



THE CITY OF WINNIPEG

TENDER

TENDER NO. 1037-2024

DONCASTER OUTFALL CHAMBER UPGRADES

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PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

B1.1 DONCASTER OUTFALL CHAMBER UPGRADES

B2. SUBMISSION DEADLINE

B2.1 The Submission Deadline is 12:00 noon Winnipeg time, **March 7, 2025**.

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

B3. SITE INVESTIGATION

B3.1 Further to C3.1, the Contract Administrator or an authorized representative will be available at the Site at the existing Doncaster Gate Chamber site near the intersection of Doncaster Street and Wellington Crescent on **February 27, 2025 from 10:00am to 11:00 am** to provide Bidders access to the Site and the existing gate chamber structure.

B3.1.1 Bidders/Proponents will not be allowed to enter any underground structures. Internal viewing will be done from the surface only. Exterior and interior pictures of the outfall gate chamber are provided in Appendix H.

B3.2 The Bidder is advised that Site Investigation is not mandatory but is highly recommended to view site clearances and restrictions that could impede work progress. After the Site Investigation mentioned in B3.1, the Bidder may at anytime view the Site without making an appointment.

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

B3.4 The Bidder/Proponent is responsible for inspecting the Site, the nature of the Work to be done and all conditions that might affect their Bid/Proposal or their 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 B4 unless that response or interpretation is provided by the Contract Administrator in writing.

B4.6 Any enquiries concerning submitting through MERX should be addressed to:
MERX Customer Support

Phone: 1-800-964-6379
Email: merx@merx.com

B5. CONFIDENTIALITY

- B5.1 Information provided to a Bidder by the City or acquired by a Bidder by way of further enquiries or through investigation is confidential. Such information shall not be used or disclosed in any way without the prior written authorization of the Contract Administrator. The use and disclosure of the confidential information shall not apply to information which:
- (a) was known to the Bidder before receipt hereof; or
 - (b) becomes publicly known other than through the Bidder; or
 - (c) is disclosed pursuant to the requirements of a governmental authority or judicial order.
- B5.2 The Bidder shall not make any statement of fact or opinion regarding any aspect of the Tender to the media or any member of the public without the prior written authorization of the Contract Administrator.
- B5.3 Notwithstanding B5.1, all quotations, invoices and other pricing related information associated with the Standardized Goods and acquired by a Bidder or its Subcontractors through enquiries, investigation or any other means is confidential. Such information shall not be used or disclosed in any way, other than meeting the requirements of this Tender.

B6. ADDENDA

- B6.1 The Contract Administrator may, at any time prior to the Submission Deadline, issue addenda correcting errors, discrepancies or omissions in the Tender, or clarifying the meaning or intent of any provision therein.
- B6.2 The Contract Administrator will issue each addendum at least two (2) Business Days prior to the Submission Deadline, or provide at least two (2) Business Days by extending the Submission Deadline.
- B6.3 Addenda will be available on the MERX website at www.merx.com.
- B6.4 The Bidder is responsible for ensuring that they have received all addenda and is advised to check the MERX website for addenda regularly and shortly before the Submission Deadline, as may be amended by addendum.
- B6.5 The Bidder shall acknowledge receipt of each addendum in Paragraph 10 of Form A: Bid/Proposal. Failure to acknowledge receipt of an addendum may render a Bid non-responsive.
- B6.6 Notwithstanding B4, enquiries related to an Addendum may be directed to the Contract Administrator indicated in D6.

B7. SUBSTITUTES

- B7.1 The Work is based on the Plant, Materials and methods specified in the Tender.
- B7.2 Substitutions shall not be allowed unless application has been made to and prior approval has been granted by the Contract Administrator in writing.
- B7.3 Requests for approval of a substitute will not be considered unless received in writing by the Contract Administrator at least five (5) Business Days prior to the Submission Deadline.
- B7.4 The Bidder shall ensure that any and all requests for approval of a substitute:

- (a) provide sufficient information and details to enable the Contract Administrator to determine the acceptability of the Plant, Material or method as either an approved equal or alternative;
 - (b) identify any and all changes required in the applicable Work, and all changes to any other Work, which would become necessary to accommodate the substitute;
 - (c) identify any anticipated cost or time savings that may be associated with the substitute;
 - (d) certify that, in the case of a request for approval as an approved equal, the substitute will fully perform the functions called for by the general design, be of equal or superior substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule and the dates specified in the Supplemental Conditions for Substantial Performance and Total Performance;
 - (e) certify that, in the case of a request for approval as an approved alternative, the substitute will adequately perform the functions called for by the general design, be similar in substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule and the dates specified in the Supplemental Conditions for Substantial Performance and Total Performance.
- B7.5 The Contract Administrator, after assessing the request for approval of a substitute, may in their sole discretion grant approval for the use of a substitute as an “approved equal” or as an “approved alternative”, or may refuse to grant approval of the substitute.
- B7.6 The Contract Administrator will provide a response in writing, at least two (2) Business Days prior to the Submission Deadline, to the Bidder who requested approval of the substitute.
- B7.6.1 The Contract Administrator will issue an Addendum, disclosing the approved materials, equipment, methods and products to all potential Bidders. The Bidder requesting and obtaining the approval of a substitute shall be responsible for disseminating information regarding the approval to any person or persons they wish to inform.
- B7.7 If the Contract Administrator approves a substitute as an “approved equal”, any Bidder may use the approved equal in place of the specified item.
- B7.8 If the Contract Administrator approves a substitute as an “approved alternative”, any Bidder bidding that approved alternative may base their Total Bid Price upon the specified item but may also indicate an alternative price based upon the approved alternative. Such alternatives will be evaluated in accordance with B18.
- B7.9 No later claim by the Contractor for an addition to the Total Bid Price because of any other changes in the Work necessitated by the use of an approved equal or an approved alternative will be considered.
- B7.10 Substitutes to the City’s Standardized Goods, as identified in “Standardized Control System and Motor Control Equipment”, will not be accepted.

B8. BID COMPONENTS

- B8.1 The Bid shall consist of the following components:
- (a) Form A: Bid/Proposal;
 - (b) Form B: Prices;
 - (c) Form G1: Bid Bond and Agreement to Bond.
- B8.2 All components of the Bid shall be fully completed or provided, and submitted by the Bidder no later than the Submission Deadline, with all required entries made clearly and completely.
- B8.3 The Bid shall be submitted electronically through MERX at www.merx.com.

B8.3.1 Bids will **only** be accepted electronically through MERX.

B8.4 Bidders are advised that inclusion of terms and conditions inconsistent with the Tender document, including the General Conditions, will be evaluated in accordance with B18.1(a).

B9. BID

B9.1 The Bidder shall complete Form A: Bid/Proposal, making all required entries.

B9.2 Paragraph 2 of Form A: Bid/Proposal shall be completed in accordance with the following requirements:

- (a) if the Bidder is a sole proprietor carrying on business in their own name, their name shall be inserted;
- (b) if the Bidder is a partnership, the full name of the partnership shall be inserted;
- (c) if the Bidder is a corporation, the full name of the corporation shall be inserted;
- (d) if the Bidder is carrying on business under a name other than their own, the business name and the name of every partner or corporation who is the owner of such business name shall be inserted.

B9.2.1 If a Bid is submitted jointly by two or more persons, each and all such persons shall identify themselves in accordance with B9.2.

B9.3 In Paragraph 3 of Form A: Bid/Proposal, the Bidder shall identify a contact person who is authorized to represent the Bidder for purposes of the Bid.

B9.4 Paragraph 13 of Form A: Bid/Proposal shall be signed in accordance with the following requirements:

- (a) if the Bidder is a sole proprietor carrying on business in their own name, it shall be signed by the Bidder;
- (b) if the Bidder is a partnership, it shall be signed by the partner or partners who have authority to sign for the partnership;
- (c) if the Bidder is a corporation, it shall be signed by their duly authorized officer or officers;
- (d) if the Bidder is carrying on business under a name other than their own, it shall be signed by the registered owner of the business name, or by the registered owner's authorized officials if the owner is a partnership or a corporation.

B9.4.1 The name and official capacity of all individuals signing Form A: Bid/Proposal should be entered below such signatures.

B9.5 If a Bid is submitted jointly by two or more persons, the word "Bidder" shall mean each and all such persons, and the undertakings, covenants and obligations of such joint Bidders in the Bid and the Contract, when awarded, shall be both joint and several.

B10. PRICES

B10.1 The Bidder shall state a price in Canadian funds for each item of the Work identified on Form B: Prices.

B10.1.1 Notwithstanding C12.2.3(c), prices on Form B: Prices shall not include the Manitoba Retail Sales Tax (MRST, also known as PST), which shall be extra where applicable.

B10.1.2 Prices stated on Form B: Prices shall not include any costs which may be incurred by the Contractor with respect to any applicable funding agreement obligations as outlined in D32. Any such costs shall be determined in accordance with D32.

B10.2 The quantities listed on Form B: Prices are to be considered approximate only. The City will use said quantities for the purpose of comparing Bids.

- B10.3 The quantities for which payment will be made to the Contractor are to be determined by the Work actually performed and completed by the Contractor, to be measured as specified in the applicable Specifications.
- B10.4 Payments to Non-Resident Contractors are subject to Non-Resident Withholding Tax pursuant to the Income Tax Act (Canada).
- B10.5 The Bidder shall enter the Total Bid Price from Form B: Prices into the Total Bid Price field in MERX.
- B10.5.1 Bidders are advised that the calculation indicated in B18.4 will prevail over the Total Bid Price entered in MERX.
- B10.6 Form B, Item 18: The Bidder shall enter the cost of the Standardized Goods to be supplied from Schneider Electric Canada Ltd. (Schneider) as part of the Standardized Control System and Motor Control Equipment agreement identified in "Standardized Control System and Motor Control Equipment". The cost shall be the base cost received from Schneider, without any mark-up or taxes applied.
- B10.6.1 Any mark-up to the supply of the Standardized Goods shall be deemed to be included in other applicable Form B lines.
- B10.7 Form B, Item 19: The Bidder shall enter the cost of the Standardized Goods to be supplied from Trans-West Supply Company Inc. (Trans-West) as part of the Standardized Instrumentation agreement identified in "Standardized Instrumentation". The cost shall be the base cost received from Trans-West, without any mark-up or taxes applied.
- B10.7.1 Any mark-up to the supply of the Standardized Goods shall be deemed to be included in other applicable Form B lines.

B11. DISCLOSURE

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

B12. CONFLICT OF INTEREST AND GOOD FAITH

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

- (e) has contractual or other obligations to the City that could or would be seen to have been compromised or impaired as a result of their participation in the Tender process or the Work; or
- (f) has knowledge of confidential information (other than confidential information disclosed by the City in the normal course of the Tender process) of strategic and/or material relevance to the Tender process or to the Work that is not available to other bidders and that could or would be seen to give that Bidder an unfair competitive advantage.

B12.3 In connection with their Bid, each entity identified in B12.2 shall:

- (a) avoid any perceived, potential or actual Conflict of Interest in relation to the procurement process and the Work;
- (b) upon discovering any perceived, potential or actual Conflict of Interest at any time during the Tender process, promptly disclose a detailed description of the Conflict of Interest to the City in a written statement to the Contract Administrator; and
- (c) provide the City with the proposed means to avoid or mitigate, to the greatest extent practicable, any perceived, potential or actual Conflict of Interest and shall submit any additional information to the City that the City considers necessary to properly assess the perceived, potential or actual Conflict of Interest.

B12.4 Without limiting B12.3, the City may, in their sole discretion, waive any and all perceived, potential or actual Conflicts of Interest. The City's waiver may be based upon such terms and conditions as the City, in their sole discretion, requires to satisfy itself that the Conflict of Interest has been appropriately avoided or mitigated, including requiring the Bidder to put into place such policies, procedures, measures and other safeguards as may be required by and be acceptable to the City, in their sole discretion, to avoid or mitigate the impact of such Conflict of Interest.

B12.5 Without limiting B12.3, and in addition to all contractual or other rights or rights at law or in equity or legislation that may be available to the City, the City may, in their sole discretion:

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

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

B13. QUALIFICATION

B13.1 The Bidder shall:

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

- B13.2 The Bidder and any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:
- (a) be responsible and not be suspended, debarred or in default of any obligations to the City. A list of suspended or debarred individuals and companies is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Purchasing Division website 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).
- B13.4 Further to B13.3(c), the Bidder shall, within five (5) Business Days of a request by the Contract Administrator, provide proof satisfactory to the Contract Administrator that the Bidder/Subcontractor has a workplace safety and health program meeting the requirements of The Workplace Safety and Health Act (Manitoba), by providing:
- (a) Written confirmation of a safety and health certification meeting SAFE Work Manitoba's SAFE Work Certified Standard (e.g., COR™ and SECOR™) in the form of:
 - (i) a copy of their valid Manitoba COR certificate and Letter of Good Standing (or Manitoba equivalency) as issued under the Certificate of Recognition (COR) Program administered by the Construction Safety Association of Manitoba or by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ Program; or
 - (ii) a copy of their valid Manitoba SECOR™ certificate and Letter of Good Standing (or Manitoba equivalency) as issued under the Small Employer Certificate of Recognition Program (SECOR™) administered by the Construction Safety Association of Manitoba or by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ Program; or
 - (b) a report or letter to that effect from an independent reviewer acceptable to the City. (A list of acceptable reviewers and the review template are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Purchasing Division website at <http://www.winnipeg.ca/matmgt/>).
- B13.5 Further to B13.3(d), the Bidder acknowledges they and all Subcontractors have obtained training required by the Accessibility for Manitobans Act (AMA) available at [Accessibility Training](#) for anyone that may have any interaction with the public on behalf of the City of Winnipeg.
- B13.6 The Bidder shall submit, within three (3) Business Days of a request by the Contract Administrator, proof satisfactory to the Contract Administrator of the qualifications of the Bidder and of any proposed Subcontractor.
- B13.7 The Bidder shall provide, on the request of the Contract Administrator, full access to any of the Bidder's equipment and facilities to confirm, to the Contract Administrator's satisfaction, that the Bidder's equipment and facilities are adequate to perform the Work.

B14. BID SECURITY

- B14.1 The Bidder shall include in their Bid Submission bid security in the form of a digital bid bond, in the amount of at least ten percent (10%) of the Total Bid Price, and agreement to bond of a company registered to conduct the business of a surety in Manitoba, in Form G1: Bid Bond and Agreement to Bond, available at [Form G1 Bid Bond & Agreement to Bond](#).

