



**THE CITY OF WINNIPEG**

# **TENDER**

**TENDER NO. 444-2022**

**REHABILITATION OF MUNROE AVENUE SIPHON BY CIPP LINING**

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## **PART B - BIDDING PROCEDURES**

### **B1. CONTRACT TITLE**

B1.1 REHABILITATION OF MUNROE AVENUE SIPHON BY CIPP LINING

### **B2. SUBMISSION DEADLINE**

B2.1 The Submission Deadline is 12:00 noon Winnipeg time, June 30, 2022.

B2.2 The Contract Administrator or the Manager of Materials 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 Contract Administrator or an authorized representative will be available at the Site at 10:00 a.m. on June 16, 2022, to provide Bidders access to the Site. Bidders are to meet at the downstream chamber located at 75 Scotia Street, at the intersection of Scotia Street and Polson Avenue.

B3.2 Although attendance at the Site Investigation is not mandatory, the City strongly suggests that Proponents attend.

B3.3 Proponents are required to register for the Site Investigation at least 48 hrs. prior by contacting the Contract Administrator identified in D5.

B3.4 The Bidder is advised that both the upstream and downstream chambers are confined entry spaces. City forces will open up both chambers for viewing from the surface, but entry will not be permitted.

B3.5 The Bidder is advised that the siphon crossing alignments are located on easements on private property and Bidders are not permitted to enter private property during the bidding period.

B3.6 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 D5.1.

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](mailto: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](http://www.merx.com).

B6.4 The Bidder is responsible for ensuring that he/she has 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 D5.

**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 his/her 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 he/she wishes 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 his/her 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](http://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 his/her own name, his/her 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 his/her 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 his/her 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 its duly authorized officer or officers;
  - (d) if the Bidder is carrying on business under a name other than his/her 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 Notwithstanding C12.2.3(c), prices on Form B: Prices shall not include the Manitoba Retail Sales Tax (MRST, also known as PST), which shall be extra where applicable.
- B10.1.2 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 D30. Any such costs shall be determined in accordance with D30.
- 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) Capital Sewer Services Inc.
  - (i) Discussion on constructability.
- (b) Insituform Technologies Ltd.
  - (i) Discussion on constructability.

## **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 its 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 its 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 its 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 its 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 its 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 its sole discretion:
- (a) disqualify a Bidder that fails to disclose a perceived, potential or actual Conflict of Interest of the Bidder or any of its 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 its 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 its 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 its 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, Materials Management 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 B13.8 and D8).
  - (e) upon request of the Contract Administrator, provide the Security Clearances in accordance with PART F - ;

- B13.4 Further to B13.3(a) the Bidder and/or any proposed Subcontractor completing CIPP lining of the siphons shall demonstrate the following specific qualifications in accordance with B13.9:
- (a) A minimum of three (3) examples of successful CIPP installations within inverted siphons equal to or greater than 300 mm in diameter and using water inversion methods.
- B13.5 Further to B13.3(a) the Bidder shall demonstrate the following specific qualifications for key project personnel (proposed project manager and site foreman) in accordance with B13.9:
- (a) A minimum of one (1) example of successful CIPP installations within inverted siphons equal to or greater than 300 mm diameter and using water inversion methods.
- B13.6 Further to B13.3(a), the Bidder and/or any proposed Subcontractor undertaking the cleaning of the force mains utilizing pigging methods shall demonstrate the following specific qualifications in accordance with B13.9:
- (a) A minimum of three (3) examples of successful pipeline pigging using polyurethane foam pigs.
- B13.7 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, Materials Management Division website at <http://www.winnipeg.ca/matmgt/>).
- B13.8 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 <http://www.accessibilitymb.ca/training.html> for anyone that may have any interaction with the public on behalf of the City of Winnipeg.
- B13.9 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.
- B13.10 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 its 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, Materials

Management Division website at  
<https://www.winnipeg.ca/MatMgt/templates/files/eBidsecurity.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](http://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](http://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 his/her 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 his/her Bid or in other information required to be submitted, that he/she is 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 its 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 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 D30 shall immediately take effect upon confirmation of such funding, regardless of when funding is confirmed.
- B19.4 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 B19.
- B19.4.1 Following the award of contract, a Bidder will be provided with information related to the evaluation of his/her 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, Materials Management Division website at [http://www.winnipeg.ca/matmgt/gen\\_cond.stm](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 rehabilitation of the 300 mm diameter sewer siphon at the Munroe Avenue river crossing by CIPP.

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

- (a) Develop access to the sewer siphon;
- (b) Removal of existing 300 mm and 450 mm valve bodies at the downstream end of the crossing;
- (c) Removal of existing 300 mm and 450 mm sluice gate valves at the upstream end of the crossing;
- (d) Pipeline cleaning, preparation, and inspection;
- (e) Rehabilitation of the identified siphon by CIPP;
- (f) Post-Lining confirmation testing;
- (g) Repair of CIPP liner defects (if required); and
- (h) Site restoration.

#### D4. DEFINITIONS

D4.1 When used in this Tender:

- (a) "**ASTM**" means American Society for Testing and Materials;
- (b) "**ACI**" means American Concrete Institute;
- (c) "**AWWA**" means American Water Works Association;
- (d) "**CIPP**" means cured-in-place pipe;
- (e) "**CSA**" means Canadian Standards Association;
- (f) "**Fully Deteriorated (FD)**" means the host pipe is not structurally sound and cannot support soil and live loads or is expected to reach this condition over the design life of the rehabilitated pipe. Liners for fully deteriorated pipes shall be designed to support all overburden loads, including: soil, live, external hydrostatic pressure and internal pressure;
- (g) "**Host Pipe**" means the existing sewer intended for rehabilitation through the installation and curing of a CIPP liner;
- (h) "**ISO**" means International Organization for Standardization;
- (i) "**Partially Deteriorated (PD)**" means the host pipe can support the soil and surcharge loads throughout the design life of the rehabilitated pipe. Liners for partially deteriorated pipes shall be designed to account for internal and external hydrostatic pressure only;

(j) “**SONAR**” means sound navigation and ranging.

**D5. CONTRACT ADMINISTRATOR**

D5.1 The Contract Administrator is AECOM, represented by:

Tanner Beavis, E.I.T.  
Municipal Engineer in Training

Telephone No. 204 792 9200  
Email Address [tanner.beavis@aecom.com](mailto:tanner.beavis@aecom.com)

D5.2 At the pre-construction meeting, Mr. Beavis will identify additional personnel representing the Contract Administrator and their respective roles and responsibilities for the Work.

**D6. CONTRACTOR'S SUPERVISOR**

D6.1 At the pre-construction meeting, the Contractor shall identify his/her designated supervisor and any additional personnel representing the Contractor and their respective roles and responsibilities for the Work.

**D7. NOTICES**

D7.1 Except as provided for in C22.4, all notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the Contractor shall be sent to the address or facsimile number identified by the Contractor in Paragraph 2 of Form A: Bid/Proposal.

D7.2 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the City, except as expressly otherwise required in D7.3 or elsewhere in the Contract, shall be sent to the attention of the Contract Administrator identified in D5.

D7.3 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications required to be submitted or returned to the City Solicitor shall be sent to the following facsimile number:

The City of Winnipeg  
Legal Services Department  
Attn: Director of Legal Services  
Facsimile No.: 204 947-9155

**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. FURNISHING OF DOCUMENTS**

- D9.1 Upon award of the Contract, the Contractor will be provided with 'issued for construction' Contract Documents electronically, including Drawings in PDF format only.

## **SUBMISSIONS**

### **D10. AUTHORITY TO CARRY ON BUSINESS**

- D10.1 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.

### **D11. SAFE WORK PLAN**

- D11.1 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.
- D11.2 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, Materials Management Division website at <http://www.winnipeg.ca/matmgt/Safety/default.stm>
- D11.3 Notwithstanding B13.7 at any time during the term of the Contract, the City may, at its 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. INSURANCE**

- D12.1 The Contractor shall provide and maintain the following insurance coverage:
- (a) commercial general liability insurance, in the amount of at least two million dollars (\$2,000,000.00) 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) if applicable, 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) an all risks Installation Floater carrying adequate limits to cover all machinery, equipment, supplies and/or materials intended to enter into and form part of any installation.

- (d) The Contractor shall provide and maintain CPL insurance in the amount of at least one million dollars (\$1,000,000) per occurrence and two million dollars (\$2,000,000) aggregate insuring against claims for: third party injury and property damage, clean-up costs as a result of pollution conditions arising suddenly or gradually from the Contractor operations and completed operations. Such policy to name the City as an additional insured remain in place for a minimum of six (6) months following Total Performance.

D12.2 Deductibles shall be borne by the Contractor.

D12.3 All policies shall be taken out with insurers licensed in the Province of Manitoba.

D12.4 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.

D12.5 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.

### **D13. CONTRACT SECURITY**

D13.1 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.

D13.1.1 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 D13.1(b).

D13.1.2 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 its discretion, exercised reasonably, allows.

D13.1.3 Digital bonds passing the verification process will be treated as original and authentic.

D13.2 The Contractor shall provide the City Solicitor 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.

- D13.3 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 D13.1(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.

#### **D14. SUBCONTRACTOR LIST**

- D14.1 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.

#### **D15. EQUIPMENT LIST**

- D15.1 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.

#### **D16. DETAILED WORK SCHEDULE**

- D16.1 The Contractor shall provide the Contract Administrator with a detailed work schedule 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.
- D16.2 The detailed work schedule shall consist of the following:
- (a) a Gantt chart for the Work based on the C.P.M. schedule; acceptable to the Contract Administrator.
- D16.3 Further to D16.2(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:
- (a) Mobilization to site;
  - (b) Removal of existing sluice gates and appurtenances;
  - (c) Sewer cleaning and prep work per siphon;
  - (d) CIPP lining per siphon;
  - (e) Post Lining inspection and testing; and
  - (f) Site restoration.
- D16.4 The Contractor shall provide an updated detailed work schedule at least once per month or within two (2) Business Days of a request by the Contract Administrator.

#### **D17. SCHEDULE RESTRICTIONS**

- D17.1 The schedule shall be developed such that modifications to the existing sewer system are undertaken during dry weather flow periods, which occurs during cold months when freezing conditions are prevalent and the likelihood of encountering rainfall and surface runoff events is reduced (October through March).

## **SCHEDULE OF WORK**

### **D18. COMMENCEMENT**

- D18.1 The Contractor shall not commence any Work until he/she is 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 D10;
    - (ii) evidence of the workers compensation coverage specified in C6.15;
    - (iii) the Safe Work Plan specified in D11;
    - (iv) evidence of the insurance specified in D12;
    - (v) the contract security specified in D13;
    - (vi) the Subcontractor list specified in D14;
    - (vii) the equipment list specified in D15;
    - (viii) the detailed work schedule specified in D16; and
    - (ix) the direct deposit application form specified in D27
  - (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 August 5, 2022.
- D18.3.1 If the actual date of award is later than the intended date, the dates specified for Critical Stages, Substantial Performance, and Total Performance will be adjusted by the difference between the aforementioned intended and actual dates.

### **D19. WORKING DAYS**

- D19.1 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.
- D19.2 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.
- D19.3 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.
- D19.4 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.
- D19.5 Notwithstanding C1.1(tt), if the contractor chooses to work on a Saturday, Sunday, or statutory or civil holiday and is able to complete at least seven (7) hours of work during the period between 7:00 a.m., or the time the Contractor's operations normally commence whichever is earlier, and 7:00 p.m. Winnipeg time, the day shall be considered a Working Day.
- D19.6 Working Days shall be incurred by the Contractor for every Working Day as defined herein. Working Days shall be incurred starting on the date the Contractor commences Work on Site, or

the date of commencement identified on the Contractor's submitted schedule (D15), whichever occurs first.

## **D20. SUBSTANTIAL PERFORMANCE**

- D20.1 The Contractor shall achieve Substantial Performance within fifteen (15) consecutive Working Days of the commencement of the Work as specified in D18 or by March 15, 2022, whichever comes first.
- D20.2 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.
- D20.3 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.

## **D21. TOTAL PERFORMANCE**

- D21.1 The Contractor shall achieve Total Performance within twenty-five (25) consecutive Working Days of the commencement of the Work as specified in D18 or June 15, 2023, whichever comes first.
- D21.2 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.
- D21.3 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.

## **D22. LIQUIDATED DAMAGES**

- D22.1 If the Contractor fails to achieve 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 Day for each and every Working Day following the days fixed herein for same during which such failure continues:
- (a) Substantial Performance – One Thousand Five Hundred dollars (\$1,500.00);
  - (b) Total Performance – Five Hundred dollars (\$500).
- D22.2 The amounts specified for liquidated damages in D22.1 are based on a genuine pre-estimate of the City's losses in the event that the Contractor does not achieve Substantial Performance or Total Performance by the days fixed herein for same.
- D22.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

## **D23. COVID-19 SCHEDULE DELAYS**

- D23.1 The City acknowledges that the schedule for this Contract may be impacted by the COVID-19 pandemic. Commencement and progress of the Work shall be performed by the Contractor with due consideration to the health and safety of workers and the public, directives from health authorities and various levels of government and in close consultation with the Contract Administrator.

- D23.2 If the Contractor is delayed in the performance of the Work by reason of the COVID-19 pandemic, 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.
- D23.3 A minimum of seven (7) Calendar Days prior to the commencement of Work, the Contractor shall declare whether COVID-19 will affect the start date. The Contractor shall provide sufficient evidence that the delay is directly related to COVID-19, including but not limited to evidence related to availability of staff, availability of Material or work by others.
- D23.4 For any delay related to COVID-19 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 D23.3. Failure to provide this notice will result in no additional time delays being considered by the City.
- D23.5 The Work schedule, including the durations identified in D20 to D21 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.
- D23.6 Where Work not previously identified is being carried over solely as a result of delays related to COVID-19, 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 COVID-19, a partial consideration of the cost of temporary works will be considered by the Contract Administrator.
- D23.7 Any time or cost implications as a result of COVID-19 and in accordance with the above, as confirmed by the Contract Administrator, shall be documented in accordance with C7.

