</u>	<u>Specification Title</u>
B106-24-01	Cover Sheet
B106-24-02	Pier 2, 4 and 6 Plan and Elevation – Type A Jacking Details
B106-24-03	Pier 2 and 4 – Type A Jacking Details
B106-24-04	Pier 2 and 4 – Type A Jacking Details
B106-24-05	Pier 6 – Type A Jacking Details
B106-24-06	Pier 6 – Type A Jacking Details
B106-24-07	Type A Bearing Details
B106-24-08	Overall Plan – Site Access
B106-24-09	General Arrangement – Existing Plan and Elevation
B106-24-10	Bearing Replacement – Truss Bottom Plan and East Elevation
B106-24-11	Bearing Replacement – Truss Bottom Plan and East Elevation, Pier 2
B106-24-12	Bearing Replacement – Truss Bottom Plan and East Elevation, Pier 4
B106-24-13	Bearing Replacement – Truss Bottom Plan and East Elevation, Pier 6
B106-24-14	Bearing Replacement – Temporary Crossing Details

- E1.5 Existing record drawings for the Arlington Bridge can be made available upon request.

GENERAL REQUIREMENTS

E2. HAZARDOUS MATERIALS

- E2.1 If asbestos or other hazardous materials are encountered during the Work of the Contract, the Contractor shall stop all work and notify the Contract Administrator immediately. Removal of hazardous materials shall be dealt with by the City and the Contractor shall await further instruction by the Contract Administrator.

E3. SHOP DRAWINGS

E3.1 Description

E3.1.1 This Specification provides instructions for the preparation and submission of Shop Drawings. The term 'Shop Drawings' means drawings, diagrams, illustrations, schedules, performance charts, brochures, and other data including Site erection drawings, which are to be provided by the Contractor to illustrate details of the portion of the Work.

E3.1.2 Further to C6.9, the Contractor shall arrange for the preparation of Shop Drawings required by the Contract, or as reasonably required by the Contract Administrator.

E3.1.3 The Contractor shall submit to the Contract Administrator for review, all specified Shop Drawings. All submissions shall be in metric units. Where data is in Imperial units, the correct metric equivalent shall also be shown on all submissions.

E3.2 Shop Drawings

E3.2.1 Original drawings shall be prepared by the Contractor to illustrate the Work including fabrication, layout, setting, or erection details.

E3.3 Contractor's Responsibilities

E3.3.1 The Contractor is responsible for:

- (a) Verifying field conditions and measurements, and Contract requirements for design of temporary works and preparation of Shop Drawings. Site access shall be arranged through the Contract Administrator;
- (b) Reviewing Shop Drawings, product data, and equipment prior to submission and stamping and signing the drawings indicating conformance with the Contract requirements;
- (c) Promptly submitting and distributing Shop Drawings in an orderly sequence to prevent delay in the Work; and
- (d) Correcting, revising and resubmitting as required based on Contractor or Contract Administrator review directing specific attention to revisions.

E3.3.2 Responsibility for errors and omissions in Shop Drawings is not relieved by Contract Administrator's review.

E3.3.3 Responsibility for deviations in Shop Drawings from Contract requirements is not relieved by the Contract Administrator's review, unless Contract Administrator provides written acceptance of the deviations.

E3.4 Submittal Requirements

E3.4.1 Accompany Shop Drawings with transmittal letter containing:

- (a) Project title and Tender No.;
- (b) Shop Drawing title and description;
- (c) Reference to relevant Specification section and clause;
- (d) Reference to relevant Drawing number;
- (e) Revision number and date; and
- (f) Contractor's name and address.

E3.4.2 Shop Drawings shall include:

- (a) Project title and Tender No.;
- (b) Shop Drawing title;
- (c) Identification of products, materials and equipment including supplier, and/or manufacturer;
- (d) Relation to existing structure or materials;

- (e) Field dimensions, clearly identified as such;
- (f) Revision number and date;
- (g) Engineer's seal (signed and dated).

E3.5 Other Considerations

- E3.5.1 Fabrication, erection, or installation may require modifications to equipment or systems to conform to the design intent. Revise pertinent Shop Drawings and resubmit.
- E3.5.2 No Work shall commence until the pertinent Shop Drawings have been submitted and accepted.
- E3.5.3 No delay or cost claims will be allowed that arise because of delays in submissions, resubmissions, and review of the Shop Drawings.

E3.6 Measurement and Payment

- (a) The preparation and submission of shop drawings shall be considered incidental to the Work and no separate measurement or payment will be made.

E4. MOBILIZATION AND DEMOBILIZATION

E4.1 Description

- E4.1.1 This Specification shall cover all operations relating to the mobilization and demobilization of the Contractor to the Bridge Site, as specified herein.
- E4.1.2 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies, and all things necessary for and incidental to the satisfactory performance and completion of all Works as hereinafter specified.

E4.2 Scope of Work

- E4.2.1 The Work under this Specification shall include but not be limited to:
 - (a) Mobilizing and demobilizing on-site Work facilities;
 - (b) Utilizing existing access roadways; and
 - (c) Restoring all existing facilities.

E4.3 Materials

- E4.3.1 All materials supplied under this Specification shall be of a type approved by the Contract Administrator, and shall be subject to inspection and testing by the Contract Administrator.
- E4.3.2 The Contractor shall be responsible for the supply, safe storage and handling of all materials as set forth in this Specification. All materials shall be handled in a careful and workmanlike manner, to the satisfaction of the Contract Administrator.

E4.4 Equipment

- E4.4.1 All equipment shall be of a type acceptable to the Contract Administrator and shall be kept in good working order.

E4.5 Construction Methods

E4.5.1 Site Inspection

- (a) Inspect the Site with the Contract Administrator to verify existing conditions prior to mobilizing on Site. The site inspection will be from the access hatches with the Arlington Bridge. The Contractor shall provide any equipment to gain access as may be needed to verify existing conditions and/or dimensions. Should the Contractor require CPKC Winnipeg Yard access, the Contractor is to inform the Contract

Administrator upon Contract Award and the Contract Administrator shall attempt to make arrangements.

- (b) Inspect the Site with the Contract Administrator soon after demobilizing off Site, confirming the Site has been restored to its original condition prior to initiation of Work.

E4.5.2 Layout of On-Site Work Facilities

- (a) The Contractor shall mobilize all on-site Work and other temporary facilities.
- (b) The Arlington Bridge is only accessible by foot. No vehicles or machinery is permitted on the bridge for purposes of transporting equipment and materials to the piers to be moved through the hatches.
- (c) Possible locations for the Contractor's staging areas include the area stated on in the Arlington Bridge – Bearing Replacement Workplan.
 - (i) Should the Contractor not want to utilize, require additional or require alternate staging area(s), the Contractor shall make all arrangements and required agreements. The Contractor shall also be responsible to ensure the laydown area(s) do not interfere with CPKC, road users or pedestrians and that road users and pedestrians are sufficiently protected from objects in the laydown area(s) that may pose a hazard. Placement of large, fixed objects adjacent to live lanes of traffic pose a hazard to users. Should the Contractor desire to use these areas for laydown the Contractor shall submit a plan for adequately protecting the roadside hazard.
- (d) The staging area does not accommodate a Contractor office facility. The Contractor shall not utilize an office facility, other than their vehicle, unless the Contractor makes specific and alternate arrangements at an alternate staging or laydown area. The intent of the staging area is for material and equipment only.
- (e) Upon completion of construction activities, the Contractor shall remove all on-site Work and other temporary facilities, and restore to pre-existing conditions.

E4.5.3 Cellular Telephone Communication

- (a) The Contractor's site supervisor is required to carry, at all times, a cellular telephone, with voice mail.
- (b) Use of the cell phones on site shall adhere to CPKC requirements, when on CPKC property.

E4.6 Quality Control

E4.6.1 Inspection

- (a) All workmanship and all materials furnished and supplied under this Specification are subject to close and systematic inspection and testing by the Contract Administrator including all operations from the selection and production of materials through to final acceptance of the specified Work.
- (b) The Contractor shall be wholly responsible for the control of all operations incidental thereto, notwithstanding any inspection or acceptance that may have been previously given. The Contract Administrator reserves the right to reject any materials or Works, which are not in accordance with the requirements of this Specification.

E4.6.2 Access

- (a) The Contractor shall allow the Contract Administrator free access to all parts of the Work at all times. The Contractor shall supply samples to the Contract Administrator or his inspector for testing purposes as required. There will be no charge to the City for samples taken.

