



**THE CITY OF WINNIPEG**

# **TENDER**

**TENDER NO. 327-2022B**

**NEWTON FORCE MAIN RED RIVER CROSSING BY HORIZONTAL DIRECTIONAL  
DRILLING**

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## **PART B - BIDDING PROCEDURES**

### **B1. CONTRACT TITLE**

B1.1 NEWTON FORCE MAIN RED RIVER CROSSING BY HORIZONTAL DIRECTIONAL DRILLING

### **B2. SUBMISSION DEADLINE**

B2.1 The Submission Deadline is 12:00 noon Winnipeg time, November 4<sup>th</sup>, 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 Bidder may view the Site without making an appointment.

B3.2 The Bidder/Proponent is responsible for inspecting the Site, the nature of the Work to be done and all conditions that might affect his/her Bid/Proposal or his/her performance of the Work, and shall assume all risk for conditions existing or arising in the course of the Work which have been or could have been determined through such inspection.

### **B4. ENQUIRIES**

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

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

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

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

B4.5 The Bidder shall not be entitled to rely on any response or interpretation received pursuant to B3.1 unless that response or interpretation is provided by the Contract Administrator in writing.

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

### **B5. CONFIDENTIALITY**

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

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

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

## **B6. ADDENDA**

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

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

B6.3 Addenda will be available on the MERX website at [www.merx.com](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 B3.1, enquiries related to an Addendum may be directed to the Contract Administrator indicated in D6.1.

## **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 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 D35. Any such costs shall be determined in accordance with D35.
- 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 **Evaluated Bid Price from Form B: Prices into the Total Bid Price field in MERX.****
- B10.5.1 Bidders are advised that the calculation indicated in B18.4 will prevail over the Total Bid Price entered in MERX.

## **B11. DISCLOSURE**

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



## **B12. CONFLICT OF INTEREST AND GOOD FAITH**

- B12.1** Further to C3.2, Bidders, by responding to this Tender, declare that no Conflict of Interest currently exists, or is reasonably expected to exist in the future.
- B12.2** Conflict of Interest means any situation or circumstance where a Bidder or employee of the Bidder proposed for the Work has:
- (a) other commitments;
  - (b) relationships;
  - (c) financial interests; or
  - (d) involvement in ongoing litigation;
- that could or would be seen to:
- (i) exercise an improper influence over the objective, unbiased and impartial exercise of the independent judgment of the City with respect to the evaluation of Bids or award of the Contract; or
  - (ii) compromise, impair or be incompatible with the effective performance of a Bidder's obligations under the Contract;
- (e) has contractual or other obligations to the City that could or would be seen to have been compromised or impaired as a result of 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 at <https://www.winnipeg.ca/matmgt/Templates/files/debar.pdf>

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

- (a) have successfully carried out work similar in nature, scope and value to the Work; and
- (b) be fully capable of performing the Work required to be in strict accordance with the terms and provisions of the Contract; and
- (c) have a written workplace safety and health program if required pursuant to The Workplace Safety and Health Act (Manitoba);
- (d) have completed the Accessible Customer Service online training required by the Accessibility for Manitobans Act (AMA) (see B13.5 and D8)
- (e) The City has, through a Request for Qualification process, RFQ No. 327-2022A, identified Contractors who have successfully prequalified to participate in this project. Only submissions from one of the prequalified Contractors will be accepted. Any Bidder submitting a Bid using a Contractor not prequalified by this process will be rejected.
- (f) The following Contractors have been prequalified:
  - (i) **Accurate HD Ltd.**  
Stan Dueck  
Director/Owner  
15 Industrial Road  
New Bothwell, Manitoba, R0A 1C0  
Ph: 1 (855) 374-5548
  - (ii) **Robert B. Somerville Co. Ltd.**  
Justin Pommerville  
Manager, Western Canada  
13176 Dufferin Street  
King City, Ontario, L7B 1K5  
Ph: (403) 498-5880
  - (iii) **LTL Directional Drilling Services Ltd.**  
Fraser MacNeill  
Estimator  
#227 Hwy 527

Shuniah, Ontario, P7A 0N4  
Ph: (807) 627-1771

- B13.4 Further to B13.3(c), the Bidder shall, within five (5) Business Days of a request by the Contract Administrator, provide proof satisfactory to the Contract Administrator that the Bidder/Subcontractor has a workplace safety and health program meeting the requirements of The Workplace Safety and Health Act (Manitoba), by providing:
- (a) Written confirmation of a safety and health certification meeting SAFE Work Manitoba's SAFE Work Certified Standard (e.g., COR™ and SECOR™) in the form of:
    - (i) a copy of their valid Manitoba COR certificate and Letter of Good Standing (or Manitoba equivalency) as issued under the Certificate of Recognition (COR) Program administered by the Construction Safety Association of Manitoba or by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ Program; or
    - (ii) a copy of their valid Manitoba SECOR™ certificate and Letter of Good Standing (or Manitoba equivalency) as issued under the Small Employer Certificate of Recognition Program (SECOR™) administered by the Construction Safety Association of Manitoba or by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ Program; or
  - (b) a report or letter to that effect from an independent reviewer acceptable to the City. (A list of acceptable reviewers and the review template are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/>).
- B13.5 Further to B13.3(d), the Bidder acknowledges they and all Subcontractors have obtained training required by the Accessibility for Manitobans Act (AMA) available at <http://www.accessibilitymb.ca/training.html> for anyone that may have any interaction with the public on behalf of the City of Winnipeg.
- B13.6 The Bidder shall submit, within three (3) Business Days of a request by the Contract Administrator, proof satisfactory to the Contract Administrator of the qualifications of the Bidder and of any proposed Subcontractor.
- B13.7 The Bidder shall provide, on the request of the Contract Administrator, full access to any of the Bidder's equipment and facilities to confirm, to the Contract Administrator's satisfaction, that the Bidder's equipment and facilities are adequate to perform the Work.

## **B14. BID SECURITY**

- B14.1 The Bidder shall include in 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(a).

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 B12.1 (pass/fail);
  - (c) Evaluated Bid Price;
  - (d) economic analysis of any approved alternative pursuant to B6.1.
- 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 Evaluated 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 Bidders are advised that the calculation indicated in B18.4 will prevail over the Total Bid Price entered in MERX.
- B18.4.2 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.
- B18.4.3 Further to B18.1(c) the Evaluated Bid Price shall include Daily Equipment Rate as shown on Form B: Daily Equipment Rate. Daily Equipment Costs are formulated as described in E21.

## **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 D35 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 B18.
- 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.
- (a) Further to C2.4:
    - (i) Specifications and Drawings shall govern over Geotechnical Baseline Report (GBR)
    - (ii) The GBR shall Govern over the Geotechnical Data Report (GDR)
  - (b) Further to C3.1, add clause (vii) with the following:
    - (i) the nature of the subsurface at the Site and reviewed the GBR and GDR appended to these Specifications.

#### 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. BACKGROUND

- D3.1 The Newton Force Main being replaced as part of this Tender is one of two crossings extending across the Red River from Fraser's Grove Park to the Newton Street right-of-way. A 350 mm steel force main that direct flows from the Liden wastewater pumping station; and a 350 mm polyethylene (PE) force main that receives flows from the Hawthorne wastewater pumping station. During recent inspections of these crossings, the PE crossing was found to be in poor condition and in need of replacement. The steel crossing does not require replacement at this time.
- D3.2 The project is being tendered as two separate construction tenders. The current Tender for the river crossing works and a future Tender 814-2022 for the chambers and linear infrastructure to connect the river crossing to the existing infrastructure.

#### D4. SCOPE OF WORK

- D4.1 The Work to be done shall consist of a horizontally directionally drilled installation of a 500 mm outside diameter HDPE force main approximately 466 m in length beneath the Red River.
- D4.2 The intent of the river crossing is for the HDD Contractor to complete the crossing and demobilize, leaving the newly installed force main pressured tested, capped, and secured. A second subsequent Tender 814-2022 will be issued to complete the connections to the existing system and commission the force main in Fraser's and Kildonan Parks.
- D4.3 The major components of the Work are as follows:
- (a) Site Preparation and Access
  - (b) Conductor Casing Installation
  - (c) Pilot Hole, Reaming
  - (d) Product Pipe String out and Fusing
  - (e) Pipe Pullback
  - (f) Pressure Test of Pipe
  - (g) Site Restorations

## **D5. DEFINITIONS**

D5.1 When used in this Tender:

- (a) "HDD" means Horizontal Directional Drilling;
- (b) "HDPE" means High Density Polyethylene.

## **D6. CONTRACT ADMINISTRATOR**

D6.1 The Contract Administrator is KGS Group, represented by:

Ray Offman, M.Sc., P.Eng.  
Municipal Department Head

Telephone No. 204-896-1209  
Email Address ROffman@ksgsgroup.com

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

## **D7. CONTRACTOR'S SUPERVISOR**

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

## **D8. ACCESSIBLE CUSTOMER SERVICE REQUIREMENTS**

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

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

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

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

## **D9. 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 B13.4 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 five million dollars (\$5,000,000.00) 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, broad form property damage cover, sudden and accidental pollution 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) contractors pollution liability insurance (CPL) in the amount of at least one million dollars (\$1,000,000.00) per occurrence and two million dollars (\$2,000,000.00) in the aggregate covering third party injury and property damage claims, including clean-up costs and transported cargo as a result of pollution conditions arising from the Contractor's operations and completed operations. Such policy shall name the City as an additional insured and remain in place for a minimum of six months (6) 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 the General Conditions for the return of the executed Contract Documents, if applicable.
- (a) Subcontractors will not be permitted for the HDD works including Pilot Hole, Reaming, and Pipe Pullback

#### **D15. EXPEDITED SHOP DRAWINGS**

- D15.1 Further to E4, in order to expedite Shop Drawings with critical timeliness, the lowest responsive Bidder, as outlined in B15, will be permitted, after receiving written approval from the Contract Administrator, to arrange for the preparation of Shop Drawings for the following items with critical timelines:
- (a) NPS 20/DN 500 DR7 high density polyethylene (HDPE) force main.
- D15.2 If Award is made to the lowest responsive Bidder, then as indicated in E4.2(a) no payment for the preparation of Shop Drawings will be made.
- D15.3 If no Contract is awarded, then the City of Winnipeg will pay the requested Bidder up to a maximum of five hundred dollars (\$500.00) for each of the requested items identified in D15.1 for the preparation and delivery of Shop Drawings. Delivery of the Shop Drawings to the City and payment of the above-mentioned amounts will constitute full and final consideration of each party to the other, and neither party will have any further liability to the other with respect to this Tender.

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

- D16.1 The Contractor shall provide the Contract Administrator with a detailed work schedule at least ten (10) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in the General Conditions for the return of the executed Contract.
- D16.2 The detailed work schedule shall consist of the following:
- (a) A critical path method (CPM) schedule for the work; and
- (b) A Gantt chart for the Work based on the CPM schedule, as acceptable by the Contract Administrator.
- D16.3 Further to D16.2(a), the CPM schedule shall clearly identify start and completion dates of the following Work items:
- (a) Commencement date
- (b) Utility locates
- (c) Site Preparation and Access
- (d) Conductor Casing Installation
- (e) Product Pipe String out and Fusing
- (f) Pilot Hole, Reaming, and Pipe Pullback
- (g) Pressure Test of Pipe
- (h) Additional Critical Dates
- (i) Substantial Performance
- (j) Site restoration
- (k) Total Performance

- D16.4 Timelines and staging for pedestrian and traffic management identified in E24 as required to complete the Work should be included in the schedule.
- D16.5 The Contractor shall update the schedule and provide it to the Contract Administrator prior to each weekly construction site meeting for review and discussion at the meetings.

## **SCHEDULE OF WORK**

### **D17. COMMENCEMENT**

- D17.1 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.
- D17.2 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 C6.17;
    - (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 Detailed Work Schedule specified in D16;
  - (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.
- D17.3 The City intends to award this Contract by December 16, 2022.
- D17.4 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.

### **D18. WORKING DAYS**

- D18.1 Notwithstanding C1.1(tt), a Working Day includes a Saturday, Sunday, or a statutory or civic holiday when the Contractor chooses to undertake work requiring the presence of the Contract Administrator and/or City resources.
- D18.2 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.
- D18.3 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.
- D18.4 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.
- D18.5 The Contract Administrator will furnish the Contractor with a weekly record for each major type of work, the equipment used, the time it worked and Working Days charged. This record will be provided at regular site meetings.

## **D19. HOURS OF WORK**

D19.3 Contractor is permitted to conduct 24 hour operations when working on the Pilot Hole, Reaming, and Pipe Pullback Work activities.

- (a) Hours of work listed in Clause C1.1(tt) are amended by this clause when working on the specified Work activities.
- (b) Work occurring during the prohibited times listed in Clause 69(1) of City Neighbourhood Livability By-Law 1/2008 will be exempt during 24 hour operation on the condition that the Contractor has adhered to the Noise Management requirement listed in E26.
- (c) Casing installation will not be permitted outside of the allowable working hours listed in the Livability By-Law 1/2008.

## **D20. COORDINATION WITH OTHERS**

D20.1 Work by others on or near the Site will include but not necessarily be limited to:

- (a) Tender 814-2022 – Newton Force Main Red River Crossing – Connections to Force Main and Installation of Sewer on Scotia Street.

D20.2 See Appendix A for approximate locations of work by others.

## **D21. CRITICAL STAGES**

D21.1 The Contractor shall achieve critical stages of the Work in accordance with the following requirements:

- **Critical Stage 1 – May 1<sup>st</sup> 2023:** Restore all disturbed lands within **Zone 2** with the specified backfill and 150 mm of topsoil to finished grade to permit Tender 814-2022 work to commence on **May 15<sup>th</sup> 2023**.
  - (i) See Figure 13157 in Appendix D for approximate locations of Restoration Zones.

## **D22. SUBSTANTIAL PERFORMANCE**

D22.1 The Contractor shall achieve Substantial Performance by April 21<sup>st</sup>, 2023.

D22.2 Substantial Completion will be considered once all of the HDD works have been completed (Pilot Hole, Pipe Reaming and Pipe Pullback) and the pipe has passed its Pressure Test and has been capping.

D22.3 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.

D22.4 The date on which the Work has been certified by the Contract Administrator as being substantially performed to the requirements of the Contract through the issue of a certificate of Substantial Performance is the date on which Substantial Performance has been achieved.

## **D23. TOTAL PERFORMANCE**

D23.1 The Contractor shall achieve Total Performance by June 15<sup>th</sup> 2023.

D23.2 Total completion will be achieved once all final restorations of disturbed areas (sodding, pavement works, etc) in **Zone 1** in accordance with E7 Site Development and Restoration and other relevant specifications.

- (i) See Figure 13157 in Appendix D for approximate locations of Restoration Zones.

D23.3 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.

D23.4 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.

#### **D24. LIQUIDATED DAMAGES**

D24.1 If the Contractor fails to achieve Critical Stages, Substantial Performance or Total Performance in accordance with the Contract by the days fixed herein for same, the Contractor shall pay the City the following amounts per Calendar Day for each and every Calendar Day following the days fixed herein for same during which such failure continues:

- (a) Critical Stage 1 - two thousand dollars (\$2,000);
- (b) Substantial Performance – four thousand dollars (\$4,000);
- (c) Total Performance – one thousand dollars (\$1,000).