## **CONTROL OF WORK**

### **D24. JOB MEETINGS**

- D24.1 Regular weekly job meetings will be held at the Site. These meetings shall be attended by a minimum of one representative of the Contract Administrator, one representative of the City 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.
- D24.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever he/she deems it necessary.

### **D25. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)**

- D25.1 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).

### **D26. THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA) – QUALIFICATIONS**

- D26.1 Further to B13.7, 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 its sole discretion and acting reasonably, require updated proof of compliance, as set out in B13.7.

## MEASUREMENT AND PAYMENT

### D27. PAYMENT

- D27.1 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](https://winnipeg.ca/finance/files/Direct_Deposit_Form.pdf).

## WARRANTY

### D28. WARRANTY

- D28.1 Warranty is as stated in C13.
- D28.2 Notwithstanding C13.2 or 0, 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.
- D28.2.1 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

### D29. DISPUTE RESOLUTION

- D29.1 The entire text of C21.4 is deleted, and amended to read: "Intentionally Deleted"
- D29.2 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 his written Appeal Form, in the manner and format set out on the City's Materials Management 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 his Appeal Form.
- D29.3 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.

- D29.4 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.
- D29.5 As these negotiations are not an adjudicative hearing, neither party may have legal counsel present during the negotiations.
- D29.6 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.
- D29.7 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 D29.6, 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.

### THIRD PARTY AGREEMENTS

#### D30. FUNDING AND/OR CONTRIBUTION AGREEMENT OBLIGATIONS

- D30.1 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.
- D30.2 Further to D30.1, in the event that the obligations in D30 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.
- D30.3 For the purposes of D30:
- (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.
- D30.4 Modified Insurance Requirements
- D30.4.1 If not already required under the insurance requirements identified in D12, 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 its Ministers, officers, employees, and agents shall be added as additional insureds.
- D30.4.2 If not already required under the insurance requirements identified in D12, 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.
- D30.4.3 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.
- D30.4.4 Further to D12.4, 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.

D30.4.5 All policies must be taken out with insurers licensed to carry on business in the Province of Manitoba.

#### D30.5 Indemnification By Contractor

D30.5.1 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.

D30.5.2 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.

#### D30.6 Records Retention and Audits

D30.6.1 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.

D30.6.2 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 D30.6.1 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.

#### D30.7 Other Obligations

D30.7.1 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.

D30.7.2 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.

- D30.7.3 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.
- D30.7.4 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.
- D30.7.5 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.
- D30.7.6 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 D13)

KNOW ALL MEN 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. 444-2022

REHABILITATION OF MUNROE AVENUE SIPHON BY CIPP LINING

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 D13)

KNOW ALL MEN 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. 444-2022

REHABILITATION OF MUNROE AVENUE SIPHON BY CIPP LINING

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 D15)

REHABILITATION OF MUNROE AVENUE SIPHON BY CIPP LINING

<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 D15)

REHABILITATION OF MUNROE AVENUE SIPHON BY CIPP LINING

<p><b>4. Category/type:</b></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><b>5. Category/type:</b></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><b>6. Category/type:</b></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 its 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, Materials Management 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>Appendix No.</u>	<u>Appendix Title</u>
A	Record Drawings
B	Site Photos
C	Pipeline Defect Maps
D	Flow Bypass Options

<u>Drawing No.</u>	<u>Drawing Name/Title</u>
1-0165S-D0001-001	Cover Sheet
1-0165S-D0002-001	Index Page
1-0165S-D0003-001	General Plan
1-0165S-C0001-001	Site Plans
1-0165S-C0002-001	Plan/Profile
1-0173F-C0001-001	Polson Comminutor Chamber Sections and Details
1-0165L-C0001-001	Munroe Siphon Inlet Chamber Sections and Details

### GENERAL REQUIREMENTS

#### E2. MOBILIZATION AND DEMOBILIZATION PAYMENT

- E2.1 Description
- (a) This Specification shall govern Mobilization and Demobilization from site.
- E2.2 Measurement and Payment
- E2.2.1 Mobilization and Demobilization
- (a) Mobilization and demobilization will be measured on a lump sum basis and paid for at the Contract Lump Sum Price for "Mobilization and Demobilization". Payment for Mobilization and demobilization shall include all costs associated with mobilization and demobilization, site set up, and cleanup.
- (b) Payment will be made on the following schedule:

- (i) 25% payment of the Mobilization and Demobilization lump sum price will be paid once sewer cleaning and preparation crews arrive on site and commence with cleaning and sewer preparation works.
- (ii) 50% payment of the Mobilization and Demobilization lump sum price will be paid once lining crews arrive on site to commence CIPP liner installations.
- (iii) 100% of the Mobilization and Demobilization lump sum price will be paid subsequent to completion of the liner installation, liner repairs (if necessary), and site cleanup.

### **E3. SHOP DRAWINGS**

#### **E3.1 Description**

- (a) This Specification shall revise, amend, and supplement the requirements of CW 1110 of the City of Winnipeg's Standard Construction Specifications.
- (b) The term "Shop Drawings: means drawings, diagrams, illustrations, schedules, performance charts, brochures, and other data, which are to be provided by the Contractor to illustrate details of a portion of the Work.

E3.2 Submit all Shop Drawings in accordance with CW 1110 except as modified herein.

E3.3 The Contractor shall submit specified Shop Drawings to the Contract Administrator for review. All submissions must be in metric units. Where data is in imperial units, the correct metric equivalent shall also be shown on all submissions for engineering review.

E3.4 Submit Shop Drawing submissions within five (5) Business Days of a request or receipt of Notice of Award in accordance with B19, whichever is earlier.

E3.5 Allow for a five (5) Business Days period for review by the Contract Administrator of each individual submission and re-submission, unless noted otherwise in the Contract Documents.

E3.6 Shop Drawings not meeting the requirements of CW 1100 or the requirements specified herein will be returned to the Contractor without review for resubmission.

E3.7 Shop drawing submissions will be limited to 2 reviews per shop drawing. This shall include a review of the initial submission and a review of the revised submission. Costs associated with subsequent reviews will be charged to the Contractor.

#### **E3.8 Measurement and Payment**

- (a) The provision of Shop Drawings shall be considered incidental to the Work and will not be measured for payment. No additional payment will be made.

### **E4. CONFINED SPACE ENTRY**

#### **E4.1 Description**

- (a) This Specification shall outline minimum requirements for confined space operations and provision of support for third party inspections through the course of the work.

#### **E4.2 General**

E4.2.1 The Contractor shall be aware that Hydrogen Sulphide Gas is present in all underground structures connected to the City's sewer systems and has been known to accumulate in concentrations sufficient to cause serious harm or death to personnel who are not using adequate Personal Protective Equipment.

E4.2.2 The Contractor's attention is drawn to the Province of Manitoba Workplace Safety and Health Act ("the Act"), and the Regulations and Guidelines there-under pertaining to Confined Space Entry Work and in particular the requirements for conducting hazard/risk assessments and providing personal protective equipment (PPE).

E4.2.3 The Contractor is responsible for all safety and confined space support for both the work and third party inspections by the City and Contract Administrator throughout the project.

#### E4.3 Methods

##### E4.3.1 Hazard Assessment

- (a) In conjunction with securing the site and obtaining underground clearances, the Contractor shall conduct a hazard assessment for each site requiring work within a sewer or manhole. The assessment shall identify and evaluate the hazards, including but not be limited to review of the following as it pertains to the work to be performed:
  - (i) nature of the defect;
  - (ii) location of the defect in the sewer/manhole;
  - (iii) structural condition and amount of debris in the remaining sewer/manhole;
  - (iv) condition of the manholes up and downstream of the required repair;
  - (v) atmospheric conditions in the manholes up and downstream of the required repair;
  - (vi) condition of adjacent downstream sewers; and,
  - (vii) flow in the sewer.
- (b) The hazard assessment shall be based on the Contractors review of video for the sewer(s) and site inspection of the manholes, sewers and external conditions. Prior to the inspection, the Contractor shall conduct the necessary atmospheric monitoring of the affected manholes and sewers to establish acceptable entry conditions.
- (c) Based on the results of the hazard assessment the Contractor shall determine if they can perform the stabilization repairs in a safe manner. If the Contractor decides to proceed with the internal repairs, they shall prepare a Safe Work Plan in accordance with D11 complete with the necessary controls and procedures required to maintain a safe working environment for the repair. Otherwise, they shall notify the Contract Administrator and jointly the Contractor and the Contract Administrator shall review the nature of the work and determine alternative means of completing the work are required.

##### E4.3.2 Safe Work Plan

- (a) Subsequent to performing a hazard assessment the Contractor shall develop a safe work plan to address the potential hazards associated with each site. In addition to addressing the potential hazards the safe work plan shall address but not be limited to the following:
  - (i) guidelines for confined space entry work established by The Manitoba Workplace Safety and Health Act;
  - (ii) provision for emergency response;
  - (iii) training and duties for entry personnel;
  - (iv) rescue and emergency services;
  - (v) requirement for purging, ingesting, flushing and/or continuous ventilation to eliminate or control atmospheric hazards;
  - (vi) requirement for and provision of supplied air;
  - (vii) communication between members of the repair crew in the pipe and on the ground's surface;
  - (viii) current and forecasted weather conditions;
  - (ix) isolating the workspace by plugging of upstream sewers and monitoring of upstream flow levels;
  - (x) provision of back-up equipment;
  - (xi) method of ingress into the chambers; and,
  - (xii) method of egress out of the chambers.

- (b) The Contactor shall not enter the chambers to begin the work until they have completed a hazard assessment and safe work plan for the specific task and reviewed the plans with their designated safety officer for acceptance. The safe work plan procedures and practices shall conform to all federal, provincial and municipal codes, regulations and guidelines including Manitoba Workplace Safety and Health Regulations.

#### E4.3.3 Enter the Manhole and Sewer

- (a) The Contractor shall enter the chambers/sewer and complete the work in accordance with their safe work plan and requirements for the repair contained herein.
- (b) If at any time during the repair the attendant and/or Contractor believes they cannot safely perform the work, they shall immediately stop the work and evacuate the sewer and chambers. The Contractor shall re-assess their safe work plan considering the reason for the work stoppage. The work shall only be resumed when the Contractor has deemed it safe to return by completing a re-assessment and safe work plan revision, where necessary.
- (c) If the Contractor deems the work cannot be safely completed by internal stabilization, they shall notify the Contract Administrator and jointly the Contractor and the Contract Administrator shall review the nature of the defect and determine alternative means of completing the work are required.

#### E4.4 Measurement and Payment

##### E4.4.1 Confined Space Entry

- (a) Performing hazard assessments, preparing a Safe Work Plans, and confined space entry support for the Work and inspections will not be measured for payment and shall be considered incidental to the Work. No separate payment will be made.

### **E5. ENVIRONMENTAL PROTECTION**

E5.1 The Contractor shall be aware that the Munroe Avenue infrastructure and piping is for combined sewer flows and no contamination by fuel, chemicals, etc. shall be permitted at any time. Fuels or chemicals shall not be stored within 30 metres of the existing chambers, excavations, etc.

E5.2 The Contractor shall plan and implement the Work of this Contract strictly in accordance with the requirements of the environmental protection measures as herein specified.

E5.3 The Contractor is advised that at least the following Acts, Regulations, and By-laws apply to the Work:

##### E5.3.1 Federal

- (a) Canadian Environmental Protection Act (CEPA) c.16;
- (b) Canadian Environmental Assessment Act (CEAA) c.37;
- (c) Transportation of Dangerous Goods Act and Regulations c.34; and
- (d) Migratory Birds Convention Act, 1994.

##### E5.3.2 Provincial

- (a) The Dangerous Goods Handling and Transportation Act D12;
- (b) The Endangered Species Act E111;
- (c) The Environment Act c.E125;
- (d) The Fire Prevention Act F80;
- (e) The Manitoba Heritage Resources Act H39.1;
- (f) The Manitoba Noxious Weeds Act N110;
- (g) The Manitoba Nuisance Act N120;

- (h) The Public Health Act c.P210;
- (i) The Workplace Safety and Health Act W120; and
- (j) And current applicable associated regulations.

E5.3.3 Municipal

- (a) The City of Winnipeg By-law no. 1/2008;
- (b) The City of Winnipeg Waterway By-Law no. 5888/92; and
- (c) Other applicable Acts, Regulations and By-laws.

E5.4 The Contractor is advised that the following environmental protection measures apply to the Work.

E5.4.1 Materials Handling and Storage

- (a) Construction materials and debris shall be prevented from entering drainage pipes or channels.
- (b) Construction materials and debris shall also be prevented from accumulating on local roadways and sidewalks when tracked out of the Site by trucks hauling excavated materials.
- (c) The Contractor shall provide on-Site measures to mitigate the tracking of sediment off-Site and therefore reduce the amount of street cleaning required. These measures may take the form of a truck wheel wash (automated or manually operated) or other measures as approved by the Contract Administrator.