E4.7 Measurement and Payment

- E4.7.1 Mobilization and demobilization shall not be measured. This item of work shall be paid for at the Contract Lump Sum Price for "Mobilization and Demobilization", which price shall be

paid in full for supply all materials and performing all operations herein described and all other items incidental to the Work. Payment will be based on the following breakdown:

- | | |
|---|-----|
| (a) When Contract Administrator is satisfied that construction has commenced at the Site. | 30% |
| (b) During construction, percentage distributed equally on a monthly basis at the discretion of the Contract Administrator. | 60% |
| (c) Upon completion of the Work. | 10% |

E5. LAVATORY FACILITIES

E5.1 Description

- (a) This Specification shall cover all operations relating to the supply of site lavatory facilities, as specified herein.

E5.2 Construction Methods

- (a) The Contractor shall supply the Contract Administrator's site office facilities meeting the following requirements:
- (i) A portable flush or chemical-type toilet, lavatory, shall be located near the site. The toilet shall have a locking door.
 - (ii) The portable toilet shall be cleaned on a weekly basis.
- (b) The Contractor shall be responsible for all installation and removal costs, all operating costs, and the general maintenance of the lavatory facilities.
- (c) The lavatory facilities shall be provided from the date of the commencement of the Work to the date of Total Performance unless otherwise approved in writing by the Contract Administrator.

E5.3 Measurement and Payment

E5.3.1 Lavatory Facilities

- (a) The supply of lavatory facilities shall not be measured. This item of Work shall be considered incidental to the Lump Sum Price for "Mobilization and Demobilization", which price shall be paid in full for supply all materials and performing all operations herein described and all other items incidental to the Work.

E6. SUPPLY AND DELIVERY OF STRUCTURAL STEEL

E6.1 Description

E6.1.1 This Specification shall cover the supply, fabrication, transportation, and handling of the structural steel plates, filler plates, stiffeners, pier jacking assemblies, jacking plates, and all incidental structural steel elements, components and fasteners as specified herein and as shown on the Drawings.

E6.1.2 The work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies, handling and storage, and all things necessary for and incidental to the satisfactory performance and completion of all Work as herein specified and as indicated on the Drawings.

E6.2 References

E6.2.1 All related Specifications and reference Standards are in accordance with the most current issue or latest revision:

- (a) CAN/CSA G40.20/G40.21 – General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steels.
- (b) CAN/CSA S16 – Design of Steel Structures
- (c) CAN/CSA W47.1 – Certification of Companies for Fusion Welding of Steel Structures

- (d) CAN/CSA W48 – Filler Metals and Allied Material for Metal Arc Welding
- (e) CAN/CSA W59 – Welded Steel Construction (Metal Arc Welding)
- (f) CAN/CSA W178.1 – Certification of Welding Inspection Organizations
- (g) CAN/CSA W178.2 – Certification of Welding Inspectors
- (h) Canadian Institute of Steel Construction (CISC) – Handbook of Steel Construction
- (i) CGSB 48.9712 – Non-destructive Testing – Qualifications and Certification of Personnel
- (j) ANSI B46.1 – Surface Texture (Surface Roughness, Waviness and Lay)
- (k) ASTM F3125 – Grade A325 Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength
- (l) ASTM F3125M – Grade A325M Structural Bolts, Steel, Heat Treated 830 MPa Minimum Tensile Strength (Metric)
- (m) ASTM A108 – Grade 1018 or 1020 shear studs
- (n) ASTM A563/A563M – Carbon and Alloy Steel Nuts
- (o) ASTM A588/A588M – High-Strength Low-Alloy Structural Steel, up to 50 ksi (345 MPa) Minimum Yield Point, with Atmospheric Corrosion Resistance
- (p) ASTM F436/F436M – Hardened Steel Washers
- (q) AWS A5.XX – XX: All Applicable Filler Metal Specifications
- (r) AWS D1.1/D1.1M – Structural Welding Code – Steel
- (s) AWS D1.5/D1.5M – Bridge Welding Code
- (t) ISO/IEC 17025:1999 – General Requirements for the Competence of the Testing and Calibration Laboratories

E6.3 Submittals

E6.3.1 The Contractor shall submit the following to the Contract Administrator for approval prior to commencing fabrication in accordance with the Specification:

- (a) Design calculations and shop drawings for all structural steel components as specified in E3.
- (b) Further to E3. Shop Drawings, shop drawings submitted for review shall include the following:
 - (i) Full detail dimensions and sizes of all component parts of the structure. Components shall be detailed to compensate for changes in shape due to weld shrinkage, camber, and any other effects that cause finished dimensions to differ from initial dimensions;
 - (ii) Erection marks to uniquely identify all fabricated components;
 - (iii) All necessary specifications for the materials to be used;
 - (iv) Identification of areas requiring special surface treatment;
 - (v) Identification of fracture-critical and primary tension members and components parts. Attachments having a length of more than 100 mm in the direction of tension and welded to the tension zone of a fracture-critical or primary tension member shall be treated as part of that member;
 - (vi) Bolt installation requirements, including number of fitting up bolts and drift pins required at each connection and oversized and slotted holes;
 - (vii) Details of all welds;
 - (viii) Identification of materials and welds requiring non-destructive testing, including the limits of the weld to be tested and the frequency and type of testing; and,
 - (ix) Location of shop welded and field welded and bolted splices;

- (c) Proposed welding procedures conforming to AWS D1.5 or CAN/CSA W59 and CAN/CSA W47.1 to be used in fabricating the various components. The following shall be included in the submitted welding procedures:
 - (i) The welding process, position of weld, filler metal, flux, shielding gas if required, joint configurations, number and size of passes, preheat and inter-pass temperatures if required, sequence of passes, current, rate of pass, electrode size, electrical stick-out and polarity;
 - (ii) Methods proposed for edge preparation;
 - (iii) Measures proposed to control distortion, shrinkage and residual stresses;
 - (iv) Proposed methods and sequence of assembly; and,
 - (v) Welding equipment to be used.
- (d) Mill test certificates showing chemical analysis and physical tests of all structural steel shall be submitted to the Contract Administrator for review prior to commencement of fabrication. In addition to the submission of the mill test certificates, the following shall be submitted:
 - (i) One copy of the mill test certification for all material to be used in the fabrication shall be available for review at the fabricating plant during fabrication;
 - (ii) If material cannot be identified by mill test certificates, coupons shall be taken and tested and these test certificates shall be made available; and,
 - (iii) Where mill test certificates originate from a mill outside Canada or the United States of America, the Contractor shall have the information on the mill test certificate verified by independent testing by a Canadian laboratory. This laboratory shall be certified by an organization accredited by the Standards Council of Canada to comply with the requirements of ISO/IEC 17025 for the specific tests or type of tests required by the material standard specified on the mill test certificate. The mill test certificates shall be stamped with the name of the Canadian laboratory and appropriate working stating that the material is in conformance with the specified requirements. The stamp shall include the appropriate material specification number, testing date, and the signature of an authorized officer of the Canadian laboratory.
- (e) Proof shall be submitted to the Contract Administrator demonstrating that the bolts, nuts, and washers meet the chemical composition, mechanical properties, dimensions, workmanship, and head burst as required by F3125/F3125M Grade A325/A325M, A563/A563M or F436/F436M. Verification of the acceptability of assemblage of zinc coated bolts shall be provided with the bolts, nuts, and washers delivered to the job site shall also be submitted to the Contract Administrator.
- (f) For bolts supplied from a manufacturer outside Canada or the United States of America, the above information shall be independently verified by testing by a Canadian laboratory as outlined in E7.3.1e.
- (g) Repair procedures, if required, for repair of fabricating defects or other damage to structural steel components.

E6.4 Materials

E6.4.1 General

- (a) The Contractor shall be responsible for the supply, safe storage and handling of all materials as set forth in this Specification. All materials shall be handled in a careful and workmanlike manner, to the satisfaction of the Contract Administrator.

E6.4.2 Structural Steel

- (a) Structural steel shall be new and of the grade and category specified on the Drawings and in this Specification and shall be in accordance with CAN/CSA G40.20/G40.21. All steel plates and rolled shapes shall be CSA G40.21 Grade 350W
- (b) Substitution of material for size and grade is not permitted unless approved in writing by the Contract Administrator.