#### **D25. COVID-19 SCHEDULE DELAYS**

D25.1 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.

D25.2 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.

D25.3 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.

D25.4 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 D25.3. Failure to provide this notice will result in no additional time delays being considered by the City.

D25.5 The Work schedule, including the durations identified in D21 to D23 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.

D25.6 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.

D25.7 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.

## **D26. SCHEDULED MAINTENANCE**

- D26.1 The Contractor shall perform the following scheduled maintenance in the manner and within the time periods required by the Specifications:
- (a) Watering and maintenance of all new trees and vegetation until established as specified in E10.
  - (b) Acceptance of installed sod.
- D26.2 Determination of Substantial Performance and Total Performance shall be exclusive of scheduled maintenance identified herein. All scheduled maintenance shall be completed prior to the expiration of the warranty period. Where the scheduled maintenance cannot be completed during the warranty period, the warranty period shall be extended for such period of time as it takes the Contractor to complete the scheduled maintenance.

## **CONTROL OF WORK**

### **D27. JOB MEETINGS**

- D27.1 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.
- D27.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever he/she deems it necessary.

### **D28. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)**

- D28.1 For the purpose of determining the Prime Contractor, the project site is identified in two zones within Kildonan Park and Fraser's Grove Park as presented on Figure 13157 in Appendix D.
- (a) Zone 1 – All Disturbed Areas to be Restored to Pre-Construction Conditions.
  - (b) Zone 2 – Disturbed Areas from Construction that Overlap with Future Works.
- D28.2 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), as follows:
- (a) For the Construction Project Site Zone 1 (from commencement of Work until Total Performance of the Contract, as notified in writing by the Contract Administrator).
  - (b) For the Construction Project Site Zone 2 from commencement of Work until notified in writing by the Contract Administrator that the contractor for Tender 814-2022, commences Work within Zone 2, at which time the Tender 814-2022 contractor will become the Prime Contractor of the areas within Zone 2.

### **D29. THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA) – QUALIFICATIONS**

- D29.1 Further to B13.4, the Contractor/Subcontractor must, throughout the term of the Contract, have a Workplace Safety and Health Program meeting the requirements of The Workplace Safety and Health Act (Manitoba). At any time during the term of the Contract, the City may, at its sole discretion and acting reasonably, require updated proof of compliance, as set out in B13.4.

### **D30. GEOTECHNICAL BASELINE REPORT (GBR) AND GEOTECHNICAL DATA REPORT (GDR)**

- D30.1 The primary purpose of the GBR is to establish a contractual understanding of the geotechnical conditions anticipated to be encountered during the construction of the project. The GBR sets baselines for geotechnical conditions and material behavior anticipated to be encountered during construction in order to provide a basis for bidding and assist in resolution of disputes that may arise over subsurface conditions. Secondly, the GBR:
- (a) Presents the geotechnical and construction conditions that formed the basis of design.
  - (b) Identifies important considerations, key project constraints, and select requirements that must be addressed by the Contractor during bid preparation and construction.
  - (c) Provides information to assist the Contractor in evaluating requirements for the HDD installation.
  - (d) Provides guidance to the Contract Administrator in administering the contract and monitoring Contractor performance.
- D30.2 The GBR provides the basis for identifying geotechnical and geologic conditions that qualify as a “substantial difference in the nature of the surface or subsurface conditions”, as defined in D32. The geotechnical baseline conditions (baseline) contained within the GBR are not necessarily geotechnical fact. The baseline was developed using judgment to interpolate between borings using available geotechnical data from the GDR to extrapolate the potential conditions along the alignment of the Work. The judgment applied in the interpolations and extrapolations reflects the view of the author of the report in describing the baseline. Bidders should use the baseline subsurface conditions and the surface conditions which can be observed during a site visit as the basis for bids. It should be noted that the project design was based on assumed construction methods and levels of workmanship. The behavior of the geologic materials present in the surface and subsurface excavations will be influenced by the Contractor’s selected equipment, means, and methods.
- D30.3 The GDR provides a summary of results for the geotechnical testing undertaken along the pipe alignment.
- D30.4 Bidders should have a geotechnical engineer and/or engineering geologist review and explain the information presented in the GBR and GDR to ensure a complete understanding of the reported information as a basis for submitting a Bid. Additional documents used to develop the GBR are listed in the References section of the GBR.
- (a) The GBR was developed in part from the GDR. The technical data contained within the GDR upon which the Contractor may rely are: the boring method, the locations and logs of the borings, the levels of subsurface water (if any), laboratory test methods and results, and similar factual data. Borehole information represents subsurface characteristics to the extent indicated, only for the point location of the borehole and, with regard to the level of subsurface water (if any), only at the time the boring was made. The contractor is not entitled to rely upon other technical data.
- D30.5 Risks associated with subsurface conditions consistent with, or less adverse than the baseline conditions are allocated to the Contractor. Those risks associated with subsurface conditions more adverse than the baseline condition are accepted by the City. The provision of a baseline condition in the Contract is not a warranty that the baseline condition will be encountered. The baseline condition is the contractual standard that the City and the Contractor will agree to use when interpreting D32.
- D30.6 The City accepts the risks for subsurface conditions that are less favorable than the stated baseline conditions. The City will negotiate with the Contractor for additional reasonable compensation to the Contractor if these three conditions exist:
- (a) The actual subsurface conditions encountered are more adverse than the baseline conditions.



- (b) The Contractor can document that the subsurface conditions are more adverse than those described in the baseline and that the conditions materially and significantly increased the cost and/or time required to complete the work.
- (c) The Contractor has made diligent efforts to complete the work described in the Contract Documents, including any changes to methods, equipment, labor, and materials made necessary by the adverse conditions using the most cost-effective means.

D30.7 If all of the foregoing conditions are satisfactorily met, additional compensation and schedule will be negotiated, based on the provisions described in D32 and E21.

## MEASUREMENT AND PAYMENT

### D31. PAYMENT

D31.1 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).

### D32. CHANGES IN WORK

D32.1 Amend C7.2.1 (a) to include the following additional clauses:

- (a) Contractor shall notify the Contract Administrator promptly in writing of any changes in geotechnical, geologic or material behaviour conditions that the Contractor considers more adverse than the GBR baseline conditions upon discovery and before they are disturbed, in any event no later than five (5) calendar days after discovery.
- (b) No claim by the Contractor related to HDD works (Pilot hole and Reaming) shall be allowed under the Changes of Work provisions unless the Contractor investigates and demonstrates that such alleged conditions are materially different from those conditions identified in the Geotechnical Baseline Report and results in an increase in the Contractor's cost of and/or time required for the performance of the Work. The contractor shall within 30 calendar days after notification to the City that Contractor believes a material difference exists, provide the documentation, backup, justification, and compensation for the alleged impact to the Contractor's cost of and/or time required for the performance of the Work. Any and all costs incurred by the Contractor for demonstrating that a material difference exists shall be borne by the Contractor unless the City agrees that the material difference does have a cost and/or time impact. If City agrees that there is a material difference that impacts the Contractor's cost and/or time, payment for geologic investigation(s) and testing of the material difference will be paid for by the City. Payment will be made by the City for reasonable and customary prices for geologic investigation(s) and testing. The contractor is encouraged to review geologic investigations and/or testing planned to demonstrate a material difference with the Contract Administrator prior to execution of the same. The city will be sole judge of what is reasonable and customary.
- (c) The Contractor expressly agrees to maintain detailed daily labor, material, production, and equipment logs defining hours and costs for all periods of Contractor performance representing claimed differing site conditions. These logs shall fully separate bid Contract Work from claimed differing site condition work, and the Contractor shall provide these documents to the Contract Administrator for review. These daily logs shall constitute documentation of performance and must be signed on a daily basis both by the Contractor and Contract Administrator. Said signatures do not mean acceptance of the claim or value of adjustment of Contract Price and/or Time but will serve to document the Contractor's use of labor, material, and equipment. If Contract Administrator and City agree that there is a material difference that impacts the Contractor's cost and/or time, payment for the material difference in labour, material, production and equipment will be paid for by the City based on reasonable and customary prices, using the methods defined in C7.4. Equipment rates will be established in accordance with the Daily Equipment Rate listed on Form B and

as defined in D30. The failure of the Contractor to maintain said logs or to obtain signatures on the logs shall render the Contract Administrator daily records definitive.

## **WARRANTY**

### **D33. WARRANTY**

- D33.1 Notwithstanding C13.2, 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.
- D33.1.1 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.
- D33.1.2 For the purpose of contract security, the warranty period shall be one (1) year.

## **DISPUTE RESOLUTION**

### **D34. DISPUTE RESOLUTION**

- D34.1 If the Contractor disagrees with any opinion, determination, or decision of the Contract Administrator, the Contractor shall act in accordance with the Contract Administrator's opinion, determination, or decision unless and until same is modified by the process followed by the parties pursuant to D34.
- D34.2 The entire text of C21.4 is deleted, and amended to read: "Intentionally Deleted"
- D34.3 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.
- D34.4 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.
- D34.5 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.

- D34.6 As these negotiations are not an adjudicative hearing, neither party may have legal counsel present during the negotiations.
- D34.7 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.
- D34.8 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 D34.7, 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

#### D35. FUNDING AND/OR CONTRIBUTION AGREEMENT OBLIGATIONS

- D35.1 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.
- D35.2 Further to D35, in the event that the obligations in D35 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.
- D35.3 For the purposes of D35:
- (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.
- D35.4 Modified Insurance Requirements
- D35.4.1 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.
- D35.4.2 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.
- D35.4.3 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.
- D35.4.4 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.
- D35.4.5 All policies must be taken out with insurers licensed to carry on business in the Province of Manitoba.

### D35.5 Indemnification By Contractor

D35.5.1 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.

D35.5.2 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.

### D35.6 Records Retention and Audits

D35.6.1 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.

D35.6.2 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 D35.6.1 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.

### D35.7 Other Obligations

D35.7.1 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.

D35.7.2 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.

D35.7.3 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.

- D35.7.4 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.
- D35.7.5 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.
- D35.7.6 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. 327-2022B

NEWTON FORCE MAIN RED RIVER CROSSING BY HORIZONTAL DIRECTIONAL DRILLING

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. 327-2022B

NEWTON FORCE MAIN RED RIVER CROSSING BY HORIZONTAL DIRECTIONAL DRILLING

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
  - (ii) 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;



- (iii) 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;
  - (iv) 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)



## 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 B6.1. 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 B6.1.
- E1.4 The following are applicable to the Work:

<u>Drawing No.</u>	<u>Drawing Name/Title</u>
13153	NEWTON FORCEMAIN RIVER CROSSING REPLACEMENT - COVER SHEET
13154	NEWTON FORCEMAIN RIVER CROSSING REPLACEMENT - INDEX PAGE
13155	NEWTON FORCEMAIN RIVER CROSSING REPLACEMENT - RIVER CROSSING PLAN PROFILE
13156	NEWTON FORCEMAIN RIVER CROSSING REPLACEMENT - PIPE PULLBACK STAGING

<u>Figure No.</u>	<u>Figure Name/Title</u>
13157	NEWTON FORCEMAIN RIVER CROSSING REPLACEMENT - RESTORATION ZONES

#### E2. GEOTECHNICAL INVESTIGATION REPORT

- E2.1 Geotechnical Data Report (GDR)
- (a) The GDR summarizes the testing and geotechnical conditions observed along the proposed HDD alignment and provides technical support for the GBR. This report includes geotechnical data collected at the project site and summary of anticipated subsurface conditions along the alignment. A copy of the GDR is included in Appendix C.
- E2.2 Geotechnical Baseline Report (GBR)
- (a) The GBR summarizes the geotechnical condition observed along the proposed HDD alignment and provides construction considerations for use by Bidders for Bid preparation and administration of the Contract. Further information is provided in clause D30 and a copy of the GBR is included in Appendix B.

#### E3. OFFICE FACILITIES

- E3.1 The Contractor shall supply a Site trailer with available office space for use by the Contract Administrator.
- E3.2 The office facility shall meet the following requirements:

- (a) The field office shall be for the exclusive use of the Contract Administrator and City staff and will be used for site meetings and located adjacent to Fraser's Grove Park.
- (b) The field office shall be located on the project site.
- (c) The building shall have a minimum floor area of 25 square metres, minimum of two windows and a door entrance with suitable lock.
- (d) The building shall be suitable for all-weather use. It shall be equipped with an electric heater and air conditioner capable of maintaining a temperature range between 16 °C and 25 °C.
- (e) The building shall be supplied with adequate lighting and have a minimum of three wall outlets with 120 Volt power supply.
- (f) The building shall be furnished with two desks, two meeting tables, one drafting table, one filing cabinet and a minimum of 12 chairs.
- (g) A portable toilet shall be located near the field office building. The toilet shall have a locking door.
- (h) The field office shall be cleaned on a weekly basis, prior to the Site Meetings to the satisfaction of the Contract Administrator.

E3.3 The office facilities will be provided from the date of the commencement of the Work to the date of Substantial Performance.

E3.4 Measurement and Payment

- (a) The Contractor shall be responsible for all installation, transportation and removal costs, all operating costs, provision of furnishings and equipment, cleaning and the general maintenance of the office facilities.
- (b) Payment for the office facility is included in Site Development and Restoration.

#### **E4. SHOP DRAWINGS**

E4.1 Description

E4.1.1 This Specification shall revise, amend and supplement the requirements of CW 1100.

- (a) The term 'shop drawings' means drawings, diagrams, illustrations, schedules, performance charts, brochures, and other data, including Site erection drawings which are to be provided by the Contractor to illustrate details of a portion of the Work.
- (b) 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.

E4.1.2 Shop Drawings

- (a) Original drawings are to be prepared by Contractor, Subcontractor, Supplier, Distributor, or Manufacturer, which illustrate appropriate portion of Work; showing fabrication, layout, setting or erection details as specified in appropriate sections.
- (b) Additional submittal requirements for each component of Work may be listed within the relevant specification section.

E4.1.3 Contractor's Responsibility

- (a) Review shop drawings, product data and samples prior to submission and stamp and sign drawings indicating conformance to the Contract requirements.
- (b) Verify:
  - (i) Field Measurements
  - (ii) Field Construction Criteria
  - (iii) Catalogue numbers and similar data

- (c) Coordinate each submission with requirements of Work and Contract Documents. Individual shop drawings will not be reviewed until all related drawings are available.
- (d) Notify Contract Administrator, in writing at time of submission, of deviations from requirements of Contract Documents.
- (e) Responsibility for deviations in submission from requirements of Contract Documents is not relieved by Contract Administrator's review of submission, unless Contract Administrator gives written acceptance of specified deviations.
- (f) Responsibility for errors and omissions in submission is not relieved by Contract Administrator's review of submittals.
- (g) The Contractor shall make any corrections required by the Contract Administrator and shall resubmit the required number of corrected copies of Shop Drawings. The Contractor shall direct specific attention in writing or on resubmitted Shop Drawings to revisions other than the corrections requested by the Contract Administrator on previous submission.
- (h) After Contract Administrator's review and return of copies, distribute copies to subtrades as appropriate.
- (i) Maintain one (1) complete set of reviewed shop drawings, filed by Specification Section Number, at the Site of the Work for use and reference of the Contract Administrator and Subcontractors.