E5.4.2 Fuel Handling and Storage

- (a) The Contractor shall obtain all necessary permits from Manitoba Conservation for the handling and storage of fuel products and shall provide copies to the Contract Administrator.
- (b) All fuel handling and storage facilities shall comply with The Dangerous Goods and Transportation Act Storage and Handling of Petroleum Products Regulation and any local land use permits.
- (c) Fuels, lubricants, and other potentially hazardous materials as defined in The Dangerous Goods and Transportation Act shall be stored and handled within the approved storage areas.
- (d) The Contractor shall ensure that all fuel storage containers are inspected daily for leaks and spillage.
- (e) Products transferred from the fuel storage area(s) to specific Work Sites shall not exceed the daily usage requirement.
- (f) When servicing requires the drainage or pumping of fuels, lubricating oils or other fluids from equipment, a groundsheet of suitable material (such as HDPE) and size shall be spread on the ground to catch the fluid in the event of a leak or spill.
- (g) Refuelling of mobile equipment and vehicles shall take place at least 100 metres from a watercourse.
- (h) The area around storage Sites and fuel lines shall be distinctly marked and kept clear of snow and debris to allow for routine inspection and leak detection.
- (i) A sufficient supply of materials, such as absorbent material and plastic oil booms to clean up minor spills shall be stores nearby on-site. The Contractor shall ensure that additional material can be made available on short notice.

E5.4.3 Waste Handling and Disposal

- (a) The construction area shall be kept clean and orderly at all times during and at completion of construction.

- (b) At no time during construction shall personal or construction waste be permitted to accumulate for more than one day at any location on the construction site, other than at a dedicated storage area as may be approved by the Contract Administrator.
- (c) All resulting debris shall be deposited at a Waste Disposal Ground operating under the authority of Manitoba Regulation #150/91. Exceptions are liquid industrial and hazardous wastes which may require special disposal methods (see SC:21.4 D).
- (d) Indiscriminate dumping, littering, or abandonment shall not take place.
- (e) No on-site burning of waste is permitted.
- (f) Waste storage areas shall not be located so as to block natural drainage.
- (g) Run-off from a waste storage area shall not be allowed to cause siltation of a watercourse.
- (h) Waste storage areas shall be left in a neat and finished appearance and/or restored to their original condition to the satisfaction of the Contract Administrator.
- (i) Equipment shall not be cleaned near watercourses; contaminated water from onshore cleaning operations shall not be permitted to enter watercourses.

#### E5.4.4 Dangerous Goods/Hazardous Waste Handling and Disposal

- (a) Dangerous goods/hazardous waste are identified by, and shall be handled according to, The Dangerous Goods Handling and Transportation Act and Regulations.
- (b) The Contractor shall be familiar with The Dangerous Goods Handling and Transportation Act and Regulations.
- (c) The Contractor shall have on-site staff that is trained and certified in the handling of the dangerous/hazardous goods, when said dangerous/hazardous goods are being utilized on-site for the performance of the Work.
- (d) Different waste streams shall not be mixed.
- (e) Disposal of dangerous goods/hazardous wastes shall be at approved hazardous waste facilities.
- (f) Liquid hydrocarbons shall not be stored or disposed of in earthen pits on-site.
- (g) Used oils shall be stored in appropriate drums, or tankage, until shipment to waste oil recycling centres, incinerators, or secure disposal facilities approved for such wastes.
- (h) Used oil filters shall be drained, placed in suitable storage containers, and buried or incinerated at approved hazardous waste treatment and disposal facilities.
- (i) Dangerous goods/hazardous waste storage areas shall be located at least 100 metres away from the high water line and be diked.
- (j) Dangerous goods/hazardous waste storage areas shall not be located so as to block natural drainage.
- (k) Run-off from a dangerous goods/hazardous waste storage area shall not be allowed to cause siltation of a watercourse.
- (l) Dangerous goods/hazardous waste storage areas shall be left in a neat and finished appearance and/or restored to their original condition to the satisfaction of the Contract Administrator.

#### E5.4.5 Emergency Response

- (a) The Contractor shall ensure that due care and caution is taken to prevent spills.
- (b) The Contractor shall report all major spills of petroleum products or other hazardous substances with the potential for impacting the environment and threat to human health and safety to the Contract Administrator and Manitoba Environment, immediately after occurrence of the environmental accident, by calling the 24-hour emergency telephone phone number (204) 945-4888. The Contract Administrator shall also be notified.

- (c) The Contractor shall designate a qualified supervisor as the on-site emergency response coordinator for the project. The emergency response coordinator shall have the authority to redirect manpower in order to respond in the event of a spill.
- (d) The following actions shall be taken by the person in charge of the spilled material or the first person(s) arriving at the scene of a hazardous material accident or the on-site emergency response coordinator:
  - (i) Notify emergency-response coordinator of the accident:
    - identify exact location and time of accident
    - indicate injuries, if any
    - request assistance as required by magnitude of accident (Manitoba Environment 24-hour Spill Response Line (204) 945-4888, Police, Fire Department, Ambulance, company backup)
  - (ii) Attend to public safety:
    - ◆ stop traffic, roadblock/cordon off the immediate danger area
    - ◆ eliminate ignition sources
    - ◆ initiate evacuation procedures if necessary
  - (iii) Assess situation and gather information on the status of the situation, noting:
    - personnel on site
    - cause and effect of spill
    - estimated extent of damage
    - amount and type of material involved
    - proximity to waterways and the Aqueduct
  - (iv) If safe to do so, try to stop the dispersion or flow of spill material:
    - approach from upwind
    - stop or reduce leak if safe to do so
    - dike spill material with dry, inert sorbent material or dry clay soil or sand
    - prevent spill material from entering waterways and utilities by diking
    - prevent spill material from entering Aqueduct manholes and other openings by covering with rubber spill mats or diking
  - (v) Resume any effective action to contain, clean up, or stop the flow of the spilled product.
- (e) The emergency response coordinator shall ensure that all environmental accidents involving contaminants shall be documented and reported to the Manitoba Environment according to The Dangerous Goods Handling and Transportation Act Environmental Accident Report Regulation 439/87.
- (f) When dangerous goods are used on-site, materials for containment and cleanup of spill material (e.g. absorbent materials, plastic oil booms, and oversized recovery drums) shall be available on-site.
- (g) Minor spills of such substances that may be contained on land with no significant impact on the environment may be responded to with in-house resources without formal notification to Manitoba Environment.
- (h) City emergency response, 9-1-1, shall be used if other means are not available.

#### E5.5 Vegetation

- (a) Vegetation shall not be disturbed without written permission of the Contract Administrator. The Contractor shall protect plants which may be at risk of accidental damage. Such measures may include protective fencing or signage.
- (b) Herbicides and pesticides shall not be used adjacent to any surface watercourses.
- (c) All landowners adjacent to the area of application of herbicides or pesticides shall be notified prior to the Work.
- (d) Trees and shrubs shall not be felled into watercourses.

- (e) Areas where vegetation is removed during clearing, construction, and decommissioning activities, shall be revegetated as soon as possible in accordance the requirements outlined herein, or as directed by the Contract Administrator.

#### E5.6 Measurement and Payment

- (a) The work specified in E5 will be considered incidental to the Work and will not be measured for payment. No additional payment will be made.

### E6. SITE ACCESS

#### E6.1 Description

- (a) Contractor shall provide and develop access to chambers and/or pipeline access locations as necessary and prior to undertaking the various portions of the work.

#### E6.2 Submittals

- (a) The Contractor shall submit a site access plan for review by the Contract Administrator a minimum of five (5) working days prior to commencing Work on site.

#### E6.3 Description of Work

##### E6.3.1 Work Area

- (a) The Contractor shall keep all equipment, personnel, and materials off private property except where explicitly permitted on the Drawings.
- (b) The Contractor shall erect temporary construction to secure the work area as required.

##### E6.3.2 Site Access Requirements:

- (a) Access on the east side of the crossing is via a shared residential approach within a City easement at the intersection of Munroe Avenue and Henderson Highway. The Contractor shall maintain access for the resident at all times.
- (b) Access on the west side of the crossing is via residential streets at the intersection of Polson Avenue and Scotia Street.
- (c) Where tracked equipment is utilized, protect roads and pathways from damage with planking. No payment will be made for damages caused by equipment tracks on unprotected surfaces.
- (d) Laydown and storage of materials is prohibited within the shared easement located on the east side of the crossing. Additional laydown area is available on the west side of the crossing.
- (e) Where site access utilizes grassed right-of-ways, limit access for heavy equipment to a single pathway directly from street to work area, Protect grassed areas with planking or other measures to minimize rutting and damage.
- (f) Where possible, laydown and storage areas shall be staged away from areas prone to damage.
- (g) The intersection of Polson Avenue and Scotia Street may be closed to facilitate the work in accordance with E7.

##### E6.3.3 Pipeline Access

- (a) The Contractor may access the siphons from the following locations to facilitate CIPP liner installation:
  - (i) Existing upstream siphon inlet chamber located on shared approach off of Henderson Highway at Munroe Avenue.
  - (ii) Existing downstream siphon outlet chamber located at the intersection of Polson Avenue and Scotia Street.

- (b) The Contractor should note that the existing downstream gates, stems and associated hardware for the existing valves on both the 300 mm crossing to be lined and adjacent 450 mm crossing have been removed.
- (c) Removal of the existing 300 mm and 450 mm valve bodies(downstream) and sluice gates (upstream) is required prior to lining, refer to E10. Once removed, the Contractor shall be responsible for the disposal of the valve bodies and sluice gates.
- (d) Remove and dispose of grating as required for pipeline access, refer to E10.
- (e) Install flow diversions as required, and in accordance with E9.

#### E6.3.4 Excavations

- (a) No excavations are expected as part of the Work.

#### E6.4 Measurement and Payment

- (a) "Site Access" shall be measured and paid on a Lump Sum basis as listed in the Form B: Prices.
- (b) Payment for "Site Access" shall include the supply of all materials and equipment required to complete the Work, including: site access, and removal and disposal of gratings specified herein.
- (c) Removal and disposal of existing sluice gates, valve bodies, and appurtenances shall be measured and paid for in accordance with E10. No separate payment will be made.
- (d) Removal and disposal of existing grating shall be measured and paid for in accordance with E10. No separate payment will be made.
- (e) Installation of flow diversions to facilitate pipeline access shall be measured and paid in accordance with E9.5. No separate payment will be made.
- (f) Payment for Pipeline Access will be as follows:
  - (i) 90% payment of the Site Access Modifications lump sum price upon completion Site Access and commencement of cleaning operations.
  - (ii) 100% payment of the Pipeline Access Modifications lump sum price upon acceptance of site restoration.
- (g) Restoration of grassed areas and pavements shall be considered incidental to "Site Access". no separate payment will be made.

### **E7. TRAFFIC MANAGEMENT**

#### E7.1 Description

- (a) This Specification shall govern the requirements for traffic management during the course of the Work.

E7.2 Further to Section 3.7 of CW 1130 of the General Requirements the Contractor shall be responsible to redirect and maintain traffic with appropriate signing in accordance with The City of Winnipeg, "Manual of Temporary Traffic Control in Work Areas on City Streets at all times during construction.

E7.3 Maintain access for approaches, driveways, public lanes and crossing streets for all locations.

E7.4 Bus traffic must be maintained at all times or as approved by the Contract Administrator.

E7.5 Pedestrian access shall be maintained at all times.

E7.6 The Contractor shall maintain access to all businesses during business hours, except where written authorization has been provided by the business.

E7.7 The Contractor shall maintain access to all schools, community centres, and other public buildings at all times.

- E7.8 Further to Section 3.6 of CW 1130 of the General Requirements, the Contractor shall maintain safe pedestrian crossings at intersections at all times. If possible, only one pedestrian crossing at an intersection is to be blocked by construction at any one time. If more than one pedestrian crossing is blocked by construction at an intersection at the same time the Contractor shall provide flag persons to safely escort pedestrians across the intersection. The Contractor shall leave pedestrian crossing locations safe and free of equipment that may hamper pedestrians when no construction activities are being performed at a particular crossing location.
- E7.9 Further to Clause 3.7 of CW 1130 of the General Requirements, should the Contractor be unable to maintain pedestrian or vehicular access to a residence or business, he/she shall review the planned disruption with the business or residence and the Contract Administrator, and take reasonable measures to minimize the impact. The Contractor shall provide a minimum of 24 hours notification to the affected residence or business and the Contract Administrator, prior to disruption of access.
- E7.10 The Contractor shall not park company or private vehicles inside the barricaded work zone in a manner that will block sightlines for vehicles and pedestrians approaching and crossing intersections.
- E7.11 The Contractor is responsible for maintaining safe vehicular and pedestrian traffic through their work site as identified herein. The Contractor shall rectify any unsafe conditions immediately upon notification. This could include but is not limited to, providing flag persons, clearing debris and snow from sites, moving equipment, and erecting additional signage.
- E7.12 Regional Street Lane Closures
- E7.12.1 Construction activities on Regional Streets shall be restricted to the closed lanes between 07:00 to 09:00 hours and 15:30 to 17:30 hours Monday to Friday and other hours as outlined herein or directed by the Contract Administrator.
- E7.12.2 The City reserves the right to restrict or cancel Regional Street lane closures at any time due to the occurrence of special events or conflicting third party work.
- E7.12.3 The Contractor shall submit all regional lane closure requests to the Contract Administrator a minimum of five (5) Business Days prior to the planned work. Requests for regional lane closures shall include all required information for submission required by the City's online request form. A link to the form can be found here:  
<http://www.winnipeg.ca/publicworks/trafficcontrol/laneclosures/LaneClosuresMap.asp>.
- E7.13 Residential Streets
- (a) The contractor shall strive to maintain at least one lane of traffic on residential streets. Street shall be signed as "Road Closed - Local Access Only".
- (b) A minimum of one lane of traffic shall be maintained on one-way residential streets at all times.
- (c) Where required, the Contractor shall provide notice of complete street shutdowns complete with dates and duration a minimum of five (5) Business Days prior to the street closures.
- E7.14 Measurement and Payment
- (a) Traffic management as outlined herein will be considered incidental to the Work and will not be measured for payment. No separate payment will be made.

## **E8. DEWATERING OF SIPHONS**

- E8.1 Description
- (a) This Specification shall outline requirements and restrictions for dewatering of siphon crossings.