E6.4.3 High Strength Bolts, Nuts, and Washers

- (a) High strength bolts, nuts, and hardened washers shall be in accordance with ASTM F3125/F3125M Grade A325/A325M, A563/A563M, and F436/F436M. The nuts, bolts, and washers shall be shipped together as an assembly.

E6.4.4 Welding Consumables

- (a) The selection, supply, and storage of electrodes for SMAW and fluxes for SAW shall be according to CAN/CSA W59 requirements. Only controlled hydrogen designation electrodes and low hydrogen wire consumables shall be used for the SMAW and flux-cored arc welding processes, respectively. Electrodes and fluxes shall be strictly stored and maintained as required by CAN/CSA W59, section 5.2.
- (b) Weld metal used with corrosion resistant steels shall have similar corrosion resistance and colour to the base metal and shall be supplied according to CAN/CSA W59.

E6.4.5 Replacement of Damaged Materials

- (a) All material supplied by the Fabricator that in the opinion of the Contract Administrator has been damaged or otherwise rendered unusable by improper storage or handling by the Contractor shall be replaced by the Contractor at his expense.

E6.5 Equipment

E6.5.1 All equipment shall be of a type acceptable to the Contract Administrator and shall be kept in good working order.

E6.6 Construction Methods

E6.6.1 Material Preparation

(a) Straightening Material

- (i) All steel shall be flat and straight according to the specified mill tolerances before commencement of fabrication. Material with sharp kinks or bends shall only be straightened with the approval of the Contract Administrator. The Contractor shall submit written procedures for approval to the Contract Administrator and shall not commence straightening work until he has received permission from the Contract Administrator.
- (ii) When straightening is approved, material may be straightened using mechanical means or by the application of controlled heating according to CAN/CSA W59.
- (iii) Details of the method of straightening shall be according to CAN/CSA W59 and submitted to the Contract Administrator two (2) weeks prior to the Contractor arranging for inspection of the straightened material and non-destructive testing.
- (iv) The Contract Administrator shall be given one (1) week notice to arrange for their inspections.

(b) Edge Preparation

- (i) Sheared edges of plates with a 16 mm thickness or greater and that carry calculated tension shall have 3 mm of edge material removed by planing, milling or grinding.
- (ii) Oxygen cutting of structural steel shall be done by machine except hand-guided cutting will be allowed for copes, blocks and similar cuts where machine cutting is impractical. Re-entrant corners shall be ground smooth and shall have a fillet of the largest practical radius, but in no case shall the radius be less than 25 mm.
- (iii) Plasma arc cutting shall only be done when approved in writing by the Contract Administrator. All nitrogen plasma arc cut edges shall be ground back by 0.5 mm when welding will be carried out on these edges.
- (iv) The quality of the cut edges and their repair shall be according to CAN/CSA W59. All cut edges that are not to be welded shall have a surface roughness

not greater than 1000 as defined by CAN/CSA B95. Edges of all flanges shall be rounded to a 1.5 mm radius by grinding. In addition all edges of all members and plates exposed to view or weather in the finished assembly shall be rounded to a 1.5 mm radius by grinding.

- (v) All steel edges that will be painted whether resulting from rolling, cutting or, shearing operations shall be rounded to a 1.5 mm radius by grinding prior to blast cleaning.
 - (vi) The Brinell hardness of the edges of flanges plates for fracture critical or primary tension members shall not exceed 220. If the measured hardness exceeds 220, the edges shall be ground to remove the harder layer or annealed by means of a preheating torch.
- (c) Direction of Rolling
- (i) Steel plate for main members shall be cut so that the primary direction of rolling is parallel to the direction of tensile or compressive stress.
- (d) Bolt Holes
- (i) Hole Size
 1. The nominal diameter of a hole other than oversize or slotted holes shall not be more than 2 mm greater than the nominal bolt size with the exception of the following bolt and hole combinations:
 - a) either a 19 mm (3/4") or an M20 bolt in a 22 mm hole;
 - b) either a 22 mm (7/8") or an M22 bolt in a 24 mm hole; and,
 - c) either a 25 mm (1") bolt or an M24 bolt in a 27 mm hole.
 2. Unless otherwise approved by the Contract Administrator, oversize or slotted holes shall only be used when specified on the Drawings or in the Specification. Non-specified oversize or slotted holes will only be considered for use in bracing and diaphragms.
 3. Oversize holes when permitted shall not be more than 4 mm larger than the nominal bolt size for bolts 22 mm or less in diameter; 6 mm larger than the nominal bolt size for bolts between 23 and 26 mm in diameter; and 8 mm larger than the nominal bolt size for bolts 27 mm and greater in diameter.
 - (ii) Punched Holes
 1. Holes shall only be punched to finish size in material 16 mm or less in thickness.
 2. The diameter of a hole punched to finish size shall not be more than 2 mm larger than the nominal diameter of the bolt unless oversize holes are approved.
 3. The diameter of the die shall not exceed the diameter of the punch by more than 2 mm. Holes shall be clean cut without ragged or torn edges. Sharp edges shall be ground smooth without reducing the cross-section of the member. The slightly conical hole that results from this operation is acceptable.
 - (iii) Drilled Holes
 1. Holes which are drilled to finished diameter shall be 2 mm larger than the nominal diameter of the bolt unless oversize or slotted holes have been specified. Holes to be drilled shall be accurately located by using suitable numerically-controlled drilling equipment, or by using a steel template carefully positioned and clamped to the steel. The dimensional accuracy of holes and locations prepared in this manner shall be such that like parts are exact duplicates and require no match marking.
 2. The holes for any connection may be drilled to the required finished diameter when the connecting parts are assembled and clamped in position, in which case the parts shall be match-marked before disassembling.

3. Cover plate holes shall be field drilled in place. Cover plate to be securely fastened to the girder prior to drilling. Bolt holes may be shifted slightly to avoid conflicts.
- (iv) Reamed Holes
 1. Holes which are to be reamed to the specified finished diameter shall first be sub-drilled or sub-punched to 4 mm less than the finished hole diameter. The holes shall be reamed to 2 mm larger than the nominal diameter of the bolts with connecting parts assembled and securely held in place during reaming. The connecting parts shall be match-marked before disassembling. Reamed holes shall be truly cylindrical and perpendicular to the member. All burrs shall be removed without reducing the cross section of the member.
- (v) Tolerances
 1. Center to Center – 12 m or less: +/- 1.0 mm
 2. Center to Center – 12 to 18 m: +/- 1.5 mm
 3. Center to Center – 18 to 24 m: +/- 2.5 mm
 4. Center to Center – over 24 m: +/- 3.0 mm
- (vi) Bent Plates
 1. General
 - a) Rolled steel plates to be bent shall be cut from the stock plates so that the bend line is at right angles to the direction of rolling except as otherwise approved for orthotropic decks.
 - b) Before bending, the edges of the plate within the bend region shall be rounded to a 3 mm radius by grinding in the region of the bend.
 2. Cold Bending
 - c) Cold bending shall be carried out in such a manner that no cracking or tearing of the plate occurs. Minimum bend radii for various plate thicknesses (t), measured to the concave face of the metal shall be:

TABLE E6.1	
t (mm)	Radius (mm)
$t \leq 12$	2 t
$12 \leq t \leq 25$	2.5 t
$25 \leq t \leq 38$	3 t
$38 \leq t \leq 65$	3.5 t
$65 \leq t \leq 100$	4 t

3. Hot Bending
 - a) Forming radii less than that permitted for cold bending shall be done by hot bending at a plate temperature not greater than 600°C. Accelerated cooling of a hot bent component will only be permitted when the temperature of the component is below 300°C. Only compressed air or water shall be used for accelerated cooling.
- (vii) Faying Surfaces
 1. All faying surfaces shall be cleaned by sand blasting in the shop for new components and in the field for existing steel components.
- (viii) Marking
 1. Each member shall carry a unique erection mark for identification.
 2. Permanent marking shall be affixed in an area not exposed to view in the finished structure.
- (ix) Temporary Works
 1. Temporary welds shall not be used on fracture-critical and primary tension members.

2. Temporary welds shall not be used on flange material in compression unless approved by the Contract Administrator.

E6.6.2 Welded Fabrication

(a) Fabrication Company Certification

- (i) The company(ies) undertaking welded fabrication shall be certified according to CAN/CSA W47.1, Division 1 or Division 2.

(b) Assembly

- (i) Assembly shall be according to AWS D1.5 or CSA W59 and the following:

1. Bearing stiffeners shall be vertical under full dead load;
2. Intermediate stiffeners shall be either vertical or perpendicular to fabrication worklines;
3. Tack welds of 75 mm or greater in length shall be incorporated into the final weld.