#### E4.1.4 Submission Requirements

- (a) Schedule submissions at least 10 Calendar Days before dates reviewed submissions will be needed and allow for a 10 Calendar Day period for review by the Contract Administrator of each individual submission and re-submission, unless noted otherwise in the Contract Documents.
- (b) Submit one (1) digital copy (PDF) of shop drawings.
- (c) Accompany submissions with transmittal letter, containing:
  - (i) Date
  - (ii) Project title and Bid Opportunity number
  - (iii) Contractor's name and address
  - (iv) Number of each shop drawing, product data and sample submitted
  - (v) Specification Section, Title, Number and Clause
  - (vi) Drawing Number and Detail/Section Number
  - (vii) Other pertinent data
- (d) Submissions shall include:
  - (i) Date and revision dates.
  - (ii) Project title and Bid Opportunity number.
  - (iii) Name of:
    - ◆ Contractor
    - ◆ Subcontractor
    - ◆ Supplier
    - ◆ Manufacturer
    - ◆ Separate detailer when pertinent
  - (iv) Identification of product of material.
  - (v) Relation to adjacent structure or materials.
  - (vi) Field dimensions, clearly identified as such.
  - (vii) Specification section name, number and clause number or drawing number and detail/section number.
  - (viii) Applicable standards, such as CSA or CGSB numbers.

- (ix) Contractor's stamp, initialed or signed, certifying review of submission, verification of field measurements and compliance with Contract Documents.

#### E4.1.5 Other Considerations

- (a) Fabrication, erection, installation or commissioning may require modifications to equipment or systems to conform to the design intent. Revise pertinent shop drawings and resubmit.
- (b) Material and equipment delivered to the Site of the Works will not be paid for at least until pertinent shop drawings have been submitted and reviewed.
- (c) Incomplete shop drawing information will be considered as stipulated deductions for the purposes of progress payment certificates.
- (d) No delay or cost claims will be allowed that arise because of delays in submissions, re-submissions and review of shop drawings.

#### E4.2 Measurements and Payment

- (a) Preparation and submittal of Shop Drawings shall be considered incidental to the Works of this Contract and no measurement or payment will be made for this item.

### E5. ENVIRONMENTAL PROTECTION PLAN

E5.1 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.

E5.2 The Contractor is advised that at least the following Acts, Regulations, and By-laws apply to the Work:

- (a) Federal
  - (i) Canadian Environmental Protection Act (CEPA) c.16
  - (ii) Canadian Environmental Assessment Act (CEAA) c.37
  - (iii) Transportation of Dangerous Goods Act and Regulations c.34
- (b) Provincial
  - (i) The Dangerous Goods Handling and Transportation Act D12
  - (ii) The Endangered Species Act E111
  - (iii) The Environment Act c.E125
  - (iv) The Fire Prevention Act F80
  - (v) The Manitoba Heritage Resources Act H39.1
  - (vi) The Manitoba Noxious Weeds Act N110
  - (vii) The Manitoba Nuisance Act N120
  - (viii) The Public Health Act c.P210
  - (ix) The Workplace Safety and Health Act W120
  - (x) Other current applicable associated regulations.
- (c) Municipal
  - (i) The City of Winnipeg By-law no. 1/2008
  - (ii) Other applicable Acts, Regulations and By-laws.

E5.3 The Contractor is advised that the following environmental protection measures apply to the Work.

- (a) Materials Handling and Storage
  - (i) Construction materials and debris shall be prevented from entering drainage pipes or channels.

- (ii) 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.
  - (iii) 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.
- (b) Fuel Handling and Storage
- (i) 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.
  - (ii) 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.
  - (iii) 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.
  - (iv) The Contractor shall ensure that all fuel storage containers are inspected daily for leaks and spillage.
  - (v) Products transferred from the fuel storage area(s) to specific Work Sites shall not exceed the daily usage requirement.
  - (vi) 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.
  - (vii) Refuelling of mobile equipment and vehicles shall take place at least 100 metres from a watercourse.
  - (viii) 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.
  - (ix) 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.
- (c) Waste Handling and Disposal
- (i) The construction area shall be kept clean and orderly at all times during and at completion of construction.
  - (ii) 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.
  - (iii) 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).
  - (iv) Indiscriminate dumping, littering, or abandonment shall not take place.
  - (v) No on-site burning of waste is permitted.
  - (vi) Waste storage areas shall not be located so as to block natural drainage.
  - (vii) Run-off from a waste storage area shall not be allowed to cause siltation of a watercourse.
  - (viii) 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.
  - (ix) Equipment shall not be cleaned near watercourses; contaminated water from onshore cleaning operations shall not be permitted to enter watercourses.
- (d) Dangerous Goods/Hazardous Waste Handling and Disposal
- (i) Dangerous goods/hazardous wastes are identified by, and shall be handled according to, The Dangerous Goods Handling and Transportation Act and Regulations.

- (ii) The Contractor shall be familiar with The Dangerous Goods Handling and Transportation Act and Regulations.
  - (iii) 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.
  - (iv) Different waste streams shall not be mixed.
  - (v) Disposal of dangerous goods/hazardous wastes shall be at approved hazardous waste facilities.
  - (vi) Liquid hydrocarbons shall not be stored or disposed of in earthen pits on-site.
  - (vii) 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.
  - (viii) Used oil filters shall be drained, placed in suitable storage containers, and buried or incinerated at approved hazardous waste treatment and disposal facilities.
  - (ix) Dangerous goods/hazardous waste storage areas shall be located at least 100 metres away from the high water line and be dyked.
  - (x) Dangerous goods/hazardous waste storage areas shall not be located so as to block natural drainage.
  - (xi) Run-off from a dangerous goods/hazardous waste storage area shall not be allowed to cause siltation of a watercourse.
  - (xii) 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.
- (e) Emergency Response
- (i) The Contractor shall ensure that due care and caution is taken to prevent spills.
  - (ii) The Contractor shall report all major spills of petroleum products or other hazardous substances with significant impact on the environment and threat to human health and safety (as defined in Table 1 below) to Manitoba Conservation, immediately after occurrence of the environmental accident, by calling the 24-hour emergency phone number (204) 945-4888. The Contract Administrator shall also be notified.
  - (iii) The Contractor shall designate a qualified supervisor as the on-site emergency response co-ordinator for the project. The emergency response co-ordinator shall have the authority to redirect manpower in order to respond in the event of a spill.
  - (iv) 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 co-ordinator:
    - Notify emergency-response co-ordinator of the accident:
      - identify exact location and time of accident
      - indicate injuries, if any
      - request assistance as required by magnitude of accident (Manitoba Conservation 24-hour Spill Response Line (204) 945-4888, Police, Fire Department, Ambulance, company backup)
    - Attend to public safety:
      - stop traffic, roadblock/cordon off the immediate danger area
      - eliminate ignition sources
      - initiate evacuation procedures if necessary
    - 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, sewers, and manholes
    - 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 sorbet material or dry clay soil or sand



- prevent spill material from entering waterways and utilities by diking
  - prevent spill material from entering manholes and other openings by covering with rubber spill mats or diking. Resume any effective action to contain, clean up, or stop the flow of the spilled product.
- (v) The emergency response co-ordinator shall ensure that all environmental accidents involving contaminants shall be documented and reported to Manitoba Conservation according to The Dangerous Goods Handling and Transportation Act Environmental Accident Report Regulation 439/87.
- (vi) 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.
- (vii) 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.
- (viii) City emergency response, 9-1-1, shall be used if other means are not available.
- (f) Vegetation
- (i) Vegetation shall not be distributed 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 and shall be approved in advance by the Contractor Administrator.
  - (ii) Herbicides and pesticides shall not be used adjacent to any surface watercourses.
  - (iii) All landowners adjacent to the area of application of herbicides or pesticides shall be notified prior to the Work.
  - (iv) Trees and shrubs shall not be felled into watercourses.
  - (v) Areas where vegetation is removed during clearing, construction, and decommissioning activities, shall be revegetated as soon as possible in accordance with the landscaping plans forming part of the contract, or as directed by the Contract Administrator.

#### E5.4 Method of Measurement and Payment

- (a) Adherence to the laws that govern the requirements for Environmental Protection are incidental to the Contract.

### **E6. SITE CONTAINMENT AND PROTECTION**

- E6.1 The proposed work areas on both sides of the Red River are within designated park areas that are accessible by the public, and as such the Contractor shall implement measures to contain their work site and protect the public.
- E6.2 Contractor shall develop a plan that outlines the measures they will implement to contain the site and protect the public. The plan shall be submitted to, discussed with, and approved by the Contract Administrator prior to mobilization. At a minimum, the plan shall include placement of fencing around the work sites, equipment staging areas, and material stockpiles; and outline the staging, fusing, pipe layout, drill pad location, and entry and exit pit requirements.
- E6.3 Provisions should be provided to allow pedestrian traffic around the work sites in accordance with E24, while still providing adequate protection and space for the work to be performed.
- E6.4 Contractor may need to assess the Site Containment and Protection as the work progresses and adjust fencing and protection measures based on the actual flow of pedestrians and the work progress.
- E6.5 Contractor shall maintain and up-keep measures throughout the duration of the project and shall address concerns raised by the Contract Administrator immediately.
- E6.6 Contractor will provide periodic inspection and maintenance of the Site Containment and Protection measures during non-workdays.

**E6.7 Measurements and Payment**

- (a) No separate measurement of payment will be made for Site Containment and Protection and will be considered incidental to the Work.

**E7. SITE DEVELOPMENT AND RESTORATION**

**E7.1 Description**

- (a) This Specification shall cover all aspects of the Site Development and Restoration Work, including but not limited to mobilization and demobilization, office facilities, Site access, Site security (fencing and gates), utility clearances, traffic control and signage, snow clearing, site runoff and drainage, protection, cleanup, and Site restoration.

**E7.2 Submittals**

- (a) Access and Layout Plans for review and approval by the Contract Administrator, in accordance with CW 1110 and E25, for the following items:
  - (i) Fraser's Grove Park temporary workspace.
  - (ii) Kildonan Park temporary workspace.

**E7.3 Equipment**

- (a) All equipment, implements, tools and facilities used shall be of a size and type as required to complete the Work in a reasonable time, approved by the Contract Administrator.
- (b) The Contractor shall keep all equipment in good Working order and have sufficient standby equipment available at all times.

**E7.4 Construction Methods**

(a) Temporary Workspace and Site Access

(i) Fraser's Grove Park

The Contractor shall be responsible to develop suitable Site access. This includes but is not limited to, removal of curbing, temporary ramping, construction signage, noise management, temporary bridging over structures, temporary safety fencing, protection of trees, any landscaping, grading and pavement repairs, removal and restoration of vegetation necessary to restore any Site and construction access areas to their pre-existing condition.

(ii) Kildonan Park

The Contractor shall be responsible to develop suitable Site access. This includes but is not limited to, removal of curbing, temporary ramping, construction signage, temporary bridging over structures, temporary safety fencing, protection of trees, any landscaping, grading and pavement repairs, removal and restoration of vegetation necessary to restore any Site and construction access areas to their pre-existing condition.

- (iii) The Contractor is responsible for obtaining and paying for all required permits that are necessary for Site access.

(b) Diversion of Flows

- (i) Flows such as snowmelt, rainfall, water from water main breaks or any other flow traveling through the Site, into excavations, or through pipes being worked on shall be diverted during construction.

(c) Vegetation Removal and Protection

- (i) Vegetation (living trees smaller than 50 mm and sod) removal may be permitted in order to facilitate Site access and temporary lay-down area. Existing vegetation shall not be removed without prior approval from the Contract Administrator.
- (ii) Trees within Fraser's Grove and Kildonan Park listed as "Trees to be Strapped and Protected" on the Drawings must not be removed and shall be protected as identified on the Drawings and described in E7.

- (d) General Site Cleanup and Restoration
  - (i) All areas of the construction Site shall be restored to a condition to the same or better than the original condition prior to initiation of Work. This may include but is not necessarily limited to the Contractor's temporary workspace, the removal of the Contract Administrator Site trailer, and removal of all temporary access paths and fencing.
- (e) Topsoil and Sod
  - (i) All topsoil and sodding Work shall be performed in accordance with CW 3510. Topsoil and Sodding Work shall include all existing grassed areas disturbed by the Contractor during construction. The Contractor shall restore all areas disturbed during construction to the condition prior to the initiation of the Work or better, using topsoil and sod at his own cost.
  - (ii) The restoration of Zone 2 to be topsoil only, All other areas in Zone 1 to be Topsoil and Sod. See Figure 13157 in Appendix D for the Zone locations, and D28 for the descriptions and basis of the Zones.
- (f) Traffic Control and Signage
  - (i) Coordinate, install and maintain traffic control and signage in accordance with E23 and E24.
- (g) Snow Clearing
  - (i) The Contractor will be required to perform snow clearing and sanding operations on City streets and sidewalks within the Site where access to City snow clearing and sanding crews is blocked due to construction activities and equipment or where construction activities have created unsafe, icy conditions.
  - (ii) Snow build-up on sidewalks and roadways shall be maintained to the condition of the surrounding sidewalks and roadways.
- (h) Construction Fencing
  - (i) The erection of temporary construction fencing is required around the temporary work space area(s) and all construction activity work activities to ensure provision of safe work site.
  - (ii) Fencing or barriers shall be suitable to protect workers within the work site and minimize the impact to vehicular and pedestrian traffic or buildings and infrastructure in proximity to the work site.
  - (iii) Fencing and signage to be erected around any opening to the ice surface on the river from construction activities to alert and protect the public and recreational users.
- (i) Surface Restoration
  - (i) Prior to construction, the Contractor shall inspect the grassed, asphalt pavement, and gravel surfaces within and adjacent to the entry and exit sites, laydown areas, and pipe fusing and pull back areas with the Contract Administrator to record the pre-construction conditions. After construction and site cleanup is complete, the Contractor shall re-inspect the conditions with the Contract Administrator.
  - (ii) Contractor shall restore the condition and appearance of the site to pre-construction conditions or better in accordance with the following:
    - (i) Grassed areas that were cleared and grubbed as result of construction activities will be restored in accordance with CW 3510 – Sodding or CW 3520 – Seeding. Treed areas will be restored as per E10.
    - (ii) Grassed areas damaged by construction activities will be restored in accordance with CW 3510 – Sodding or CW 3520 – Seeding. Restoration of grassed areas will not be measured for payment and will be included as part of the Work.
    - (iii) Pavement damaged by construction activities will be restored in accordance with CW 3230 – Full-Depth Patching of Existing Slabs and Joints and CW 3410 – Asphaltic Concrete Pavement Works.

- (iv) Concrete damaged by construction activities will be restored in accordance with CW 3310 – Portland Cement Concrete Pavement Works and CW 3325 – Portland Cement Concrete Sidewalk.
- (v) Gravel surfacing damaged by construction activities will be restored in accordance with CW 3150 – Gravel Surfacing.
- (vi) Items outside of the City specifications shall be restored to restore said items to a condition equal or better than the preconstruction condition.