- 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.
- B15.3 After award of Contract, the name(s) of the successful Bidder(s) and their Contract amount(s) will be available on the MERX website at www.merx.com.
- B15.4 The Bidder is advised that any information contained in any Bid may be released if required by The Freedom of Information and Protection of Privacy Act (Manitoba), by other authorities having jurisdiction, or by law or by City policy or procedures (which may include access by members of City Council).
- B15.4.1 To the extent permitted, the City shall treat as confidential information, those aspects of a Bid Submission identified by the Bidder as such in accordance with and by reference to Part 2, Section 17 or Section 18 or Section 26 of The Freedom of Information and Protection of Privacy Act (Manitoba), as amended.

B16. IRREVOCABLE BID

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

furnished as herein provided, but any Bid shall be deemed to have lapsed unless accepted within the time period specified in Paragraph 11 of Form A: Bid/Proposal.

B17. WITHDRAWAL OF BIDS

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

B18. EVALUATION OF BIDS

B18.1 Award of the Contract shall be based on the following bid evaluation criteria:

- (a) compliance by the Bidder with the requirements of the Tender, or acceptable deviation there from (pass/fail);
- (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B13 (pass/fail);
- (c) Total Bid Price;
- (d) economic analysis of any approved alternative pursuant to B7.

B18.2 Further to B18.1(a), the Award Authority may reject a Bid as being non-responsive if the Bid is incomplete, obscure or conditional, or contains additions, deletions, alterations or other irregularities. The Award Authority may reject all or any part of any Bid, or waive technical requirements or minor informalities or irregularities, if the interests of the City so require.

B18.3 Further to B18.1(b), the Award Authority shall reject any Bid submitted by a Bidder who does not demonstrate, in their Bid or in other information required to be submitted, that they are qualified.

B18.4 Further to B18.1(c), the Total Bid Price shall be the sum of the quantities multiplied by the unit prices for each item shown on Form B: Prices.

B18.4.1 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.

B19. AWARD OF CONTRACT

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

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

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

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

B19.3 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 D32 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 their Bid upon written request to the Contract Administrator.

PART C - GENERAL CONDITIONS

C0. GENERAL CONDITIONS

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

PART D - SUPPLEMENTAL CONDITIONS

GENERAL

D1. GENERAL CONDITIONS

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

D2. FORM OF CONTRACT DOCUMENTS

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

D3. SCOPE OF WORK

D3.1 The Work to be done under the Contract shall consist of structural modifications of the existing structure, removal and replacement of the existing slide and flap gates, installation of automation controls, PLC, instrumentation and electrical components

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

- (a) Partial demolition of the existing gate chamber to facilitate the installation of a new slide gate;
- (b) Removal of the existing gates, including their thimbles;
- (c) Downstream extension of the existing chamber structure;
- (d) Installation of a new flap gate and a new slide gate with the operator mounted on the top of the chamber;
- (e) Installation of new electrical equipment, including all related automation, instrumentation and control;
- (f) Miscellaneous site works.

D3.3 The following shall apply to the Work:

- (a) City of Winnipeg Green Building Policy: New City-Owned Buildings and major additions;
<http://clkapps.winnipeg.ca/DMIS/DocExt/ViewDoc.asp?DocumentTypeId=2&DocId=5989>
- (b) Universal Design Policy
<http://clkapps.winnipeg.ca/DMIS/DocExt/ViewDoc.asp?DocumentTypeId=2&DocId=3604>

D4. SITE INVESTIGATION DUE DILIGENCE AND RISK

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

- (a) the location of any utility which can be determined from the records or other information available at the offices of any public authority or person, including a municipal corporation and any board or commission thereof, having jurisdiction or control over the utility;
- (b) the Site conditions, including but not limited to subsurface hazardous materials or other concealed physical conditions;
- (c) the location, nature, quality or quantity of the materials to be removed or to be employed in the performance of the Work;

- (d) the nature, quality or quantity of the Plant needed to perform the Work;
- (e) all matters concerning access to the Site, power supplies, location of existing services, utilities or materials necessary for the completion of the Work; and
- (f) all other matters which could in any way affect the performance of the Work;

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

D5. DEFINITIONS

D5.1 When used in this Tender:

- (a) “**ASTM**” means American Society for Testing and Materials
- (b) “**AWWA**” means American Water Works Association;
- (c) “**CSA**” means Canadian Standards Association.
- (d) “**Standardized Goods**” means the respective goods identified that have been standardized by the City.
- (e) “**Standardization Vendor**” means a contractor or supplier of Standardized Goods.
- (f) “**Supply Chain Disruption**” means an inability by the Contractor to obtain goods or services from third parties necessary to perform the Work of the Contract within the schedule specified therein, despite the Contractor making all reasonable commercial efforts to procure same. Contractors are advised that increased costs do not, in and of themselves, amount to a Supply Chain Disruption;

D6. CONTRACT ADMINISTRATOR

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

Lunide Milius-Alphonse, M.Sc., P.Eng.

Telephone No. 204 -896-1209

Email Address lmilius-alphonse@kgsgroup.com

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

D7. CONTRACTOR'S SUPERVISOR

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

D8. ACCESSIBLE CUSTOMER SERVICE REQUIREMENTS

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

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

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

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

D9. UNFAIR LABOUR PRACTICES

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

D10. FURNISHING OF DOCUMENTS

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

SUBMISSIONS

D11. AUTHORITY TO CARRY ON BUSINESS

- D11.1 The Contractor shall be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba, or if the Contractor does not carry on business in Manitoba, in the jurisdiction where the Contractor does carry on business, throughout the term of the Contract, and shall provide the Contract Administrator with evidence thereof upon request.

D12. SAFE WORK PLAN

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

D13. INSURANCE

- D13.1 The Contractor shall provide and maintain the following insurance coverage:
- (a) commercial general liability insurance, in the amount of at least two million dollars (\$2,000,000.00) inclusive, with The City of Winnipeg added as an additional insured, with a cross-liability clause, such liability policy to also contain contractual liability, unlicensed motor vehicle liability, non-owned automobile liability, broad form property damage cover 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.
- D13.2 Deductibles shall be borne by the Contractor.
- D13.3 The Contractor shall provide the City Solicitor with a certificate(s) of insurance, in a form satisfactory to the City Solicitor, at least two (2) Business Days prior to the commencement of any Work but in no event later than the date specified in C4.1 for the return of the executed Contract Documents, as applicable.
- D13.4 The Contractor shall not cancel, materially alter, or cause each policy to lapse without providing at least thirty (30) Calendar Days prior written notice to the Contract Administrator.

D14. CONTRACT SECURITY

D14.1 The Contractor shall provide and maintain the performance bond and the labour and material payment bond until the expiration of the warranty period in the form of:

- (a) a performance bond of a company registered to conduct the business of a surety in Manitoba, [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, [Form H2 Labour and Material Bond](#) , in an amount equal to fifty percent (50%) of the Contract Price.

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

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

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

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

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

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

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

D15. SUBCONTRACTOR LIST

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

D16. REQUIREMENTS FOR SITE ACCESSIBILITY PLAN

- D16.1 The Contractor shall provide the Contract Administrator with an Accessibility 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.
- D16.2 The Accessibility Plan shall demonstrate how the Contractor will accommodate the safe passage of pedestrians and cyclists in accordance with the Manual of Temporary Traffic Control, the Contract Drawings, Staging Plans, and Streets By-Law No. 1481/77 at all times for the duration of the Construction. Unless noted in the Contract, the Accessibility Plan must include a written plan for the following:
- (a) How the Contractor will maintain at least one crossing in each direction for each intersection (one north/south crosswalk and one east/west crosswalk).
 - (b) How the Contractor will maintain access to bus stops within the site.
 - (c) How the Contractor will maintain access to pedestrian corridors and half signals.
 - (d) How the Contractor will maintain cycling facilities.
 - (e) How the Contractor will maintain access to residents and businesses unless otherwise noted in the Contract.
 - (f) Any required detour signage at adjacent crossings to facilitate sidewalk or active transportation pathway closures.
- D16.3 The Accessibility Plan may also include figures, sketches, or drawings to demonstrate the proposed plan.
- D16.4 The Accessibility Plan shall include written details on how the Contractor intends to review, maintain, and document all items related to the Accessibility Plan on-site during Construction, including, but not limited to:
- (a) Signage
 - (b) Temporary Ramping
 - (c) Transit Stops
 - (d) Detour Signage
- D16.5 At minimum, the Contractor shall review the site conditions on a daily basis to ensure that all features related to the Accessibility Plan are in place. The site review is intended to correct deficiencies as a result of unforeseen events such as wind, traffic, or the general public. Deficiencies that are direct result of the Contractors actions must be corrected immediately.
- D16.6 Any changes to the Accessibility Plan must be approved by the Contract Administrator.
- D16.7 Upon request from the Contract Administrator, the Contractor shall provide records demonstrating that the site has been maintained.
- D16.8 Deficiencies as a direct result of actions by the Contractor that are not immediately corrected and/or failure to produce records that demonstrate that the site was maintained in compliance with the Accessibility Plan may result in a pay adjustment via the monthly Progress Payment. The rate of pay adjustment will be as per the following schedule:
- (a) First Offence – A warning will be issued and documented in the weekly or bi-weekly site meeting.
 - (b) Second Offence – A field instruction to immediately correct the site will be issued by the Contract Administrator.
- D16.9 Third and subsequent Offences – A pay reduction will be issued in the amount of \$250.00 per instance and per day.

SCHEDULE OF WORK

D17. COMMENCEMENT

- D17.1 The Contractor shall not commence any Work until they are in receipt of an award letter from the Award Authority authorizing the commencement of the Work.
- 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 D11;
 - (ii) evidence of the workers compensation coverage specified in C6.15;
 - (iii) the Safe Work Plan specified in D12;
 - (iv) evidence of the insurance specified in D13;
 - (v) the contract security specified in D14;
 - (vi) the Subcontractor list specified in D15;
 - (vii) the Requirements for Site Accessibility Plan specified in D16; and
 - (viii) the direct deposit application form specified in D27
 - (b) the Contractor has attended a pre-construction meeting with the Contract Administrator, or the Contract Administrator has waived the requirement for a pre-construction meeting.
- D17.3 The Contractor shall not commence the Work on the Site before **November 3, 2025**.

D18. WORK BY OTHERS

- D18.1 Further to C6.25, the Contractor's attention is directed to the fact that other Contractors, the personnel of Utilities and the staff of the City may be working within the project limit, approach roadway, adjacent roadways or right-of-way. The activities of these agencies may coincide with the Contractor's execution of Work and it will be the Contractor's responsibility to cooperate to the fullest extent with other personnel working in the area, and such cooperation is an obligation of the Contractor under the terms of Contract.
- D18.1.1 Further to D18.1 the Contractor shall cooperate and coordinate all activities with all parties performing required Work by Others identified in D18.1 and accommodate the necessary area on Site required for the Work by Others to complete the Work

D19. SUBSTANTIAL PERFORMANCE

- D19.1 The Contractor shall achieve Substantial Performance by **March 7, 2026**.
- D19.2 When the Contractor considers the Work to be substantially performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Substantial Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be reinspected.
- D19.3 The date on which the Work has been certified by the Contract Administrator as being substantially performed to the requirements of the Contract through the issue of a certificate of Substantial Performance is the date on which Substantial Performance has been achieved.

D20. TOTAL PERFORMANCE

- D20.1 The Contractor shall achieve Total Performance by **June 30, 2026** or if seasonal inclement weather does not allow permanent restorations to commence immediately after Substantial Performance, whichever comes first. The Contract Administrator will advise the Contractor when seasonal conditions will allow permanent restorations to begin. The Contractor will start final restorations no later than 14 (fourteen) Calendar Days after formal notification by the Contract Administrator.
- D20.2 When the Contractor or the Contract Administrator considers the Work to be totally performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Total Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be reinspected.
- D20.3 The date on which the Work has been certified by the Contract Administrator as being totally performed to the requirements of the Contract through the issue of a certificate of Total Performance is the date on which Total Performance has been achieved.

D21. LIQUIDATED DAMAGES

- D21.1 If the Contractor fails to achieve Substantial Performance or Total Performance in accordance with the Contract by the days fixed herein for same, the Contractor shall pay the City the following amounts per Working Day for each and every Working Day following the days fixed herein for same during which such failure continues:
- (a) Substantial Performance – **five hundred dollars (\$500)**;
 - (b) Total Performance – **five hundred dollars (\$500)**.
- D21.2 The amounts specified for liquidated damages in D21.1 are based on a genuine pre-estimate of the City's losses in the event that the Contractor does not achieve, Critical Stages, Substantial Performance or Total Performance by the days fixed herein for same.
- D21.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

D22. SUPPLY CHAIN DISRUPTION SCHEDULE DELAYS

- D22.1 The City acknowledges that the schedule for this Contract may be impacted by the Supply Chain Disruption. Commencement and progress of the Work shall be performed by the Contractor with due consideration to the delivery requirements and schedule identified in the Contract in close consultation with the Contract Administrator.
- D22.2 If the Contractor is delayed in the performance of the Work by reason of the Supply Chain Disruption, the Work schedule may be adjusted by a period of time equal to the time lost due to such delay and costs related to such delay will be determined as identified herein.
- D22.3 A minimum of seven (7) Calendar Days prior to the commencement of Work, the Contractor shall declare whether a Supply Chain Disruption will affect the start date. The Contractor shall provide sufficient evidence that the delay is directly related to a Supply Chain Disruption, including but not limited to ordering of Material or Goods, production and/or manufacturing schedules or availability of staff as appropriate.
- D22.4 For any delay related to Supply Chain Disruption and identified after Work has commenced, the Contractor shall within seven (7) Calendar Days of becoming aware of the anticipated delay declare the additional delay and shall provide sufficient evidence as indicated in D22.3. Failure to provide this notice will result in no additional time delays being considered by the City.

- D22.5 The Work schedule, including the durations identified in D19 to 0 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.
- D22.6 Where Work not previously identified is being carried over solely as a result of delays related to Supply Chain Disruption, as confirmed by the Contract Administrator, the cost of temporary works to maintain the Work in a safe manner until Work recommences, will be considered by the Contract Administrator. Where the Work is carried over only partially due to Supply Chain Disruption, a partial consideration of the cost of temporary works will be considered by the Contract Administrator.
- D22.7 Any time or cost implications as a result of Supply Chain Disruption and in accordance with the above, as confirmed by the Contract Administrator, shall be documented in accordance with C7.

D23. SCHEDULED MAINTENANCE

- D23.1 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 the Tree Planting specifications;
- D23.2 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

D24. JOB MEETINGS

- D24.1 Regular bi-weekly job meetings will be held. These meetings shall be attended by a minimum of one representative of the Contract Administrator, one representative of the City and one representative of the Contractor. Each representative shall be a responsible person capable of expressing the position of the Contract Administrator, the City and the Contractor respectively on any matter discussed at the meeting including the Work schedule and the need to make any revisions to the Work schedule. The progress of the Work will be reviewed at each of these meetings.
- D24.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever they deem it necessary.