(ii) Repair Procedures

1. Repair procedures shall be submitted to the Contract Administrator at least two weeks prior to commencement of repair work and shall include sketches or full size drawings as necessary to adequately describe the deficiency and the proposed method of repair.
2. Procedures for critical repairs shall also include the location of the discontinuity.
3. Repair procedures shall include the minimum following provisions. The steps shall be listed in the order to be performed.
4. Surfaces shall be cleaned and ground as necessary to aid visual and nondestructive tests to identify and quantify the discontinuities.
5. The discontinuity shall be drawn as it appears from visual inspection non-destructive testing.
6. Arc-air gouging, shall be part of the approved welding procedure when required.
7. Magnetic particle inspection or another inspection method approved by the Contract Administrator shall be used to determine whether the discontinuity was removed as planned.
8. All air carbon-arc gouged and oxygen-cut surfaces that form a boundary for a repair weld shall be ground to form a smooth bright surface. Oxygen gouging is not permitted.
9. All required run-off tabs and back-up bars shall be shown in detail.
10. Preheat and interpass temperature shall be according to Table E6.2, Preheat and interpass temperatures shall be maintained without interruption until the repair is completed.

TABLE E6.2	
Thickness, t (mm)	Grade, CSA G40.21
	260WT, 300WT, 350WT, 400WT, 480WT, 350AT, 400AT, 480AT
t ≤ 25	65°C
25 < t ≤ 40	120°C
t > 40	175°C
NOTE: For grade 700QT steel, preheat and interpass temperature shall be in accordance with steel manufacturer's recommendations.	

11. The repair procedures shall make reference to the applicable welding procedure specification and the related data sheet. If both of these were approved by the CWB prior to fabrication, they need not be prequalified by test for the specific method of repair unless a change in essential

- variables has been made or unless otherwise required by the Contract Administrator.
12. If the geometry of the repair joint or if the excavation is similar to the geometry of a prequalified joint preparation as defined in CAN/CSA W59, and permits good access to all portions of such joints or excavations during the proposed sequence of welding, the welding procedure shall not require prequalification by test unless required by the Contract Administrator.
 13. Peening shall be noted as part of the approved procedure when required and shall be completely described. Peening equipment shall not contaminate the joint.
 14. Post-heat shall be employed and shall continue without interruption from the completion of repair welding to the end of the minimum specified post-heat period. Post-heat of the repair area shall be between 200°C and 260°C and shall be for a period of one (1) hour minimum for each 25 mm of weld thickness or for two (2) hours, whichever is less.
 15. Faces of repairs shall be ground flush with the plate or blended to the same contour and throat dimension as the remaining sound weld. If stress-relief heat treatment is required, it shall be completely described. Final acceptance by nondestructive testing shall be performed after stress relief is complete. Repairs of groove welds in fracture critical members shall be examined by ultrasonic testing (UT) and radiographic testing (RT). Repairs to groove welds in primary tension members shall be examined by UT or RT. Fillet weld repairs shall be examined by magnetic particle testing (MT). MT, RT, and UT shall be according to CSA W59. RT may be performed as soon as the weld has cooled to ambient temperature; however, final acceptance by MT and UT methods shall not be performed until the steel welds have been cooled to ambient temperature for at least the elapsed time indicated in Table E6.3.

TABLE E6.3		
Weld Minimum Cooling Period		
Plate Thickness	Magnetic Particle for Fillet Weld	Ultrasonic Examination of Groove Welds
$t \leq 50$ mm	24 hours	24 hours
$t > 50$ mm	24 hours	48 hours

16. All repair welding and non-destructive testing shall be performed as described in the approved repair procedure.
17. All repair procedures for repairs requiring approval shall be retained as part of the project records.

E6.6.3 Bolted Construction

(a) General

- (i) ASTM F3125/F3125M Grade A325/A325M high strength bolts shall be used for bolted connections. Bolts shall be sufficiently long to exclude threads from the shear plane.

(b) Assembly

- (i) The assembly of joints shall be according to CAN/CSA S16 except that Turn-of-Nut tightening method shall be the only installation method used.
- (ii) Prior to assembly, all joint surfaces, including those adjacent to bolt heads, nuts and washers, shall be free of loose scale, burrs, dirt, and foreign material.
- (iii) The faying surfaces of connections identified as slip-critical connections shall be prepared as specified below.

1. For clean mill scale, the surfaces shall be free of oil, paint, lacquer, or any other coating and then blast cleaned.
 2. For coated surfaces other than galvanized, the surfaces shall be free of oil, lacquer, or other deleterious coatings.
- (iv) This treatment shall apply to all areas within the bolt pattern and for a distance beyond the edge of the bolt hole that is the greater of 25 mm or the bolt diameter.
- (c) Bolt Tension
- (i) Pretensioned bolts shall be tightened to at least 70% of the specified minimum tensile strength given in the appropriate ASTM standard.
- (d) Reuse of Bolts
- (i) Bolts shall not be reused once they have been fully tightened. Bolts that have not been fully tensioned may be reused up to two times, providing that proper control on the number of reuses can be established. Retightening of bolts loosened due to the tightening of adjacent bolts is not considered to be a reuse.
- (e) Hardened Washers
- (i) Hardened washers shall be provided under the head and the nut of each bolt for a total of two (2) washers per bolt.
 - (ii) Hardened washers are required under the nut and bolt head adjacent to joint surfaces containing oversize or slotted holes.
- (f) Bevelled Washers
- (i) Bevelled washers shall be used to compensate for lack of parallelism where an outer face of bolted parts deviates by more than 5% from a plane normal to the bolt axis.
- (g) Turn-of-Nut Tightening
- (i) After aligning the holes in a joint with a properly sized drift pin, sufficient bolts shall be placed and brought to a snug-tight condition to ensure that the parts of the joint are brought into full contact with each other.
 - (ii) Following the initial snugging operation, bolts shall be placed in any remaining open holes and brought to snug-tightness. Resnugging may be necessary in large joints.
 - (iii) When all bolts are snug-tight, each bolt in the joint shall be tightened additionally by the applicable amount of relative rotation given in Table E6.4, with tightening progressing systematically from the most rigid part of the joint to its free edges. During this operation there shall be no rotation of the part not turned by the wrench. The bolt and nut shall be matched marked to enable the amount of relative rotation to be determined.

TABLE E6.4		
Nut Rotation From Snug-Tight Condition		
Outer Face Alignment of Bolted Parts	Bolt Length L_b	Turn From Snug
Both faces normal to bolt axis or one face normal other face sloped 1:20 max – bevelled washers not used	$L_b \leq 4 d_b$	1/3
	$4 L_b < L_b \leq 8 d_b$ Not exceeding 200 mm	1/2
	$8 d_b < L_b \leq 12 d_b$ or exceeding 200 mm but less than 12 d_b	2/3

Both faces sloped 1:20 from normal axis – bevelled washers not used.	All Bolt Lengths up to 12 db	3/4
<p>NOTES:</p> <ol style="list-style-type: none"> 1. Bolt diameter is indicated as db. 2. When bolt length exceeds 12 diameters, the required nut rotation shall be determined by actual testing in a suitable tension calibrator that simulates the condition of the solidly fitting steel. 3. Tolerance on rotation is 30 degrees over/under. 4. Table applies to coarse-thread. Heavy-hex structural bolts of all sizes and lengths used with heavy-hex semi finished nuts. 5. Bolt length is measured from the underside of the head to the extreme end point. 6. Bevelled washers shall be provided when A490 or A490M bolts are used. 		

- (h) Field Fit-up
 - (i) Connection holes into existing structural steel materials shall only be drilled in the field with the new structural steel firmly clamped in place.
 - (ii) Components shall be supported in a manner consistent with the final geometry of the bridge as specified in the Drawings.
 - (iii) Holes in the webs and flanges of main components shall be drilled to finished diameter while in assembly.
- (i) Match Marking
 - (i) Connecting parts that are assembled in the shop for the purpose of reaming or drilling holes shall be match-marked. A drawing shall be prepared for field use detailing how the marked pieces shall be assembled in the field to replicate the shop assembly.