## E8.2 General

- (a) The Munroe Avenue siphon crossing consists of steel pipes encased in concrete and laid in place along the bottom of the river.
- (b) Based on the configuration of the crossing, dewatering of the 300 mm crossing (to be lined) is permitted to facilitate pipeline rehabilitation.
- (c) CIPP lining operations shall utilize water inversion and hot water curing methods only.
- (d) The pipeline shall be dewatered by use of pigs.
- (e) See E11 for allowable pigging materials, equipment, and methodology.

## E8.3 Submittals

- (a) Submit a written dewatering plan for review by the Contract Administrator in accordance with E3, a minimum of ten (10) Business Days prior to undertaking the work. The dewatering plan shall include the following:
  - (i) Proposed means and methods for dewatering the siphon.
  - (ii) A description and sketch detailing the arrangement of the proposed dewatering methods.
  - (iii) A list of key components and equipment required to complete the work, including:
    - (i) Pigs, winches, and winch lines in accordance with E11.
  - (iv) Detailed procedure for implementation of the proposed plan.

## E8.4 Measurement and Payment

- (a) Any Work resulting from the requirements of E8 will be considered incidental to the Work and will not be measured for payment. No additional payment will be made.

## E9. FLOW CONTROL

### E9.1 Description

- (a) This Specification shall cover flow control measures required to perform the work.

### E9.2 Submittals

- (a) Submit a written flow control plan for sewers to be lined for review by the Contract Administrator in accordance with E3, a minimum of ten (10) Business Days prior to undertaking the work. The flow control plan shall include the following:
  - (i) A description and sketch detailing the arrangement of the proposed flow control measures.
  - (ii) A list of the key components required for the flow control measures, including but not limited to the following:
    - (i) Cofferdams/bulkheads
    - (ii) Inflatable Plugs
    - (iii) Diversion Materials
    - (iv) Piping or hoses
    - (v) Pumps
  - (iii) A detailed procedure for installation and removal of the flow control measures.
  - (iv) Monitoring plan (if required).
  - (v) 24 hr contact person.
  - (vi) Means and methods for dealing with excessive flows or wet weather events.
  - (vii) Means and methods for bypassing flows from apartment complexes and commercial buildings.
  - (viii) Supply of temporary washroom facilities where required.

## E9.3 Products

### E9.3.1 Temporary Inflatable Plugs

- (a) Plugs shall be capable of withstanding a minimum of 69 kPa (10 psi) of backpressure.
- (b) Plugs shall be capable of being anchored from upstream.
- (c) Inflatable plugs (if required) shall be provided by the Contractor.

### E9.3.2 Flow Through Plugs

- (a) Plugs shall be capable of withstanding a minimum of 69 kPa (10 psi) of backpressure.
- (b) Plugs shall be capable of being anchored from upstream.
- (c) Submit shop drawings for flow through plugs in accordance with E3.
- (d) Approved product: Lansas Multi size super-flow plug or approved equal in accordance with B7.

### E9.3.3 Bypass Hoses and Fittings

- (a) Bypass hose shall be a semi rigid style slip on discharge hose.
- (b) Fabricated tee's and wyes shall be used were required.
- (c) Hose and fittings must be designed to withstand pressures no less than the allowable back pressure on the plugs.

### E9.3.4 Sandbags

- (a) Where required, provide sandbags for diversion of flow. Remove and dispose of sandbags upon completion of inspection. Sandbags in contact with sewage shall be disposed of at an approved disposal facility.

### E9.3.5 Stop Logs and Plywood Diversion Dykes

- (a) Stop logs and plywood diversion dykes may be used to direct wastewater flows where chamber configurations permit. Plywood to have a minimum thickness of 19 mm and to be braced as required to resist hydrostatic pressures.

## E9.4 Methods

### E9.4.1 General

- (a) Provide necessary flow control measures required to perform the work. Diversion of wastewater flow directly or indirectly to the environment, land drainage sewers, or storm relief sewers shall not be allowed.
- (b) Maintain existing sewer flows from the upstream interceptor sewer during construction.
- (c) All Work shall be completed during dry weather flow conditions. Work shall be delayed when wet weather events are anticipated.
- (d) Ensure all flow control components and materials are removed from the sewer system upon completion of the work.
- (e) A suggested option for flow control arrangements is provided in Appendix D, consisting of diverting all flows through the existing adjacent 450 mm siphon.

### E9.4.2 Mainline Sewer Flows

- (a) The Contractor is responsible for bypassing or the temporary storage of all dry weather flows, including peak flows.
- (b) The following Peak Dry Weather Flow (PDWF) have been provided for the purpose of developing flow bypass plans:
  - (i) Munroe Crossing: 164 L/s

- (c) The existing 450 mm siphon can accommodate the PDWF. At a minimum, the existing 450 mm siphon shall remain in service at all times to accommodate incoming dry weather flows.
- (d) Flow control measures implemented must be capable of passing wet weather or high flow conditions through the site should they be encountered. Where complete blockage of the sewer is proposed, the blockage must be readily deflated or removed from the pipe in an emergency situation.
- (e) Complete blockages of the upstream sewer to facilitate installation of bypass measures shall not undertaken.
- (f) The maximum allowable surcharge elevation in the upstream system with flow bypasses in place: 224.5 meters. Levels are expected to reach 224.2 m in the siphon inlet chamber when all flow is diverted through the 450 mm siphon.
- (g) If flows approach maximum allowable elevation, flow diversion shall be immediately removed or bypassed to prevent overflow of sewage to the river at upstream overflow location(s).
- (h) Gravity flow bypasses utilizing flow through plugs or cofferdams with flumes shall have a minimum internal diameter of 375 mm based on a maximum length of 5 m. Levels are expected to reach 222.9 m in the siphon outlet chamber.
- (i) The positive gate in the Munroe Avenue outfall chamber may be closed (by City) prior to commencement of flow diversion to prevent potential inadvertent combined sewer overflows (CSO).

#### E9.4.3 Weather

- (a) Review the Environment Canada weather forecast with the Contract Administrator before each day of liner installation.
- (b) Delay installation of liners and/or secure Works when the anticipated weather conditions are such that anticipated sewer flow will exceed the flow control measures provided.
- (c) The Contractor shall advise immediately of any weather-related delays.
- (d) The Contractor to schedule Work according to the weather; The City is not responsible for costs associated with weather related delays.

#### E9.4.4 Installation of Inflatable Plugs and Piping

- (a) Install flow through plugs as per manufactures recommendations
- (b) Plugs to be anchored to upstream manhole or chamber
- (c) Provide air supply and monitor plug inflation pressure, in accordance with manufacturer's recommendations.
- (d) Support any piping and fittings as required to prevent significant deflection when full of water
- (e) Submit an inflatable plug installation plan for each plug installation a minimum of 5 Working Days prior to the planned installation.

#### E9.5 Measurement and Payment

- (a) Flow control measures necessary for rehabilitation of the siphons will be measured on a lump sum basis and paid for at the Contract Price for "Flow Control".
- (b) Payment for "Flow Control" shall include, but is not limited to the following:
  - (i) Supply of flow control plans, drawings, and submissions;
  - (ii) Investigative work to confirm flows, manhole, and pipe configurations;
  - (iii) Supply, installation, and removal of cofferdams and flow diversions;
  - (iv) Supply, mobilization, monitoring, operation, and demobilization of pumps and hoses;
  - (v) Hydrovac, hauling, and disposal of sewage where required for flow control purposes;

- (vi) Traffic accommodation and signage;
  - (vii) Supply, installation, and removal of all traffic ramps and associated materials; and,
  - (viii) Any and all other plant and materials required to complete the work as specified herein and identified on reviewed flow control plans.
- (c) Payment for flow control will be as follows:
- (i) 50% payment of the Flow Control unit price will be paid when flow control measures have been mobilized to site and are in operation.
  - (ii) 100% of the Flow Control unit price will be paid subsequent to the completion of the liner installation and demobilization of flow control measures.
- (d) Where no flow control measures are undertaken, no payment will be made for this item of work.

## **E10. CHAMBER MODIFICATIONS**

### **E10.1 Description**

- (a) This Specification shall cover modifications to the existing siphon chambers, including the removal of the existing sluice gates, valve bodies, and gratings.

### **E10.2 Construction**

#### **E10.2.1 Removals**

- (a) Remove and dispose of existing downstream gate valve bodies and all appurtenances for both the 300 mm and 450 mm siphons.
- (b) Remove and dispose of existing upstream sluice gate valves and all appurtenances for both the 300 mm and 450 mm siphons.
  - (i) Removals shall include valve bodies and associated hardware. knife gates, gate frames, valve stems, stem guides, and surface operators.
- (c) Remove and dispose of existing gratings from the upstream chamber to facilitate the Work.
  - (i) Existing ladders shall remain.

#### **E10.2.2 Restoration**

- (a) Install new 6.45 mm thick steel cover plates over existing roof or floor penetration holes using existing anchor bolts if possible.
- (b) Repair and make good any concrete damaged during the valve removals.

### **E10.3 Measurement and Payment**

#### **E10.3.1 Chamber Modifications**

- (a) Chamber Modifications will be measured and paid on a Lump Sum basis at the Contract price for "Chamber Modifications" as listed in Form B: Prices. Payment for the Work included in this spec section shall include all necessary labour and materials complete the work as specified and shown on the Drawings.

## **E11. PIPELINE CLEANING**

### **E11.1 Description**

- (a) This Specification shall cover the cleaning of the pipelines to be rehabilitated under this Contract.

### **E11.2 General**

#### **E11.2.1 Cleaning Objectives and Methods**

- (a) Cleaning of the host pipe is necessary to ensure the liner obtains a tight fit with the host pipe and is installed in a manner consistent with long term design objectives.
- (b) The objective of the cleaning operation is to remove loose and hardened debris from existing pipelines, resulting a clean pipe and uniformly round conduit for installation of the CIPP liner.
  - (i) The interior surfaces of the pipes to be lined shall be cleaned sufficiently to remove debris, physical obstructions, sedimentation deposits, tuberculation and other corrosion products, biological deposits, and any other substantial accumulations of oil, grease, debris, or other foreign matter larger than 25 mm in diameter.
  - (ii) Bond of the CIPP liner to the interior wall of the host pipe is not required.
- (c) The Contractor may employ a combination of high pressure flushing, pigging, mechanical cleaning, or other methods to ensure the host pipes are cleaned sufficiently to meet the stated objectives.
- (d) The existing host pipe is known to have near through-wall corrosion pitting defects which could be aggravated by aggressive cleaning methods, resulting in additional challenges for installation of the CIPP liners. Cleaning methods shall be selected to suit the configuration and condition of the pipeline and minimize the potential to aggravate existing defects.
- (e) Electromagnetic inspection reports for the 300 mm steel sewer siphon based on an advanced electromagnetic inspection undertaken by PICA in 2014 can be found in Appendix C.
- (f) It is anticipated that pipeline cleaning will take a maximum of three days. The Contractor shall identify during the cleaning plan review period if they believe this time is insufficient to complete the desired level of cleaning.

#### E11.2.2 Existing Pipelines

- (a) Internal pipeline diameters are provided for planning purposes, based on the best available record information. The Contractor is responsible to confirm the inner pipe diameters as necessary prior to undertaking cleaning work:

Pipeline	Wall Thickness/Pipe Class	Internal Diameter
300 mm Steel Siphon	9.53 mm (3/8")	304.8 mm

#### E11.3 Submittals

##### E11.3.1 Cleaning Plan

- (a) The Contractor shall submit a detailed cleaning plan for review by the Contract Administrator. The cleaning plan at a minimum shall include the following:
  - (i) Proposed method(s) of cleaning
  - (ii) Tools and equipment required
  - (iii) Sizes and densities of foam pigs to be used
  - (iv) Means of debris removal, collection and disposal
- (b) The pipeline cleaning plan shall be submitted a minimum of twenty (20) Business Days prior to undertaking cleaning operations.
- (c) No cleaning operations shall be undertaken prior to review and acceptance of the cleaning plan by the Contract Administrator.

##### E11.3.2 Shop Drawings

- (a) The Contractor shall submit Shop Drawings for the proposed winch line (or flusher hose), complete with the safe pull strength as recommended by the manufacturer.
- (b) The Contractor shall submit Shop Drawings for all cleaning pigs proposed for use.

## E11.4 Products

### E11.4.1 Foam Cleaning Pigs

- (a) Material: One piece moulded open-cell polyurethane
- (b) Density: up to a standard medium density cleaning pig (80 to 112 kg/m<sup>3</sup>)
- (c) Pigs shall be new and packaged for shipping.
- (d) Pigs shall be supplied complete with a factory installed steel pulling cable. The cable and loops shall be rated for a tensile force equal to 1.5 times the capacity of the proposed winch. Pigs shall be supplied complete with a steel support disc on both ends suitable for towing pigs. The steel disk shall have a minimum diameter of 100 mm.
- (e) Foam cores for pigs shall be of equal or greater density than foam body
- (f) Pigs to be sized for the internal diameter of the pipeline or as recommended by the manufacturer for the intended purposes.
- (g) Bristled pigs may use synthetic plastic or steel brushes.

E11.4.2 Water for pig launching may be obtained from fire hydrants in accordance with CW 1120 and E14.

## E11.5 Equipment

E11.5.1 High velocity sewer flushing equipment shall meet the requirements of CW2140.