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

- D25.1 Further to C6.26, the Contractor shall be the Prime Contractor and shall serve as, and have the duties of the Prime Contractor in accordance with The Workplace Safety and Health Act (Manitoba).

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

- D26.1 Further to B13.4, the Contractor/Subcontractor must, throughout the term of the Contract, have a Workplace Safety and Health Program meeting the requirements of The Workplace Safety and Health Act (Manitoba). At any time during the term of the Contract, the City may, at their sole discretion and acting reasonably, require updated proof of compliance, as set out in B13.4.

MEASUREMENT AND PAYMENT

D27. PAYMENT

D27.1 Further to C12, the City shall make payments to the Contractor by direct deposit to the Contractor's banking institution, and by no other means. Payments will not be made until the Contractor has made satisfactory direct deposit arrangements with the City. Direct deposit application forms are at https://winnipeg.ca/finance/files/Direct_Deposit_Form.pdf.

D27.2 Further to E6, no payment will be made for Cash Allowances other than as set out in E6.4.

D28. FUEL PRICE ADJUSTMENT

D28.1 The Contract is subject to a fuel price adjustment which will be calculated monthly based on eligible Work completed utilizing the following mathematical formulas;

- (a) where the price of fuel has increased - $((CFI/BFI)-1.15) \times Q \times FF$; and
- (b) where the price of fuel has decreased - $((CFI/BFI)-0.85) \times Q \times FF$; where
 - (i) BFI = base fuel index
 - (ii) CFI = current fuel index
 - (iii) FF = fuel factor
 - (iv) Q = monetary value of Work applied in the calculation.

D28.1.1 Eligible Work will be determined in accordance with D28.5.

D28.1.2 The base fuel index (BFI) will be the retail price of fuel identified on the Submission Deadline based on latest published "Monthly average retail prices for gasoline and fuel by geography" for Winnipeg, published by [Statistics Canada, Table 18-10-0001-01](#). The BFI is a blended rate based on 15% regular unleaded gasoline at self-service filling stations and 85% diesel fuel at self-service filling stations.

D28.1.3 The current fuel index (CFI) based on the above blended rate will be determined for each monthly progress estimate and applied on the following progress estimate as a change order once rates are published by Statistics Canada.

D28.1.4 A Fuel Factor (FF) rate of the monetary value of all eligible Work completed that month based on the Contract unit prices will be used to calculate the assumed apportioned cost of fuel.

D28.2 Fuel cost adjustments may result in additional payment to the Contractor or credit to the City within the Contract by way of a monthly change order.

D28.3 The fuel escalation or de-escalation adjustment will not be applied if the CFI is within $\pm 15\%$ of the BFI.

D28.4 Fuel escalation adjustments will not be considered beyond the Substantial Performance/Critical Stages except where those dates/Working Days are adjusted by change order. Fuel de-escalation adjustments will apply for Work that extends beyond the dates/Working Days specified for Substantial Performance/Critical Stages.

D28.5 The Fuel Factor (FF) rates will be set as follows:

- (a) The Fuel Factor rate shall be set at 2.7% of the monetary value of all Work based on unit prices except for the portions of the Contract identified below;

WARRANTY

D29. WARRANTY

- D29.1 Notwithstanding C13.2, the warranty period shall begin on the date of Total Performance and shall expire one (1) year thereafter, except where longer warranty periods are specified in the respective Specification sections, unless extended pursuant to C13.2.1 or C13.2.2, in which case it shall expire when provided for thereunder.
- D29.1.1 For the purpose of contract security, the warranty period shall be one (1) year.
- D29.2 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 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.
- D29.2.1 In such case, the date specified by the Contract Administrator for the warranty period to begin shall be substituted for the date specified in C13.2 for the warranty period to begin.

DISPUTE RESOLUTION

D30. DISPUTE RESOLUTION

- D30.1 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 D30.
- D30.2 The entire text of C21.4 is deleted, and amended to read: "Intentionally Deleted"
- D30.3 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 their written Appeal Form, in the manner and format set out on the City's Purchasing Website, to the Chief Administrative Officer, and to the Contract Administrator. The Contractor may not raise any other disputes other than the Disputed Matter in their Appeal Form.
- D30.4 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.
- D30.4.1 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.

- D30.4.2 As these negotiations are not an adjudicative hearing, neither party may have legal counsel present during the negotiations.
- D30.4.3 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.
- D30.4.4 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 D30.4.3, as extended if applicable, has elapsed, the Contract Administrator will issue a Final Determination as defined in C1.1(v), at which point the parties will be governed by the Dispute Resolution process set out in C21.

INDEMNITY

D31. INDEMNITY

- D31.1 Indemnity shall be as stated in C17.
- D31.2 Notwithstanding C17.1, the Contractor shall save harmless and indemnify the City in the amount of twice the Contract Price or five million dollars (\$5,000,000), whichever is greater, against all costs, damages or expenses arising from actions, claims, demands and proceedings, by whomsoever brought, made or taken as a result of negligent acts or negligent omissions of the Contractor, their Subcontractors, employees or agents in the performance or purported performance of the Work, and more particularly from:
- (a) accidental injury to or death of any person whether retained by or in the employ of the contractor or not, arising directly or indirectly by reason of the performance of the Work, or by reason of any trespass on or damage to property;
 - (b) damage to any property owned in whole or in part by the City, or which the City by duty or custom is obliged, directly or indirectly, in any way or to any degree, to construct, repair or maintain;
 - (c) damage to, or trespass or encroachment upon, property owned by persons other than the City;
 - (d) any claim for lien or trust claim served upon the City pursuant to The Builders' Liens Act;
 - (e) failure to pay a Workers Compensation assessment, or Federal or Provincial taxes;
 - (f) unauthorized use of any design, device, material or process covered by letters patent, copyright, trademark or trade name in connection with the Work;
 - (g) inaccuracies in any information provided to the City by the Contractor.
- D31.3 Further to C17, The City shall save harmless and indemnify the Contractor in the amount of twice the Contract Price or five million dollars (\$5,000,000), whichever is greater, against all costs, damages or expenses arising from actions, claims, demands and proceedings, by whomsoever brought, made or taken as a result of negligent acts or negligent omissions of the City, their employees or agents in the performance of its obligation under the Contract.

THIRD PARTY AGREEMENTS

D32. FUNDING AND/OR CONTRIBUTION AGREEMENT OBLIGATIONS

- D32.1 Funding for the Work of the Contract is being provided to the City of Winnipeg by the Government of Manitoba and/or the Government of Canada and accordingly, as required by the applicable funding agreements, the following terms and conditions shall apply.
- D32.2 For the purposes of D32:
- (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.

D32.3 Indemnification By Contractor

- D32.3.1 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.
- D32.3.2 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.

D32.4 Records Retention and Audits

- D32.4.1 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.
- D32.4.2 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 D32.4.1 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.

D32.5 Other Obligations

- D32.5.1 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.
- D32.5.2 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.

- D32.5.3 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.
- D32.5.4 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.
- D32.5.5 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.
- D32.5.6 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.

STANDARDIZATION

D33. STANDARDIZED GOODS

- D33.1 The following goods have been standardized by the City and will be supplied by the Contractor:
- (a) Standardized Control System and Motor Control Equipment as per in the “Standardized Control System and Motor Control Equipment” section.
 - (b) Standardized Instrumentation as per in the “Standardized Instrumentation” section.

D34. CONTRACTUAL ARRANGEMENT

- D34.1 Each Standardization Vendor shall be a Subcontractor of the Contractor.
- D34.2 The City’s contract with each of the Standardization Vendors defines the prices and general terms of supply to the Contractor. Each Standardization Vendor is obligated to enter into a contract with the Contractor, based upon such prices and general terms of supply.
- D34.2.1 The City is not a party to any contract between a Standardization Vendor and the Contractor, or any Subcontractor.
- D34.3 In the event that a potential dispute arises between the Contractor and a Standardization Vendor, the Contract Administrator shall be notified.

D35. PAYMENT OF STANDARDIZATION VENDORS

- D35.1 The Contractor is obligated to pay the Standardization Vendors in accordance with general terms of supply applicable to such Standardization Vendor.
- D35.2 The Contractor’s payment terms to the Standardization Vendor, in respect of Standardized Control System and Motor Control Equipment identified in “Standardized Control System and Motor Control Equipment”, include the following:
- D35.2.1 Payment shall be in Canadian funds net thirty (30) Calendar Days after shipment.
- D35.3 The Contractor’s payment terms to the Standardization Vendor, in respect of Standardized Instrumentation identified in “Standardized Instrumentation”, include the following:

- D35.3.1 Payment shall be in Canadian funds net thirty (30) Calendar Days after receipt and approval of the Standardization Vendor's invoice.

MEASUREMENT AND PAYMENT

D36. PAYMENT SCHEDULE

- D36.1 The City's payment to the Contractor, associated with Standardized Goods, will be in accordance with C12.

SUBMISSIONS

D37. ESTIMATES

- D37.1 The Contractor shall provide the Contract Administrator with copies of the estimates provided by Standardized Equipment Suppliers identified in "Standardized Control System and Motor Control Equipment" and "Standardized Instrumentation".

D38. ADJUSTEMENTS FOR CHANGES IN LAWS, TAXES, OR TARRIFS

- D38.1 Further to C12.4 and subject to C6.13, the Contract Price shall be adjusted if any change in a law or tax imposed under the Excise Act, the Excise Tax Act, the Customs Act, the Customs Tariff, The Mining Tax Act (Manitoba), or The Retail Sales Tax Act (Manitoba), by an act of the Congress of the United States of America, or by Executive Order by the President of the United States under the International Emergency Economic Powers Act of the United States of America or similar legislation:

- (a) occurs after the Submission Deadline;
- (b) applies to Material; and
- (c) affects the cost of that Material to the Contractor.

- D38.2 Further to C12.5, if a change referred to in C12.4 occurs, the Contract Price shall be increased or decreased by an amount equal to the amount that is established, by an examination of the relevant records of the Contractor, to be the increase or decrease in the cost incurred that is directly attributable to that change, and which the Contractor has proven to the Contract Administrator represents the minimum amount of increase necessary in order to obtain necessary Material or Plant. For the avoidance of doubt, the Contractor shall be required to provide satisfactory proof that it has investigated alternative options for obtaining equivalent Material or Plant and reducing or eliminating the increase in Contract Price, up to and including entering into purchase agreements with vendors located in other jurisdictions, in order for Contractor to be able to avail itself of the increase in Contract Price permitted under this clause.

PART E - SPECIFICATIONS

GENERAL

E1. APPLICABLE SPECIFICATIONS AND DRAWINGS

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

<u>Specification No.</u>	<u>Specification Title</u>
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Div 26

260500	Common Work Results – Electrical
260520	Wire and Box Connectors (0-1000 V)
260521	Wires and Cables (0-1000 V)
260528	Grounding – Secondary
260534	Conduits, Conduit Fastenings and Conduit Fittings
260543.01	Installation of Cables in Trenches and Ducts
262416.01	Panelboards Breaker Type
262716	Electrical Cabinets and Enclosures
262726	Wiring Devices
262821	Moulded Case Circuit Breakers
262903	Control Devices
265000	Lighting

Div 40

400501	Common Work Results - Automation
408008	Factory Acceptance Test
408011	Automation - Commissioning
409100	Automation – Process Measurement Devices
409443	Programmable Logic Controller
409513	Control Panels
409901	Training
409990	Maintenance and Support

<u>Drawing No.</u>	<u>Drawing Name/Title</u>
1-0242G-D0001-001	COVER SHEET
1-0242G-D0002-001	DRAWING INDEX
1-0242G-G0001-001	GENERAL - SITE PLAN
Automation Drawings	
1-0242G-A0001-001	SITE PLAN - SECTION
1-0242G-A0002-001	PANEL LAYOUT AND BILL OF MATERIALS - PLC CONTROL PANEL CP-G81
1-0242G-A0003-001	POWER DISTRIBUTION WIRING SCHEMATIC - PLC CONTROL PANEL CP-G81
1-0242G-A0004-001	NETWORK BLOCK DIAGRAM
1-0242G-A0005-001	PLC I/O WIRING DIAGRAM - CP-G81 - DISCRETE INPUT RACK 0 MODULE 3
1-0242G-A0006-001	PLC I/O WIRING DIAGRAM - CP-G81 - ANALOG INPUT RACK 0 MODULE 4
1-0242G-A0007-001	PANEL LAYOUT AND BILL OF MATERIALS - INTRINSICALLY SAFE JUNCTION BOX JBA-G82
1-0242G-A0008-001	PANEL LAYOUT AND BILL OF MATERIALS - CSO INSTRUMENT PANEL
1-0242G-A0009-001	LOOP DIAGRAM - CSO MONITORING - LT-S651, LT-S751, ZT-S851 AND LT-S951
1-0242G-A0010-001	LOOP DIAGRAM - SPD STATUS RELAY - XS-G712
1-0242G-A0011-001	LOOP DIAGRAM - 240 VAC POWER FAIL RELAY - ESL-G711
1-0242G-A0012-001	LOOP DIAGRAM - GROUND FAULT MONITOR - ESL-G713
1-0242G-A0013-001	PROCESS INSTRUMENTATION DIAGRAM (P&ID)
Civil Drawings	
1-0242G-C0001-001	CIVIL - PLAN AND DETAILS - S-MA60007598
Electrical Drawings	
1-0242G-E0001-001	SINGLE LINE DIAGRAM - ELECTRICAL SCHEDULES
1-0242G-E0002-001	POWER AND LIGHTING PLAN - SECTION
1-0242G-E0003-001	DETAILS
1-0242G-E0004-001	ENCLOSURE LAYOUT AND BILL OF MATERIALS
1-0242G-E0005-001	HAZARDOUS LOCATION PLAN
1-0242G-E0006-001	GROUNDING RISER AND DETAILS
Structural Drawings	
1-0242G-S0001-001	SPECIFICATION NOTES
1-0242G-S0002-001	GATE CHAMBER PARTIAL DEMOLITION - PLAN, SECTIONS AND DETAILS
1-0242G-S0002-002	GATE CHAMBER PARTIAL DEMOLITION - SECTIONS AND DETAILS
1-0242G-S0003-001	GATE CHAMBER ALTERATION - PLAN, SECTIONS AND DETAILS
1-0242G-S0003-002	GATE CHAMBER ALTERATION - SECTIONS AND DETAILS
1-0242G-S0004-001	GATE CHAMBER ALTERATION - CONCRETE REINFORCING DETAILS
1-0242G-S0004-002	GATE CHAMBER ALTERATION - CONCRETE REINFORCING DETAILS
1-0242G-S0004-003	GATE CHAMBER ALTERATION - DETAILS

Appendix List

Appendix A	Historical Record Drawings
Appendix B	Control Narrative
Appendix C	I/O DNP3 Mapping List & Instrument List
Appendix D	Memorandum - Geotechnical Assessment Design Info
Appendix E	City of Winnipeg Electrical Design Guide
Appendix F	City of Winnipeg Identification Standard
Appendix G	Automation & Electrical Commissioning Forms
Appendix H	Outfall Gate Chamber Photos

E2. SOILS INVESTIGATION REPORT

E2.1 Further to C3.1,

- (a) A geotechnical hand auger exploration was conducted to understand the soil conditions above the Doncaster Gate Chamber within the footprints of the chamber expansion. The testing results and geotechnical design information are provided in the Geotechnical

Assessment Memorandum provided in Appendix D. The information listed in that document is considered accurate at the time of the testing and investigation. However, considerable variations in the soil conditions may exist and seasonal fluctuations in ground water levels can be expected.