E6.6.4 Fabrication Tolerances

- (a) Structural Members
 - (i) Structural members consisting of a single rolled shape shall meet the straightness tolerances of CAN/CSA G40.20 except that columns shall not deviate from straight by more than 1/1000 of the length between points of lateral support.
 - (ii) A variation of 1 mm from the detailed length adjusted for temperature is permissible in the length of members which have both ends finished for contact bearing.
 - (iii) Members without finished ends may have a variation from the detailed length of not more than 2 mm for members 10 m long or less, not more than 4 mm for members over 20 m in length. The variation for members between 10 and 20 m in length shall be linearly interpolated.
- (b) Abutting Joints
 - (i) Where compression members are specified to bear against one another, the completed joint shall have at least 75% of the entire contact area in full bearing, defined as an area with no more than 0.5 mm of separation. The separation of the remaining area shall in no case and at no point exceed 1 mm.
 - (ii) At joints where loads are not transferred in bearing, the nominal dimension of the gap between main members shall not exceed 10 mm unless indicated otherwise on the Drawings.
- (c) Bearing Plates
 - (i) Rolled steel bearing plates 50 mm or less in thickness may be used without planing provided that a satisfactory contact bearing is obtained.

- (ii) Rolled steel bearing plates over 50 mm but less than 100 mm in thickness may be straightened by pressing or by planing the entire bearing surface to obtain a satisfactory contact bearing.
 - (iii) Rolled steel bearing plates over 100 mm in thickness shall be planed on all bearing surfaces except for surfaces which are in contact with concrete or grouted to ensure full bearing.
- (d) Bearing Surface Finish
- (i) The surface finish of bearing surfaces that are in contact with each other or with concrete, shall meet the following roughness requirements as measured according to ANSI B46.1.
 - 3. Steel slabs or plates in contact with concrete 50 I.tm (2000 Micro inches)
 - 4. Plates in contact as part of bearing assemblies 25 I.tm (1000 Micro inches)
 - 5. Milled ends of compression members 12 µm (500 Micro inches)
 - 6. Milled or ground ends of stiffeners 12 µm (500 Micro inches)
 - 7. Bridge rollers or rockers 6 µm (250 Micro inches)
 - 8. Pins and pin holes 3 µm (125 Micro inches)
 - 9. Sliding bearings: steel and copper alloy or steel and stainless steel 3 µm (125 Micro inches)
 - (ii) Surfaces of flanges that are in contact with bearing sole plates shall be flat within 0.5 mm over an area equal to the projected area of the bearing stiffeners and web. Outside this area a 2 mm deviation from flat is acceptable. The bearing surface shall be perpendicular to the web and bearing stiffeners.
- (e) Fabricated Components
- (i) Tolerances for welded components shall conform to Clause 5.4 of CAN/CSA W59.
 - (ii) Dimensional tolerances for welded built-up structural members shall conform to those prescribed by Clauses 5.8 and 12.5.3 of CAN/CSA W59.
 - (iii) Built-up bolted structural members shall satisfy the straightness tolerances for rolled wide flange shapes prescribed by CAN/CSA G40.29.
 - (iv) Bearing stiffeners fitted to bear shall have a minimum bearing contact area of 75% with a maximum separation not exceeding 1 mm over the remaining area.
 - (v) Fitted intermediate stiffeners shall have a minimum bearing contact area of 25% and a maximum separation of 2 mm over the remaining area.

E6.6.5 Coating of Structural Steel

- (a) Surface preparation of the existing structure faying surfaces to receive new bolted connections shall be achieved via mechanical brush cleaning.
- (b) All new structural steel plates and rolled shapes shall receive shop prime coating, prior to delivering to site.
- (c) Coating of Structural Steel must take place in accordance to the specified Manufacturer's recommendations.

E6.6.6 Handling, Storage, and Loading

- (a) Structural steel, either plain or fabricated, shall be stored upright above ground in a shored position on platforms, skids or other similar supports and shall be kept free from dirt and other foreign matter.
- (b) Structural material, either plain or fabricated, shall be protected from corrosion.

E6.6.7 Transportation and Delivery

- (a) The structural steel fabricator shall schedule, coordinate and sequence structural steel transportation and delivery in cooperation with the erection of the structural steel by the structural steel erection Contractor.

- (b) The Contractor shall perform all work necessary to ensure safe loading, transportation, unloading and storage of structural steel. The Work shall consist of loading the structural steel at the Fabricator's plant, transporting the structural steel to the Site, and unloading and storing the structural steel at the Site, including temporary works for access.
- (c) Structural steel shall be loaded for shipping in such a manner that it can be transported and unloaded at its destination in the correct orientation for erection without being excessively stressed, deformed, or otherwise damaged.
- (d) Structural steel shall be stockpiled to avoid excessive stress deformation or other damage while stored.

E6.7 Quality Control

E6.7.1 Non-Destructive Testing Agency

- (a) The Contractor shall engage an independent testing organization certified by the Canadian Welding Bureau (CWB) to the requirements of CAN/CSA W178.1 for bridge structures by radiographic, ultrasonic, magnetic particle, and liquid penetrant test methods to perform all non-destructive testing of the welds.
- (b) All visual inspection of welds shall be performed in accordance with CAN/CSA W59 by a welding inspector certified by the CWB to the requirements of CAN/CSA 178.2 (Level II minimum) for bridges and structures.
- (c) Non-destructive testing shall be done by a non destructive testing technician certified to the Canadian General Standards Board (CGSB) in the test method specified and being performed by the Inspector.
- (d) Neither the technician nor the independent testing organization shall be changed without the approval of the Contract Administrator.

E6.7.2 Non-Destructive Testing of Welds

- (a) Radiographic, ultrasonic, or magnetic particle testing shall be completed by the Contractor using procedures and frequency of testing according to CAN/CSA W59.

E6.8 Quality Assurance

E6.8.1 Visual inspection and sampling will be done in the fabricating shop and in the field by the Contract Administrator to confirm the material supplied and the fabrication has been done as specified on the Drawings and in this Specification. The Contractor shall supply material specimens for testing when requested by the Contract Administrator.

E6.8.2 The Contractor shall provide full facilities for the unencumbered inspection of material, workmanship and all parts of the Work at all stages of the Work by the Contract Administrator in the shop, in storage facilities and in the field. The Contract Administrator shall be allowed free access to the Work.

E6.8.3 The Contract Administrator will perform non-destructive testing of the works, destructive testing of samples obtained of materials to be incorporated into the Work and any other additional inspection at their discretion.

E6.8.4 Inspection

- (a) The Contractor shall be wholly responsible for the control of all operations incidental thereto notwithstanding any inspection or acceptance that may have been previously given. The Contract Administrator reserves the right to reject any materials or works which are not in accordance with the requirements of this Specification.

E6.8.5 Access

- (a) The Contractor shall allow the Contract Administrator free access to all parts of the Work at all times.

E6.8.6 Inspection Requirements for Fabrication Outside of the Province of Manitoba.

- (a) Should all or any part of the structural steel fabrication be undertaken at a facility outside of the Province of Manitoba, expenses incurred by the City and/or the City's representative to carry out audit testing will be deducted as incurred by the City from payments made to the Contractor. Expenses will include, but are not limited to all travel, boarding, lodging and the retention of services from a CWB certified inspection agency of the Department's choice for audit inspections at the fabrication plant of all related works.

E6.9 Measurement and Payment

- E6.9.1 The supply and delivery of structural steel shall be measured on a mass basis, as computed from the reviewed shop drawings.
- E6.9.2 Supply and delivery of structural steel will be paid for at the Contract Unit Price per kilogram for the "Items of Work" listed here below, which price shall be payment in full for supplying all materials and for completing all operations herein described and all other items incidental to the work included in the Specification, accepted and measured by the Contract Administrator.
 - (a) Items of Work:
 - Supply and Delivery of Structural Steel
 - (i) Type A Jacking Beam Assemblies
 - (b) The measurement excludes the mass of bolts and washers, which are incidental to the Works.

E7. ERECTION OF STRUCTURAL STEEL

E7.1 Description

- E7.1.1 This Specification shall cover all operations relating to the unloading and erecting of structural steel components as specified herein and as shown on the Drawings.
- E7.1.2 The work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies, handling and storage, and all things necessary for and incidental to the satisfactory performance and completion of all Work as herein specified and as indicated on the Drawings.