### E11.5.2 Winch and Winch Line

- (a) Winch lines shall be one of the following:
  - (i) synthetic winch lines;
  - (ii) steel cable; or,
  - (iii) braided flusher hose.
- (b) Proposed winch lines and hoses must have a third party verified tensile load rating. Minimum tensile strength for the winch line shall be 60 kN (13,490 lb) or as required to facilitate the cleaning operations, whichever is greater. Winch lines should have a minimum tensile capacity of 1.5 times the maximum capacity of the winch.
- (c) Winches used for cleaning purposes shall have sufficient load capacity to facilitate pipeline cleaning.
- (d) Winches used for cleaning purposes shall be fitted with gauges capable of monitoring winching loads. Winch loads shall be monitored at all times to ensure the load rating of the winch lines and cleaning pigs is not exceeded. Controls on winch output must be implemented when winch lines do not meet the tensile capacities noted herein relating to winch capacity. Controls shall limit winch loads to 66% of the tensile capacity of the winch line.

E11.5.3 Scraper pigs shall be specially designed for cleaning pipelines of this diameter, and capable of navigating the geometry of the pipeline.

E11.5.4 All towed pipeline cleaning equipment must be capable of being towed in both directions for retrieval.

## E11.6 Cleaning Approach

E11.6.1 The Contractor shall not deviate from the submitted and accepted cleaning plan without notification to and acceptance by the Contract Administrator.

### E11.6.2 Pigging

- (a) Where applicable, provide pig launch tubes, pipe and fittings, including valves.
- (b) Winch lines shall be inserted into the pipelines for cleaning purposes. Winch lines may be inserted by high pressure flusher nozzle, flow drone or other accepted method.

- (c) Cleaning pigs and scrapers shall be tethered on each end and be capable of being winched in either direction, in the event that they are prevented from traversing the entirety of the crossing.
- (d) Cleaning pigs shall not introduce air into pipeline river crossings below river levels. Pipelines shall be kept full of water behind pigs at all times.
- (e) Pigging shall be completed in a progressive manner, commencing with undersized soft pigs before proceeding to more aggressive cleaning pigs.
- (f) A gauge pig shall be pulled through the pipe to determine the effectiveness of the cleaning operation. Gauge pig shall be tethered on each end and be capable of being winched in either direction.
- (g) Cleaning operations shall continue until the Contract Administrator is satisfied that the pipe is sufficiently clean for lining, meeting the objectives stated herein.

#### E11.6.3 Flushing of Pipelines using Traditional Flushing Equipment

- (a) Flushing equipment shall conform to CW2140 and may be utilized for removal of debris from pipelines.
- (b) Flushing pressures shall be limited to prevent aggravation of existing pipeline defects.
- (c) Flushing shall not eliminate water from or draw air into the pipeline. The pipeline shall be kept full of water at all times.

#### E11.6.4 Alternative Cleaning Methods

- (a) Alternative cleaning methods other than those noted herein may be utilized upon review and acceptance by the Contract Administrator.

#### E11.6.5 Retrieval of Cleaning Equipment

- (a) The Contractor shall be responsible for the retrieval of any cleaning equipment which becomes stuck within the host pipe, and the repair of any damage to the host pipe caused by the work or the retrieval process.

#### E11.6.6 Disposal of Solid Debris

- (a) Where hydrovactoring of sewage and cleaning debris is required, the sewage may be decanted into nearby WWS MH's as approved by the Contract Administrator.
- (b) Solid debris shall be hauled off site as per CW 2140.

### E11.7 Method of Measurement and Basis of Payment

#### E11.7.1 Pipeline Cleaning

- (a) Pipeline cleaning will be measured and paid on a daily basis with an hourly overtime rate .
- (b) Payment for "Pipeline Cleaning" shall include all materials and performance of all work as specified herein, including site access, removal of access hatches, confined entry support, temporary access, flow diversions, performance of all cleaning and gauging work, and disposal of solid debris.
- (c) Time measured will be based on on-site availability of the Contractor's crews, from the time crews are present on site, until cleaning work is complete and the site is secured for the shift, as certified by the Contract Administrator. Delays in cleaning caused by malfunctioning equipment or poor planning on the part of the Contractor will not be considered for payment.
- (d) The Daily Cleaning Rate will apply for each day of cleaning activity, up to a maximum of 10 hours. Hourly Overtime Rate will apply for each hour or measurable portion thereof in excess of the Daily Cleaning Rate maximum.
- (e) The supply of pigs or other consumable materials for pipeline cleaning will be considered incidental to "Pipeline Cleaning" and will not be measured for payment. No additional payment will be made.

- (f) Flushing of pipelines for the purposes of debris removal will be considered incidental to "Pipeline Cleaning" and will not be measured for payment. No additional payment will be made.

## **E12. PIPELINE INSPECTION**

### **E12.1 Description:**

- (a) This Specification describes the requirements for obtaining sewer measurements and inspections required to facilitate the specified rehabilitation work.

### **E12.2 Methods**

E12.2.1 Dewatering of the 300 mm siphon is permitted to facilitate cleaning, inspection, and lining by CIPP, refer to E8.

E12.2.2 Confirmation of siphon length shall be obtained during cleaning and inspection operations.

#### **E12.2.3 Verification of Existing Sewer Dimensions**

- (a) Verify siphon diameter(s) prior to liner installation as follows:
  - (i) Measure the diameter and cross-section of the siphons a minimum distance of 500 millimetres inside the sewer.
  - (ii) Use calibrated callipers or other suitable measuring device capable of measuring accurately to +/- 1 mm to confirm cross section geometry at the following clock positions:
    - ◆ 12:00 to 6:00
    - ◆ 2:00 to 8:00
    - ◆ 3:00 to 9:00
    - ◆ 4:00 to 10:00
  - (iii) Internal pipeline diameters are provided in E11.2.2 for planning and design purposes, based on the best available record information.
- (b) Verify siphon length to confirm the liner length prior to installation.
  - (i) Inspection completed by PICA during 2013 using Remote Field Technology obtained a length of 266.6 m (300 mm siphon).
  - (ii) Lengths are provided for planning and design purposes. The Contractor shall make all necessary adjustments and contingency in liner manufacturing to ensure full segment rehabilitation of the siphon.
- (c) Submit host pipe lengths, depths, and dimensions to the Contract Administrator in conjunction with the design submission and pre-design inspection where required.
- (d) Confirm measured pipe dimensions and lengths with the Contract Administrator prior to CIPP liner installation.

#### **E12.2.4 Perform the following inspections in accordance with CW 2145 and/or as outlined herein:**

- (a) CCTV inspection technology shall be employed as specified below to complete the required inspections.
- (b) For all CCTV inspections, the siphon shall be fully dewatered to permit full inspection of the pipeline.
- (c) Pre-Lining Inspection:
  - (i) Perform after sewer cleaning and preparation.
  - (ii) The Pre-Lining Inspection shall confirm:
    - ◆ Necessary cleaning and pipe preparation work have been satisfactorily completed.
    - ◆ That the pipeline is nominally clear of debris and other obstructions.

- ◆ That the condition of the pipeline is consistent with the design conditions and the Specifications. The Contractor shall advise the Contract Administrator of any condition that is contrary to the design conditions or assumptions made that may affect either long or short term performance of the liner prior to commencing lining.
  - (iii) Pre-Lining inspection shall be completed by CCTV.
  - (iv) Pre-Lining inspection shall be reviewed on site or provided to the Contract Administrator to review. Provide to the Contract Administrator a minimum of one (1) Business Day prior to lining for review and acceptance prior to proceeding with the liner installation.
  - (v) No coding of the submission will be required.
  - (d) Post-Lining Inspection:
    - (i) Perform post-lining inspection immediately following installation of the liner, while flow control measures are in place and before restoring the siphon to active service.
    - (ii) Intent of the post-lining inspection is to confirm the overall fit and finish of the liner.
    - (iii) Post-Lining inspection shall be completed by CCTV inspection.
    - (iv) Preliminary post-lining inspection summary results shall be provided within one (1) Business Day of completion of the inspection to permit review prior to placing the siphon back into service.
      - ◆ The Contract Administrator will be available to attend the post-lining inspection for review and verification of inspection results prior to preparation of the post-lining report.
    - (v) Total Performance for the project will not be granted prior to submission and acceptance of the completed post-lining inspection and associated reports.
  - (e) Warranty Inspection:
    - (i) Warranty Inspection of the siphon crossings shall be completed by SONAR inspection in live flow. Warranty Inspections may be removed from the Contract at the discretion of the City and/or the Contract Administrator.
- E12.2.5 Submit all inspection reports and SONAR data to the Contractor Administrator for review in accordance with CW 2145 and as specified herein.
- E12.3 Inspection Reports
- (a) Pre- and post-lining inspection reports, including all data post processing as required, shall be submitted before acceptance of the Work for Total Performance.
- E12.4 SONAR Inspections
- (a) SONAR inspections may be utilized to complete the entirety or portions of the inspections identified in E12 with the intended purpose of confirming pipe prep work requirements, completion of prep work, and final fit and finish of the liner.
  - (b) Where SONAR inspections are employed, the pipeline shall be completely full of water to facilitate a complete inspection.
  - (c) The Contractor or SONAR inspection Sub-Contractor shall have qualified technicians on site or on call remotely for real time review and interpretation of the SONAR data.
  - (d) A SONAR inspection plan shall be submitted a minimum of twenty (20) Business Days prior to undertaking SONAR inspections. The SONAR inspection plan shall include the following:
    - (i) Identify SONAR crew (or Sub-Contractor).
    - (ii) Qualifications for on site SONAR technicians and data analysts working on the project. The SONAR inspection foreman and data analyst shall have a minimum of five (5) years of experience with pipeline SONAR inspections.

- (iii) Proposed SONAR equipment.
  - (iv) Minimum winch capacity and tensile strength of cable for tool retrieval.
  - (v) Proposed extents of SONAR inspection.
  - (vi) Means of ensuring a full pipe through the SONAR inspection zone.
  - (vii) Sample preliminary SONAR report.
  - (viii) Sample final SONAR report. Include example SONAR results from an inspection within a steel pipeline of similar diameter.
  - (ix) Proposed inspection schedule, including mobilizations and demobilizations.
- (e) SONAR inspection reporting:
- (i) On site SONAR technicians shall report any anomalies or concerns related to the siphon cleaning or CIPP liner immediately to the Contract Administrator.
  - (ii) A written preliminary report shall be submitted within 24 hrs of the SONAR inspection. The preliminary report shall identify any potential debris or issues with the CIPP liner that may result in the need for additional cleaning, additional inspection, or remediation of the liner.
  - (iii) A final written report shall be submitted within fourteen (14) Calendar Days of the SONAR inspection.

E12.5 Amendments and Supplements to CW 2145:

E12.5.1 Replace Section 3.4 with:

- (a) Ensure each operator is fully trained in all aspects of sewer inspection and capable of making accurate observations and recording all conditions that may be encountered in the sewers.
- (b) Perform condition coding using operators who are certified to the National Association of Sewer Service Company's (NASSCO), Pipeline Assessment Certification Program (PACP) to Version 7.0.4 or greater.

E12.5.2 Replace Section 3.5 with:

- (a) Perform sewer condition coding in accordance with the requirements of the National Association of Sewer Service Company's (NASSCO), Pipeline Assessment Certification Program (PACP) to Version 7.0.4 or greater.
- (b) Record place names in accordance with Clause 3.9.4 of the CW 2145.

E12.5.3 Further to Section 3.13, a paper or "hard copy" of the sewer inspection reports is not required and the digital format should be submitted on a CD-R.

- (a) The Contractor shall maintain backup copies of all digital video and inspection data submissions for the duration of the Warranty Period as stated in C13.
- (b) The Contractor shall supply inspection data for review by the Contract Administrator on a DVD.

E12.5.4 Replace Clause 3.8.1 with:

- (a) Provide a minimum of 400 lines of resolution around the periphery of the picture for digital MPEG video playback.

E12.5.5 Replace Clause 3.11.1 with:

- (a) Capture the inspections in digital format in colour from the live video source on archival grade digital versatile discs, DVD-R format to the following minimum requirements. Adjust requirements as required to achieve 400 lines of resolution specified in Clause E8.1.6 of this Specification.
  - (i) XDVD MPEG-2 or MPEG-4 format (MPEG-4 preferred).
  - (ii) Picture Size: NTSC 720 x 480 @ 29.97 frames per second.
  - (iii) Data/Bit Rate: 6.0 M-bits/sec.
- (b) Replace Clause 3.17.7.6, with:

- (i) Record the distance from the centre of the manhole to the cable calibration location at the start of the inspection and adjust the distance reading so that zero is at the centre of the start manhole. This distance is known as the cable calibration distance. The cable calibration location is the intersection point between the camera's widest horizontal viewing angle and the pipe's side periphery (03 or 09 o'clock) when the camera is level and looking forward.

## E12.6 Sewer Inspection Equipment

### E12.6.1 Notwithstanding CW 2145, CCTV equipment meet the following requirements:

- (a) Minimum requirements of the in-line inspection platform include:
  - (i) Independently controlled drive tracks that enable the platform to manoeuvre around bends and climb over debris.
  - (ii) Operable under partially or fully submerged flow conditions, for distances up to 500m upstream or downstream from a single access point.
  - (iii) Operable in sewers of various cross-sections and constructed of standard pipe materials including brick, concrete, PVC, HDPE, and steel.
  - (iv) Tethered to facilitate extraction of the platform from the sewer, without causing damage to the sewer infrastructure, in the event the equipment fails or otherwise becomes uncontrollable within the sewer.
  - (v) Equipped with sufficient high intensity lighting to illuminate the sewer for visual inspection.
  - (vi) Equipment shall be capable of continuously capturing digital video from first generation recordings with no frame loss, regardless of the progression of the inspection.
  - (vii) Equipment shall be used to acquire continuous digital video images of the sewer for the entire length being inspected.