**E7.5 Method of Measurement and Payment**

- (a) Site development and restoration will be measured and paid for at the Contract Lump Sum Price for “Site Development and Restoration”, which price shall be payment in full for supplying all materials and for performing all operations herein described and all other items incidental to the Work included in this Specification.
- (b) 50% of the Site Development and Restoration unit price will be paid on the first progress payment following commencement of the Work once the HDD equipment has been mobilized to site and the Fraser’s Grove Park site has been developed as described herein.
- (c) 30% of the Site Development and Restoration unit price will be paid on the progress payment following completion of Substantial Performance.
- (d) 20% of the Site Development and Restoration unit price will be paid on the progress payment following Total Completion.

**E8. PROTECTION OF EXISTING TREES**

E8.1 Required tree removal shall be the responsibility of the Contractor and shall be done in accordance with CW 3010 – Clearing and Grubbing.

E8.2 Contractor shall identify trees required for removal as per their work plan and submit it to the Contract Administrator for review and approval. No trees will be removed prior to the Contract Administrators approving the tree removal plan.

E8.3 Construction activities may result in injury to the trunk, limbs or roots of trees causing damage or death of the tree. In order prevent such damage:

- (a) Trees within or adjacent to a construction area must be protected by means of a barrier surrounding a “Tree Protection Zone” (TPZ).
- (b) Activities likely to injure or destroy the tree are not permitted within the TPZ.
- (c) Tree pruning or root pruning of City of Winnipeg owned trees may only be done by a contractor approved by the project’s Qualified Tree Consultant or Urban Forestry Branch.
- (d) No objects may be attached to trees protected by City of Winnipeg by-laws without written authorization by the City of Winnipeg.
- (e) No City of Winnipeg tree or tree protected by a City of Winnipeg by-law may be removed without the written permission of the City of Winnipeg.
- (f) American elm trees shall not be pruned between April 1 and August 1, and Siberian elm trees between April 1 and July 1 of any year under provisions of The Dutch Elm Disease Act.
- (g) All damage to existing trees due to construction activities shall be repaired to the requirements and satisfaction of the City of Winnipeg, Parks and Recreation Department, Urban Forestry Branch at the Contractor’s expense.

E8.4 Contractor to follow the City of Winnipeg, Public Works Department, Parks and Open Space Division, Urban Forestry Branch’s *Tree Planting Details & Specifications Downtown Area and Regional Streets* (City of Winnipeg, 2009).

E8.5 The following is a chart showing optimal distances for determining a TPZ. Some site conditions may dictate the need for a smaller TPZ. The City of Winnipeg Urban Forestry Branch must be notified in these instances. Forestry will determine if the smaller TPZ is acceptable in the specific circumstance and advise of any additional tree protection or removal requirements.

Trunk Diameter (DBH)*	Minimum Protection Distances Required
<10 cm	2.0 m
11-40 cm	2.4 m
41-50 cm	3.0 m
51-60 cm	3.6 m
61-70 cm	4.2 m
71-80 cm	4.8 m
81-90 cm	5.4 m
>91 cm	6.0 m

\*Diameter at breast height (DBH) measurement of tree trunk taken at 1.4 metres above ground.

- E8.6 Trees within tree protection zones shall be protected by means of a “tree protection barrier” meeting the following specifications:
- The required barrier is a 1.2 metre (4 ft) high orange plastic web snow fencing on 2” x 4” frame or as directed by the City of Winnipeg Urban Forestry Branch in accordance with the City of Winnipeg Protection of Existing Tree Specifications. The barrier can be lowered around branches lower than 1.2 metres (4 ft). The barrier location can be adjusted to align with curbs and edges at clear path of travel zones.
  - Tree strapping material will be installed on individual trees, in accordance with CW 1140, where Work will be completed within the TPZ.
  - Tree protection barriers are to be erected prior to the commencement of any construction or grading activities on the on the site and are to remain in place throughout the entire duration of the project. The applicant shall notify the City of Winnipeg prior to commencing any construction activities to confirm that the tree protection barriers are in place.
  - All supports and bracing used to safely secure the barrier should be located outside the TPZ. All supports and bracing should minimize damage to roots.
  - No grade change, storage of materials or equipment is permitted within this area. The tree protection barrier must not be removed without the written authorization of the City of Winnipeg.
- E8.7 It is recognized that there are cases where trees are growing overtop existing utilities or beside capital infrastructure. While the guidelines in this specification still apply, in these cases some modifications in addition to root pruning may be permitted provided non-open trench methods of construction are employed (as defined in CW 2110 – Watermains and CW 2130 – Gravity Sewers).
- E8.8 Root pruning will be required to be done under the direction of – and along with – written sign-off by the Project’s Qualified Tree Consultant. The objective is to avoid severance of anchor roots, which provide upright support for trees and minimize damage to the tree.

- E8.9 Above ground clearance for overhanging branches in the work zone must be anticipated. The utility or its consultant is required to have a Forestry approved tree service raise the crown of all branches to provide adequate clearance for construction equipment.
- E8.10 Qualified Tree Consultants:
- (a) An arborist certified by the International Society of Arboriculture (ISA) who has a diploma (minimum) in arboriculture or urban forestry; and
  - (b) A landscape architect who is a member in good standing of the Manitoba Association of Landscape Architects.
- E8.11 No separate measurement or payment will be made for the protection of existing trees, any work will be considered incidental to the Works of the project.

## **E9. TREE REMOVAL**

### **E9.1 Description**

- E9.1.1 The staging areas designated for this project have been established to avoid the need for tree removal. In the event that a Contractor identifies a need for a tree to be removed, they are to Notify the Contract Administrator and arrange for a discussion with the Parks Department and the Urban Forestry Branch at the City of Winnipeg. Provisional items for tree removal have been included in this Tender for the unlikely risk that a tree is required to be removed.
- E9.1.2 This specification shall cover the removal of existing trees.
- E9.1.3 The Work to be done by the Contractor under this specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all things necessary for and incidental to the satisfactory performance and completion of all Work as hereinafter specified.

### **E9.2 Materials**

#### **E9.2.1 Existing Trees to be Removed**

The existing trees to be removed include, but not limited to ash, elm, cottonwood, basswood, oak, pine, maple, spruce, etc., all of which may be cut with standard chain saw equipment. The existing trees range from 50 mm to 1,000 mm diameter.

### **E9.3 Construction Methods**

- E9.3.1 Prior to commencement of the Work the Contract Administrator shall identify all trees for removal. The Contractor shall cut down only trees designated to be removed, and grub out all stumps and roots greater than 100 mm diameter. In general, the Contractor shall start at the top of the tree and remove branches or trunks not longer than 2 m. Trees are to be felled so as to land within the limits of the Works. The Contractor shall load and haul all trees, stumps, roots, logs, brush, rubbish and all other surface litter from the Site and dispose of these materials at an approved disposal Site, acceptable to the Contract Administrator.
- E9.3.2 The Contractor shall take all precautions to prevent damage to structures, adjacent property and to trees and shrubs. In the event of damage, the Contractor will be held liable, and shall be required to provide appropriate restoration at his cost, to the satisfaction of the Contract Administrator.
- E9.3.3 Any trees damaged during construction activities shall be examined by a bonded tree care professional and pruned as required. Damaged trees which are not viable shall be replaced by the Contractor at his own cost.

### **E9.4 Measurement and Payment**

E9.4.1 The removal of existing trees shall be measured on a per tree basis and paid for at the Contract Unit Price per unit for the "Items of Work" listed below. The amount to be paid shall be the total number of trees removed in accordance with this specification, accepted and measured by the Contract Administrator.

Items of Work: Tree Removal

- i. 50 mm to 249 mm Diameter
- ii. 250 mm to 500 mm Diameter
- iii. Greater than 500 mm Diameter

E9.4.2 The removal of trees and brush less than 50 mm diameter is considered incidental to the Work and no separate measurement or payment will be made.

## **E10. TREE PLANTING**

E10.1 Description

E10.1.1 Trees will be planted in 2023 as directed by the Contract Administrator. Plantings will consist of trees in various container sizes.

E10.1.2 The Work to be undertaken by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all Work as shown on the Drawings and as herein specified.

E10.1.3 Work shall include, but not necessarily confined to, the relocation, supply and installation of trees and shrubs.

E10.1.4 Reference

- (a) All plants shall be supplied and installed as per the Canadian Standards for Nursery Stock Current Edition, published by the Canadian Nursery Trades Association, except where specified otherwise.

E10.1.5 Source Quality Control

- (a) All plant material shall be randomly inspected at the source upon request of the Contract Administrator.
- (b) Trees are to be grown in nurseries under proper cultural practices as recommended by the Canadian Nursery Trades Association.
- (c) Only those trees that have been grown for at least the four (4) previous years in local Manitoba nurseries located in an Agriculture Canada Plant Hardiness Zone designation of 2(a or b) or 3(a or b) and within a 250 km radius of Winnipeg, will be accepted. Trees that have grown in plant hardiness zones 1 and 4 or greater will be rejected.

E10.1.6 Maintenance

- (a) The Contractor shall be responsible for the maintenance of the trees for a period of one (1) year from the date of Total Performance. Any areas planted after September 15<sup>th</sup>, the maintenance period will commence on May 15<sup>th</sup> of the following year or such date as mutually agreed upon by all parties.
- (b) Water to ensure soil moisture conditions for optimum growth and health of plant material. Ensure watering techniques do not cause erosion.
- (c) Reform damaged watering saucers.
- (d) Remove weeds as per overall weed control strategy.
- (e) Replace or re-spread damaged, missing or disturbed mulch.
- (f) For non-mulched areas, cultivate monthly to keep top layer of soil friable.

- (g) If required to control insects, fungus and disease, use appropriate control methods in accordance with Federal, Provincial and Municipal regulations. Obtain product approval from Contract Administrator prior to application.
- (h) Apply fertilizer as directed by manufacturer's specifications.
- (i) Remove dead, broken or hazardous branches from plant material.
- (j) Keep trunk protection and tree supports in proper repair and adjustment.
- (k) Remove trunk protection, tree supports and level watering saucers at end of warranty period.
- (l) Remove and replace dead plants and plants not in healthy growing condition. Make replacements in same manner as specified for original plantings.
- (m) Submit weekly written reports to Contract Administrator identifying:
  - ◆ Maintenance work carried out.
  - ◆ Development and condition of plant material.
  - ◆ Preventative or corrective measures required which are outside Contractor's responsibility.

#### E10.1.7 Warranty

- (a) The Contractor shall, at his/her expense, warrant the Work against any and all defects or deficiencies resulting from insect infestation, disease and mechanical damage due to improper handling, installation or maintenance, for a period of one (1) year from the date of the Total Performance. Nursery stock damaged by vandalism or reasons beyond the control of the Contractor shall be replaced by the client.
- (b) End-of-Warranty inspection will be conducted by the Contract Administrator.
- (c) The Contract Administrator reserves the right to request material replacement or extend the Contractor's Maintenance responsibilities for an additional one (1) year if, at the end of the Warranty Period, leaf development and growth are not sufficient to ensure future survival of the plant material.

#### E10.1.8 Replacements

- (a) During the Warranty Period, the Contractor shall remove from Site any plant material that has died or failed to grow satisfactorily as determined by the Contract Administrator and replace as per Specifications within a maximum ten (10) day period from notification.
- (b) Defective trees shall be replaced within three (3) days of notification to the Contractor, unless otherwise agreed to by the Contract Administrator.
- (c) The Contractor shall extend Maintenance and Warranty on replacement tree for a period equal to the original Maintenance and Warranty Periods.
- (d) The Contractor shall continue such replacement, Maintenance and Warranty until tree is acceptable.

#### E10.2 Materials

##### E10.2.1 Planting Soil and Mulch

- (a) As per Planting Preparation.
- (b) Imported soils shall be used to backfill tree and shrub plantings.

##### E10.2.2 Miscellaneous Materials

- (a) Water shall be potable and free of minerals which may be detrimental to plant growth.
- (b) Stakes shall be metal T-Bar, steel, 40x40x5x2440 mm.
- (c) ARBORTILE® by Deep Root Canada Corp., or equivalent approved by the Contract Administrator.
- (d) Guying Collar shall be plastic tube, 13mm diameter, nylon reinforced.



- (e) Trunk Protection shall be plastic perforated spiralled strip.
- (f) Fertilizer shall be a slow release formulation of low nitrogen and high phosphorus e.g. 10-50-12. Apply quantities at rates stated by product manufacturer.
- (g) Root Ball Burlap shall be 150 g Hessian burlap, biodegradable.
- (h) Wire Baskets shall be horticultural accepted product designed to carry the weight and to contain a burlap-covered root ball. Minimum diameter basket size is to conform to the same minimum diameter of the tree root ball for the respective minimum tree caliper sizes.

#### E10.2.3 Plant Material

- (a) All nursery stock supplied shall be Canadian Prairie nursery grown, and of species and sizes indicated in the plant list on the Drawings. Its quality shall be in accordance with the "Guide Specification for Nursery Stock of the Canadian Nursery Trades Association".
- (b) Any nursery stock dug from native stands, wood lots, orchards, or neglected nurseries and which have not received proper cultural maintenance as advocated by the Canadian Nursery Trades Association shall be designated as "collected plants". The use of "collected plants" will not be permitted unless specified below.
- (c) Nomenclature of specified nursery stock shall conform to the International Code of Nomenclature for Cultivated Plants and shall be in accordance with the approved scientific names given in the latest edition of Standardized Plant Names. The names of varieties not named therein are generally in conformity with the names accepted in the nursery trade.
- (d) Plants larger than specified may be used if approved by the Contract Administrator. The use of such plants shall not increase the Contract price.
- (e) Plants shall be free of disease, insect infestation, rodent damage, or environmental stress.
- (f) Trees:
  - (i) To be characteristically developed for their species and structurally sound, well branched, healthy and vigorous and densely foliated when in leaf. The tree is to have a healthy, well developed, fibrous root system which may be verified through a testing procedure that destructively samples one or more randomly selected root balls;
  - (ii) To have been root pruned regularly, but not later than one growing season prior to arrival on-site. The Contractor may be required to furnish documentation to the client on their root-pruning program. Trees in excess of 75 mm caliper are to have been half root pruned during each of two successive growing seasons, the latter at least, one growing season prior to arrival on-site;
  - (iii) To have all parts, especially lower branches, moist and show live, green cambium tissue when cut;
  - (iv) Single stem trees to have only one, sturdy, reasonably straight and vertical trunk, and a well-balanced crown with fully developed leader.
  - (v) To be free of disease, insect infestation, rodent damage, sun scald, frost cracks, abrasions, unhealed scars, scars exceeding 5cm in diameter, major forks or crooks in the trunk, broken branches, or angled leaders. Trees having the above defects will not be accepted by the Contract Administrator;
  - (vi) Trees having a leader which has developed at a sharp angle to the trunk as a result of pruning or trunk damage will not be accepted;
  - (vii) Trees exhibiting suppressed, weakly developed branches due to competition from other closely spaced trees in the nursery will not be accepted. Trees exhibiting dead branches will not be accepted.
  - (viii) Any tree that has come out of dormant stage and is too far advanced will not be accepted unless prior approval obtained. Approval is required for any tree which has been held in cold storage.