- (b) Bidders are responsible for any interpretation they place on the supplied information and are expected to make such additional investigation of the soil at the Site as they deem necessary to satisfy themselves.
- (c) Any test borings made by the Bidder shall be done in accordance with the requirements of the appropriate authority of the City of Winnipeg. Bidders shall notify the Contract Administrator prior to starting any soil boring operation.

E3. UNDERGROUND STRUCTURES TEMPORARY RELOCATIONS

E3.1 Further to C3.1,

- (a) It is the responsibility of the Contractor to locate all underground utilities in the vicinity of the Work and temporarily relocate as required for the proposed Construction methods.

GENERAL REQUIREMENTS

E4. OFFICE FACILITIES

E4.1 The Contractor shall supply office facilities meeting the following requirements:

- (a) The building shall be conveniently located near the Site of the Work.
- (b) The building shall have a minimum floor area of 25 square metres, two (2) windows and a door entrance with a suitable lock.
- (c) The building shall be suitable for all weather use. It shall be equipped with an electric heater and air conditioner so that the room temperature can be maintained between either 16-18°C or 24-25°C.
- (d) The building shall be adequately lighted with fluorescent fixtures and have a minimum of three (3) wall outlets.
- (e) The building shall be furnished with a drafting table, a table 2.5m X 1.2m, and a minimum of eight (8) chairs.
- (f) A portable toilet shall be located near the field office building. The toilet shall have a locking door.
- (g) The field office building and the portable toilet shall be cleaned on a weekly basis.

E4.2 Measurement and Payment

- (a) No pay item exists for this work. All work associated with office facilities is considered incidental to Site Development and Restoration.

E5. MOBILIZATION AND DEMOBILIZATION PAYMENT

E5.1 Description

- (a) This Specification shall govern mobilization and demobilization from site.

E5.2 Measurement and Payment

E5.2.1 Mobilization and Demobilization

- (a) Mobilization and demobilization will be measured on a lump sum basis and paid for at the Contract Lump Sum Price for "Mobilization and Demobilization". Payment for Mobilization and demobilization shall include all costs associated with mobilization and demobilization, site set up, and cleanup. Payment will be made on the following schedule:

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

E6. CASH ALLOWANCE FOR ADDITIONAL WORK

- E6.1 Additional Work may be necessitated due to unforeseen circumstances that may arise during the course of the project due to:
- (a) Additions to the scope of Work by the Contract Administrator, beyond that defined herein.
- E6.2 A cash allowance has been included on Form B: Prices.
- E6.3 The City reserves the right to delete any or all of the Cash Allowance from the Contract if the Work intended to be covered by the Cash Allowance is not required, or if the Works intended are found to be more extensive than the provisional Cash Allowance.
- E6.4 Cost of additional work shall be evaluated by the methods outlined in C7.4, and a Change Order prepared by the Contract Administrator. Cost of the Change Order will be paid on the Progress Estimate and deducted from the Cash Allowance. If the valuation of the authorized work exceeds the Value of the Cash Allowance, the Contract Value will be adjusted by the shortfall.
- E6.5 Additional services and/or Work will not be initiated for:
- (a) Reasons of lack of performance or errors in execution.
 - (b) Scheduling changes initiated by the City, where at least 24 hours' notice is given prior to the Contractors schedule time to be on Site.
- E6.6 Should it be determined that additional material or services are required, the Contract Administrator shall approve the Work, prior to commencement of the additional Work.
- E6.7 Material Mark-Up Factors in accordance with C7:
- (a) The base cost is to be the wholesale cost of the material, regardless of the Contractor or Subcontractor supplying the material.
 - (b) In general, the party (Contractor or Subcontractor) supplying the material is the party that purchases the material from a supplier who does not perform any work on Site, unless otherwise determined by the Contract Administrator.
 - (c) Where the Contractor is supplying the material, the mark-up on the material is limited to fifteen percent (15%).
 - (d) Where the Contractor's immediate Subcontractor is supplying the material the total mark-up on the material including all Subcontractors and the Contractor is limited to twenty-five percent (25%)
 - (i) The Subcontractor's mark-up on the material is limited to fifteen percent (15%);
 - (ii) The Contractor's mark-up on the material is limited to ten percent (10%).
 - (e) A Third-Level Subcontractor is a Subcontractor of a Subcontractor of the Contractor.
 - (i) No Third-Level Subcontractors on this project are approved for additional mark-up.
 - (ii) In the event that a Third-Level Subcontractor is utilized, that is not approved for additional mark-up, the Contractor is responsible for coordinating the split of the maximum approved mark-up between the Contractor and Subcontractors.
 - (f) A Third-Level Subcontractor is a Subcontractor of a Subcontractor of the Contractor.
 - (i) No Third-Level Subcontractors on this project are approved for additional mark-up.

- (ii) In the event that a Third-Level Subcontractor is utilized, that is not approved for additional mark-up, the Contractor is responsible for coordinating the split of the maximum approved mark-up between the Contractor and Subcontractors.

E6.8 Measurement and Payment

- (a) Additional material will be reimbursed by the actual base cost of the material, multiplied by the approved mark-up factors.

E7. TRAFFIC CONTROL

E7.1 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) Diamond lane removal,
- (e) Full or directional closures on a Regional Street,
- (f) Traffic routed across a median,
- (g) 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.
- (h) Approved Designated Construction Zones with a temporary posted speed limit reduction. Traffic Services will be responsible for placing all of the advance signs and 'Construction Ends' (TC-4) signs. The Contractor is still responsible for all other temporary traffic control including but not limited to barricades, barrels and tall cones.

E7.2 Further to (c), the Contractor shall make arrangement with the Traffic Services Branch of the City of Winnipeg to supply regulatory signs as required.

E7.3 Upon request from the Contract Administrator, the Contractor shall provide records demonstrating that the Site has been maintained.

E7.4 Further to E7.1(c) and E7.1(d) 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.

E7.5 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.

E7.6 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.

E8. TRUCK WEIGHT LIMITS

E8.1 The City shall not pay for any portion of material which results in the vehicle exceeding the maximum gross vehicle weight allowed under The City of Winnipeg Traffic By-Law, unless such vehicle is operating under special permit.

E9. DANGEROUS WORK CONDITIONS

- E9.1 Further to C6.13 of the General Conditions, the Contractor shall be aware that underground chambers, manholes, and sewers are considered a confined space and shall follow the "Guidelines for confined Entry Work" as published by the Manitoba Workplace Safety and Health Division.
- E9.2 The Contractor shall be aware of the potential hazards that can be encountered in gate chambers, manholes and sewers such as explosive gases, toxic gases and oxygen deficiency.
- E9.3 The air in a confined space must be tested before entry and continuously during the time that personnel are inside the space. Equipment for continuous monitoring of gases must be explosion-proof and equipped with a visible and audible alarm. The principal tests are for oxygen deficiency, explosion range and toxic gases. Testing equipment must be calibrated in accordance with manufacturer's specifications.
- E9.4 The Contractor shall ventilate all confined spaces including underground chambers, tunnels, pipes, and shafts as required and approved by the Manitoba Workplace Safety and Health Act (the "Act"). If no ventilation is supplied, a Worker must wear a respirator or supplied air to enter the confined space.
- E9.5 Workers must always wear a respirator or supplied air when entering a chamber, manhole or sewer where live sewage is present.
- E9.6 The Contractor shall always have a photoionization detector (PID) on Site to monitor potential hydrocarbon vapours in the confined spaces. The gas detector and safety equipment conforming to the Act shall be made available to the Contract Administrator for his/her use during inspections. In addition, the Contract Administrator shall collect discrete air samples for laboratory analysis.
- E9.7 The Contract Administrator may issue a Stop Work order to the Contractor if the above guidelines are not being followed. The Contractor shall not resume his operations until the Contract Administrator is satisfied the Contractor is following the appropriate procedures. The Contractor shall have no claim for extra time or costs due to the Stop Work order for not following these safety guidelines.

E10. WATERWAY BY-LAW COMPLIANCE

- E10.1 The Contractor shall note that all Works fall within 107 meters (350 feet) of the regulated summer water level of the Red River and are within the jurisdiction of the Waterway By-law. The Contract Administrator will apply and arrange for payment by the City for the required Waterway Permits for the permanent Work. The Contractor shall adhere to restrictions imposed by the permit.
- E10.2 The Contractor shall be responsible to apply and pay for a Waterway Permit for all temporary Works, including construction of access ramp(s) as outlined in Site Development and Restoration.
- E10.3 Under no circumstances will stockpiling of any material be permitted within 107 m (350 ft) of the regulated summer water level of the Red River.

E11. FLOW CONTROL

- E11.1 Description
- (a) During winter months, land drainage and storm relief sewers can receive flow of an undetermined amount from groundwater infiltration, water main breaks, snow melt and other unforeseen sources.

- (b) Provide flow control measures to contend with and maintain flow in the existing sewers directed to the outfall pipe being replaced. Flow control measures shall include but not be limited to diversions, flumes and by-pass pumping.
- (c) Provide a cofferdam just downstream of the work area as required to prevent river water from entering the excavation. The cofferdam shall be constructed in accordance with "Sandbag Dike Construction Instructions" as published by the Government of Manitoba Emergency Measures Organization. Cofferdams shall be constructed with 6 mil polyethylene sheeting to ensure water-tightness. Maintain a 150mm (6") freeboard at all times. Downstream cofferdams shall not be constructed to more than one-half of the pipe diameter as to not restrict flows in the case of an emergency condition (e.g. watermain break).
- (d) The existing slide gate must remain in place until installation of the new flap gate has been completed to ensure continued flood protection of the upstream SRS pipe.
- (e) Discharge hoses for by-pass pumping shall not be laid across vehicle or pedestrian traffic areas and must be protected from freezing during winter months. Pumping equipment if used, shall be set-up in a location and in such a way to not be a noise problem for nearby residences
- (f) Provide a flow control plan the site to the Contract Administrator for review and approval before removing any existing sewer pipe.**
- (g) In the event the flow in the sewer system is expected to exceed the sewer capacity due to spring runoff, the Contract Administrator may suspend Work activities that require temporary by-pass pumping and temporary shutdown of the Site. Suspension of these activities will continue until the high flow diminishes in the sewer.
- (h) If in the opinion of the Contract Administrator suspension of Work activities that require temporary by-pass pumping and temporary shutdown of the Site may cause a delay in completion of the Work through no fault of the Contractor, the completion date of the Work may be adjusted accordingly.

E11.2 Measurement and Payment

- (a) Payment for flow control shall be included under the item "Site Development and Restoration". No separate measurement or payment is to be made.

E12. SHOP DRAWINGS

E12.1 Description

- (a) This Specification shall revise, amend and supplement the requirements of CW1110.
 - (i) 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.
 - (ii) 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 on all submissions for Engineering review.
- (b) Shop Drawings
 - (i) 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.
- (c) Contractor's Responsibilities
 - (i) Review shop drawings, product data and samples prior to submission and stamp and sign drawings indicating conformance to the Contract requirements.
 - (ii) Verify:
 - (i) Field Measurements
 - (ii) Field Construction criteria

- (iii) Catalogue numbers and similar data
 - (iii) Coordinate each submission with requirements of Work and Contract documents. Individual shop drawings will not be reviewed until all related drawings are available.
 - (iv) Notify Contract Administrator, in writing at time of submission, of deviations from requirements of Contract documents
 - (v) Responsibility for deviations in submission from requirements of Contract documents is not relieved by Contract Administrator's review of submission, unless the Contract Administrator gives written acceptance of specified deviations.
 - (vi) Responsibility for errors and omissions in submission is not relieved by the Contract Administrator's review of submittals.
 - (vii) 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 the previous submission.
 - (viii) After Contract Administrator's review and return of copies, distribute copies to sub-trades as required.
 - (ix) 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.
- (d) Submission Requirements
- (i) Schedule submissions at least seven (7) calendar days before dates reviewed submissions will be needed and allow for a seven (7) calendar day period for review by the Contract Administrator of each individual submission and re-submission, unless noted otherwise in the Contract documents.
 - (ii) Submit five (5) paper prints of shop drawings. The Contractor is advised that the Contract Administrator will retain three (3) copies of all submittals and return two (2) copies to the Contractor.
 - (iii) Accompany submissions with transmittal letter, containing:
 - (i) Date
 - (ii) Project title and Tender 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
 - (iv) Submission shall Include:
 - (i) Date and revision dates.
 - (ii) Project title and Tender number.
 - (iii) Name of:
 - (i) Contractor
 - (ii) Subcontractor
 - (iii) supplier
 - (iv) manufacturer
 - (v) 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, initialled or signed, certifying review of submission, verification of field measurements and compliance with Contract documents.

(e) Other Considerations

- (i) Fabrication, erection, installation or commissioning may require modifications to equipment or systems to conform to the design intent. Revise pertinent shop drawings and resubmit.
- (ii) 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.
- (iii) Incomplete shop drawing information will be considered as stipulated deductions or the purposes of progress payment certificates.
- (iv) No delay or cost claims will be allowed that arise because of delays in submission, re-submissions and review of shop drawings.

E12.2 Measurements and Payment

- (i) 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.

E13. SITE DEVELOPMENT AND RESTORATION

E13.1 Description

E13.1.1 This Specification shall cover all aspects of the Site Development and Restoration Work, including but not limited to coordination with Contract Administrator and other Contractor's working in the area (as required), heating, hoarding, erection, maintenance and removal of safety fencing, swamp mats and materials as required for access, traffic control and signage, sediment control Works, snow clearing, flow control, temporary cofferdams (as required), protection and pruning as required of existing trees, removal and reinstallation of site furniture, office facilities, general access development, access maintenance and removal (including permits required for temporary access works), and Site Restoration.