### E12.7 Video Coding

- (a) Perform sewer condition coding in accordance with the requirements of the National Association of Sewer Service Company's (NASSCO), Pipeline Assessment Certification Program (PACP) to Version 7.0.4 or greater .
- (b) Perform condition coding using operators who can demonstrate proficiency coding in accordance with the requirements of the National Association of Sewer Service Company's (NASSCO), Pipeline Assessment Certification Program (PACP) to Version 7.0.4 or greater.
- (c) Ensure each operator is fully trained in all aspects of sewer inspection and capable of making accurate observations and recording all conditions that may be encountered in the sewers.
- (d) Operators failing to meet the accuracy requirements on two occasions will not be permitted to code on the remainder of the contract until they can demonstrate to the Contract Administrator that they can code in accordance with the requirements of the National Association of Sewer Service Company's (NASSCO), Pipeline Assessment Certification Program (PACP) to Version 7.0.4 or greater.
- (e) Incorporate a suitable distance-reading device to measure the location of the equipment in the pipe, to an accuracy of  $\pm 0.5\%$  of the length of the inspection.

## E12.8 Measurement and Payment

### E12.8.1 Verification of Sewer Dimensions:

- (a) Verification of existing sewer lengths, depths, and dimensions shall be considered incidental to the Work and will not be measured for payment. No separate payment will be made.

### E12.8.2 Pipeline Inspections:

- (a) The total length of inspection to be paid will be the total length of sewer inspected using CCTV and SONAR inspection to the satisfaction of the Contract Administrator for each identified inspection. Measurement will be made along the center line of the sewer from the nominal face of the chamber wall on either side of the river. Where partial or incomplete inspections are submitted, the length of sewer inspected will be the length recorded by the Contractor's calibrated inspection equipment or as determined by the Contract Administrator.
- (b) Payment will not be made for inspections re-performed where the Contract Administrator has determined the requirements of the specification have not been satisfied.
- (c) Payment will only be made once per inspection regardless of duplication of inspection efforts.
- (d) Siphon dewatering and other efforts to facilitate CCTV inspections will be considered incidental to "Pipeline Inspection" and will not be measured for payment. No additional payment will be made.
- (e) Flow control and other efforts to facilitate inspections will be considered incidental to "Flow Control" and will not be measured for payment. No additional payment will be made.

#### E12.8.3 Sewer Inspection Reports

- (a) Inspection reports shall be considered incidental to the inspection and will not be measured for payment. No additional payment will be made.

### **E13. SUPPLY AND INSTALLATION OF CIPP LINERS**

#### E13.1 Description

- (a) This specification covers the supply and installation of full segment cured-in-place pipe (CIPP).

#### E13.2 Definitions

- (a) Cured-in-place-pipe (CIPP) means trenchless sewer rehabilitation by installing a resin-felt composite structure which when cured will form a continuous-close fit liner within an existing sewer.
- (b) Approved CIPP Suppliers and Installers means suppliers and installers pre-approved under City of Winnipeg "Request for Qualifications for the Supply and Installation of Cured in Pipe (CIPP)". A list of pre-approved CIPP suppliers and installers for this Contract is included in the Specifications.
- (c) Full segment CIPP means CIPP extending from manhole to manhole or manhole to node (wye or tee connection to another sewer).
- (d) Non-Reinforced CIPP liners shall be considered any CIPP liner constructed from a non-reinforced felt.
- (e) Reinforced CIPP liners shall be considered any CIPP liner constructed from either a carbon fibre or glass fibre reinforced felt.

#### E13.3 Pre-Approved CIPP Suppliers, Installers, and Materials

- (a) The following is a list of sewer lining systems – suppliers, installers and materials that have been pre-approved under the City of Winnipeg "Request for Qualifications for the Supply and Installation of Cured in Pipe (CIPP)" Bid Opportunity No. 253-2006 and Bid Opportunity 403-2007 for City of Winnipeg sewer rehabilitation projects.

**Table E2.3.1a): Pre-Approved CIPP Suppliers and Installers**

<b>Applicant</b>	<b><i>Insituform Technologies Limited</i></b>	<b><i>Capital Commercial Pipe Services</i></b>	<b><i>Nelson River Construction Inc.</i></b>
Contact	Andrew Foster 780-413-0200	Brian Ratchford 905-522-0522	Mike Huard 204-949-8740
Supplier	Insituform Technologies Inc.	Capital Commercial Pipe Services	C.I.P.P. Corporation
Installer	Insituform Technologies Limited	Capital Commercial Pipe Services	Nelson River Construction Inc.
Liner Name	Standard ITL CIPP & Standard ITL CIPP AISC	Capital Lining System (CIPP)	C.I.P.P. Corp Liner

- (b) Notwithstanding pre-approval under City of Winnipeg “Request for Qualifications for the Supply and Installation of Cured in Pipe (CIPP)” Bid Opportunity No. 253-2006 and Bid Opportunity 403-2007, Bidders must meet the qualifications identified in B13.

**E13.4 Submittals**

**E13.4.1** Installation of CIPP liners shall not commence prior to submission and review of the submissions identified herein by the Contract Administrator.

**E13.4.2** Provide CIPP end seal submission for review by the Contract Administrator in accordance with E3 a minimum of twenty (20) Business Days prior to starting lining operations. The CIPP end seal submission shall include the following:

- (a) Product description and applicable product literature.
- (b) A detailed installation procedure.
- (c) Identify any pipeline modifications required to utilize the proposed system. Where permanent modifications are required, the Contractor shall provide drawings clearly demonstrating the required modifications.
- (d) A minimum of three (3) examples of where the system has been used complete with liner design pressures and applicable pressure testing results.

**E13.4.3** Provide CIPP designs for review by the Contract Administrator in accordance with E3 a minimum of fifteen (15) Business Days prior to starting lining operations. CIPP shop drawings shall including the following information and shall be sealed and signed by a Professional Engineer, registered in the Province of Manitoba and experienced in the design of trenchless rehabilitation systems. The CIPP design submission shall include the following:

- (a) CIPP thickness computations including all specified design checks identified in E13.5.
- (b) Design assumptions that differ from the information provided in the Specifications for the existing sewer design conditions.
- (c) Design submissions shall include all calculations and each liner design shall be submitted on individual, liner/asset specific calculation sheets.
- (d) Name and manufacturer of the resin and felt tube proposed for each CIPP.
- (e) Means of liner installation and curing method.
  - (i) See E8 for restrictions of dewatering of siphons. Liner installation shall be by water inversion methods only.
- (f) CIPP material properties used for design. The calculations shall clearly identify the short term and long term material properties assumed in the design and the long term

creep retention factor utilized. The submission shall include historical testing data confirming both the short and long term material properties utilized in the design.

- (g) Pipeline Measurements
  - (i) Designs may be provided based on available record information. Measurements shall be confirmed on site at the earliest available opportunity prior to lining.
  - (ii) Internal pipeline diameter is provided in E11.2.2 for planning and design purposes, based on the best available record information.
  - (iii) A length of 266.6 m was measured on previous inspection of the siphon. Contractor shall make all necessary assumptions and interpretations of this length to ensure that the complete length of the siphon is lined successfully.
- (h) Other information that may reasonably be required by the Contract Administrator to confirm the CIPP design proposed conforms to the specified requirements and design intent.

E13.4.4 Provide resin samples within five (5) Business Days of a request by the Contract Administrator. Samples shall be provided as follows:

- (a) Arrange for the manufacturer of the resin to forward a reference sample of each type of resin proposed for use on the works to a test laboratory designated by the Contract Administrator to be used as a comparative reference sample for infrared spectrum testing.
- (b) When requested by the Contract Administrator, deliver a representative sample from each resin batch to be used on the project before adding the catalyst from the wet-out facility to a test laboratory designated by the Contract Administrator.
- (c) The Contract Administrator will arrange and pay for an infrared analysis of the samples, if required for the project.

E13.4.5 Submit a liner impregnation protocol a minimum of five (5) Business Days prior to wet out liners. The liner impregnation protocol shall include the following:

- (a) Resin impregnation method.
- (b) Designated location of the wet out facility.
- (c) Documentation that the resin to be used has not exceeded its shelf life as recommended by the manufacturer of the resin.
- (d) Volume and weight of resin to be impregnated into each liner and repair section including the proposed excess allowance for polymerization and migration (typically 7%) into cracks and joints of the host pipe. Resin migration amounts shall be rationalized based on the installation, host pipe material/condition and experience with the proposed product.
- (e) Resin calculations shall be provided for each liner.
- (f) Roller gap setting required to provide the final installed CIPP thickness based on the proposed volume of resin.

E13.4.6 Submit a liner installation protocol a minimum of fifteen (15) Business Days prior to installation of CIPP. The liner installation protocol shall include the following:

- (a) Proposed flow control arrangements in accordance with E8. Note, flow control plans shall be submitted separate from the liner installation protocol.
- (b) Installation and curing method complete with proposed equipment. Identify equipment in accordance with D15.
  - (i) Liner installation shall be by water inversion methods only.
  - (ii) Due to site access constraints on the east side of the river, it is expected that the liner will be inverted from west to east.
- (c) Site layout drawing showing the location of all proposed equipment required for installation.

- (d) A full curing protocol, including:
  - (i) Curing times (heat up, curing, cool down)
  - (ii) Curing temperatures, including calculations demonstrating the required heat to reach curing temperatures.
  - (iii) Inversion and cure pressures (minimum and maximum)
  - (iv) Recommended adjustments to the curing time based on the heat sink and the inability to reach targeted temperatures for exotherm initiation and sustained cooking temperatures.
- (e) Provide the maximum allowable axial and longitudinal tensile stress for the fabric tube and the arrangement for monitoring pull-in forces during installation if liner insertion is to be by pull-in methods.
- (f) Number and location of heat source monitor gauges to be installed as a back up to the continuous monitoring system to be used.
- (g) Number and location of thermistors to be used for monitoring the temperature of the liner during the curing process.
- (h) Estimated length of time required to reinstate the sewer siphons.
- (i) Additional information may be required by the Contract Administrator for complex installations. This may include site setup details, over the hole wetout procedures, and other information pertinent to the review and evaluation of the Contractors proposed construction methods.
- (j) A common installation procedure may be submitted for the two proposed liners. Notwithstanding, any individual liner installation requirements shall be clearly identified in the submission.

E13.4.7 Submit a sampling protocol a minimum of five (5) Business Days prior to installation of CIPP. The protocol shall include:

- (a) Sampling procedures for plate samples, confined pipe samples, and direct cut samples.
- (b) Sizes for all samples to be obtained.
- (c) Liner repair products and procedures for direct cut samples.

## E13.5 Design of CIPP Liners

### E13.5.1 Design Objectives

- (a) Maximizing the structural enhancement of the sewer by installing a close-fit CIPP.
- (b) Maximize the internal diameter of the rehabilitated sewer with as little impact on the hydraulic capacity of the sewer as possible.
- (c) Eliminating infiltration and exfiltration.
- (d) Preventing root intrusion.
- (e) Providing sufficient chemical resistance to prevent further sewer pipe degradation related to the conveyance of sewage.
- (f) Minimizing sewer service disruption during rehabilitation.
- (g) Minimizing the time required to complete the sewer rehabilitation.
- (h) Minimizing disturbance to pavements and boulevards.
- (i) Minimizing disruption to vehicular and pedestrian traffic.
- (j) Minimizing the impact of construction on commercial, industrial, and institutional facilities.
- (k) Select a CIPP product and construction approach for rehabilitation with the intent towards maximizing the achievement of these design objectives.

#### E13.5.2 General Requirements

- (a) Chemical and mechanical properties of the liner based on the waste stream to establish and minimum design life of 50 years.
- (b) Size CIPP in accordance with the design objectives to provide a close-fit to the host pipe with no annulus except for the maximum allowable diametric shrinkage due to curing permitted in ASTM D5813.
- (c) Long-term values for flexural modulus of elasticity and flexural strength will be considered to be the projected value at 50 years of a continuous application of the design load based on the specific resin and felt composite as established by ASTM D2990 based on an applied stress level of 25% of the yield strength of the liner and approved for use in the pre-qualification process. A minimum test length of 10,000 hrs is required. The Contractor shall provide supporting long term test data conforming to ASTM D2990 for any resin and felt composites not approved for use in the prequalification process.
- (d) The Contractor shall provide short term test data on the modulus of elasticity and flexural strength of the in place composite structure conforming to ASTM D790 for any resin and felt composites not approved for use in the prequalification process.

#### E13.5.3 Minimum Loading Assumptions:

- (a) Unless otherwise specified, the groundwater table shall be assumed to be 2.0 m below the existing ground surface.
- (b) Calculate soil loads based on saturated soil unit weight of 18.85 kN/m<sup>3</sup> (1922 kg/m<sup>3</sup>).
- (c) Design calculations shall consider both maximum and minimum soil cover scenarios for each liner. The most severe load case shall govern the design.
- (d) The following live loads shall be included in the design:
  - (i) The applied soil pressures from an AASHTO HS 20 design truck unless a higher or lower value is indicated in the contract specifications shall be estimated and utilized in the design of the CIPP liner. Applied soil pressures from AASHTO design truck loads shall be estimated in accordance with AASHTO LRFD Bridge Design Specifications (Current Edition).
- (e) Unless otherwise specified, applied soil pressures at depth caused by superimposed surface loads shall be calculated using the Boussinesq solution for distribution of stresses from surface point loads.