- (ix) Balled and burlapped trees in excess of a 3 m height must have been dug with large firm ball. Roots in root balls must be comprised of 75% fibrous and feeder root systems. Secure root balls with burlap, heavy twine and rope. For trees 75 mm or more in caliper, wrap ball in double layer of burlap and drum lace with minimum 10 mm diameter rope. Protect root balls against sudden changes in temperature and exposure to heavy rainfall.
- (x) Tree spade dug trees are to be dug with mechanized digging equipment with hydraulic spade. Lift root ball from hole, place in wire basket designed for purpose and lined with burlap. Tie basket to ball with heavy rope. Take care not to injure trunk of tree with wire basket ties or rope.
- (xi) Use of collected or native trees is not permitted.

#### E10.2.4 Tree Quantity and Size

- (a) Trees are to be planted at the quantities and caliper listed in Form B and broken down in detail below. Any variations to size, caliper or species of specified trees will require a request for approval from the Contract Administrator.
  - (i) Large trees shall be a minimum 75 mm caliper, 2.5 m in height, with a minimum of eight (8) major branches 2 m above grade, have balled and burlapped root balls, and be double stake. Tree species specific to the site shall consist of:
    - ◆ American Elm
    - ◆ Bur Oak
    - ◆ Manitoba Maple
    - ◆ Basswood
    - ◆ Cottonwood
- (b) Planting locations will be determined on-site by the Contract Administrator.
- (c) Trees are to conform to the measurements specified in Form B, except that trees larger than specified may be used if approved by the Contract Administrator.
- (d) Trees are to be measured when the branches are in their normal position. Height dimensions specified are to refer to the main body of the tree and not from branch tip to root base. Where trees have been measured by caliper or diameter, reference is to be made to the diameter of the trunk measured 15 cm above the ground as the tree stands in the nursery prior to lifting. Caliper of tree shall be appropriately designed on a permanently fixed tag on one of the branches.

#### E10.2.5 Shipment and Pre-Planting Care

- (a) Coordinate shipping of trees and excavation of holes to ensure minimum time lapse between digging and planting.
- (b) Tie branches of trees securely, and protect trees against abrasion, exposure and extreme temperature change during transit. Avoid binding of trees with rope or wire which would damage bark, break branches or destroy natural shape of tree. Give full support to root ball of trees during lifting.
- (c) Cover tree foliage with tarpaulin, and protect bare roots by means of dampened straw, peat moss, saw dust or other acceptable material to prevent loss of moisture during transit and storage.
- (d) Remove broken and damaged roots with sharp pruning shears. Make clean cuts, and cover cuts over 10 mm diameter with a tree wound dressing.
- (e) Keep roots moist and protected from sun and wind. Heel-in trees which cannot be planted immediately in shaded areas and water well.

#### E10.3 Construction Methods

##### E10.3.1 Workmanship

- (a) All areas and locations provided for planting will be staked out or painted on-Site by the Contract Administrator. Excavation shall not proceed until the layout has been

inspected and approved by the Contract Administrator. Excavation shall not be undertaken until all underground utilities have been located and protected.

- (b) Coordinate operations. Keep Site clean and planting holes drained. Immediately remove soil or debris spilled onto street pavement, grass or sidewalk.
- (c) Work to be coordinated with installation of fencing and planting of shrub.

#### E10.3.2 Planting Time

- (a) Plant trees as early as May 15, 2022 but no later than June 30, 2022 depending when topsoil is placed and prepared.
- (b) Plant only under conditions that are conducive to health and physical conditions of trees.
- (c) Provide planting schedule to Contract Administrator. Extending planting operations over long period using limited crew will not be accepted.
- (d) The Contractor must obtain all above and below ground clearances from all the utilities as well as the appropriate District Operations Branch in a timely manner so as not to jeopardize the schedule of the complete tree planting Contract.

#### E10.3.3 Excavation

- (a) Tree pit to be dug with back hoe.
- (b) Excavate tree pits as indicated by stakes or paint marks.
- (c) Protect bottom of excavations against freezing.
- (d) Remove water which enters excavations prior to planting. Ensure source of water is not ground water and notify Contract Administrator.
- (e) Upon excavation of the planting, the excavation shall be backfilled with a Topsoil mixture to a depth to permit adequate installation and stabilization of the plant material. Topsoil shall be placed in accordance with City of Winnipeg Standard Construction Specification CW 3540 to a 300 mm depth.

#### E10.3.4 Installation

- (a) Plantings of trees shall be undertaken as approved by the Contract Administrator. Configuration of planting shall be subject to input and final approval by the Contract Administrator.
- (b) Planting shall be done during periods of suitable weather conditions and in accordance with locally accepted practice.
- (c) Trees are to be planted within forty-eight (48) hours of excavation from the nursery.
- (d) No tree pit is to be left open at the end of the Contractor's Work Day. Planting program is to be planned to ensure that all approved trees delivered to the Site at designated planting locations are installed and thoroughly watered the same day as delivery.
- (e) With balled and burlapped root balls and root balls in wire baskets, burlap shall be loosened and cut away from the top 1/3 without disturbing root ball. Wire shall be cut away and removed from the top 1/3 of the root ball. Burlap or rope shall not be pulled from under root ball. Non-biodegradable wrapping shall be removed.
- (f) To avoid future root girdling, The Contractor shall ensure that roots are not coiled around the root ball. After removal from the container, if it is seen that roots are coiled around the root ball, roots must be loosened and spread out in a more natural form before planting in order to establish healthy root development and root direction after planting.
- (g) After inserting the tree and tamping the root system with Topsoil in layer of 150mm, water shall be poured in until the pit is thoroughly soaked. Filling of the hole shall then be completed and the fill-in soil shall be packed firmly around the roots, leaving a concave surface for convenient watering. After filling, the planting shall be watered at frequent intervals.

- (h) Each tree is to have an earth saucer at its base having a diameter as large as the excavation with a 10 cm lip formed at the perimeter of the saucer to retain water.
- (i) All nursery stock shall be set plumb in the centre of pits and at levels as shown on the planting details after settlement has taken place.
- (j) Nursery stock shall be faced to give the best appearance or relationship to adjacent structure and to the approval of the contract administrator. Trees shall be placed equal to depth they were originally growing in nursery.
- (k) Tree pit depth shall be such that the top of the root ball is even with the existing grade, taking into account that proper planting depth requires the root flare to be at or slightly above the finished grade. It is important to determine how deep the root flare is in the ball before it is placed in the planting hole. Sometimes the top of the ball may need to be raised until the root flare is at the proper planting depth and/or soil must be removed from the top of the ball.
- (l) Each tree must be planted such that the trunk flare is visible at the top of the root ball. Trees where the trunk flare is not visible shall be considered a deficiency and payment for the planting will not be received until the deficiency is addressed. Do not cover the top of the root ball with soil.

#### E10.3.5 Supply and Installation of Mulch

- (a) Contractor to supply and install mulch in tree pit, planters and in areas as indicated in the Drawings. Mulch supplied shall cover entire planting area to a consistent depth of 100 mm.
- (b) Mulch must not be placed within 8 cm (3 in) of tree trunks.

#### E10.3.6 Fertilizing

- (a) When planting is completed, give surface of planting saucer dressing of fertilizer meeting the requirements of Specification. Mix fertilizer thoroughly with top layer of planting soil and water in well.

#### E10.3.7 Trunk / Beaver Protection

- (a) Install trunk protection on trees.
- (b) Install trunk protection prior to installation of tree supports when used.

#### E10.3.8 Pruning

- (a) The Contractor shall provide a licensed Manitoba Certified Arborist for each Work crew or Work Site.
- (b) Employ clean sharp tools and make cuts flush with branch collars. Remove dead and injured branches.

#### E10.3.9 Watering

- (a) Trees are to be watered during the planting procedure as described previously, and once a week thereafter, or more frequently as required, during the growing season.
- (b) Apply 40 litres of water per 25 mm caliper per application using deep root feeder or low/pressure nozzle and hose. The water stream must not gouge out a hole in the soil and mulch.
- (c) A complete record is to be kept of each series of waterings for all planted trees noting: 1) location, and 2) date of watering. This record shall be sent bi-weekly to the Contract Administrator.

#### E10.4 Measurement and Payment

- E10.4.1 Installation and maintenance of trees shall be measured on a per unit basis. The amount to be paid for shall be the total number of trees supplied and installed in accordance with this Specification, and as acceptable to the Contract Administrator.

E10.4.2 Payment for Installation and maintenance of trees shall be paid for at the Contract Unit Prices for "Tree Revegetation" This price shall be payment in full for supplying all labour, equipment and materials, and performing all operations herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator.

## **E11. WATER SUPPLY FOR CONSTRUCTION WORK**

E11.1 Water supply shall be from the existing hydrant at the transition from Woodvale Street to Fraser's Grove to the east of the entry site in accordance with CW 1120 – Existing Services, Utilities and Structures and SD-019 Backflow Protection Arrangement for Water Supply from Hydrant. All permits are to be obtained through the City of Winnipeg.

(a) Hydrant to be protected to avoid freezing of supply system during construction.

E11.2 Water Services Division of the City's Water and Waste Department will provide and install metering equipment once a permit has been obtained.

E11.3 There will be no separate measurement or payment for permits or equipment related to obtaining water supply and will be considered incidental to the Work being done.

## **E12. WATERWAY BY-LAW**

E12.1 The Contractor shall note that all works within 106.7 m (350 ft) of the regulated summer water level of the Red River within the City of Winnipeg are within the jurisdiction of the Waterway By-Law and requires a Waterway Permit prior to commencing construction.

E12.2 The entry and exit locations are anticipated to be outside of regulated area of the Red River, but the Contractor may at its discretion apply for a Waterway Permit.

E12.3 Under no circumstances will stockpiling of any material be permitted within the designated regulated area of the Red River waterway and adjacent lands.

## **E13. WATERWAYS PROTECTION**

E13.1 All work adjacent to or crossing waterways including creeks and ditches draining into a waterway is regulated by the Federal Department of Fisheries and Oceans (DFO). The Contractor must implement the Work in accordance with DFO guidelines and regulations.

E13.2 Contractor to follow E5 Environmental Protection Plan and the City of Winnipeg's *Best Management Practices Handbook for Activities In and Around the City's Waterways and Watercourses* (City of Winnipeg, 2005).

E13.3 No separate measurement or payment will be made for Waterways Protection and will be considered incidental to the Work.

## **E14. RED RIVER WATER LEVELS**

E14.1 Normal Red River water levels are as follows:

(a) Average Summer River Level (ASRL) – is approximately 223.74 m (geodetic).

(b) Average Winter River Level (AWRL) – is approximately 221.76 m (geodetic).

(c) Ordinary High-Water Mark (OHWM) – 229.3 m (geodetic).

E14.2 The Red River in Winnipeg is regulated in the summer at the approximate ASRL listed and efforts are made to lower the river to the AWRL in the winter months. However, annual flooding occurs in the Red River Valley and water levels can fluctuate greatly from year to year and month to month and no guarantees are made that the water level will be at the levels indicated. For more information on past river levels within the City of Winnipeg, visit <https://winnipeg.ca/waterandwaste/flood/riverLevels.stm>

- E14.3 Contractor shall schedule the work and layout of the site so that the Red River water levels will not impact the Works.
- E14.4 Occurrence of high river levels during construction of the Work will not be considered a basis for claim for extra work or extra time.
- E14.5 Contractor is responsible to secure the site in the event of any high river elevations that may impact the work.

## **E21. CHANGE IN CONTRACT CONDITIONS**

### **E21.1 Description**

- (a) This specification covers changes identified to the scope of work including changes in geotechnical and geological conditions that may impact the HDD Works (Pilot Hole and Reaming).
- (b) The basis for the geotechnical and geologic conditions are described in the GBR and GDR as defined in Section D30.
- (c) The method for reviewing, recording and accepting a change to geotechnical and geologic conditions or obstructions is described in section D32.

### **E21.2 Measurement and Payment**

- (a) Where a Contractor has made a claim in accordance with C7 or D32 which has been accepted by the Contract Administrator and City, the Contractor will be compensated in accordance with D32 from the allowance under the Contract unit price "Change in Contract Conditions"
- (b) Daily costs for all equipment, including but not limited to the HDD and associated equipment, other equipment, construction vehicles, Contractor trucks and their staff's personal vehicles, temporary site/storage facilities, rental equipment, and all other ancillary equipment required to undertake the HDD activities and Work belonging to the Contractor or their sub-contractors shall be paid for at the daily rate under the contract unit price of "Daily Equipment Rate"
  - (i) The Contractor shall submit a breakdown of the equipment costs included within the Daily Equipment Rate to be used in assessing delay claims from Change in Work. A breakdown of these costs must be submitted prior to Commencement and add up to the total Daily Equipment Rate entered on Form B used to evaluate the Bids.

## **E22. PROVISIONAL ITEMS**

- E22.1 The Provisional Items listed on Form B: Prices are part of the Contract.
- E22.2 The Contractor shall not perform Work included in the Provisional Items without prior authorization from the Contract Administrator. All Work included in the Provisional Items will be carried out within the construction areas shown on the Drawings.
- E22.3 Notwithstanding C:7.5, the City reserves the right to diminish all or any portion of the items of work listed in the Provisional Items and no claim shall be made for damages on the grounds of loss of anticipated profit or for any other reason.

## **TRAFFIC CONTROL AND SAFETY**

### **E23. TRAFFIC CONTROL**

- E23.1 In accordance with the Manual of Temporary Traffic Control on City Streets (MTTC), the Contract Administrator shall make arrangements with the Traffic Services Branch of the City of Winnipeg to place, maintain, and remove all regulatory signs and traffic control devices authorized and/or required by the Traffic Management Branch in the following situations:

- (a) Parking restrictions,
- (b) Stopping restrictions,
- (c) Turn restrictions,
- (d) Full or directional closure of a non-regional street where there is a requirement for regulatory signs (turn restrictions, bus stop relocations, etc.) to implement the closure.

E23.2 Further to E23.1(c), the Contractor shall make arrangement with the Traffic Services Branch of the City of Winnipeg to supply regulatory signs as required.

E23.3 Upon request from the Contract Administrator, the Contractor shall provide records demonstrating that the Site has been maintained.

E23.4 Further to E23.1(c) the Contractor shall make arrangements with the Traffic Services Branch of the City of Winnipeg to reinstall the permanent regulatory signs after the Contract Work is complete. At this time the Contractor shall make arrangements to drop off the stockpiled materials to Traffic Services at 495 Archibald Street.

E23.5 Any changes to the approved traffic management plan must be submitted to the Contract Administrator a minimum of (five) 5 Working Days prior to the required change for approval.

E23.6 If the Contract Administrator determines that the Contractor is not performing Traffic Control in accordance with this specification, Traffic Services Branch may be engaged to perform the Traffic Control. In this event the Contractor shall bear the costs associated charged to the project by the Traffic Services Branch of the City of Winnipeg in connection with the required Works undertaken by the Contractor.