E13.2 Materials

E13.2.1 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. The Contractor shall keep all equipment in good Working order, and have sufficient standby equipment available at all times, as required.

E13.3 Construction Method

E13.3.1 Site and Construction Access

- (a) The Contractor shall be responsible to develop suitable Site access. This includes but is not limited to, temporary bridging over structures, temporary removal and reinstallation of safety fencing, any landscaping and grading repairs, restoration of vegetation, etc. necessary to restore any Site and construction access areas to their pre-existing condition. Prior to commencing construction, the Contractor shall submit their site access plan to the Contract Administrator for approval.
- (b) All construction access ramps from the top bank area down to the edge of the river shall be constructed by excavating to the necessary ramp grade and disposing of the material off Site. Under no circumstances will the excavated material or any additional materials be placed as fill in the ramp area. Detailed construction access ramp drawings are to be submitted to the Contract Administrator for approval a minimum seven (7) days prior to any construction activity on Site. Where access ramps cross over existing pipe alignments and/or where equipment is required to cross over existing pipe alignments, pipe loading calculations (as required) shall be the responsibility of the Contractor.
- (c) The Contractor is responsible for obtaining and paying for all required permits and permissions that are necessary for Site access, including a Waterways Access Permit, if

required by the City of Winnipeg. Contact the Riverbank Management Engineer at 986-5159 for information regarding Waterways Permits.

- (d) The locations of the Contractor's construction access ramps shall be restored to the same condition or better than it was prior to the initiation of any Work.

E13.3.2 Frozen Waterway Permit

- (e) The Contractor is responsible for obtaining a Frozen Waterway Permit for permission to Work on the river ice. Contact the City of Winnipeg Zoning and Permits Office.

E13.3.3 Diversion of Flows

- (f) Flows such as snowmelt, rainfall, a water main break, or any other flow traveling through the outfall shall be diverted during construction as specified in "Flow Control" section. The cost of the flow diversion is considered incidental to Site Development and Restoration.

E13.3.4 Vegetation Removal

- (g) Some vegetation (living trees smaller than 50 mm, fallen larger trees and sod) removal may be permitted in order to facilitate Site access. Existing vegetation shall not be removed without prior approval from the Contract Administrator. The Contractor shall load and haul any removed vegetation and dispose of the material off Site immediately upon collection. Stockpiling shall not be permitted unless written approval has been obtained from the Contract Administrator.

E13.3.5 Safety Fence

- (h) The Contractor shall erect and maintain for the duration of the project a safety fence, acceptable to the Contract Administrator, to restrict access to the Site. The fencing shall enclose the entire Site with appropriate gates or openings that are closed at the end of each workday. Appropriate signs shall be erected to warn all recreational users of the river that an open water hazard exists. This shall include but not be limited to snowmobilers and skiers. The installed fencing shall consist of Dupont Number L70 orange plastic safety fence or approved equal in accordance with B7, with a mesh spacing of 45 mm, constructed as shown in the contract drawings. Upon completion of the Work, the fence shall be removed and disposed of off Site.

E13.3.6 Environmental Regulations

- (a) The Contractor shall adhere to all relevant Federal and Provincial environmental regulations.
- (b) The Contractor shall supply, in writing, prior to commencement of Work on-site, a detailed plan for sediment control on this project.
- (c) The Contractor shall ensure that sufficient supplies of suitable spill kits are on-site to cleanup minor spills, should they occur. The Contractor shall supply the name, address and phone number of a local supplier, where additional kits are available on short notice.

E13.3.7 General Site Cleanup and Restoration

- (a) All areas of the construction Site shall be restored to a condition at least equivalent to its original condition prior to initiation of Work. This may include, but is not necessarily limited to the Contractor's lay down area, the removal of the Contract Administrator Site trailer, and removal of all temporary fencing.

E13.4 Measurement and Payment

E13.4.1 Site Development and Restoration

- (b) The 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.
- (c) 50% of the Site Development and Restoration unit price will be paid on the first progress payment following commencement of the work on the Site.

- (d) The remaining 50% of the Site Development and Restoration unit price will be paid subsequent to the completion of the Work and restoration and clean-up of the Site.

E13.4.2 Topsoil and Sod

- (e) Further to where topsoil and sodding is required to restore the project site and laydown areas to preconstruction conditions it shall be considered incidental to Site Development and Restoration. No separate payment shall be made for topsoil and sod in these areas.

E14. ENVIRONMENTAL PROTECTION PLAN

E14.1 Fuels, chemicals, or any other hazardous substances which may compromise the safety of the potable water supply shall not be stored outside of the area designated by the Contract Administrator.

E14.2 The Contractor shall plan and implement the Work of this Contract strictly in accordance with the requirements of the environmental protection measures as herein specified.

E14.3 Submittals

- (a) Submit an Environmental Protection Plan two (2) weeks prior to start of Work in accordance with Section 01 33 00 – Submittals.
- (b) Environmental Protection Plan to include:
 - (i) Names of persons responsible for ensuring adherence to Environmental Protection Plan.
 - (ii) Names and qualifications of persons responsible for hazardous waste removal from Site.
 - (iii) Names and qualifications of persons responsible for training Site personnel.
 - (iv) Descriptions of environmental protection personnel training program.
 - (v) Fuel Handling and Storage Plan describing the Contractor's proposed procedure for refuelling of equipment. The plan shall include the location of the designated refuelling area, the provision of containment membranes underneath all equipment being refuelled, the provision of containment membranes underneath all stationary working equipment (e.g., membranes underneath all cranes to contain any leaks), the proposed procedure for refuelling large stationary equipment away from the designated refuelling area (e.g., refuelling of set-up cranes), proposed locations, types, and volumes of stored fuel, and any other details pertinent to refuelling on Site.
 - (vi) Storm Water Pollution Prevention Plan, if applicable, describing water quality protection measures including erosion and sediment controls, inspections, monitoring, and staff training. The plan shall also provide a schematic drawing indicating location and type of sediment protection measures.
 - (vii) Drawings showing locations of proposed temporary excavations or embankments for haul roads, material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials including methods to control runoff and to contain materials on-Site.
 - (viii) Traffic control plans including measures to reduce erosion of temporary roadbeds by construction traffic, especially during wet weather. Plans include measures to minimize amount of mud transported onto paved public roads by vehicles or runoff.
 - (ix) Work area plan showing proposed activity in each portion of area and identifying areas of limited use or non-use. Plan to include measures for marking limits of use areas including methods for protection of features to be preserved within authorized work areas.
 - (x) Spill Control Plan including procedures, instructions, and reports to be used in event of unforeseen spill of regulated substance.
 - (xi) Construction Waste Management Plan describing on-site waste management, disposal, reuse of materials, recycling, and staff training.

- (xii) Hazardous Material Spill Management Plan describing management, reporting, emergency response and contact numbers, as well as staff training.

E14.4 The Contractor is advised that at least the following Acts, Regulations, and By-laws apply to the Work:

- (a) Workplace Hazardous Material Information System (Hazardous Product Act and Canada Labour Code);
- (b) Canadian Environmental Protection Act;
- (c) Canadian Environmental Assessment Act;
- (d) Transportation of Dangerous Goods Act;
- (e) Manitoba Environmental Act;
- (f) The Manitoba Nuisance Act N120;
- (g) The Public Health Act c.P210;
- (h) Manitoba Dangerous Goods, Handling, and Transportation Act;
- (i) The Workplace Safety and Health Act W210; and
- (j) Current applicable associated regulations.

E14.5 The Contractor is advised that the following environmental protection measures apply to the Work.

E14.5.1 Material Handling and Storage

- (a) Construction materials shall not be stored within 5 m of existing pipe centerlines.

E14.5.2 Fuel Handling

- (a) The Contractor shall abide by the regulations of Manitoba Environment for handling and storage of fuel products.
- (b) All fuel handling and storage facilities shall comply with The Dangerous Goods and Transportation Act Storage and Handling of Petroleum Products Regulation and any local land use permits.
- (c) Fuels, lubricants, and other potentially hazardous materials as defined in The Dangerous Goods and Transportation Act shall be stored and handled within the approved storage areas.
- (d) The Contractor shall ensure that all fuel storage containers are inspected daily for leaks and spillage.
- (e) Products transferred from fuel storage area(s) to specific work sites shall not exceed the daily usage requirement.
- (f) When servicing requires the drainage or pumping of fuels, lubricating oils, or other fluids from equipment, a groundsheet of suitable material (such as HDPE) and size shall be spread on the ground to catch the fluid in the event of a leak or spill.
- (g) 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.
- (h) A sufficient supply of materials such as absorbent material and plastic oil brooms, to clean-up minor spills shall be stored nearby on-Site. The Contractor shall ensure that additional material can be made available on short notice.
- (i) Fuelling of stationary equipment shall be completed with portable tanks containing only enough fuel to fill equipment.

E14.5.3 Waste Handling and Disposal

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

- (b) At no time during construction shall personal or construction waste be permitted to accumulate for more than one (1) day at any location on the Site, other than at a dedicated storage area as may be approved by the Contract Administrator.
- (c) Indiscriminate dumping, littering, or abandonment shall not take place.
- (d) Equipment shall not be cleaned on Site unless at areas designated by the Contract Administrator.

E14.5.4 Dangerous Goods/Hazardous Waste Handling and Disposal

- (a) Dangerous goods/hazardous waste are identified by, and shall be handled according to, The Dangerous Goods Handling and Transportation Act and Regulations.
- (b) The Contractor shall be familiar with The Dangerous Goods Handling and Transportation Act and Regulations.

E14.5.5 Fires

- (a) Fires and burning of rubbish on-Site shall not be permitted.

E14.5.6 Emergency Spill Response

- (a) The Contractor shall ensure that due care and caution is taken to prevent spills.
- (b) The Contractor shall report all major spills of petroleum products or other hazardous substances with the potential for impacting the environment and threat to human health and safety, including contamination of potable water, to the Contract Administrator and Manitoba Environment, immediately after occurrence of the environmental accident, by calling the twenty-four (24)-hour emergency telephone number 204-945-4888.
- (c) The Contractor shall designate a qualified supervisor as the on-site emergency response coordinator for the project. The emergency response coordinator shall have the authority to redirect manpower in order to respond in the event of a spill.
- (d) The following actions shall be taken by the person in charge of the spilled material or the first person(s) arriving at the scene of a hazardous material accident or the on-Site emergency response coordinator:
 - (i) Notify emergency-response coordinator of the accident:
 - ◆ Identify exact location and time of accident
 - ◆ Indicate injuries if any
 - ◆ Request assistance as required by magnitude of accident (Manitoba Environment twenty-four (24)-hour Spill Response Line 204-945-4888, Winnipeg Police Service, Winnipeg Fire Paramedic Service, company backup)
 - (ii) 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 critical Reservoir infrastructure and other waterlines
 - (iii) If safe to do so, try to stop the dispersion or flow of spill materials:
 - ◆ Approach from upwind
 - ◆ Stop or reduce leak if safe to do so
 - ◆ Dike spill material with dry, inert absorbent material or dry clay soil or sand
 - ◆ Prevent spill material from entering Site infrastructure and utilities by diking
 - ◆ Prevent spill material from entering drainage manholes and other openings by covering with rubber spill mats or diking

- (iv) Resume any effective action to contain, clean-up, or stop the flow of the spilled product.
- (e) The emergency response coordinator shall ensure that all environmental accidents involving contaminants shall be documented and reported to the Manitoba Environment according to The Dangerous Goods and Transportation Act Environmental Accident Report Regulation 439/87.

E14.5.7 Controlled Products

- (a) Materials classified as “Controlled Products” under Regulation 52/88, “Workplace Hazardous Materials Information System”, including amendments, are prohibited inside the Site, unless the material will be directly employed in the Work.

E15. INSTALLATION OF SILT FENCE

E15.1 Description

E15.1.1 This specification covers the erection of temporary silt fencing, which shall be installed and maintained at the locations shown on the Drawings or as directed by the Contract Administrator, to control runoff and minimize the release of detrimental silt loading to watercourses.

E15.1.2 The scope of Work included in this specification is as follows:

- (a) Supply and Install temporary silt fencing at the locations as indicated on the Drawings or as directed by the Contract Administrator, in accordance with the detailed drawing provided, immediately upon completion of the riprap placement and prior to undertaking any other activities on the Site where silt fencing is required.
- (b) Maintain the silt fencing in serviceable condition throughout the entire duration of activities at the Site where silt fencing is required, including final restoration and cleanup of the construction Site.
- (c) Remove the silt fencing and restore the area where the fencing was installed, without further disturbing the area and without releasing any deleterious substances to the adjacent watercourse.

E15.2 Materials

E15.2.1 Fence Posts

- (a) Fence posts shall be 100 mm diameter untreated wood posts or 50 mm diameter steel.

E15.2.2 Filter Fabric

- (a) Filter Fabric Shall be a woven geotextile material specifically designed for a silt fence applications, meeting the following minimum requirements:

Property	Test Method	Value
Grab Tensile Strength	ASTM D 4632	0.55 kN
Grab Tensile Elongation	ASTM D 4632	15%
Mullen Burst	ASTM D 4786	2060 kPa
Puncture	ASTM D 4833	0.285 kN
Trapezoid Tear	ASTM D 4533	0.285 kN
UV Resistance	ASTM D 435	5 80 % @ 500 hrs
Apparent Opening Size (AOS)	ASTM D 4751	0.60 mm
Flow Rate	ASTM D 4491	405 l/min/m ²

Acceptable Product: "Amoco 2130 Silt Fence Fabric" or approved equal in accordance with B7.

E15.2.3 Wire Mesh

- (a) Wire mesh shall be galvanized or plain metal with wire gauge = 3.0 mm, wire spacing @ 150 mm o/c.

E15.2.4 Fencing Material Fasteners

- (a) Staples or wire ties of sufficient strength and spacing to withstand 500 N (100 lbf) pull test at any point on the wire mesh.

E15.3 Construction Methods

E15.3.1 Ensure that no deleterious substances are discharged into the adjacent watercourse at any time during construction activities.

E15.3.2 Silt Fence Installation

- (a) Excavate 150 x 150 anchor trench along alignment of silt fence as indicated.
- (b) Install fence posts as indicated. Ensure that fence posts are firmly driven into undisturbed soil, or are completely and firmly backfilled if installed via auger methods. Attach wire mesh as support backing for silt fence filter fabric with fasteners as specified in "Site Development and Restoration". Attach silt fence filter fabric on top of wire mesh in similar fashion. Overlap any fence seams (wire mesh or filter fabric) by 450 mm minimum. Ensure that wire mesh and filter fabric are installed on the upslope side of the post and are fully laid in anchor trench as shown.
- (c) Install and compact impermeable excavated materials into anchor trench and slope as indicated. Compact to 95% of maximum dry density (ASTM D-698).