#### E13.5.4 Hydraulic Design Checks

- (a) The Contractor shall submit a hydraulic design calculation to confirm that hydraulic losses through the 300 mm siphon once lined by CIPP will be equal to or less than the losses observed under the existing siphon conditions. The Contractor may assume the following:
  - (i) Total siphon length: 267 m
  - (ii) Manning's n value of existing: 0.013
  - (iii) Manning's n value post lined: 0.011
  - (iv) Design flow through the existing 300 mm (Internal Diameter: 305. mm) siphon: 70 l/s

#### E13.5.5 Circular CIPP Design

- (a) Design CIPP in accordance with accordance with Appendix X1 of ASTM F1216, where the Contractor shall design the liner for the following conditions, at minimum:
  - (i) Wall bucking per equation X1.3 for both Long Term and Short Term loading conditions with appropriate time dependent material strength properties.
    - ◆ Section X1.4 Negative Pressure does not apply

- ◆ The Contractor may consider the internal water pressure as part of the design, where the internal pressure reduces the overall external hydrostatic pressure
- (ii) Hole spanning per equation X1.6 for both Long Term and Short Term loading conditions with appropriate time dependent material strength properties.
  - ◆ The Contractor may consider the external hydrostatic pressure as a reduction to the internal pressure
- (iii) Hoop stress per equation X1.7 for both Long Term and Short Term loading conditions with appropriate time dependent material strength properties.
  - ◆ The Contractor may consider the external hydrostatic pressure as a reduction to the internal pressure
- (b) An enhancement factor (K) of 7, assuming a close fit with the host pipe.
- (c) Minimum factor of safety (N) of 2 for restrained buckling analysis.
- (d) Modulus of soil reaction (E's) will be assumed to be 6900 kPa unless otherwise specified.
- (e) The following minimum values for ovality of the existing sewer shall be used unless otherwise specified or as determined from observation of the pre-lining inspection:
  - (i) Fully deteriorated design – 2%
- (f) Long Term Loading Conditions shall consider material strength creep retention values at 50-year projected values.
- (g) Short Term Loading Conditions shall consider material strength creep retention values at 60 day (1440 hours) projected values.
- (h) Pipeline defects:
  - (i) 50 mm (assumed long term corrosion defect)
- (i) Design cases are provided below:

Design Scenario	Load Duration	Live Load	Depth of Cover Above Pipe	Depth of Water Above Pipe	Internal Head
Wall Buckling: Eq. X1.3	Short Term	HS-20	7.44 m	7.15 m	0 m
Wall Buckling: Eq. X1.3	Long Term	HS-20	7.44 m	1.05 m	0 m
Hole Spanning: Eq. X1.6	Short Term	N/A	N/A	4.14 m	7.5 m
Hole Spanning: Eq. X1.6	Long Term	N/A	N/A	6.99 m	14.44 m
Hoop Stress: Eq. X1.7	Short Term	N/A	N/A	4.14 m	7.5 m
Hoop Stress: Eq. X1.7	Long Term	N/A	N/A	6.99 m	14.44 m

E13.5.6 Existing Sewer Design Conditions

- (a) No CCTV inspection is available for the siphon to be rehabilitated.
- (b) An advanced electromagnetic inspection was undertaken by PICA in 2014, which has been included Appendix C.
- (c) The Contractors attention is directed to the site photos provided in Appendix B.

E13.6 Materials

E13.6.1 Non-Reinforced CIPP Products

- (a) Non-Reinforced CIPP products shall conform to the requirements of ASTM F1216 and D5813.

#### E13.6.2 Reinforced CIPP Products

- (a) Reinforced CIPP products shall conform to the requirements of ASTM F2019 and D5813. Notwithstanding ASTM F2019, the fabric tube may be reinforced with either glass or carbon fibres, as required to achieve the desired short and long term material properties and may be installed via inversion methods.

#### E13.6.3 CIPP End Seals

- (a) End seals shall be installed at all liner terminations for the purposes of ensuring a hydrostatically integral connection between the CIPP liner and host pipe.
- (b) End seals shall be internal mechanical compression seal type, meeting the following requirements:
  - (i) Internal mechanical compression seals shall be constructed from EPDM rubber Derivative Membrane for use as joint liner material shall be manufactured in compliance with ASTM-D3900, D3568 and shall have designation M4AA710A13B13C12Z1Z2Z3 in accordance with ASTM-D2000.
  - (ii) Stainless steel bands, spacers, shims, and set screws for securing rubber membrane across piping joints shall be Type 303, 304, 316 or Maunell as manufactured in accordance with ASTM-A240.
  - (iii) Minimum pressure rating: 100 kPa
  - (iv) Accepted products: Quick Lock by Uhrig Kanaltechnik GmbH, Weko-Seal by Miller Pipeline Corp., L-Lock-P by Trelleborg Pipe Seals, or approved equal in accordance with B7.

#### E13.7 Construction Methods

##### E13.7.1 Verification of Existing Sewer Dimensions

- (a) Internal pipeline diameters are provided in E11.2.2 for planning and design purposes, based on the best available record information.
- (b) Verify dimensions of the pipe to be rehabilitated prior to liner installation, and notify the Contract Administrator immediately of any apparent discrepancies or issues.

##### E13.7.2 Sewer Cleaning and Preparation Prior to Lining

- (a) Perform sewer preparation and repairs as indicated in the specification and drawings.
- (b) Complete cleaning and internal host pipe repairs in accordance with E11.

##### E13.7.3 Pipeline Access

- (a) Complete pipeline access in accordance with E6.

##### E13.7.4 Installation of CIPP

- (a) Unless otherwise specified, install liners by inversion methods in accordance with ASTM F1216.
  - (i) The Contractor shall utilize water inversion and curing methods only. See E8.
- (b) The Contractors shall note that the existing crossing may have through wall corrosion related defects and cleaning may result in aggravation of these defects resulting in infiltration of groundwater.
- (c) Carry out workmanship in accordance with ASTM D5813.
- (d) Trim ends of CIPP neatly to fit flush with interior vertical face of the chamber and benching, and seal to make watertight.
- (e) Fill annular spaces where the CIPP does not make an adequate seal with the host pipe at termination points with a resin-rich mixture compatible with the CIPP.

##### E13.7.5 Continuous Temperature Monitoring

- (a) The Contractor shall install the CIPP liners complete with a thermal sensing cable (to be left in place) capable of continuously monitoring curing temperatures along the

entire length of the CIPP liner. The cable and recording equipment shall be capable of temperature readings every 450 mm in real time. Curing data logs shall be submitted to the Contract Administrator with the Quality Control records.

- (b) Vericure or Zia System continuous monitoring systems or equal shall be approved for use.
- (c) Continuous temperature monitoring shall be used for all installations.

#### E13.7.6 CIPP End Seals

- (a) End seals are required at all termination points.
- (b) End seals in accordance with E13.6.3.

#### E13.7.7 Leakage Test

- (a) A leakage test shall be undertaken after installation of the liner and prior to placing the siphon back into service.
- (b) Carry out a leakage test on each liner installed as per Clause 8.3 of ASTM F1216. Provide all equipment, gauges, meters, vessels, etc. required to demonstrate the pipeline pressure during the duration of the test and the amount of make-up water required to return the pipeline to the required test pressure during and at the end of the test period. Perform leakage testing in the presence of the Contract Administrator. Maintain the test pressure within 5% of the test pressure throughout the test duration, re-pressurizing and measuring all make up water used.
  - (i) Minimum test pressure shall be 68.9 kPa (10 psi) measured above the Red Rive level at the time of the test.
  - (ii) Leakage allowance is an "apparent" leakage allowance to account for entrapped air, etc. Any visible or readily apparent leaks shall be repaired irrespective of leakage allowance.
  - (iii) The pipe shall be pressurized at test pressure for three (3) hours prior to test to allow for stabilization of the liner.
  - (iv) The test duration shall be one (1) hour, commencing after completion of the stabilization period.
  - (v) Allowable apparent leakage shall be calculated as 0.077 litres per millimetre of pipe diameter per kilometer of pipe per hour.
  - (vi) The Contractor shall record the pipeline pressure and all makeup water utilized in accordance with CW 2125 throughout the stabilization and testing period.
- (c) The downstream end of the siphon shall be plugged with a temporary inflatable test plug or similar. Flushing of the siphon may be required to fill and expel air from the pipeline prior to testing.
- (d) Temporary Inflatable Plugs for Leakage Tests
  - (i) Plugs shall be capable of withstanding a minimum of 207 kPa (30 psi) of backpressure.
  - (ii) Plugs shall be capable of being anchored from downstream of the plug.
  - (iii) Plugs shall have a 25 mm (min) air bleed port.

#### E13.7.8 Quality Control Records

- (a) Maintain the following Quality Control records of the work and provide to the Contract Administrator after completion of the work.
  - (i) Summary of the resin impregnation process including:
    - ◆ Volume of resin supplied.
    - ◆ Excess quantity of resin added during the wet out to account for polymerization and migration into the host pipe.
    - ◆ Roller gap setting.
    - ◆ Resin catalyst(s) used.

- ◆ Time and location of the wet out.
- ◆ Means taken to store and transport the resin impregnated CIPP from the wet out facility to the job site.
- (ii) Means of curing liners.
- (iii) Continuous log of pressure maintained in the liner during the curing period.
- (iv) Pulling force used to pull or winch CIPP into place in the host sewer and measured liner elongation.
- (v) Continuous log of temperature at boiler in and out and at all thermistors placed between the host pipe and the liner at all manholes during the initial cure, cure, and cool down periods.
- (vi) The Contractor shall install the CIPP liners complete with a thermal sensing cable (to be left in place) that is capable of continuously monitoring curing temperatures along the entire length of CIPP liner. The cable and recording equipment shall be capable of temperature readings every 450 mm in real time. Curing data logs shall be submitted to the Contract Administrator with the Quality Control records.

#### E13.7.9 CIPP Samples for Quality Assurance Purposes

- (a) The following quality assurance testing will be completed on samples prepared during CIPP liner installation:
  - (i) short term flexural properties in accordance with ASTM D790;
  - (ii) wall thickness measurements in accordance with ASTM F1216 and D5813;
- (b) The Contractor shall provide the following samples from each CIPP liner:
  - (i) One (1) confined test sample in accordance with E13.7.9(h).
  - (ii) One (1) plate sample in accordance with E13.7.9(i). Plate samples are to be utilized for the following tests for each liner:
    - ◆ Short term flexural properties (ASTM D790)
- (c) The Contract Administrator will coordinate and pay for CIPP sample testing as noted herein.
- (d) Where issues are identified with sampling procedures and/or for design reconciliation the Contractor shall, upon the request of the Contract Administrator, cut a sample directly from the installed CIPP liner in accordance with E13.7.9(j).
- (e) The Contractor shall obtain and provide the Contract Administrator with pre and post lining measurements taken in accordance with E12.2.3(a) of this specification to confirm in-place liner thickness.
- (f) The Contract Administrator will review CIPP liner thickness results taken from confined pipe samples. Where confined pipe samples are not obtained, thickness measurements will be obtained from liner measurements or direct cut samples.
- (g) All samples shall be labeled as follows:
  - (i) City of Winnipeg Tender Number
  - (ii) Date of installation
  - (iii) Siphon diameter
- (h) Confined Test Samples
  - (i) Provide necessary forms of the same diameter as the host pipe and secure a minimum 300-millimetre-long full diameter confined test sample from each CIPP and internal point repair.
  - (ii) Locate the test sample from inside an intermediate manhole or at a termination point and invert through the form.
  - (iii) Confined test sample forms shall be covered with sandbags or a similar medium to form a heat sink and replicate the install conditions of the CIPP liner.

- (i) Test Plate Samples
  - (i) Test plate samples shall be produced from a full thickness portion of the liner (where possible), shall contain the same resin and hardener ratios and volumes used in the CIPP liner wet-out. Ensure the test plate is clamped as close to the final installation thickness of the CIPP liner as possible.
  - (ii) For unreinforced liners the minimum dimension of test plate sample shall be 300mm x 300mm.
  - (iii) For reinforced liners the test plate sample shall be sized to accommodate a 32:1 span to depth (liner thickness) ratio. Circumferential reinforcing fibres shall be orientated in the long dimension of the test plate sample. Minimum dimensions for the test sample shall be as follows. Confirm the required test plate size for reinforced liners with the Contract Administrator prior to installation of the CIPP liner.
    - ◆ Width: 13 times the thickness of the liner
    - ◆ Length: 35.2 times the thickness of the liner
  - (iv) Prepare test plate samples on-site from the actual CIPP and cure in the following manner:
    - ◆ in a clamped mold placed in the downtube or manhole for water-cured liners.
  - (v) For reinforced liners, the direction of the circumferential reinforcement shall be clearly marked on the sample when prepared and wet-out. Markings that are damaged or obscured during the curing process shall be reapplied to ensure the testing laboratory can cut samples in the correct orientation.
- (j) Direct Samples
  - (i) Where directed, the Contractor shall obtain a sample of the installed CIPP liner from within the host pipe.
  - (ii) Direct samples of the CIPP liner shall be a minimum of 300mm x 300mm for unreinforced liners.
  - (iii) For reinforced liners the sample shall be sized to accommodate a 32:1 span to depth (liner thickness) ratio. Circumferential reinforcing fibres shall be orientated in the long dimension of the sample. Minimum dimensions for the test sample shall be as follows. Confirm the required sample size for reinforced liners with the Contract Administrator prior to obtaining the sample.
    - ◆ Width: 13 times the thickness of the liner
    - ◆ Length: 35.2 times the thickness of the liner
  - (iv) Confirm sampling locations with the Contract Administrator prior to work. Direct samples from reinforced liners shall be oriented with the long dimension vertically in the straightest portion of the sewer or as directed by the Contract Administrator.
  - (v) For repairs up to 25 mm in thickness, grout the area where test sample was taken with a resin-rich repair product such as an epoxy based repair system that is compatible with the liner system and specifically designed for the nature, size and thickness of the patch being repaired to form a smooth watertight patch flush with liner.
    - ◆ For repairs over 25 mm in thickness, polymer modified cementitious grout compatible with the liner materials may be used.
  - (vi) The Contractor shall provide photographs of any repairs at direct sampling locations.

#### E13.7.10 Infrared Spectroscopy

- (a) The Contract Administrator may arrange for testing to compare the infrared spectrum of the resin field samples supplied from the wet-out to the reference spectrum generated from the resin sample provided by the resin manufacturer to verify installed material acceptability at no cost to the Contractor.