## **E24. TRAFFIC AND PEDESTRIAN SAFETY**

E24.1 The Contractor shall maintain vehicular traffic to adjacent roadways to the project site.

E24.2 The Contractor shall be responsible for the development and maintenance of alternate temporary pathways during the project as directed by and to the satisfaction of the Contract Administrator.

E24.3 The Contractor shall notify the Contract Administrator who will notify the City Parks Department and the operations staff at Kildonan Park of any closures to roadways or pathways associated with the Work. Notification shall be provided a minimum of 5 Working days prior to each closure.

E24.4 General Requirements

- (a) The Contractor shall provide appropriate warning signage, custom signage indicating upcoming sidewalk and/or pathway closures, custom signage indicating detours, temporary curb ramps (if required), and traffic control at all pedestrian crossings that are consistent with the requirements of the City of Winnipeg *Manual of Temporary Traffic Control on City Streets*.
- (b) The Contractor shall provide signage installed every 50 m along and leading up to any temporary pathway and/or re-routing detours to ensure that appropriate wayfinding exists. Erect signage at all potential temporary pathway access points that explain the temporary detours.
- (c) The contractor shall be responsible to maintain the temporary pedestrian diversion corridor daily. This shall include but not be limited to providing snow clearing and laying down traction gravel. The Contractor shall prioritize inspecting the temporary pedestrian corridor in the morning and implementing any necessary maintenance works daily. If at the discretion of the Contract Administrator, any element of the temporary pedestrian corridor requires maintenance, the Contractor shall immediately implement the necessary maintenance works to the satisfaction of the Contract Administrator.
- (d) The removal of temporary pathways is considered incidental to the Work.
- (e) The following minimum expectation are anticipated to be required as part of the Work:

(i) Kildonan Park

- ◆ Maintain access to the outer loop of the park at all times (McKay Drive, Riverview Drive and Peguis Drive).
- ◆ Rainbow Drive may be closed for the Duration of the Project.
- ◆ Lord Selkirk Drive may be closed for up to 2 weeks to facilitate Pipe Fusing and Pipe Pull Back.
- ◆ The Pavilion Parking lot may be used (to the extents shown on the Drawings) for up to 2 weeks to facilitate Pipe Fusing and Pipe Pull Back.
- ◆ Access and Egress to the Pavilion Parking lot must be maintained at all times as shown on the Drawings.
- ◆ Pedestrian Access to the Pavilion must be maintained at all times.
- ◆ Safe Pedestrian access to the playground south of the outdoor pool shall be maintained.

(ii) Fraser's Grove Park

- ◆ Portions of the curb lane on Rossmere Crescent will be available for contractor vehicles, work trailers and equipment. The extent of the roadway is shown on the Drawings. Snow clearing will be required by the Contractor in this location.
- ◆ Maintain safe pedestrian access to the existing pathways.
- ◆ Maintain safe access to the playground.

E24.5 Measurement and Payment

- (a) The supply, placement, and removal of temporary pathways shall be considered incidental to the Work. No separate measurement or payment will be made.

**E25. SITE ACCESS**

E25.1 Access to the entry site workspace on the south side of the river will be as follows:

- (a) Access the south side of Fraser's Grove Park from Rossmere Crescent via a temporary access road as shown on Drawing 13155.
- (b) Access and egress shall follow the same route, and the Contractor shall not disturb any more of the grounds than is necessary.
- (c) Maintain driveway accesses along Rossmere Crescent.

E25.2 Access to the exit site workspace on the north side of the river will be as follows:

- (a) Access Rainbow Drive via McKay Drive or Lord Selkirk Drive via Riverview Drive as shown in Drawing 13155.
- (b) Access the Kildonan Park parking lot staging area and contractor parking areas via the access on McKay Drive as shown in Drawing 13155.
- (c) Egress shall be via Lord Selkirk Drive to Peguis Drive as shown in Drawing 13155.

E25.3 Contractor shall provide proper protection for any crossings or structures while accessing the site.

E25.4 Any damage caused by the Contractor accessing the site shall be reported to the Contract Administrator and repaired by the Contractor in accordance with the Contract Dates. The Contractor is responsible for any repair costs.



## **HORIZONTAL DIRECTION DRILLING**

### **E26. NOISE MANAGEMENT**

- E26.1 All work shall be conducted in accordance with the City of Winnipeg Neighbourhood Liveability By-Law, Part 5 – Noise Control.
- E26.2 Contractor shall obtain approval from the Contract Administrator and the City of Winnipeg for operations outside of normal working hours: 7:00 am – 9:00 pm weekdays and 9:00 am – 9:00 pm weekends and statutory holidays.
- E26.3 Contractor shall submit a detailed Noise Abatement Plan that conforms to all municipal by-laws with respect to noise, hours of work, night work, and holiday work.
- E26.4 Contractor shall supply and install a minimum 16 ft high temporary perimeter sound wall system, Behrens and Associates Environmental Noise Control STC-25 or approved equivalent, around the full perimeter of the entry pad for the full duration of the HDD operations and around the full perimeter of the exit pad for the duration of the pilot hole and remaining operations.
- E26.5 Contractor shall take additional special precautions and supply noise abatement measures at its discretion to reduce public exposure to noise to a minimum. Such measures include, but are not limited to:
- (a) Soundproof housings or enclosures for noise producing machinery such as compressors, pumps, motors, generators, etc.
  - (b) Efficient intake and exhaust silencers on air equipment.
  - (c) Efficient intake and exhaust muffles on internal combustion engines.
  - (d) Placement of stationary noise producing equipment at a maximum distance from public areas.
- E26.6 Measurements and Payment
- (a) No separate measurement of payment will be made for Noise Management and will be considered incidental to the Work.

### **E27. HORIZONTAL DIRECTIONAL DRILLING**

- E27.1 General Description
- (a) Horizontal directional drilling (HDD) is the installation of a pipeline by drilling a pilot bore from an entry pit to a predetermined exit location. The drilling head is then replaced with a reamer and the borehole is enlarged to a predetermined size. Once completed the product pipeline is pulled into place.
  - (b) This Section outlines the minimum requirements for the installation of HDD crossings for pipeline systems. Ensure that the HDD requirements set out in this Specification are complied with by the Contractor to the extent they are applicable in the circumstance. Except as otherwise expressly provided herein; the Contractor is responsible for implementing this Specification. The Contractor shall be solely responsible for ensuring that the Work is performed in strict compliance with all Environmental, Health, and Safety Laws.
  - (c) The work shall include the complete installation by directional drill of one NPS 20/DN 500 DR7 high density polyethylene (HDPE) force main.
- E27.2 Contractor Terms of Responsibility
- (a) Review the Contract Drawings and Specifications to ensure workspace, rights-of-way (ROW), drill design, layout areas, and all other items pertaining to the HDD installation are acceptable for their equipment and set-up procedures.

- (b) Confirm at the time of Tender that the geotechnical information provided is suitable for the work. Any additional geotechnical information that may be required by the Contractor to minimize their own risk shall be obtained by the Contractor at their cost following the issuance of the Notice of Award.
- (c) Be responsible for the HDD methodology and equipment selection. Proposed drill rigs, mud mixing systems, tooling, and personnel must meet the project requirements and be sufficient to successfully complete the installation considering the installation length, product type and diameter, and formation and ground water conditions that can be reasonably foreseen.
- (d) Be responsible to determine the size and method of installation for entry and exit casings. Casings are to be seated into the bedrock formation as indicated on the Contract Drawings.
- (e) Be responsible for two attempts at completing an installation prior to consideration of claim or suggesting changed conditions. As HDD is susceptible to difficulties caused by subsurface ground conditions, if the first attempt at installing a crossing is unsuccessful, an additional attempt will be made along an alternative alignment to complete the installation. If the second attempt is not successful, the City will consider payment for additional cost to undertake additional attempts to complete the installation. An installation would be considered unsuccessful, when the Contractor is employing good drilling practices, and one of the following occur:
  - (i) Unable to complete the pilot bore due to unexpected ground conditions, while employing suitable downhole tooling, based on the geotechnical information available.
  - (ii) Loss of circulation due to inadvertent returns, which prevent proper flushing of the borehole and impede the installation, after appropriate measures are taken to restore circulation are unsuccessful, which occur at a pressure lower than the predicted annular pressure model.
  - (iii) Collapse of the borehole during reaming, while using a properly formulated drilling fluid, and remaining at a rate suitable for the ground conditions and fluid pumping rate.
  - (iv) Loss or failure of new tooling within the borehole during the reaming process, that prevents the safe pullback of the product pipe, after reasonable attempts to recover the tooling have been unsuccessful.
  - (v) Collapse of the borehole on the product pipe during pullback, while using a properly formulated drilling fluid, in a suitable sized reamed borehole, when the borehole has been suitably swabbed and conditioned prior to pullback.

### E27.3 Regulatory Requirements

- (a) All HDD crossings shall be performed in accordance with the following codes, regulations, and requirements as applicable:
  - (i) Fisheries Act.
  - (ii) Canadian Navigable Waters Act.
  - (iii) The Heritage Resources Act.
  - (iv) Crossing / proximity agreements of foreign pipelines.
  - (v) Access routes to the ROW, work sites, staging areas, or to associated areas.
  - (vi) Landowner / shareholder agreements.
  - (vii) Environmental Construction Operation (ECO) Plan.
- (b) If there is a conflict between Acts, Regulations, Laws, Codes and Standards, the most stringent requirement shall be met by the Contractor at the sole cost to the Contractor.
- (c) The Contractor shall obtain all necessary permits or authorizations to execute construction activities near or across buried pipelines and conduit.

### E27.4 The Contractor shall prepare and submit a site-specific HDD Execution Plan that is used to complete the installation to within a 2 m radial distance of the plan/profile design drawing. Any

operational deviation from the submitted HDD Execution Plan shall be presented to the Contract Administrator in written form, this may include a change in any process, borehole condition, equipment, or pipe installation technique. The Contract Administrator shall review and approve any deviations of the HDD Execution Plan prior to implementation by the Contractor. The HDD Execution plan shall include:

- (a) Description of the steps required to complete all aspects of the HDD installation including entry and exit casing install, pilot hole (steering/tracking procedures, tooling, and equipment proposed), reaming (number of passes, sizes, types), cleaning pass (reamer size, orientation) and pullback operation (configuration of pull assembly and pipe string staging and support).
- (b) Description of all equipment to be employed on both the entry and exit sites to complete the work including, but not limited to, the drill rig(s) (pull force/rotary torque), pumps (type, capacity, number), anchor system, recycling equipment (number, type, and description of tanks, shakers, de-silters, de-sanders, centrifuges, etc.), drill pipe (size and type), mud motors (size and type), drill bits (size and type), steering tools (type, accuracy, etc.), reaming equipment (type, size, number), pull heads, swivels, and breakaway connectors (model, break setting, etc.), and noise mitigation equipment.
- (c) Description and drawings of the work pads, accesses, and layout, as well as confirmation of the worksite suitability for the Contractor's proposed equipment.
- (d) Drawings showing the intended drill path in plan and profile, depth of cover, entry and exit angles, and depth/size of surface casings for both entry and exit.
- (e) Description of all auxiliary equipment such as light plants, auxiliary pumps, generators, rig mats, and all other equipment to complete the work.
- (f) Description of down hole survey instruments and surface location equipment.
- (g) Description of drill pipe maintenance procedures during construction, including inspection as required, and how the Contractor will minimize stress in the drill pipe during the drilling operations.
- (h) Water source including volume estimated per day and onsite storage requirements.
- (i) Hydrofracture mitigation strategy to be implemented by the Contractor, pertaining to Drilling Fluid Parameters Control, Pressure Monitoring, and Volume Monitoring:
  - (i) The Contractor shall specify the parameters of the proposed drilling fluid. The Drilling Fluid Program (DFP) will be provided for the specific ground conditions of each crossing and will be maintained throughout the duration of the crossing by a Mud Engineer employed by the Contractor. The DFP specifically will provide guidelines that control drilling fluid parameters to ensure cuttings removal, borehole stabilization and production concerns are addressed and optimized. The DFP shall also address the placement of pills or select products to address borehole stability, frac-outs, or other anticipated drilling concerns. The DFP shall include resumes of personnel to be responsible for the DFP and the frequency of site overview by a properly trained Mud Engineer.
  - (ii) The Contractor shall monitor the annular pressure throughout the pilot hole and compare with an approved model. The Contractor will be responsible for maintaining pressures below the approved model.
  - (iii) The Contractor shall develop a procedure to balance the drilling fluid losses into the formation with makeup water, tank volumes and borehole production.
- (j) Sample of daily drilling report format including Tower Sheets, Drilling Fluid Parameters, Steering, and Surface Monitoring reports.
- (k) Description of all safety and medical equipment and personnel to meet the regulatory requirements for the work.
- (l) A list of standard drilling procedures that address the processes that are typically undertaken on an HDD project. At a minimum, this document shall be a quality control document that identifies the Contractor's standard procedures for casing installation, pilot hole drilling procedure (jet / motor), reaming procedures, cleaning pass procedure,

pullback procedure, continuance plan in the event of partial loss of drilling fluid and plugging procedures to be undertaken in the event of higher-than-expected annular pressure, loss of drilling fluid volume, and conditions of high rotary torque. Also, these procedures shall describe the required make-up torque for drill string proposed and the rotary torque and RPM for the reamers proposed.

- (m) Emergency procedures for inadvertent utility strikes, including power, natural gas, water, sewer, or telecommunication lines. Procedures must comply with regulations.
- (n) A detailed rehabilitation plan of the affected construction sites, including returning the sites to their original state.
- (o) A detailed Drag Section Handling plan that includes timing, equipment, safety, and applicable road closures including traffic management plan if required.
- (p) Schedule of work including working hours/days per week, number of rigs and crews, and shift change out schedule if applicable, and installation sequence for the project including:
  - (i) Mobilization.
  - (ii) Work pad, layout, and access preparation.
  - (iii) Topographic survey (if required).
  - (iv) Casing installation.
  - (v) Pilot hole.
  - (vi) Reaming passes.
  - (vii) Cleaning passes.
  - (viii) Product pipe fusing and staging.
  - (ix) Pullback.
  - (x) Area cleanup and restoration.
  - (xi) Demobilization.
- (q) Approval of the HDD Execution Plan by the Contract Administrator or the City does not relieve the Contractor of any responsibility or liability for safety, damages, compliance with permits and Engineering Inspection Certifications of drill pipe, drilling tools, steering tools, pull heads and swivels to be used on the project.

E27.5 The Contractor shall prepare, submit, and implement an Environmental Response Plan (ERP) to monitor the surface of the drill path, respond to a release to the environment, and cleanup and restore the area. The ERP shall at a minimum include the following:

- (a) Communication of all personnel onsite to ensure there is an understanding of the roles and responsibilities in the event of a drilling fluid loss.
- (b) Designation of a representative on-site at all times during the drilling, reaming, and pipe installation procedures. This representative will be responsible for coordinating the ERP and supply the appropriate information to the Contract Administrator.
- (c) Surface water monitoring of the drill path for 100 m on either side of the drill path a minimum of every four hours and daily reporting of results. Monitoring frequency shall increase when circulation is lost or intermittent.
- (d) If a fluid loss is detected, at a minimum the Contractor will:
  - (i) Halt all operations immediately.
  - (ii) Inform the Contract Administrator as soon as possible so appropriate regulatory agencies can be notified if appropriate.
  - (iii) Isolate the migration site and recover fluids (on land).
  - (iv) Contain the drilling fluid and prevent further migration downstream (if in the watercourse or floodplain).
  - (v) If fluid migration does not appear on the surface or water body, the Contractor will increase the frequency of surface monitoring to ensure drilling fluid has not migrated to surface.