E15.3.3 Silt Fence Maintenance

- (a) Inspect silt fence daily, prior to starting any other construction activities. If fence posts are found loose or not upright, repair in accordance with installation procedure as specified in "Site Development and Restoration". If silt fence is found to be loose or torn, repair or replace as necessary to comply with "Site Development and Restoration".
- (b) If silt deposition at the fence is 300 mm or more in depth, carefully remove and dispose of silt offsite without disturbing silt fence.

E15.3.4 Silt Fence Removal

- (a) The silt fence shall remain in place until new vegetation growth has established on the bank, as determined by the Contract Administrator.
- (b) Upon authorization of the Contract Administrator, remove all fence posts, wire mesh, fabric, and fasteners from Site.
- (c) Restore areas disturbed in accordance with "Site Development and Restoration" without releasing any deleterious substances to the adjacent watercourse.

E16. PROTECTION OF EXISTING TREES

E16.1 Take the following precautionary steps to prevent damage from construction activities to existing boulevard trees within the limits of the construction area. Contact the City of Winnipeg Forestry Branch at 204-986-2004 if you require further information on these specifications:

- (a) For trees greater than 100 mm in diameter, attach wood strapping material having a minimum thickness of 25 millimetres and minimum length of 2440 millimetres around tree trunks in a manner that will not harm the trees. Do not use nails or other fasteners that penetrate into trees. The width of strapping should suit the size of the tree being protected. Length of strapping may be reduced to suit tree being protected as approved by the Contract Administrator.

- (b) For trees less than 100 mm in diameter, install snow fencing around the tree to a 2.0 meter radius complete with installation hardware. The 2.0 meter radius of the snow fencing may be reduced to suit the tree being protected as approved by the Contract Administrator.
- (c) Operation of equipment within the dripline of the trees shall be kept to the minimum required to perform the work. Equipment shall not be parked, repaired, refueled; construction materials shall not be stored, and earth materials shall not be stockpiled within the driplines of the trees. The dripline of a tree shall be considered to be the ground surface directly beneath the tips of its outermost branches. The Contractor shall ensure that the operations do not cause flooding or sediment deposit on areas where trees are located.
- (d) Repair, replace and maintain tree protection material during construction of the Work.
- (e) Remove snow fencing and strapping material without harming trees as soon as the construction and restoration work is complete.

- E16.2 Obtain approval from the Contract Administrator to excavate within 2.0 meters of a tree.
- E16.3 Excavate in a manner to minimize damage to root systems. Keep exposed roots in excavations and trenches moist or shaded.
- E16.4 Prune exposed roots with equipment such as trenchers, chain saws, root cutters or other methods acceptable to the Contract Administrator in a manner that will leave a neat, clean root end.
- E16.5 Take precautions to ensure tree limbs overhanging the Site are not damaged by construction equipment. Consult the Forestry Branch on pruning of overhanging or damaged limbs and branches and other unanticipated problems with trees during construction of the Works.
- E16.6 American elm trees shall not be pruned between April 1st and August 1st and Siberian elm trees between April 1st and July 1st of any year under provisions of The Dutch Elm Disease Act.
- E16.7 All damage to existing trees caused by the Contractor's activities shall be repaired as required by the Contract Administrator and the Forestry Branch. Damages must be repaired by an individual with a Manitoba Arborist license or by the Forestry Branch.
- E16.8 The Forestry Branch will remove and replace any trees deemed to have died or that are dying due to damage from carelessness during construction. Removal and replacement costs will be determined by size and market price. The market price will be a comparable transplantable tree of the same or different species or may be the appraised value of the existing tree, as determined by an evaluation procedure presently used by Forestry Branch in conjunction with City Claims Branch. The evaluation procedure is in accordance with current International Society of Arboriculture evaluation procedure.
- E16.9 Protection of existing trees, repair of trees and pruning of damaged limbs will not be measured for payment and will be included with Underground or Surface Works. Removal and replacement of existing trees by the Forestry Branch deemed to have died or that are dying due to damage from carelessness during construction will be at the Contractor's cost and will be invoiced or deducted from any payments owing.

E17. TREE PLANTING

E17.1 Description

- E17.1.1 If required, trees will be planted in 2026 as directed by the Contract Administrator. Plantings will consist of trees in various container sizes.
- E17.1.2 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.

- E17.1.3 Work shall include, but not necessarily confined to, the relocation, supply and installation of trees and shrubs.
- E17.1.4 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.
- E17.1.5 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.
- E17.1.6 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 15th, the maintenance period will commence on May 15th 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:
- (i) Maintenance work carried out.
 - (ii) Development and condition of plant material.
 - (iii) Preventative or corrective measures required which are outside Contractor's responsibility.
- E17.1.7 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.

E17.1.8 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.

E17.2 Materials

E17.2.1 Planting Soil and Mulch

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

E17.2.2 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.

E17.2.3 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.

E17.2.4 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.

E17.2.5 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.

E17.3 Construction Methods

E17.3.1 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.

E17.3.2 Planting Time

- (a) Plant trees as early as May 15, 2024 but no later than June 30, 2024 depending on 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.

E17.3.3 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.

E17.3.4 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 workday. 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.

E17.3.5 Trunk / Beaver Protection

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

E17.3.6 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.

E17.3.7 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.

E17.4 Measurement and Payment

E17.4.1 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.

E17.4.2 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.

E18. TREE REMOVAL

E18.1 Description

E18.1.1 This specification shall cover the removal of existing trees.

E18.1.2 The Work to be done by the Contractor under this specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all things necessary for and incidental to the satisfactory performance and completion of all Work as hereinafter specified.

E18.2 Materials

E18.2.1 Existing Trees to be Removed

- (a) 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.

E18.3 Construction Methods

E18.3.1 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.

E18.3.2 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.

E18.3.3 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.

E18.4 Measurement and Payment

E18.4.1 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

E18.4.2 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.

E19. ALLOWANCE FOR HIGH FLOW THROUGH CONSTRUCTION SITE CLEANUP (IF REQUIRED)

E19.1 Description

- (a) This specification covers work required to clean and restore the Site in order to resume work following a high flow event that surpasses the Contractor's specified flow control and floods the excavation.
- (b) The occurrence of a high flow event that requires clean-up to resume work shall be determined by the Contract Administrator.
- (c) Occurrences following the date of Substantial Performance will not be considered.

E19.2 Measurement and Payment

- (a) High Flow Through Construction Site Clean Up shall be paid for under the Contract Unit Price for "Cash Allowance for Additional Work". Costs will be based on actual invoiced costs to complete the site cleanup with allowable mark-ups in accordance with the General Conditions.

E20. EXCAVATION & SHORING

E20.1 Description

- (a) This Specification shall cover shoring requirements for the Works related to outfall gate chamber upgrades, as shown on the drawings.

E20.2 Construction Methods

E20.2.1 Excavation

- (a) Remove excavated material from the Site immediately. Excavated material shall not be stockpiled on-site unless it will be used as backfill the same day it is excavated.
- (b) All working areas below grade shall be kept adequately and securely supported during and after excavation until the shoring and bracing is in place to prevent loss of ground or injury to any person from falling material.

E20.2.2 Excavation Security Fence

- (a) Further to Clause 3.1 of CW 1130, completely cover the excavation and provide a security fence to completely surround the excavation when unattended generally in accordance with the following.

- (b) Security fence shall be chain link fence or approved equal, a minimum 1.80 meters high with metal support posts embedded far enough into the ground and spaced close enough together so the fence will not sag or collapse.
- (c) Attach fencing securely to posts.
- (d) Secure the gate or end of the fencing to a post with chain and a padlock.
- (e) Provide alternate security fence proposal to Contract Administrator for approval.

E20.2.3 Shoring

- (a) The type, strength, and amount of shoring and bracing shall be such as the nature of the ground and attendance conditions may require, taking into account property lines, existing slopes, utilities, roadways and existing structures.
- (b) Shoring and bracing shall be so spaced and dimensioned as to prevent caving, loss of ground, surface settlement, or squeezing of the soil beyond the neat lines of excavation. It shall be free from defects that might impair its strength or suitability for the Work. Sheeting/shoring and bracing shall conform to the latest revisions of the "Construction Safety Act" of the Department of Labour of the Government of Manitoba and in accordance with Province of Manitoba "W210 The Workplace Safety and Health Act" and "Guidelines for Excavation Work".
- (c) Submit AutoCAD shop drawings and design calculations for the shoring/excavation system as well as the shop drawings sealed by a Professional Engineer registered or licensed to practice in the Province of Manitoba and experienced in the structural design of shoring systems. The designer of the shoring system shall inspect the system during construction and certify, in writing to the Contract Administrator, that construction is in conformance with the approved design.
- (d) Shoring and bracing shall be installed such that the structure size and wall thickness shown on the shop drawings can be obtained subsequent to installation of the shoring system.
- (e) Shoring and bracing shall be designed and installed to prevent settlement and damage to existing structures. 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.
- (f) Shoring and bracing shall be designed and installed to ensure that there is adequate space to achieve compaction of bedding and backfill and such that it does not impact compaction of bedding and backfill and/or cause settlement when shoring is removed.
- (g) Shoring and bracing shall remain in place until concrete has attained 75% of the design strength.

E20.2.4 Monitoring Movement of Shoring

- (a) The Contractor shall submit to the Contract Administrator a plan for monitoring the movement of shoring during construction a minimum of two (2) working days prior to commencing the installation of shoring. The monitoring plan shall be performed by approved survey methods for vertical or horizontal movement of the shoring, acceptable to the Contract Administrator. The shoring shall be surveyed at a minimum once every two (2) weeks. Costs for monitoring shall be incidental to the installation of the temporary shoring.

E20.3 Measurement and Payment

- E20.3.1 Excavation & Shoring will be paid for at the Contract Lump Sum Price for "Excavation & Shoring". Said price shall be payment in full for supplying all materials and performing all operations herein described and all other items incidental to the Work included in this Specification.

E21. DEMOLITION OF STRUCTURES

E21.1 Description of Work

The Work required under this section shall include, but is not limited to, the following:

- (a) Temporary removal and replacement of the existing aluminum top chamber cover.
- (b) Demolition of the existing corroded steel beam
- (c) Partial demolition of the existing outfall chamber concrete to the extent indicated in drawings.
- (d) Removal of the existing flap and slide gates and all related hardware.
- (e) Removal and disposal of construction debris.

E21.1.1 The work to be done by the Contractor under this section shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies, and all things necessary for and incidental to the satisfactory performance and completion of all Works as described in this section.

E21.2 References

E21.2.1 CSA S350-M1980, Code of Practice for Safety in Demolition of Structures.

E21.2.2 Manitoba Workplace Safety and Health Act, and all applicable National, Provincial and Municipal regulations.

E21.3 Protection

E21.3.1 Prevent damage to the existing structure to remain. Provide bracing and shoring as required. Make good any damage caused by the demolition Work.

E21.3.2 Take precautions to support affected structures and, if safety of structure being demolished or adjacent structures appears to be endangered, cease operations and notify the Contract Administrator.

E21.3.3 The Contractor shall take precautions during demolition works to prevent damage to existing structures and adjacent property. 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.

E21.4 Execution

E21.4.1 Commencement

- (a) Demolition shall commence after certification of the shoring system has been received and approved by the Contract Administrator.

E21.4.2 Inspection

- (a) Inspect Site with Contract Administrator and verify extent of items for removal, disposal, salvage and items to remain.
- (b) Notify and obtain approval of Contract Administrator before starting demolition.

E21.4.3 Safety Code and Requirements

- (a) Unless otherwise specified, carry out demolition in accordance with the City of Winnipeg Safety Directives and Guidelines.

E21.4.4 Demolition

- (a) Demolish structures as shown in project drawings to permit construction of new work as required.
- (b) Remove existing equipment, services, and obstacles where required for refinishing or making good of existing surfaces and replace as Work progresses.
- (c) At end of each day's Work, leave Work in safe condition so that no part is in danger of toppling or falling
- (d) Do not sell or burn materials on Site.

- (e) Damage to concrete that is to remain shall be minimized. Concrete shall be demolished by sawcutting and subsequent jackhammering using hand-held breakers or jack hammers (maximum 10 kgs/20 lbs.). Other methods of performing concrete demolition may be submitted for review and approval to the Contract Administrator. The Contractor shall take measures to ensure that the concrete beyond the limits of demolition is not fractured or shattered. The Contractor shall remove using acceptable methods and replace any concrete which is deemed to be fractured as a result of demolition methods employed by the Contractor. This repair Work shall be performed at no additional cost to the City of Winnipeg.

E21.4.5 Demolition Tolerances

- (f) All demolition shall be done using equipment and procedure to prevent over-breakage of the existing structure.
- (g) Final demolition surfaces must remain locally within (25 mm) of the demolition lines, alignments, or limits shown on the drawings. Demolition beyond the limits shown shall be reviewed by the Contract Administrator. The Contractor shall repair excess demolition to the satisfaction of the Contract Administrator, and at no cost to the City where required.
- (h) All protrusions into the defined limits of demolition shall be removed if they interfere with the placement and alignment of embedded components or reinforcing steel.

E21.4.6 Abrasive Wiresaw and Sawcutting

- (a) Areas of demolition shall be delineated from existing concrete that is to remain using either abrasive disc sawcutting, or abrasive wiresawing.
- (b) All sawcuts shall be performed straight and normal to the surface being cut, following the locations shown on the drawings, or as directed by the Contract Administrator.
- (c) Overruns at the junctions of sawcuts, and mis-starts shall be cleaned and filled with dry patching mortar of matching colour, as directed by the Contract Administrator.
- (d) Minimum depths of sawcuts shall be 38 mm (1-1/2") unless otherwise shown on drawings.

E21.4.7 Disposal of Demolished Material

- (a) The Contractor shall be responsible for removal of debris and waste from the Work area to the location to an appropriate solid waste disposal area approved by the Contract Administrator.
- (b) Metal debris, which may include reinforcing steel, shall be removed from Site and disposed of by the Contractor.

E21.4.8 Special Provisions – Existing Slide Gate

- (a) Removal of the existing slide gate and partial demolition of the existing slide gate concrete headwall can only commence after successful installation of the new downstream slide gate to ensure continuous flood protection of the upstream SRS pipe. The Contractor shall request authorization from the Contract Administrator a minimum of five (5) working days prior to removal of the existing slide gate and associated hardware.

E21.5 Measurement and Payment

E21.5.1 Demolition

Demolition work will be paid for at the Contract Lump Sum Price for "Demolition".