E7.2 References

- E7.2.1 All related Specifications and reference Standards are in accordance with the most current issue or latest revision:
 - (a) Section E6. Supply and Delivery of Structural Steel

E7.3 Scope of Work

- E7.3.1 The Work under this Specification shall include:
 - (a) Unloading and erecting structural steel components including structural steel plates, filler plates, stiffeners, pier jacking assemblies, jacking plates, and all incidental structural steel elements, components and fasteners as specified herein and as shown on the Drawings and in this Specification;
 - (b) Design, supply, fabrication, installation, maintenance and removal of temporary falsework (where applicable);
 - (c) The quality control (QC) testing of all materials and the Work.

E7.4 Submittals

E7.4.1 Structural Steel Erection Procedure

- (a) A schedule and detailed plan clearly illustrating the method and sequence by which the Contractor proposes to unload and erect the structural steel components. The erection procedure shall include detailed design notes and shop drawings in accordance with E3 Shop Drawings.

- (i) Type and capacity of proposed equipment.
- (ii) Sequence of operation, including position of equipment.
- (iii) Detailed equipment position and location, particularly adjacent to substructure elements, such as piers and abutment backwalls, with details of load distribution on wheels and outriggers throughout each lift. If the Contract Administrator, approves the crane positioned on the structure during a portion of the Work, details of crane position on the structure showing wheel loads and axle spacing of equipment moving on structure shall also be submitted.
- (iv) Provide an "As Constructed" detailed survey of the substructure showing the following:
 - 1. Location and elevation of all bearing seats;
 - 2. Shim height at each bearing location, if applicable;
 - 3. Top of girder elevations at each bearing (and each splice location where applicable); and,
 - 4. Safety and compliance with Manitoba Workplace Health and Safety Act and Regulations shall be integral to the girder erection procedure.

E7.5 Materials

E7.5.1 General

- (a) The Contractor shall be responsible for the supply, safe storage, and handling of all materials set forth in this Specification. All materials shall be handled in a careful and workmanlike manner, to the satisfaction of the Contract Administrator.
- (b) All materials supplied under this Specification shall be of a type approved by the Contract Administrator and shall be subject to inspection and testing by the Contract Administrator.

E7.6 Equipment

E7.6.1 General

- (a) All equipment shall be of a type acceptable to the Contract Administrator and shall be kept in good working order.
- (b) All cranes, rigging and equipment shall be in good condition and properly maintained at all times during the period of the work. All cranes, rigging and equipment shall be of sufficient capacity to complete every stage of the erection Works.
- (c) The Contract Administrator shall, at his/her discretion, verify capacity and state of equipment provided and any equipment found not meeting the requirements for erection work shall be removed and replaced. Slings and other lifting devices that will be in contact with structural steelwork shall be of a type which shall not damage shop primed or painted surfaces.

E7.7 Construction Methods

E7.7.1 General

- (a) The Contractor shall schedule, coordinate and sequence structural steel erection in cooperation with the delivery of the structural steel by the structural steel fabricator.
- (b) Any structural steel components that in the opinion of the Contract Administrator have been damaged or otherwise rendered useless by the improper handling by the Contractor shall be replaced by the Contractor at his own expense.
- (c) If the structural steel components are stored on site, the requirements of the Specification for Supply and Delivery of Structural Steel, Clause E7.14.8 shall apply.

E7.7.2 Erection of Structural Steel

(a) General

- (i) Before taking possession and erecting the structural steel, the Contractor shall verify that the lengths of the jacking beam components, the layout of the substructure units, the elevations of the bearings seats, and the location of the

anchor bolts are in accordance with the Drawings. All discrepancies discovered by the Contractor shall be brought immediately to the attention of the Contract Administrator.

- (ii) Loose timber blocking will not be permitted for use as temporary works for any aspect of steel erection.
- (iii) It is the Contractor's responsibility to ascertain the actual weight of the structural steel.

(b) Erection

- (i) The Contract Administrator shall be notified in writing of the starting date at least two (2) weeks prior to the commencement of field operations. Work shall not be carried out until the Contract Administrator is on the Site.
- (ii) Components shall be lifted, placed, and maintained in position using appropriate lifting equipment, temporary bracing, guys, or stiffening devices so that the components are at no time overloaded, unstable, or unsafe. Additional permanent material may be provided, if approved by the Contract Administrator, to ensure that the member capacities are not exceeded during erection. The additional material shall be shown in the erection diagram.
- (iii) Release of temporary supports or temporary members, etc. must be gradual, and under no circumstances will a sudden release be permissible.
- (iv) The fitting up bolts may be the high strength bolts used in the installation. Drift pins shall be 1 mm larger in diameter than the required bolts. Excessive drifting that distorts the metal and enlarges the holes is not allowed. Reaming up to 2 mm over the nominal hole diameter is permitted, except for oversize or slotted holes.
- (v) Repairs to erected material will only be permitted after the repair procedure has been approved by the Contract Administrator.
- (vi) Filling of misplaced holes by welding is permitted only with the written approval of the Contract Administrator.
- (vii) Material intended for use in the finished structure shall not be used for erection or temporary purposes unless such use has been shown on the shop drawings, erection diagram, or authorized by the Contract Administrator.
- (viii) Hammering that will damage or distort the members is not permitted.
- (ix) Surfaces that will be in permanent contact shall be cleaned immediately prior to assembly.

(c) Temporary Stresses

- (i) The Contractor shall assume full responsibility for ensuring that all bridge member and component stresses are within permissible limits at all stages of the construction work. The Contractor shall provide all necessary additional steel reinforcement, bracing or other measures required to ensure that the erection procedures do not overstress any temporary or permanent member or component at any stage of the Work.

E7.7.3 Connections

- (a) Holes made in the field shall be drilled (a) or reamed. Shop reamed holes shall not be re-reamed in the field. Holes for jacking beams shall only be field drilled following clamping of the cover plates in place.
- (b) Surfaces to be in permanent contact shall be cleaned immediately prior to assembly.
- (c) Any error in shop fabrication or any deformation resulting from handling or transportation that prevents the proper assembly and fitting of parts, shall be reported and the proposed method of correction shall be submitted to the Contract Administrator. Corrective measures shall not commence until the submitted proposal is accepted by the Contract Administrator.

E7.7.4 Attachments

- (a) The use of tack welds for securing temporary or permanent attachments that are not shown on submitted shop drawings, erection drawings or fabrication drawings shall not be permitted on any portion of girders or any other structural members.

E7.7.5 Field Welding

- (a) The company undertaking field-welding shall be certified to Division 1 of CAN/CSA W47.1. E20.10.2. The requirements of the Specifications for Supply and Delivery of Structural Steel, Clause E7.13.2 shall apply.

E7.7.6 Bolted Construction

- (a) The requirements of the Specifications for Supply and Delivery of Structural Steel, Clause E7.13.4 shall apply.
 - (i) Bolt heads shall be located as shown on the Contract drawings.

E7.7.7 Removal of Falsework and Site Clean-up

- (a) Upon completion of the erection and before final acceptance, the Contractor shall remove all temporary falsework. He shall remove all piling, excavated or surplus materials, rubbish and temporary supports, replace or renew any damaged fences, and restore in an acceptable manner all property damaged during the execution of the Work. Disposed of surplus materials shall be in a manner and at a location satisfactory to the Contract Administrator.
- (b) The Contractor shall leave the bridge site, roadway and adjacent property in a neat restored and presentable condition, satisfactory to the Contract Administrator. When requested by the Contract Administrator, the Contractor shall provide written evidence that affected property owners and/or regulatory agencies have been satisfied.

E7.8 Quality Control and Assurance

E7.8.1 Quality Control

- (a) All workmanship and all materials furnished and supplied under this Specification are subject to close and systematic inspection and testing by the Contract Administrator including all operations from the selection and production of materials through to final acceptance of the specified Work.
- (b) The Contractor shall be wholly responsible for the control of all operations incidental thereto, notwithstanding any inspection or acceptance that may have been previously given. The Contract Administrator reserves the right to reject any materials or Works, which are not in accordance with the requirements of this Specification.
- (c) Quality Assurance testing shall be undertaken by the Contract Administrator. Quality Control testing shall be undertaken by the Contractor.

E7.8.2 Quality Assurance

- (a) All materials will be subject to physical inspection by the Contract Administrator and will be subject to rejection during the course of the Work and for the length of time as specified in the General Conditions, if, in the opinion of the Contract Administrator, the materials involved do not meet the requirements of the Drawings and this Specification.
- (b) All materials shall be subject to testing by the Contract Administrator and will be approved only if the requirements of the Drawings, Standards and this Specification are met. The Contractor shall supply the specimens for testing in accordance with the requests of the Contract Administrator.
- (c) The Contractor shall furnish facilities for the inspection of material and workmanship in the mill, shop and field, and the Contract Administrator shall be allowed free access to the necessary parts of the Works. The Contractor shall supply samples to the Contract Administrator or his inspector for testing purposes as required. There will be no charge to the City for samples taken.