- (vi) Attempt to restore circulation by extracting the drill pipe and cleaning the hole, plugging or re-drill the pilot hole.
- (vii) Continue with loss of circulation while ensuring no effect to the environment, this must be approved by the Contract Administrator prior to implementing.
- (e) The supply of the following equipment and materials at a minimum:
  - (i) 0.5 m<sup>3</sup> of absorbent material for hydrocarbon product spills.
  - (ii) One pallet of sandbags.
  - (iii) Two 4" trash pumps with 200 m of hose and associated fittings.
  - (iv) 20 t-posts.
  - (v) Light towers suitable for personnel working on entry and exit sides safely.
  - (vi) Two rolls of silt fence.
  - (vii) One post pounder.
  - (viii) 50 m of geotextile/plastic sheeting.
  - (ix) 100 m of plastic snow fence.
- (f) These equipment and supplies are recommended for emergency response only. If further equipment or materials are required for continuance, they shall be provided by the Contractor.
- (g) Fracture plugging/bridging agents shall be supplied to be pumped down the borehole and set per the manufacturer's recommendations. If positive circulation is restored, drilling can be continued. If positive circulation is not established, pumps will be halted, and a re-application shall be made. This process may be repeated until plugging occurs. All plugging agents will be specifically designed for the formations being drilled and supplied onsite as specified in this specification. If plugging cannot be achieved, the following continuance options may be utilized, upon approval by the Contract Administrator and all applicable regulatory bodies:
  - (i) Installation of casing or extension of existing casing where possible to eliminate the point of fracture.
  - (ii) Partial recovery of circulation where fracture to the surface can be managed by pumping fluid back to either the entry or exit point and may be allowed. This may be sufficient if a diligent monitoring program is undertaken to ensure fluid is not being released to the environment.
  - (iii) Pilot hole re-drill along a different drill path designed to avoid the area where loss circulation occurred.

E27.6 The Contractor shall supply HDD equipment, materials, and personnel required to complete the work. Specifically, the Contractor shall supply the following at a minimum:

- (a) HDD equipment including a drilling rig with a minimum of 200,000 lbs. of push-pull force with suitable rotary torque to open boreholes to diameters specified within the Contract Drawings. This will also include all cold weather equipment as required and a complete water pumping and drilling fluid recycling system for the entry and/or exit sides (if required on exit).
- (b) Qualified personnel to complete the drilling process including Rig Superintendent, Steering Technician, Driller, Mud Engineer (Full Time or monitored remotely with appropriately trained personnel onsite), Mechanic, Pump Operators, and all laborers (for each shift) along with transportation and accommodation. Contractor shall submit 72-hour notification of any supervisory personnel changes during construction to Contract Administrator for approval and shall conduct all drilling operations with supervisors and construction personnel experienced with HDD in the types of conditions at the crossing location.
- (c) Equipment and personnel to transport, handle, weld, install, auger, and remove casing on entry and/or exit sides as required.
- (d) All drill pipe, crossover subs, monels, heavy wall drill pipe, bits, hole openers, pipe pulling swivel, pipe pull head, and any other down-hole tools shall be supplied with current inspection certificates. The pipe swivel and pull head shall be supplied with current

inspection certificates with a rating of a minimum of two times the theoretical pull force stated on the Contract Drawings. All bits and cutters for reamers shall be new and in good condition prior to inserting in the borehole.

- (e) Surface tracking systems and down-hole steering systems suitable for the type of crossing and the required accuracy for the bore path monitoring.
  - (f) A down-hole annular pressure monitoring tool.
  - (g) An approved anchoring system for the drill rig such that the installation can proceed in a safe and effective manner throughout the Work without failure.
  - (h) Fluid recycling equipment capable of isolating operating systems by redundancy, without down-time, for the purposes of cleaning or repairing.
  - (i) Flagging of the proposed pipeline between the design entry and exit locations for reference.
  - (j) Barricades, warning signs, sack breakers, and all materials for fluid containment on the worksite.
  - (k) Temporary fence barriers around the entire worksite to prevent access by unauthorized personnel.
  - (l) Excavators and other lifting/excavation equipment with operators to support the HDD process on entry and exit throughout the Work.
  - (m) Equipment capable of tracking the push/pull forces of the rig. Pipe will be rejected if subjected to loads that exceed the manufacturer's recommendations.
  - (n) Fully equipped first aid facilities and personnel satisfying all applicable legislation (as required).
  - (o) Sanitary facilities at appropriate locations.
  - (p) An Electronic Drilling Recorder (EDR) and access inside the drill cab and to all instruments and their readings at all times. Contractor shall provide EDR data and conversion factors to convert instrument read-outs of all EDR, Annual Pressure (AP), rotary motors, pressure, travel, and torque units to the manufacturer's specifications.
  - (q) Onsite radios for drilling operations.
  - (r) Frac-out containment equipment as described in the ERP.
  - (s) Pollution control measures in conformance with the applicable sections of the Provincial and Municipal Regulations with respect to air and water pollution control requirements and any necessary dust control measures.
  - (t) Adequate lighting systems to perform the Work.
  - (u) Rig mats for entry and exit areas. The use of rig mats for the pipe preparation area will be at the discretion of the Contractor. Damage to roadways and park space as a result of construction activities will be repaired at the cost of the Contractor.
- E27.7 The Contract Administrator, in its sole discussion, reserves the right to prohibit the use of any equipment deemed to be unsuitable for the use in the performance of the Work.
- E27.8 The Contract Administrator may request evidence of maintenance, inspection, and testing programs relating to all equipment utilized on the crossing. Such evidence shall be provided at no additional expense to the City.
- E27.9 The Contract Administrator and City shall have free and unrestricted access to all Work and equipment. This shall include all forms of record keeping, inspection, and evidence.
- E27.10 Pre-Commencement
- (a) Complete all first call and ground disturbance activities to positively locate all foreign facilities and develop a plan to cross safely. All subsurface utilities within 25 m of the proposed drill path must be identified and location marked on the surface. Owners of subsurface utilities within 25 m of the proposed bore path must be notified of the impending

work through the one-call program or directly if not a member of the service. All utility crossings shall be exposed using hydro-excitation, hand excavation, or another approved method to confirm depth. Acquire appropriate permits to cross, expose, and backfill existing utilities.

- (b) Rig mats shall be used at the both the entry and exit sites such that all equipment, trailers, and materials are located on the rig mated area. Rig mats shall be used for all vehicle travel locations off roadways. The Contractor shall determine if rig mats are required for pipe preparation areas.
- (c) The Contractor shall prepare all construction sites including removal of vegetation and topsoil to a base level grade, containment berms for temporary storage area excavation of entry/exit pits, and installation of conductor barrels.
- (d) Drill sites shall be constructed to prevent fluids from leaving the site.
- (e) The proposed drill path shall be surveyed and documented, including its horizontal and vertical alignments and the location of buried utilities and subsurface structures along the path.
- (f) Exit and entry areas should be delineated using traffic cones, barricades, construction taping, flagging, fencing/hoarding or by some combination of these as specified on the drawings. If necessary, warning signs should be placed to indicate open excavation.
- (g) The exit area should be of suitable size to accommodate activities related to reamer and product pipe connection.

#### E27.11 Casing Installation

- (a) The Contractor shall install casing to stabilize near surface formations from collapse and drilling fluid loss. The Contractor shall at a minimum:
  - (i) Independently assess the requirement for casing. If casing is required, include the Casing Installation Procedure in the HDD Execution Plan including installation and removal methodologies, equipment, and testing. Casing shall be sized and installed as required to isolate any unsuitable formations near surface with the Contract Administrator's approval. If no casing is shown on the Contract Drawings, the requirement for casing shall be evaluated by the Contractor and approved by the Contract Administrator and installed if deemed necessary.
  - (ii) Transport, handle, install driving shoe, weld (with an approved welding procedure), install and seal into competent material and regularly auger. Remove casing pipe upon completion of the work unless otherwise specified on the Contract Drawings.
  - (iii) Once the casing is augured out, a leak down test shall be completed to ensure the casing can contain the hydrostatic pressure of the drilling fluid prior to the start of the pilot hole.
  - (iv) Supply and install centralizer pipe throughout the project and replace/rotate as required to ensure wear on the casing is minimal.

#### E27.12 Drilling Fluid Use, Management, Storage, and Disposal Practices

- (a) All costs associated with the management and disposal of drilling fluid are the sole responsibility of the Contractor and shall be included in the unit rates for the work.
- (b) The Contractor shall be responsible to determine the drilling fluids including additives required to complete the project and shall plan for the recycling, managing, and disposal accordingly.
- (c) Temporary sumps and slurry storage onsite shall be limited to frac bins, water tanks or towers, or other types of above ground systems. No temporary excavations, except for the entry and exit pits, shall contain slurry any time during the project at both entry and exit sites.
- (d) The Contractor shall make every effort to maintain circulation and recycle the drilling fluid throughout the drilling process. The drilling fluid recycling system shall be configured and sized to maximize the re-circulation of the drilling fluid throughout the drilling process.

- (e) All drilling slurry and separated solids shall be disposed of off site. No permission shall be given for land spreading application on site. The Contractor shall be responsible for the permanent disposal of all waste drilling fluids (liquids and solids) in conformance to all environmental regulations and disposal site requirements. Disposal of drilling cuttings and fluids shall be conducted in compliance with all relevant environmental regulations, landowner agreement, workspace agreements, and permit requirements.
- (f) The Contractor shall be proactive about the management of the drilling fluid and specifically (at a minimum):
  - (i) Measure and document drilling fluid parameters (density, viscosity, and sand content at a minimum) every four (4) hours and compare with the DFP and adjust as required. Contractor shall provide professional oversight on their DFP to ensure formation issues are controlled and fluid is managed appropriately.
  - (ii) Measure and document the volume of fluid in the borehole, fluid return pit, shaker tank and the amount of make-up fluid added to the mixing tanks and throughout the system to ensure any losses are noticed and reported. When a loss is noticed, the Contractor will investigate the drill path for the fracture point and enact the ERP as required.
  - (iii) Measure annular pressure and control according to an approved model.
  - (iv) Provide an independent Mud Engineering Report, outlining the specific compliant products, rheology, and testing for the Work proposed. The Mud Engineer shall be present during baseline setup activities and mitigation measures. An API Compliant Drilling Mud Report shall be always displayed on the rig representing the current base setup.
- (g) Supply at least three types of loss control material. This material shall be specifically suited for plugging fractures in the formations being drilled and shall be available on site in suitable amounts for three applications of each. The Contractor shall also supply spill tanks and associated pumps and hoses to effectively apply the plugging agent as specified by the manufacturer. Provide adequate and qualified personnel to supervise all aspects of the directional drilling process.
- (h) Prior to disposal, testing of drilling fluids and cuttings shall be performed by a third party at the Contractor's expense with the results provided thereafter to the Contract Administrator (if required based on disposal location).
- (i) Transferring drilling fluids and solids off site to the disposal site shall be done during permit approved daylight hours and with Contract Administrator's approval.
- (j) Contractor shall ensure that all transportation permits are in conformance to environmental regulations. Transportation of fluids (solids and liquids) to the disposal site shall be at a frequency as determined by the contractor and must meet with local Municipal and Provincial by-laws. After the product pipe is installed, entry and exit pits shall be cleaned of drilling fluids and cuttings and backfilled with native material or select backfill in accordance with the Contract Documents.
- (k) Water supply and storage for drilling use shall be supplied by the Contractor unless specified otherwise. All costs for the supply, pumping, transfer, and storage of water are the responsibility of the Contractor. The Contractor shall confirm the status of all permits and shall garner any additional applications/renewals necessary for water diversion. No additional payment will be made for the season the work will occur.

#### E27.13 Pilot Hole

- (a) Unless specifically waived by the Contract Administrator, the Contractor will install the pilot hole within 2 m radially of the design drill path shown on the Contract Drawings. The Contractor may suggest an alternate drill path plan at the time of Tender subject to the Contract Administrator for approval.
- (b) Clearly identify the expected drill path for quick reference in the event of a potential fracture. If feasible, a line of site shall be cleared by the Contractor to a minimum of 1 m wide along the entire proposed drill path, subject to the approval of the Contract Administrator and the City.



- (c) The Contractor shall be responsible for the protection of all existing utilities and structures within the area of the work, which will include (at a minimum) determining location, protection, avoidance, and plan to execute the crossing safely.
- (d) Supply steering/intersect tools to complete the Work with appropriate accuracy for an as built. The contractor shall present a steering plan along with the proposed equipment in the HDD Execution Plan.
- (e) Indicate the X, Y, and Z positions every ten metres (minimum). Inherent errors in azimuth due to tools or equipment shall be considered but it shall be required that the Contractor evaluate the data and state the location of the pilot hole (X, Y, and Z position) and show how the pilot hole meets the pilot hole tolerance specifications:
  - (i) Inform the Contract Administrator of any deviation from the design drill path that does not adhere to the tolerances and present a plan for mitigation or re-drill for Contract Administrator acceptance. In all cases, the Contractor shall be responsible for the drilling of the pilot hole.
  - (ii) The Contractor shall be responsible for correcting any deficiencies in the pilot hole installation at own cost.
  - (iii) Provide the Contract Administrator a copy of the steering report upon completion of the pilot bore prior to reaming operations.

#### E27.14 Reaming Passes

- (a) The Contractor will complete all reaming passes to open the borehole to a final diameter that will allow for the safe installation of the product pipeline. The minimum final reaming diameter shall be 762 mm. The Contractor shall:
  - (i) Determine the number of passes and sizes required to open the borehole to the size required for the existing geotechnical conditions.
  - (ii) Select and supply reamers with new cutters as required for the geotechnical conditions.
  - (iii) Supply an adequate pulling device on exit side to ensure a constant tension according to the manufacturer's recommendations and efficient progress.
  - (iv) Supply adequate equipment on exit side to recycle drilling fluid and pump down the drill string to support the drilling operations, if required.
  - (v) Complete reaming operations according to the approved HDD Execution Plan, Contract Drawings and Specifications.
- (b) Any tools or other metal objects lost or lodged down hole shall be reported to the Contract Administrator. Metal objects shall be fully recovered prior to pipe pullback operation unless specifically approved otherwise by Contract Administrator. Failure to recover metal objects lost or lodged down hole within a reasonable period constitutes just cause for rejection of the drilled borehole.
- (c) Product pipe pullback shall not occur at the same time as hole enlargement.