No payment shall be made for demolition beyond the limits specified, or those otherwise approved by the Contract Administrator. The separation, as necessary of embedded and structural steel shall be considered incidental to the Work. The installation of temporary supports, shoring or hangers shall also be considered incidental to the Work. Saw cutting of concrete and removal of construction debris shall be considered incidental to the Work.

E22. CAST-IN-PLACE CONCRETE CONSTRUCTION

E22.1 Description

E22.1.1 This specification will cover construction of cast-in-place concrete and shall supplement, revise and amend CW 2160.

E22.2 Materials

(a) Concrete Mix Design

The Contractor shall be responsible for the design and performance of all concrete mixes supplied under this Specification. Concrete shall be supplied in accordance with the requirements of CSA A23.1-14, with the minimum properties as provided below:

(i) Concrete Walls, Slab Piles, Electrical Pad etc.:	
Class of Exposure	S-1
Maximum Size of Aggregate	20 mm
Cement Type	HS
Maximum Water/Cementing Materials Ratio	0.40
Compressive Strength at 56 Days	35 MPa
Slump/Flow	80 mm +/- 20 mm
Air Content	5% - 8%
(ii) Wall infills at new gates:	
Class of Exposure	S-1
Maximum Size of Aggregate	10 mm
Cement Type	HS
Maximum Water/Cementing Materials Ratio	0.40
Compressive Strength at 56 Days	35 MPa
Slump/Flow	Self-Consolidated Concrete
Air Content	5% - 8%

(b) Provide a "Mix Design Statement" for each type of concrete to be used certifying constituent materials and mixing proportions to the Contract Administrator at least two (2) weeks prior to delivery of Concrete to the Site. Supply reasonable evidence to the Contract Administrator that the mix proportions selected will produce concrete meeting the specified strength, workability and yield.

(c) Admixtures

- (i) All admixtures shall be compatible.
- (ii) Air entraining agent shall meet ASTM C260.
- (iii) Chemical water reducing admixtures shall meet ASTM C494.

(d) Grout and Hydraulic Cement

- (i) Grout shall be Sika Grout 212 SR or approved equivalent in accordance with B7.
- (ii) Hydraulic cement for form hole patching shall be Xypex Patch-n-Plug or approved equivalent in accordance with B7.

(e) Reinforcing Steel

- (i) Bar accessories:

- To be made of a non-corroding material
 - Shall not stain, blemish or spall the concrete surface for the life of the concrete
 - Shall be approved by the Contract Administrator
 - Bar chairs shall be PVC
 - (ii) Bonding Agent shall be Sika Latex R or approved equivalent in accordance with B7.
 - (iii) Reinforcement is new deformed billet steel bar conforming to CSA G30.18 (Latest). Grade 400.
 - (iv) Refer to structural drawings for concrete cover requirements.
 - (v) Reinforcing steel shall be clean, free of rust, dirt, loose scale, oil, grease or any material that could reduce bond with the concrete.
- (f) Anchors
- (i) All concrete anchors shall be hot dip galvanized except all anchors related to gates and gates operations shall be of stainless steel unless noted otherwise on drawings. All adhesive anchors shall be only performed by personnel trained in such installations. Contractor shall provide the training certificates for such personnel stating that the personnel is trained for adhesive anchor installation.
- (g) Shop Drawings:
- (i) Provide shop drawings in accordance with the shop drawings submission requirements of this specification.
 - (ii) Submit shop drawings for reinforcing steel a minimum of two (2) weeks prior to the fabrication of any reinforcing steel.

E22.3 Construction Methods

E22.3.1 Construction Method Submission

- (a) No Work shall commence on construction of cast-in-place concrete until after the Contract Administrator's review of the Contractor's Construction Method submission.
- (b) The Contractor shall prepare for the Contract Administrators review a Construction Method submission detailing:
 - (i) Construction sequence to be followed including all methods to be employed.
 - (ii) Specialized equipment to be used.
 - (iii) Any design revisions proposed to accommodate the Contractor's proposed construction method.
- (c) The Contractor shall respond to any concerns that may be raised by the Contract Administrator after review of Construction Method submission.

E22.3.2 Cast-in-place Concrete Chamber Modifications

- (a) Construct cast in place concrete in accordance with CW 2160, except as supplemented, revised or amended in this specification and as indicated in the construction notes on the drawings.
- (b) Dowelling into the existing concrete with adhesives shall be only performed by personnel trained in such installations. Contractor shall provide the training certificates for such personnel stating that the personnel is trained for such dowel installation.
- (c) Adjust the location of reinforcing steel adjacent to openings to frame those openings in accordance with good practice and maintain the bar spacing intent.
- (d) Do not use welded splices for reinforcing steel.
- (e) Order all wall reinforcement steel in lengths to best suit the spacing of walers so that reinforcing bars will not be bent or misformed in order to remove the walers.
- (f) Remove all form tie plastic cones and patch with hydraulic cement compound.

E22.3.3 Cast-in-place Concrete Piles

- (a) The Contractor shall be responsible to verify the existence of all underground services in the piling area whether shown or not. Expose all services close to the piling as required.
- (b) Reinforce all piles as detailed on the drawings. Concrete shall be in accordance with CW 2160, except as supplemented, revised or amended in this specification and as indicated in the construction notes on the drawings.
- (c) Vibrate the top 4.5 m of concrete in all piles.
- (d) Piles should not be more than 50mm out of position laterally at the top and not more than 2% out of plumb.
- (e) The Contractor shall have materials and means ready to provide sleeving and tremie concrete placement in the event that drilled hole experiences sloughing and excessive water ingress. Cost for sleeving and tremie concrete placement shall be incidental to work under this section.

E22.3.4 Concrete Chamber Backfill Requirements

- (a) Place and compact backfill material as indicated in the drawings and in accordance with CW 2030.
- (b) Do not place backfill material in a frozen state.
- (c) Supply heating and hoarding in accordance with CW 2160 if required to ensure material does not freeze before compaction is complete.
- (d) Notify the Contract Administrator at least one (1) full working day in advance of any backfilling operation. No Backfill shall be placed against concrete until approved by the Contract Administrator and in no case before field cured test cylinders show the concrete strength to be 75% of that specified.

E22.3.5 Grout and Hydraulic Cement

- (a) Mix and apply grout or hydraulic cement in accordance with the manufacturer's instructions. Consistency is to be suitable for the intended application

E22.4 Measurement and Payment

- E22.4.1 Work under this section will be paid for at the Contract Lump Sum Price for "Cast-in-Place Concrete." Said price shall be payment in full for supplying all materials and performing all operations herein described and all other items incidental to the Work included in this specification.

E23. COLD WEATHER REQUIREMENTS

- E23.1 Should any concrete Work be required to be carried out when the daily mean temperature is below 5°C or anticipated to be below 5°C within the next 24 hours, cold weather requirements will be specified herein.
- E23.2 All freshly placed concrete shall be protected from the elements and from defacements due to construction operations.
- E23.3 The following are minimum requirements for protecting concrete during and after placement during freezing weather, but mere adherence to these requirements will not relieve the Contractor of the necessity for producing concrete which has not been weakened or injured by frost or freezing, or replacing such damaged Work at no additional cost to the City;
 - (a) Before any concrete is placed, all ice, snow, and frost shall be completely removed from all formwork, and other surfaces against which concrete temperatures of such surfaces raised above 7°C for twenty-four (24) hours minimum prior to concreting. Where concrete Work is to come in contact with the earth, the surface of the earth shall be completely free of frost when concrete is placed thereon.
 - (b) Concrete aggregates and water shall be heated to not over 80°C. Concrete shall be not less than 20°C or more than 30°C in temperature when deposited. Concrete when placed during

freezing weather, or if freezing is anticipated during curing period, shall be fully enclosed and the temperature of same maintained at not less than 20°C for five (5) days nor less than 5°C for an additional five (5) days.

- (c) Heating enclosures shall be strong and wind-proof, well ventilated with heating units so located as to prevent local overheating or drying of the concrete or damage from combustion gases. Only indirect fired heaters will be accepted. Units must be vented outside the enclosure. No direct fired units will be accepted.
- (d) The Contractor shall inform the Contract Administrator well in advance as to the methods of enclosure and frost protection he proposes to employ.

E23.4 Measurement and Payment

E23.4.1 Cold weather requirements shall be considered incidental to the construction of Cast-in-Place concrete and no payment will be made for this item.

E24. METAL FABRICATIONS

E24.1 Description

E24.1.1 General

- (a) This Specification shall cover the supply, fabrication, transportation, handling, delivery and placement of metal fabrications.

E24.2 Materials

E24.2.1 All material shall be of a type acceptable to the Contract Administrator, and shall be subject to inspection and testing by the Contract Administrator.

E24.2.2 Material intended for use in the various assemblies shall be new, straight, and clean with sharply defined profiles.

E24.2.3 Steel Sections and Plates: to CAN/CSA G40.20/G40.21, Grade 300 W, except W, HP AND HSS sections, which shall be Grade 350 W.

E24.2.4 Steel Pipe: to ASTM A53/A53M, seamless, galvanized, as specified by item.

E24.2.5 Welding materials: to CSA W59.

E24.2.6 Hot dipped galvanized steel repair material: Gal-Viz

E24.2.7 Stud Anchors: to ASTM A108, Grade 1020.

E24.2.8 Aluminum: to CAN/CSA S157 and the Aluminum Association 'Specifications for Aluminum Structures'. Aluminum for plates shall be Type 6061-T651. Aluminum plate shall have an approved raised oval or multi-grip pattern.

E24.2.9 Isolation sleeves shall be "Nyltite" – headed sleeves as manufactured by Spaenaur of Kitchener, Ontario, or approved equal.

E24.2.10 Anchor bolts and fasteners: ASTM F1554 Grade 36 (galvanized); ASTM F3125 A325 (galvanized); ASTM A276, Type 316 stainless steel, of ample section to safely withstand the forces created by operation of the equipment or the load to which they may be subjected. Existing concrete shall be scanned for rebar location prior to anchor installation in order to avoid interfering and damaging the rebar.

E24.3 Construction Methods

E24.3.1 Submittals

- (a) The Contractor shall submit the qualifications of the fabricator and welders to the Contract Administrator for acceptance. Submit shop drawings in accordance with the shop drawings submission requirements of this specification, clearly indicating material, core thickness, finishes, connections, joints, methods of anchorage, number of anchors, supports, reinforcement, details and accessories. Indicate field measurements on shop

drawings. Where a specific connection detail is not shown on construction drawings, it needs to be designed by a third-party engineer licensed in Province of Manitoba. Shop drawings showing such connections shall be sealed.

E24.3.2 Fabrications

- (a) Fabricate Work square, true, straight and accurate to required size, with joints close fitted and properly secured. Assemble Work in such a way that no disfigurements show in the finished Work or impair the strength.
- (b) Confirm measurements for all fabrications before fabricating.
- (c) Cut aluminum plate with edges straight and true, as far as practical; maintain the continuity of the pattern at abutting edges.
- (d) Pieces shall be of the sizes indicated on the drawings and shall not be built up from scrap pieces. Confirm sizes with field measurements,
- (e) Where possible, fit Work and shop assemble, ready for erection.
- (f) Remove and grind smooth burrs, filings, sharp protrusions, and projections from metal fabrications to prevent possible injury. Correct any dangerous or potential harmful installations as directed by the Contract Administrator.
- (g) Angle frames shall be of the same material as the cover plate (except for existing frames designated on the drawings for re-use), and cover plates shall be hinged and be supplied with lifting handles, as shown on the drawings. Exterior covers shall be supplied with a hasp for a padlock.
- (h) All steel welding shall conform to CSA Standard W59. Fabricator shall be fully approved by the Canadian Welding Bureau, in conformance with CSA Standard W47.1. Welding shall be done by currently licensed welders only.
- (i) All aluminum welding shall be in accordance with the requirements of CSA W59.2. The fabricator shall be fully certified in conformance with CSA Standard W47.2. All welding shall be done in a licensed welding shop, and no field welding will be permitted unless approved in writing, in advance, by the Contract Administrator.
- (j) Ensure exposed welds are continuous for length of each joint. File or grind exposed welds smooth and flush.
- (k) Seal exterior steel fabrications to provide corrosion protection in accordance with CAN3-S16.1.
- (l) Use self-tapping shake-proof flat-headed screws on items requiring assembly by screws.

E24.3.3 Erection

- (a) Do steel welding Work in accordance with CSA W59 and aluminum welding Work in accordance with CSA W59.2
- (b) Erect metal Work in accordance with reviewed shop drawings, square, plumb, straight, and true, accurately fitted, with tight joints and intersections.
- (c) Provide suitable means of anchorage acceptable to Contract Administrator such as dowels, anchor clips, bar anchors, expansion bolts and shields, and toggles where not specifically indicated on the drawings.
- (d) Provide components for building in accordance with shop drawings and schedule.
- (e) Make field connections with bolts to CAN/CSA-S16, or weld.
- (f) Touch-up rivets, bolts and burnt or scratched surfaces that are to receive paint finish, with zinc primer after completion of erection.
- (g) Repair damaged galvanized surfaces and field welds with self-fluxing, low temperature, zinc-based alloy rods in accordance with ASTM A780, Repair of Damaged Hot Dip Galvanizing Coatings. The general procedure shall be to allow a small amount of the repair alloy to flow then spread by brushing briskly with a wire brush. Brushing shall be sufficient to obtain a bright finish. Repeat process three (3) times to ensure a proper

thickness is achieved. Temperatures shall be kept below 177°C (350°F) at all times. All heating of structural steel Work shall be done in the presence of the Contract Administrator.

- (h) Install access hatch frames square and level at the locations show on the drawings. Embed anchors in concrete as shown on the drawings. Install covers and adjust hardware to proper function.
- (i) All aluminum surfaces in contact with concrete shall be isolated using alkali resistant bituminous paint meeting the requirements of CGSB 31-GP-3M.
- (j) Install electrochemical isolation gaskets and sleeves to electrically isolate dissimilar metals.

E24.4 Measurement and Payment

E24.4.1 Supply, fabrication, transportation, handling, delivery and placement of metal fabrications will be paid for at the Contract Lump Sum Price for "Supply and Installation of Miscellaneous Metals."

E25. CAST IRON SLIDE GATE

E25.1 Description

- (a) This Specification shall cover the supply, delivery, inspection, installation and testing of cast iron slide gate, wall thimble, stems, wall brackets, mechanical lift operator and all associated accessories.

E25.2 Submittals

E25.2.1 Submit shop drawings of cast iron slide gate, wall thimble, mechanical lift operator, stems, wall brackets, and accessories in accordance with E12.