E7.9 Measurement and Payment

- E7.9.1 The erection of structural steel shall be measured on a mass basis, as computed from the reviewed shop drawings. The measurement excludes the mass of bolts and washers, which are incidental to the Works
- E7.9.2 Erection of structural steel will be paid for at the Contract Unit Price per kilogram for the "Items of Work" listed here below, which price shall be payment in full for supplying all materials and for completing all operations herein described and all other items incidental to the work included in the Specification, accepted and measured by the Contract Administrator.
- E7.9.3 Items of Work:
- Erection of Structural Steel
 - (i) Type A Jacking Beam Assemblies

E8. TEMPORARY JACKING OF SUPERSTRUCTURE

E8.1 Description

- E8.1.1 This Specification shall cover all operations related to bridge superstructure jacking and supporting as specified herein and indicated on the Drawings.
- E8.1.2 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies, and all other things necessary for and incidental to the satisfactory completion of all Work as hereinafter specified.

E8.2 References

All related Specifications and reference Standards are in accordance with the most current issue or latest revision:

- (a) Specification E8, Erection of Structural Steel
- (b) Specification E9, Installation of Bearings

E8.3 Scope of Work

- E8.3.1 The Work under this Specification shall involve:
- (a) Temporary shoring and jacking shall be provided as required to undertake the bearing replacement, and associated works at the piers and in accordance with the details shown on the Drawings.
 - (b) Raising the superstructure at the piers, is intended to permit the Contractor to carry out the following works:
 - (i) Removal of existing bearings;
 - (ii) Installation of new bearings; and
 - (iii) Miscellaneous modifications to the piers.

E8.4 Submittals

- (a) The Contractor shall submit to the Contract Administrator, at least twenty one (21) calendar days prior to commencement of any jacking and supporting operation, detailed drawings of the Contractor's proposed jacking and supporting system, equipment and procedures. The detailed plans shall be designed by, prepared by, and bear the seal of a Professional Engineer (Design Engineer), registered to practice in the Province of Manitoba. The detailed drawings shall include, but not be limited to:
 - (i) type, number and location of jacks and all other equipment and structures to be used for jacking;
 - (ii) details of standby jacking, and supporting equipment (including provisions for allowing normal expansion / contraction movements of the bridge superstructure);
 - (iii) jacking loads;
 - (iv) superstructure support details; and

- (v) procedures and sequence of work for jacking up and supporting the bridge superstructure and transferring of load onto the bearing assemblies.
- (b) The submission of the detailed drawings will in no way relieve the Contractor of the full responsibility for the design and proper operation of the jacking and supporting system.
- (c) Contractor's Design Engineer shall be responsible for visiting the site as often as is necessary to inspect the jacking and supporting equipment and procedures so as to ensure that the work is carried out in accordance with the Design Engineer's sealed detailed drawings. The Contractor shall provide the Contract Administrator with a letter bearing the seal of the Design Engineer, certifying after personal inspection of the work that the jacking and supporting is being carried out in accordance with the sealed detailed drawings.

E8.5 Materials

E8.5.1 General

- (a) The Contractor shall be responsible for the supply, safe storage, and handling of all materials set forth in this Specification. All materials shall be handled in a careful and workmanlike manner, to the satisfaction of the Contract Administrator.
- (b) All materials supplied under this Specification shall be of a type approved by the Contract Administrator and shall be subject to inspection and testing by the Contract Administrator.

E8.6 Equipment

E8.6.1 General

- (a) All equipment shall be of a type acceptable to the Contract Administrator and shall be kept in good working order.

E8.6.2 Jacking System

- (a) The jacking system shall be capable of jacking the superstructure simultaneously, uniformly and equally at the piers. The jacking system shall also be capable of releasing load, lowering the bridge superstructure and transferring load to the bearings simultaneously, uniformly and equally.
- (b) The Contractor shall have adequate standby jacking and supporting equipment at the site prior to starting any jacking in order to ensure that bridge superstructure jacking and supporting is continuous, timely and achieved without interruption.

E8.7 Construction Methods

E8.7.1 Sequence of Work

- (a) Remove existing bearing plate anchor nuts prior to jacking.
- (b) The Contractor to confirm with the Contract Administrator any bridge components, such as expansion joints components, traffic rails, or other items that may affect the work that are to be disconnected or removed prior to work commencing, in writing immediately after the site visit to be completed, per the workplan.
- (c) Two (2) bearings locations on the same truss shall be jacked simultaneously. 1 set total on Pier 6.
- (d) Bearings shall be jacked to a maximum height of 3mm then, lowered back in place.
- (e) Reset jacks and restart jacking the bearings to a maximum height of 100mm.
- (f) Each jack to be used for jacking shall be positioned as shown in the drawings.
- (g) Jacking of existing trusses shall be done with no live load on the bridge.
- (h) Replace all bearings with elastomeric bearing pads as shown on the Drawings.
- (i) Release jacks and restore bridge components and other items, previously removed as per Contract Administrator direction.
- (j) Final bearing heights to ensure existing elevations are matched at final resting.

- E8.7.2 Jacking and temporary supporting operations shall be undertaken in such a manner to prevent distortion and provide equal lift of the superstructure. The Contractor shall jack up and lower the superstructure simultaneously, uniformly and equally. Change in soffit elevation at any point along the jacking line shall not vary by more than +/- 2 mm from the average.
- E8.7.3 Monitoring jack extension alone is not sufficient for maintaining elevation control – deflection of jack supports must also be accounted for.
- E8.7.4 Jacks and supporting structures shall have a minimum safe working load at least one hundred and fifty percent (150%) of the expected jacking forces.
- E8.7.5 The Contractor shall jack the bridge the minimum vertical dimension required to carry out the required repair, rehabilitation, and modification works.
- E8.7.6 The Contractor shall locate the jacking and supporting equipment such that it does not interfere with the required construction operations. After jacking, blocking can be erected for temporary support. Blocking shall be erected immediately adjacent to each side of each jacking bearing plate. The total bearing area of blocking per jacking point shall be, at minimum, equal to the area of the jacking bearing plate.
- E8.7.7 Prior to jacking the Contractor shall establish and have in place a method of defining and measuring the elevation of the underside of the superstructure relative to a fixed point on the substructure unit immediately below. Monitoring points shall be provided under each girder.
- E8.7.8 The Contractor shall be responsible for taking these measurements in the presence of the Contract Administrator. The following measurements shall be done to monitor the rate and amount of jacking and to establish the vertical location of the bridge superstructure at completion of all works.
- (a) Prior to jacking;
 - (b) At completion of jacking;
 - (c) After jack release, lowering the bridge superstructure and transferring of load onto bearing assemblies.
- E8.8 Quality Control and Assurance
- E8.8.1 Quality Control
- (a) All workmanship and all materials furnished and supplied under this Specification are subject to close and systematic inspection and testing by the Contract Administrator including all operations from the selection and production of materials through to final acceptance of the specified Work.
 - (b) The Contractor shall be wholly responsible for the control of all operations incidental thereto, notwithstanding any inspection or acceptance that may have been previously given. The Contract Administrator reserves the right to reject any materials or Works, which are not in accordance with the requirements of this Specification.
 - (c) Quality Assurance testing shall be undertaken by the Contract Administrator. Quality Control testing shall be undertaken by the Contractor.
- E8.8.2 Quality Assurance
- (a) All materials will be subject to physical inspection by the Contract Administrator and will be subject to rejection during the course of the Work and for the length of time as specified in the General Conditions, if, in the opinion of the Contract Administrator, the materials involved do not meet the requirements of the Drawings and this Specification.
 - (b) All materials shall be subject to testing by the Contract Administrator and will be approved only if the requirements of the Drawings, Standards and this Specification are met. The Contractor shall supply the specimens for testing in accordance with the requests of the Contract Administrator.
 - (c) The Contractor shall furnish facilities for the inspection of material and workmanship in the mill, shop and field, and the Contract Administrator shall be allowed free access to the necessary parts of the Works. The Contractor shall supply samples to the Contract

Administrator or his inspector for testing purposes as required. There will be no charge to the City for samples taken.