#### E27.15 Cleaning Passes

- (a) The Contractor complete a minimum of one cleaning pass to prepare the borehole for product pipe pullback. A second pass may be required if forces on the reamers remain high. In all cases, the Contractor shall ensure the borehole is clean and free of obstructions prior to pullback.
- (b) The Contractor shall monitor and record pull force and rotary torque every joint during the cleaning passes and provide this information to the Contract Administrator prior to pullback.

#### E27.16 Pipeline Section Preparation

- (a) The Contractor shall provide all equipment, labour, and materials to prepare the pipe section and support all pullback activities and shall:
  - (i) Ensure all equipment is in good working order and free of leaks throughout the entire project so as not to affect the completion date.

- (ii) Obtain and/or comply to all necessary permits or authorizations to conduct construction activities and to disturb ground near or across all existing buried utilities, pipelines, services, and conduits.
- (iii) Prepare pipe layout section including loading, hauling, stringing, fusing, hydrostatic pre-testing of the pipe string prior to pullback and placement on rollers according to the pipeline specifications.
- (iv) Complete all tests with water. Testing with air is strictly prohibited. Only potable water shall be used.
- (v) Product pipe fusing shall be completed in accordance with ASTM F2620 – Standard Practice for Heat Fusion Joining of Polyethylene Pipe and Fittings. All fusions shall be recorded on an electronic data logger and provided prior to acceptance of the pipe.
- (vi) The Contractor shall retain a third party to conduct quality control testing in accordance with ASTM F3183 – Standard Practice for Guided Side Bend Evaluation of Polyethylene Pipe Butt Fusion Joint. At the start of each day of fusing, one sample butt fusion joint shall be prepared, per fusing machine, for guided side bend destructive testing. At least two side bend test coupons shall be cut from each prepared sample for testing.
- (vii) The Contractor shall provide proof of heat fusion equipment operator qualification based on ASTM F3190 – Standard Practice for Heat Fusion Equipment (HFE) Operator Qualification on Polyethylene (PE) and Polyamide (PA) Pipe and Fittings.

#### E27.17 Product Pipe Installation

- (a) The Contractor shall control the pipe installation process to ensure a safe and quality installation. At a minimum the Contractor shall:
  - (i) Provide the Contract Administrator with sufficient notice before the start of pullback to ensure support operations from the City are in place (road closure, etc.) and begin the installation of the product pipe in daylight hours.
  - (ii) Monitor the pullback of the pipe section and record the pull forces vs. time and joint. A conversion chart should be provided where necessary to account for rig specific capabilities.
  - (iii) Have sufficient equipment and storage on-site to manage excess fluid displaced by the pullback section.
  - (iv) Provide support equipment during pipeline pullback operation to safely install the pipe section without over-stressing the product pipe. Contractor shall be responsible for coordinating and managing all aspects of the pullback section. The Contractor shall field fit equipment according to the terrain or other on-site requirements. Roller spacing shall be adjusted to suit the model of roller used and shall be used for the full length of pipe string where required.
  - (v) Anchor the installed pipe if required on the higher elevation end of the crossing to sufficiently restrict the pipelines movement in the borehole following installation until permanently anchored in place. The Contractor shall submit a plan for this anchoring for approval by the Contract Administrator.
  - (vi) Pull the product pipe two metres into the entry pit to inspect the installed pipe. If the pipe is damaged, the Contractor will pull additional lengths of pipe until the damage is either reduced or eliminated and is acceptable to the Contract Administrator. If damage to the pipe is unacceptable to the Contract Administrator, the Contractor will remove the section, replace if damaged, re-ream the borehole and re-install the product section.
  - (vii) The Contractor shall avoid excessive reaming and pullback rates. The Contractor shall match pullback and reaming rates with downhole tooling and borehole cleaning ability of their equipment.
  - (viii) Installed pipes are to be capped until such time that tie-ins are made to connect the open cut sections of pipe.

#### E27.18 Clean-Up

- (a) Upon the successful completion of the HDD and subsequent tie-ins, all equipment and materials will be removed from the site and the area will be cleaned up. The Contractor shall at a minimum:
  - (i) Reclaim all drilling fluid/cuttings storage areas.
  - (ii) Remove all equipment, materials, and waste from the sites.
  - (iii) Clean-up and restore accesses, entry/exit work areas, HDD ROW, layout area, and water body access (except for seeding/fertilizing) to original condition.
- (b) All areas affected by Contractor's use shall be restored, and free of contaminants, to the original state prior to construction.

#### E27.19 Record of Construction and Acceptance

- (a) Pipeline product shall be installed within the pre-specified alignment and grade tolerance as shown on the Contract Drawings and provided in the Specifications.
- (b) If abandoning a drilled hole beneath an artificial surface, fill the borehole with moist bentonite or cementitious grout to prevent future subsidence.
- (c) Daily Reports:
  - (i) Tower sheets outlining equipment, manpower, and activities on an hourly basis.
  - (ii) Drilling fluid volume (fluid loss/gain) and parameter (weight, viscosity, and sand content) reports.
  - (iii) Steering survey data/
  - (iv) Surface monitoring reports.
  - (v) Water use reports.
  - (vi) Safety tailgate meetings, and investigations (as required).
- (d) The Contractor shall submit the following within seven days of completion:
  - (i) As-built information including pipe centerline in plan view and tabulation of coordinates referenced to the drill entry point and to the global survey systems.
  - (ii) Pipe pullback report detailing pull force per joint vs. time.
  - (iii) Drilling fluid disposal report (location, permits, volumes, approvals, and testing).

#### E27.20 Measurement and Payment

- (a) Horizontal Directional Drilling - Supply and Install of 500 mm dia. HDPE DR7 Force Main
  - (i) This Lump Sum price shall include, but not limited to, all costs for all requirements to install the HDPE pipe by HDD methods as specified and as shown on the drawings, all costs for additional drill and installation length due to alignment deviation by contractor, all costs for special procedures to drill and install pipe through unforeseen conditions, fusing and pipe support required to ensure the product pipes are not damaged while being moved or stored onsite. 'As-Built' tracking and recording, surface monitoring along alignment, temporary onsite storage and permanent disposal site preparation, disposal of cuttings and drilling fluid, emergency clean-up, equipment and all required testing as specified.
  - (ii) Be responsible for two attempts at completing an installation prior to consideration of claim or suggesting changed conditions. As HDD is susceptible to difficulties caused by subsurface ground conditions, if the first attempt at installing a crossing is unsuccessful, an additional attempt will be made along an alternative alignment to complete the installation. If the second attempt is not successful, the Owner will consider payment for additional cost to undertake additional attempts to complete the installation.
  - (iii) The Lump Sum price shall include all costs for the supply of the pipe to site as specified including pipe bends, hauling, unloading, handling, inspection and testing upon arrival, securing onsite, and transport around site as required.
  - (iv) Item to be paid under this lump sum item is for the design length of HDPE pipe to be installed as detailed on the drawings. The lump sum shall include all costs for supply of any additional pipe the contractor determines to be required to account for any

excessive contractor deviations from the design alignment and ensure the HDPE pipe is installed to the extents as shown on the drawings and as specified.

- (v) Lump Sum price shall include all aspects of the preparation, management, and disposal of the drilling fluids, additives, water, mixing and preparation, recycling, temporary storage, and, drilling fluid and resulting cuttings. Drilling fluid waste shall be disposed at an accepting disposal facility. Disposal of waste on private land is not permitted.
  - (vi) Lump Sum price shall also include preparation of the drilling entry and exit pads, use of rig mats, line of site preparation, access road construction and maintenance, entry and exit pad restoration including product pipe end caps and burial after installation, and site security fencing.
  - (vii) Price to include pipe fusing, crossing markers, clean-up, restoration of entry and exit pits to pre-construction condition or better and all other work.
  - (viii) Price to include supply, fusion, pre-pullback testing, and installation of pipe.
  - (ix) Price to include supply and installation of all bends, tees, reduces, all fittings, blind flanges, including thrust blocks and restraints, cathodic protection, and all other works associated with this installation.
  - (x) Price to include supply of imported pipe zone material for all entry and exit pits. Pipe zone material to be placed and compacted as per CW 2030 – Excavation Bedding and Backfill.
  - (xi) Price to include all water, drilling fluid, polymers, and admixtures required for drilling. There will be no separate payment for disposal of all drilling fluid. Include costs in related sections.
  - (xii) Price to include the temporary perimeter sound wall system specified in E26.
  - (xiii) Price to include all hydro-excavation or hand excavation to expose existing underground pipelines and franchise utilities are incidental to the directional drilling.
- (b) Payment Schedule
- (i) Horizontal Direction Drilling listed on Form B: Prices for Supply and Install 500mm Dia. HDPE DR7 by Horizontal Direction Drilling will be paid out in accordance with the following payment schedule:
    - ◆ 10% paid when Product Pipe has arrived on site as described herein.
    - ◆ 30% paid upon completion of Pilot Hole as described herein.
    - ◆ 30% paid upon completion of Reaming Passes as described herein.
    - ◆ 30% upon completion of Product Pipe Installation and Pressure Test and Commissioning as described herein and in E28.

E27.20.1 Conductor Casing listed on Form B: Prices for Supply and Install HDD Conductor Casing will be paid out in accordance with the following payment schedule:

- (a) This item shall be paid on a linear meter basis for the installation and removal of entry casing based on actual length installed and removed at the Contract Unit Price of Supply and Install HDD Conductor Casing as described herein and in E28.

## **E28. PRESSURE TEST AND COMMISSIONING**

### **E28.1 Hydrostatic Testing**

- (a) Only a hydrostatic pressure test is to be performed. Complete the test in accordance with AWWA M55 – PE Pipe – Design and Installation and ASTM F2164 – Standard Practice for Field Leak Testing of Polyethylene (PE) and Crosslinked Polyethylene (PEX) Pressure Piping Systems Using Hydrostatic Pressure.
- (b) Provide labour, equipment, and materials to perform the hydrostatic test hereinafter described.
- (c) Arrange and coordinate the supply of potable water for testing. The City will supply the potable water required for hydrostatic testing.

- (d) Notify the Contract Administrator at least 48 hours in advance of all proposed tests. Contractor to confirm that test sections will maintain pressure prior to the Contract Administrator being on site. Perform all subsequent tests in the presence of the Contract Administrator.
- (e) Pipe will be tested only after complete backfilling of trench.
- (f) No testing is allowed during freezing weather, unless approved by the Contract Administrator. In such case, the Contractor shall protect valves, joints and fittings, ditch, road surface and including the test are free from ice.
- (g) Strut and brace caps, bends, tees, and valves, to prevent movement when the test pressure is applied.
- (h) Expel air from the pipe by slowly filling the pipe with potable water. Install corporation stops at any high points in the pipe where no air-vacuum release valves are installed. Remove stops after satisfactory completion of test and seal holes with plugs.
- (i) Fill and pressurize the pipe before the test to allow for initial pipe expansion before initiating the hydrostatic test.
- (j) During the expansion phase, when the test section is filled and purged of air, gradually increase pressure in the test section to the required test pressure of 1.5 times the design working pressure based on the elevation of the lowest point in the main and corrected to the elevation of the test gauge.
- (k) If the test pressure cannot be attained, or if it takes an unreasonably long time to reach the test pressure, there may be faults such as excessive leakage or entrapped air, etc. If faults exist, discontinue pressuring, and correct them before continuing.
- (l) Add make-up water as necessary to maintain the maximum test pressure for four hours.
- (m) During the test phase, reduce the test pressure by 69 kPa (10 psi) and monitor the pressure for one hour. Do not increase the pressure or add make-up water.
- (n) If no visual leakage is observed, and the pressure during the test phase remains steady (within 5% of the test pressure) for the one-hour test phase period, a passing test is indicated.
- (o) If the test including the time required to pressurize, stabilize, hold test pressure, and depressurize is not completed due to leakage or any other reason within eight hours, the test section should be permitted to relax for at least eight hours before repeating the test.
- (p) Locate and remove any pipe, fittings, and appurtenances found defective and replace with new sound material and make watertight.
- (q) Repeat hydrostatic testing until all defects have been corrected. The Contractor is responsible for all costs on repeat tests.
- (r) Force main shall be capped with an HDPE end piece, ductile iron backing ring, and blind flange prior to backfill.

#### E28.2 Swabbing and Flushing

- (a) Contractor shall submit a swabbing and flushing plan at least four weeks in advance of the proposed date of Pressure Testing.
- (b) Swabbing and flushing operations shall be witnessed by the Contract Administrator.
- (c) Swabbing:
  - (i) All pipes are to be swabbed.
  - (ii) Each pipe shall be swabbed with a minimum of four swabs. Each swab is to be launched at a short interval. Swabs shall be medium density urethane bullet type and shall have a diameter of at least 50 mm larger than the largest pipe nominal diameter.
  - (iii) Pipe shall be filled with water before launching the first swab.

- (iv) After the first swab has been launched, continue pumping until the swab has travelled at least 30 metres or five minutes, launch the second swab. Continue to launch the third and fourth swabs with the same intervals.
- (v) Contractor to supply and install temporary launches and retrievers to facilitate swabbing. Contractor to remove these items following the completion of the swabbing.
- (d) Provide connections and pumps for swabbing as required.
- (e) Swabbing and flushing to continue until 5 NTU has been reached.

#### E28.3 Measurement and Payment

- (a) Payment for Hydrostatic Testing and Swabbing and Flushing shall be measured and paid for at the Contract Lump Sum Price for "Pressure Test and Commissioning". This price shall be payment in full for supplying all labour, equipment, and materials, and performing all operations herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator.

### **E29. TURBIDITY MONITORING**

- E29.1 Contractor shall take all precautions necessary to avoid the potential for drilling fluids and drill cuttings from entering the Red River due to an inadvertent return to ground surface (frac-out).
- E29.2 Contractor shall maintain a record of drilling fluid volume used and returned to detect any significant fluid losses, and continuously monitor drilling fluid pump pressure. Contractor will cease drilling operations and immediately report abnormal loss of returned fluid or loss of fluid pressure that may be indicative of a frac-out to the Contract Administrator and to discuss the next course of action.
- E29.3 Contractor shall continuously check the waterway for appearance of a muddy plume indicating signs of mud escapement to the watercourse. Also check for muddy plume in the river when any significant loss of returns or drop in pump pressure occurs.
- E29.4 Contractor will implement a turbidity meter with a 'down-hole' sensor where water turbidity prevents visual detection of a potential frac-out. Turbidity monitoring with the meter will only be initiated if an abnormal loss of fluid or pressure indicates that a frac-out may be occurring. Contractor will arrange for an external consultant familiar with turbidity measurements to use the turbidity meter. If turbidity must be monitored, the external consultant will complete a "Turbidity Monitoring Data Sheet (TMDS)", provided by the Contract Administrator.
- E29.5 Under circumstances where a frac-out has occurred (and has been confirmed visually or by turbidity meter measurements), and where conditions do not permit containment and the prevention of drilling fluids release to the watercourse, attempts to plug the fracture by pumping loss control material are not to continue for more than 10 minutes of pumping time.
- E29.6 If the frac-out is not contained within this time, the Contract Administrator will halt any further attempts until a corrective course of action is decided upon.
- E29.7 There will be no separate measurement or payment for Turbidity Monitoring and will be considered incidental to the Work being done.