#### E13.7.11 Post Construction Design Review for Total Performance

- (a) The Contract Administrator will perform a post-construction design review to confirm that the completed CIPP meets the 50 year design life structural requirements prior to issuance of Total Performance. The design review will utilize the measured values for flexural strength, flexural modulus, and CIPP thickness from the confined pipe sample testing, directly obtained samples, or the reduced strength/modulus values obtained from the test plate testing in circumstances where confined pipe samples are not able to be secured.
- (b) CIPP strength values will be further reduced to account for creep based on the creep reduction values recommended in the pre-qualification submissions to assess the suitability of the liner to meet the 50 year design life requirement. The use of full enhancement factors in this analysis will be limited to liners that are confirmed by visual classification to be close-fit liners based on the post-lining sewer inspection.
- (c) The Contract Administrator will advise of any discrepancies between the constructed CIPP and the design requirements.
- (d) Defects in CIPP liners will be reviewed on a case by case basis by the Contract Administrator. The Contract Administrator will consult with the Contractor and take into account the condition of the host pipe prior to lining, the CIPP installation conditions, and the long term use of the sewer to assess the structural and performance ramifications of the defects.
- (e) The Contractor shall:
  - (i) Perform necessary remedial measures to confirm that a CIPP deemed as structurally deficient will comply with the 50 year design life requirement such as confirmation of actual ovality, determination of a more representative groundwater elevation locally through monitoring, and supplemental strength testing and thickness measurements.
  - (ii) Repair sections of CIPP removed for supplemental testing by placing a full circumference internal point repair of the same thickness as the full segment liner over and extending 300 millimetres beyond each side of the cut section.
  - (iii) Install a supplemental CIPP of the required thickness to structurally enhance the installed CIPP if supplemental testing fails to confirm the CIPP will meet the 50 year design life requirement.
  - (iv) Review remedial action plan with the Contract Administrator prior to implementation.
  - (v) Perform further testing, monitoring and calculations and install structural enhancements at own cost.

#### E13.8 Measurement and Payment

##### E13.8.1 Verification of Existing Sewer and CIPP Dimensions

- (a) Verification of existing sewer and CIPP dimensions shall be considered incidental to the Work and will not be measured for payment. No separate payment will be made.

##### E13.8.2 CIPP Installation

- (a) Liner installation will be measured on a length basis and paid for at the Contract Unit Price for "Supply and Installation of CIPP Liners". The length to be paid for will be the total length of CIPP supplied and installed in accordance with this specification, accepted and measured by the Contract Administrator.
- (b) Full segment CIPP measurement will be made along the centreline of the pipe from upstream to downstream chamber.
- (c) Eighty (80) percent of the payment will be made upon satisfactory completion of the CIPP installation work. The remaining twenty (20) percent of the payment will be made upon confirmation of the CIPP strength, delivery and acceptance of all required submissions, shop drawings, and reports, and rectification of all identified defects.

- (d) Where CIPP liners are improperly installed due to negligence on the part of the Contractor, payment for the CIPP liner will be withheld until the identified issues have been rectified.

**E13.8.3 CIPP End Seals**

- (a) Installation of CIPP end seals shall be considered incidental to the CIPP installation and will not be measured for payment. No separate payment shall be made.

**E13.8.4 Leakage Testing**

- (a) Leakage testing shall be considered incidental to the CIPP installation and will not be measured for payment. No separate payment shall be made.

**E13.8.5 Quality Control Records**

- (a) Preparation of quality control records shall be considered incidental to the CIPP installation and will not be measured for payment. No separate payment shall be made.

**E13.8.6 Test Samples**

- (a) All work and materials required for the preparation, recovery, and repair of CIPP test samples shall be considered incidental to the CIPP installation and will not be measured for payment. No separate payment shall be made.

**E14. WATER SUPPLY**

**E14.1** Further to Section 3.14 of CW 2140 and Section 3.7 of CW 1120 of the General Requirements water supply for the Work may be taken from City of Winnipeg hydrants.

**E14.2** The Contractor shall make the following arrangements for hydrant turn on and turn off.

- (a) Contact City of Winnipeg Water Services Division (WSD) for hydrant turn on and turn off required between 0800 hours and 1500 hours Monday to Friday. Notice for turn on and turn off shall be provided on the previous business day.
- (b) Contact Emergency Services Branch (986-2626) with a minimum of 2 hours notice for hydrant turn on and turn off required outside of the above hours.
- (c) The Contractor shall wait at the hydrant from the requested turn on or turn off time until City staff arrives to turn on or turn off the hydrant.

**E14.3** Hydrants shall be considered to be “in the Contractor’s control” from the time the City has turned the hydrant on until the City has turned the hydrant off.

**E14.4** Between November 1 and April 30 of any year the Contractor shall take all necessary precautions to prevent freezing of hydrants and related appurtenances for hydrants in their control and shall be responsible to pump out hydrants turned off by Emergency Services.

**E14.5** If a hydrant or appurtenance is damaged due to freezing or improper turn on or turn off procedures while in the Contractor’s control, WSD will assess the damage and determine if WSD will repair the damage or if the Contractor will be responsible to repair the damage. Costs for repairs completed by WSD will be deducted from payments owing the Contractor. Repairs completed by the Contractor will be at the Contractor’s expense.

**E14.6** The Contractor shall provide a traffic ramp for hydrant connection hoses that cross roadways. The ramp shall be designed and constructed to not present a hazard to vehicles travelling over it and to ensure that no part of the hose is run over by a motor vehicle. Traffic ramps shall be satisfactory to the Contract Administrator.

**E14.7** The nearest hydrants are located:

- (a) East Side: Southeast corner of Munroe Avenue and Henderson Highway.
- (b) West Side: Southwest corner of Scotia Street and Polson Avenue.

#### E14.8 Measurement and Payment

- (a) Charges incurred for the permits and water meters shall be paid for by the Contractor when the permit is taken out. The Contractor shall forward the invoice to the Contract Administrator for reimbursement. The billing for water usage sent to the Contractor shall be forwarded to the Contract Administrator for payment. The Bid Opportunity number shall be noted on each permit.
- (b) All other costs associated with sourcing construction water will be considered incidental to the Work and will not be measured for payment. No additional payment will be made.

### E15. RESTORATION

#### E15.1 Description

- (a) This Specification shall cover the restoration of all work sites.

#### E15.2 Restoration Works

- (a) The Contractor shall take all reasonable precautions to minimize damage to the site wherever possible.
- (b) Restore all damaged areas to original condition or better upon completion of the work.
- (c) Reconstruct concrete pavements in accordance with CW 3230, CW3310, and SD-213A.
- (d) Reconstruct asphalt pavements and overlays in accordance with CW3410 using a Type 1A asphaltic concrete pavement.
- (e) Reconstruct concrete barrier curbs in accordance with CW3240 and SD-206A.
- (f) Sidewalks
  - (i) Reconstruct existing non-reinforced concrete sidewalks with 100 mm non-reinforced concrete conforming to CW3325 and SD-228A. The sidewalk shall be constructed with 100 mm (min) compacted base material.
  - (ii) Reconstruct existing reinforced concrete sidewalks with a 150 mm reinforced concrete conforming to CW 3235 and SD-237. The sidewalk shall be constructed with 100 mm (min) of compacted base material.
- (g) Sod all maintained grassed areas in accordance with CW3510.

#### E15.3 Measurement and Payment

##### E15.3.1 Concrete Barrier Curb Replacement

- (a) Restoration Works including concrete barrier curb replacement, sidewalk repairs, and sodding shall be considered incidental to "Pipeline Access" and will not be measured for payment. No additional payment will be made.

### E16. TREE PROTECTION, PRUNING AND REMOVAL

#### E16.1 Description

E16.1.1 This specification covers the pruning and removal of existing trees as required to facilitate construction.

E16.1.2 This specification amends CW 3110 Clearing and Grubbing.

#### E16.2 Quality Control

E16.2.1 Person performing work shall possess a valid Manitoba Arborists License.

#### E16.3 Materials

E16.3.1 Wound Dressing

- (a) Wound dressing shall be horticultural accepted non-hardening bituminous emulsion, free of materials toxic to callus formation, containing disinfectant for fungal and other diseases.

E16.4 Construction Methods

E16.4.1 The Contractor shall take the following precautionary steps to prevent damage from construction activities to existing boulevard trees within the limits of the construction area:

- (a) The Contractor shall not stockpile materials and soil or park vehicles and equipment on boulevards within 2 metres of trees.
- (b) Trees in close proximity to the work and moving equipment are to be strapped with 25 x 100 x 2400 mm wood planks, or suitably protected.
- (c) Excavation shall be performed in a manner that minimizes damage to the existing root systems. Where possible, excavation shall be carried out such that the edge of the excavation shall be a minimum of 1.5 times the diameter (measured in inches), with the outcome read in feet, from the closest edge of the trunk. Where roots must be cut to facilitate excavation, they shall be pruned neatly at the face of excavation.
- (d) Operation of equipment within the dripline of the trees shall be kept to the minimum required to perform the work required. Equipment shall not be parked, repaired, refuelled; construction materials shall not be stored, and earth materials shall not be stockpiled within the driplines of trees. The dripline of a tree shall be considered to be the ground surface directly beneath the tips of its outermost branches. The Contractor shall ensure that the operations do not cause flooding or sediment deposition on areas where trees are located.
- (e) Work on-site shall be carried out in such a manner so as to minimize damage to existing tree branches. Where damage to branches does occur, they shall be neatly pruned.

E16.4.2 All damage to existing trees caused by the Contractor's activities shall be repaired to the requirements and satisfaction of the Contract Administrator and the City Forester or his/her designate.

E16.4.3 Scheduling of Work

- (a) The Contractor shall review work with Contract Administrator prior to starting work.
- (b) The Contractor shall schedule the work in accordance with the restrictions set out in the federal Migratory Birds Convention Act, 1994.

E16.4.4 Removal

- (a) If the Contractor requires removing trees to access the Site or facilitate construction, the Contractor shall submit a plan to the Contract Administrator for review, a minimum of ten (10) Business Days prior to removal. No removals of trees shall be made without written acceptance by the Contract Administrator and the City of Winnipeg's Forestry Department. The plan shall at a minimum indicate:
  - (i) Trees requiring removal complete with size and species, and description of requirement for removal.
- (b) Replanting requirements will be determined by the level of tree removals proposed and accepted by the Contract Administrator and City of Winnipeg's Forestry Department.

E16.4.5 Pruning

- (a) Prune individual trees as indicated by the Contract Administrator. Remove dead, dying, diseased, interfering, objectionable and weak growth in order to promote healthy development suitable to the purpose for which plant material is grown.
- (b) Prune in accordance with Agriculture Canada Publication 1505-1977, The Pruning Manual.

- (c) Employ clean sharp tools and make cuts flush with main branch, smooth and sloping as to prevent accumulation of water. Remove projecting stumps on trunks or main branches. Remove dead and injured branches and branches that rub causing damage to bark. Trim trees without changing their natural shape. Do not damage lead branches or remove smaller twigs along main branches.

E16.4.6 Cut Back

- (a) Eliminate narrow crotches as much as possible; avoid cutting back to small suckers. Remove smaller limbs and twigs to leave foliage evenly distributed.
- (b) When reducing overall size, make symmetrical in appearance to maintain tree-like form typical of species.
- (c) Do not remove more than one-third of total branching at single operation.

E16.4.7 Repair and Protection

- (a) Repair cuts and old scars in accordance with Agriculture Canada Publication 1505-1977, The Pruning Manual.
- (b) Paint new cuts 100mm in diameter and over with wound dressing.

E16.5 Method of Measurement and Basis of Payment

- E16.5.1 Pruning and removal of trees will be considered incidental to "Pipeline Access" and will not be measured for payment. No additional payment will be made.

## PART F - SECURITY CLEARANCE

### F1. SECURITY CLEARANCE

- F1.1 Each individual proposed to perform the following portions of the Work:
- (a) any Work on private property;
  - (b) any Work within City facilities other than:
    - (i) an underground structure such as a manhole;
    - (ii) in areas and at times normally open to the public;
  - (c) communicating with residents and homeowners in person or by telephone;
- F1.1.1 Each Individual shall be required to obtain a Police Information Check from the police service having jurisdiction at his/her place of residence. Or
- (a) Sterling BackCheck – for existing account holders, log into your account to send individual invitations to employees requiring security clearance. For those that do not have an account, click on the following link to open an account:  
<https://forms.sterlingbackcheck.com/partners/platform2-en.php?&partner=winnipegcity>; or
  - (b) Commissionaires (Manitoba Division), forms to be completed can be found on the website at: <https://www.commissionaires.ca/en/manitoba/home>; or
  - (c) FASTCHECK Criminal Record & Fingerprint Specialists, forms to be completed can be found on the website at: <https://myfastcheck.com>
- F1.2 Prior to the award of Contact, and during the term of the Contract if additional or replacement individuals are proposed to perform Work, the Contractor shall supply the Contract Administrator with a Police Information Check obtained not earlier than one (1) year prior to the Submission Deadline, or a certified true copy thereof, for each individual proposed to perform such Work.
- F1.3 Any individual for whom a Police Information Check is not provided, or for whom a Police Information Check indicates any convictions or pending charges related to property offences or crimes against another person will not be permitted to perform any Work specified in F1.1.
- F1.4 Any Police Information Check obtained thereby will be deemed valid for the duration of the Contract subject to a repeated records search as hereinafter specified.
- F1.5 Notwithstanding the foregoing, at any time during the term of the Contract, the City may, at its sole discretion and acting reasonably, require an updated Police Information Check. Any individual who fails to provide a satisfactory Police Information Check as a result of a repeated Police Information Check will not be permitted to continue to perform any Work specified in F1.1.