E8.9 Measurement and Payment

- (a) Jacking and supporting of the bridge superstructure will not be measured. Jacking and supporting of the bridge superstructure will be paid for at the Contract Lump Sum Price for "Temporary Superstructure Jacking and Support System", which price shall be payment in full for supplying all materials and for performing all operations herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator.

E9. INSTALLATION OF BEARINGS

E9.1 Description

E9.1.1 This Specification shall cover all operations relating to the design, fabrication, transportation, and installation of steel pot bridge bearings including anchor bolts as specified herein and as shown on the Drawings.

E9.1.2 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies, and all things necessary for and incidental to the satisfactory performance and completion of all Work as hereinafter specified.

E9.2 References

E9.2.1 All related Specifications and reference Standards are in accordance with the most current issue or latest revision:

- (a) Specification E6. Supply and Delivery of Structural Steel.
- (b) Specification E7. Erection of Structural Steel.
- (c) Specification E8. Temporary Jacking of Superstructure
- (d) CAN/CSA S6-19 Canadian Highway Bridge Design Code
- (e) CAN/CSA G40.20/G40.21 – General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steels
- (f) CAN/CSA G164 – Hot Dip Galvanizing of Irregularly Shaped Articles
- (g) CAN/CSA W59 – Welded Steel Construction (Metal Arc Welding)
- (h) ASTM A123/A123M – Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
- (i) ASTM A167 – Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip
- (j) ASTM A193/A193M – Standard Specification for Alloy-Steel and Stainless Steel Bolting for High Temperature or High Pressure Service and Other Special Purpose Applications
- (k) ASTM F1554 - Grade 36 for Anchor Bolts, Nuts, and Washers
- (l) ASTM F3125 – Grade A325 Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength
- (m) ASTM F3125M– Grade A325M Structural Bolts, Steel, Heat Treated 830 MPa Minimum Tensile Strength (Metric).
- (n) ASTM D4894 – Standard Specification for Polytetrafluoroethylene (PTFE) Granular Molding and Ram Extrusion Materials.
- (o) SSPC-SP5 "White Metal Blast Cleaning".

E9.3 Scope of Work

- E9.3.1 The Work under this Specification shall include the following items to the limits shown on the Drawings or as otherwise directed by the Contract Administrator:
- (a) Removal of existing bearing components as shown on the Drawings
 - (b) Levelling surface of existing base plate as shown on the Drawings.
 - (c) Installation of Elastomeric Bearing Pad Assemblies (10 Total).
 - (i) Note – Elastomeric Bearing Pad Assemblies supplied by others.
 - (d) Installation of all fasteners, bolts, retaining angles and keeper plates.
 - (i) Note – Retaining angles and keeper plates supplied by others.
 - (ii) Note – Bolts, nuts and washers are supplied by the Contractor.
- E9.4 Submittals
- E9.4.1 Contractor shall submit the following to the Contract Administrator, in accordance with the Specification:
- (a) The Contractor shall submit to the Contract Administrator the installation methods he intends to use to install the bearings for approval at least ten (10) days prior to starting any bearing installation. Bearing installation shall follow the bearing manufacturer's installation procedures/recommendations. The installation procedure will be subject to review by the Contract Administrator and the bearing supplier.
 - (b) The Contractor shall submit to the Contract Administrator any proposed repair procedures for damaged coating areas for approval seven (7) days prior to proceeding with the repair.
- E9.5 Materials
- E9.5.1 General
- (a) The Contractor shall be responsible for the supply, safe storage, and handling of all materials set forth in this Specification. All materials shall be handled in a careful and workmanlike manner, to the satisfaction of the Contract Administrator.
 - (b) All materials supplied under this Specification shall be of a type approved by the Contract Administrator and shall be subject to inspection and testing by the Contract Administrator.
- E9.5.2 Bearings
- (a) Existing base plate to be cleaned and leveled. Apply Sikadur 53 on top surface of existing plate to level surface under bearing pad only, prior to installing bearing pad.
- E9.5.3 High Strength Bolts, Nuts and Washers
- (a) The requirements of the Specification for Supply and Delivery of Structural Steel, Clause E7.4.3 shall apply.
- E9.5.4 Welding Consumables
- (a) The requirements of the Specification for Supply and Delivery of Structural Steel, Clause E7.4.5 shall apply.
- E9.6 Equipment
- (a) All equipment shall be of a type acceptable to the Contract Administrator and shall be kept in good working order.
- E9.7 Construction Methods
- E9.7.1 Installation of Steel Reinforced Elastomeric Bearings
- (a) Protect bearings from damage or distortion during handling, transport, storage, and installation and keep clean and free of all deleterious matter and contaminants including moisture and dust.

- (b) Provide suitable handling devices as required. Use temporary clamping devices to maintain correct orientation of the parts during handling, transport, storage and installation but do not use for slinging or suspending bearings unless specifically designed for this purpose.
- (c) Verify the condition of the bearings supplied to the site.
- (d) Bearings when received by the Contractor shall be unloaded and stored in accordance with the Manufacturer's recommendations.
- (e) Install bearings in the structure as specified and directed by the bearing Supplier. Do not dismantle bearings which have been pre-assembled except with the prior written approval of the supplier and the Contract Administrator. Agree to the position of any temporary packing between the outer bearing plates and the structure with the Contract Administrator.
- (f) After installation leave bearings and their surrounding area clean. Remove temporary transit clamps at a time to be agreed upon by the Supplier and the Contract Administrator.
 - (i) Locate bearings so that their centre lines are within ± 3 mm of their correct positions. Level of a single bearing or the mean levels of more than one bearing at any support: within a tolerance of ± 0.0001 times the sum of the adjacent spans of a continuous girder but not exceeding 1 mm.
 - (ii) Tighten threaded fixing uniformly to avoid overstressing any part of the bearing. Supply vibration-resistant type fasteners where significant vibration may occur.
 - (iii) Bed bearings over their entire area. Voids or hard spots after installation are not acceptable.
- (g) Upon completion of the installation, certify, in writing to the Contract Administrator, that the bearings have been correctly installed.

E9.8 Quality Control and Assurance

E9.8.1 Quality Control

- (a) All workmanship and all materials furnished and supplied under this Specification are subject to close and systematic inspection and testing by the Contract Administrator including all operations from the selection and production of materials through to final acceptance of the specified Work.
- (b) The Contractor shall be wholly responsible for the control of all operations incidental thereto, notwithstanding any inspection or acceptance that may have been previously given. The Contract Administrator reserves the right to reject any materials or Works, which are not in accordance with the requirements of this Specification.
- (c) Quality Assurance testing shall be undertaken by the Contract Administrator. Quality Control testing shall be undertaken by the Contractor.
- (d)

E9.8.2 Quality Assurance

- (a) All materials will be subject to physical inspection by the Contract Administrator and will be subject to rejection during the course of the Work and for the length of time as specified in the General Conditions, if, in the opinion of the Contract Administrator, the materials involved do not meet the requirements of the Drawings and this Specification.
- (b) All materials shall be subject to testing by the Contract Administrator and will be approved only if the requirements of the Drawings, Standards and this Specification are met. The Contractor shall supply the specimens for testing in accordance with the requests of the Contract Administrator.
- (c) The Contractor shall furnish facilities for the inspection of material and workmanship in the mill, shop and field, and the Contract Administrator shall be allowed free access to the necessary parts of the Works. The Contractor shall supply samples to the

Contract Administrator or his inspector for testing purposes as required. There will be no charge to the City for samples taken.

E9.9 Warranty Installation

E9.9.1 Warranty

- (a) The General Contractor shall ensure that the steel reinforced elastomeric bearings are installed in such a manner that will not void the fabrication warranty.
- (b) The Contractor shall obtain from the supplier a written warranty for the installation of the steel reinforced elastomeric bearings for a period of two (2) years from the date of issuance of the Certificate of Acceptance. Provide in the warranty for the reinstallation of the bearings at no cost to the Contractor in the event that the bearings do not perform satisfactorily in the range of design movement and under the design loads.

E9.10 Measurement and Payment

- E9.10.1 Installation of Bearings will be measured on a unit basis and paid for at the Contract Unit Price per unit for the "Install Type A Elastomeric Bearing Pads" listed here below, which price shall be payment in full for supplying all materials and for performing all operations herein described and all other items incidental to the Work included in this Specification, accepted and measured by the Contract Administrator. City of Winnipeg to supply elastomeric bearing pads, Contractor responsible for supply of remaining items.