E25.2.2 Submit Operating and Maintenance Manuals

- (a) Five (5) sets of Operation and Maintenance Manuals shall be submitted to the Contract Administrator for review. The Contractor shall provide these manuals ten (10) Calendar Days in advance before commencement of gate testing and commissioning. Provision of Operation and Maintenance Manuals shall be considered incidental to the price paid for supply of equipment.
- (b) The O&M Manual shall include all the manufacturer's brochures and technical literature detailing correct installation procedure and recommended operating and maintenance instructions.
- (c) All instructions in these manuals shall be in the English language to guide the City in the proper operation and maintenance of the equipment.
- (d) Bind contents in a three (3) -"D-Ring", hard-covered, plastic-jacketed binder with full cover and spine insert. Organize contents into applicable sections of work, parallel to Specifications breakdown.
- (e) Provide all required data in electronic format. Text documents shall be Microsoft Word or Adobe format. Drawings, scanned documents, parts lists, test forms shall be in Adobe format. If possible, documents shall be an original electronic format. Documents that require scanning shall be high quality scans and fully legible. Documents shall be submitted on a high quality portable USB memory device. Portable USB memory device shall be labelled in type, with the following;
 - (i) Bid Opportunity Number;
 - (ii) Job Title, and
 - (iii) Description of Equipment.
- (f) In addition to the information called for in the Specifications elsewhere, the following shall be included:

- (i) Title sheet, labelled "Operation and Maintenance Instructions", containing project name and date;
 - (ii) List of contents;
 - (iii) Reviewed shop drawings of all equipment;
 - (iv) Names, addresses, and telephone numbers of all major sub-contractors and suppliers;
 - (v) Detailed specification and operation and maintenance instructions for all items of equipment provided including a preventative maintenance program;
 - (vi) An itemized list of spare parts recommended for five years of services, particularly those components where failure of which will render the equipment supplied inoperable. Any special tools or other ancillary items necessary for commissioning and/or proper operation and maintenance shall also be listed. These prices shall be available to the City at any time prior to the issuance of the Certificate of Acceptance;
 - (vii) Part books that illustrate and list all assemblies, sub-assemblies, and components.
 - (viii) Routine test procedures;
 - (ix) Troubleshooting chart showing description of trouble, probable cause and suggested remedy.
- (g) The Contractor shall modify and supplement the manual as required by the Contract Administrator. When accepted, five (5) additional copies, including electronic versions, shall be provided by the Contractor for distribution purposes. The City's staff shall be in receipt of these manuals prior to the date set out for Substantial Performance. The Contract shall not be considered complete, for the purpose of issuing a Certificate of Substantial Performance, until the above manuals have been completed and submitted to the satisfaction of the Contract Administrator.
- (h) Supply and delivery of operation and maintenance manuals including spare parts lists shall be considered incidental to the Works of this Contract and should be included in the associated price for the "Cast Iron Slide Gate". No direct measurement or payment will be made for this item. Final payment for slide gate will not be made until the above information has been provided to the Contract Administrator.

E25.2.3 Provide the following information to the Contract Administrator prior to the delivery of slide gate and operator assemblies in accordance with E12.

- (a) A certified copy of the Chemical and Physical Analysis on all materials used in the manufacture of the slide gate, wall thimbles, stems, operator and accessories or certification that the materials used are in strict accordance with this specification.

E25.3 General Design

- (a) Specification Standard: AWWA C560-14
- (b) Gate Opening Size: 1829mm X 1829mm (72" W x 72"H)
- (c) Mounting: Type F wall thimble, suitable for a 304mm (12") thick concrete wall.
- (d) Seating Head: Maximum design seating head will be a maximum of 7 meters as measured from the horizontal centerline of the gate to the top of the gate chamber roof.
- (e) Unseating Head: Maximum design unseating head shall be 7 meters.
- (f) Operator and Lift: Enclosed rising stem mechanical gear lift with pedestal. Gear lift shall be furnished with an AWWA 50x50 operating nut. The lift nut shall be turned counterclockwise to open the gate. The operator shall have a weather-resistant label indicating the direction of nut rotation to open the gate.
- (g) Stem Cover: Gear lift to be complete with stem cover with acrylic window with gradations in 152 mm (6") increments for the entire range of gate operation.
- (h) Stem: The stainless steel stem shall be designed so the slenderness ratio (kL/r) does not exceed 150.

- (i) Stem Guides: Adjustable in both horizontal and vertical directions.
- (j) Acceptable Leakage as per AWWA C560-14.
- (k) Butyl rubber mastic shall be used to form a seal between the frame and thimble.
- (l) Paint: Frame and gate shall be surface prepared to SSPC-SP10 (near-white blast) and painted with two coats of Intergard FP, Amerlock 2 Epoxy Coating or an approved equivalent high-build epoxy coating in accordance with B6. Epoxy coatings shall be 150 µm per coat dry film thickness. Above-ground components exposed to sunlight shall be coated with one finish coat of polyurethane enamel. Polyurethane enamel coatings shall be 100 µm per coat dry film thickness.
- (m) Quantity and spacing of fasteners shall be as recommended by the gate manufacturer.
- (n) The slide gate shall be as manufactured by Hydro Gate, Rodney Hunt, Waterman or approved equivalent in accordance with B7.
- (o) Field touch-up chips and scratches of the cast-iron gate coating system shall be completed with coating(s) to match the shop applied coating(s).

E25.4 Materials

- (a) Frame, Slide, guides and yoke: ASTM A48 Cast Iron (Class 30) or ASTM A126 Cast Iron (Class B)
- (b) Seating Faces: ASTM B21 Naval Bronze, Alloy 482 or ASTM B98, Alloy 655
- (c) Wall Thimble: ASTM A48 Cast Iron (Class 30) or ASTM A126 Cast Iron (Class B)
- (d) Wedges: ASTM B584 Manganese Bronze, Alloy 865
- (e) Wedge Blocks: ASTM A48 Cast Iron (Class 30) or ASTM A126 Cast Iron (Class B)
- (f) Fasteners & Anchors: ASTM A276 Type 316 Stainless Steel
- (g) Hardware: ASTM F593 Type 316 Stainless Steel
- (h) Stem: ASTM A276 Type 304 Stainless Steel
- (i) Stem Couplings: ASTM A276 Type 304 Stainless Steel or ASTM B584 Bronze, Alloy 873.
- (j) Stem Guide: ASTM A48 Cast Iron (Class 30) or ASTM A126 Cast Iron (Class B) with Bronze bushings
- (k) Operator Pedestal: ASTM A48 Cast Iron (Class 30) or ASTM A126 Cast Iron (Class B) or Steel
- (l) Stem Cover: Aluminum or Galvanized Steel.
- (m) Shop Drawings
 - (i) Submit shop drawings of the wall thimble, cast iron slide gate, mechanical lift operator, stems, wall brackets and accessories in accordance with E12 of this specification.
- (n) Operating and Maintenance Manuals
 - (i) Provide five (5) hard copies of all the manufacturer's brochures and technical literature detailing correct installation procedures and recommended operating and maintenance instructions. Manuals shall be bound with the project title and gate description identified on the front cover. Final payment for slide gates will not be made until the above information has been provided to the Contract Administrator.
- (o) Delivery and Shipping
 - (i) The Contract Administrator will examine the wall thimble, slide gate assembly, frame, stem, operator and accessories upon delivery and will reject any equipment that is found to be damaged to the extent that, in the Contract Administrator's opinion it cannot be put to the use for which it was intended. The Contractor shall arrange with the gate supplier to repair any superficially damaged equipment to the satisfaction of the Contract Administrator.

- (ii) It shall be the responsibility of the Contractor to negotiate any claims for damage with the carrier and to make arrangements to have any rejected equipment replaced as soon as possible at no extra expense to the City.
- (p) Field Testing
 - (i) The Contractor shall coordinate and arrange for a qualified field representative of the slide gate supplier/manufacturer to be present prior to and during field testing. The field representative shall complete the required adjustments prior to field testing. If the gate fails the field leakage test, the field representative shall undertake adjustments, replacements or other modifications prior to repeating the test. The sequence shall be repeated until the gate passes the allowable leakage test. The City shall incur no additional costs for adjustments undertaken due to misalignment of the slide gate wedges and seats.

E25.5 Construction Methods

E25.5.1 Installation

- (b) Install the cast iron slide gate, wall thimbles, stems, wall brackets, lifting mechanism and accessories as shown on the drawings and in accordance with the manufacturer's recommendations.
- (c) The Contractor shall coordinate to have the field representative of the slide gate supplier/manufacturer to inspect the installation during and after completion and provide a Certificate of Satisfactory Installation.

E25.5.2 Field Testing

- (d) Perform leakage tests in the Contract Administrator's presence once slide gates have been installed to ensure compliance with the allowable leakage rate indicated in AWWA C560.
- (e) The Contractor shall arrange to have a field representative of the flap gate supplier/manufacturer to be present during field testing.
- (f) The leakage test for the flap and slide gate will be performed concurrently by closing the slide gate and filling the flap gate chamber to the specified slide gate unseating head. The leakage rate will be assessed by measuring the combined leakage rate through both the slide gate and flap gate. Visual assessments of leakage will be obtained on either side of the control gates.
- (g) Water used for testing purposes must be chlorine free. Potable drinking water shall be de-chlorinated if used for testing purposes.
- (h) The Contractor will be responsible to pump water from the Assiniboine River or supply potable water from a delivery truck or hydrant into the chamber for testing purposes.
- (i) If a gate fails the field leakage test, the Contractor shall direct the slide gate supplier/manufacturer's field representative to undertake adjustments, replacements or other modifications and the Contractor shall repeat the test. The sequence shall be repeated until the gate passes no more than the allowable leakage rate.

E25.6 Training

- (a) The Contractor shall include costs for providing training to City staff by a factory-trained representative on the operation and maintenance of the equipment.
- (b) The training session shall be conducted on-site, in conjunction with commissioning. The Contractor shall provide a qualified instructor as well as the necessary course materials.
- (c) At the request of the Contract Administrator, training shall be provided in one session for operation and maintenance staff. The training shall cover operation and maintenance.
- (d) If requested by the Contract Administrator, training shall be completed in conjunction with commissioning of the equipment.

E25.7 Measurement and Payment

- (a) Supply, installation and testing of the cast iron slide gate, wall thimble, stem, wall brackets, lifting mechanism and accessories will be paid for at the Contract Lump Sum Price “Cast Iron Slide Gate”.
 - (i) 85% of the “Cast Iron Slide Gate” will be paid on upon installation.
 - (ii) The remaining 15% of the “Cast Iron Slide Gate” will be paid on the successful field testing of the gate.

E26. CAST IRON FLAP GATE

E26.1 Description

- (a) This Specification shall cover the supply, installation and testing of cast iron flap gate and wall thimble.

E26.2 General Design

- (a) Type: Flange Back for mounting on a wall thimble.
- (b) Gate Size: 1829mm (72”) diameter.
- (c) Mounting: Type F cast-iron wall thimble suitable for embedding into a 300mm thick concrete wall.
- (d) Seating Head: Maximum design seating head will be 7 meters as measured from centreline of the gate to the top of the chamber.
- (e) Cover: One piece cast-iron with lifting eye for manual operation.
- (f) Seat: Raised brass surface and inclined to assure positive closure. Resilient/rubber seats will not be accepted.
- (g) Links: Complete with grease nipples at pivot points and adjusting screws to align seating faces.
- (h) Pivot Lugs: One-piece ductile-iron adjustable in the horizontal plane without removal of cover, complete with grease nipples.
- (i) Acceptable leakage: 1.24 litres per meter of seated perimeter.
- (j) Paint: Frame and cover shall surface prepared to SSPC-SP10 (near-white blast) and painted with two coats of International Paints – Intergard FP, or Amerlock 2 Epoxy coating, 125-150 µm per coat dry film thickness.
- (k) The flap gate shall be manufactured by Waterman, Rodney Hunt, Hydro Gate or an approved equal in accordance with B7.

E26.3 Materials

- (a) Cast-Iron Pieces: ASTM A48 Cast Iron (Class 30) or ASTM A126 Cast Iron (Class B)
- (b) Seating Faces: ASTM B21 Bronze (Alloy 482) or ASTM B98 Bronze (Alloy 651)
- (c) Links: ASTM A536 Ductile Iron or ASTM A276 Stainless Steel (Type 316)
- (d) Bushings: ASTM B584 Bronze (Alloy 932)
- (e) Hinge Pins: ASTM A276 Stainless Steel (Type 316) or B98 Bronze (Alloy 655)
- (f) Fasteners: ASTM A276 Stainless Steel (Type 316)
- (g) Grease Nipples: Stainless Steel
- (h) Shop Drawings
 - (i) Submit Shop Drawings of cast-iron flap gate and wall thimble in accordance with E12 of this specification.
- (i) Operating and Maintenance Manuals
 - (i) Provide Operating and Maintenance Manual in accordance with Section E26.2.2 of this specification. Supply and delivery of operation and maintenance manuals including spare parts lists shall be considered incidental to the Works of this

Contract and should be included in the associated price for the "Cast Iron Flap Gate". No direct measurement or payment will be made for this item. Final payment for flap gate will not be made until the above information has been provided to the Contract Administrator.

- (j) Delivery and Shipping
 - (i) The Contract Administrator will examine the flap gate assembly and wall thimble and will reject any equipment that is found to be damaged to the extent that, in the Contract Administrator's opinion, it cannot be put to the use for which it was intended. The Contractor shall arrange with the gate supplier to repair any superficially damaged equipment to the satisfaction of the Contract Administrator.
 - (ii) It shall be the responsibility of the Contractor to negotiate any claims for damage with the carrier and to make arrangements to have any rejected equipment replaced as soon as possible at no extra expense to the City.
- (k) Provide to the Contract Administrator prior to delivery of the slide gate and operator assemblies a certified copy of the Chemical and Physical Analysis on all materials used or certification that the materials used are in strict accordance with this specification.
- (l) Field Testing
 - (ii) The Contractor shall coordinate and arrange for a qualified field representative of the slide gate supplier/manufacturer to be present prior to and during field testing. The field representative shall complete the required adjustments prior to field testing. If the gate fails the field leakage test, the field representative shall undertake adjustments, replacements or other modifications prior to repeating the test. The sequence shall be repeated until the gate passes the allowable leakage test.

E26.4 Construction Methods

E26.4.1 Installation

- (b) Install cast iron flap gates and wall thimbles as shown on the drawings and in accordance with the manufacturer's recommendations.
- (c) The Contractor shall coordinate to have the field representative of the slide gate supplier/manufacturer to inspect the installation during and after completion and provide a Certificate of Satisfactory Installation.

E26.4.2 Field Testing

- (d) Perform leakage tests in the Contract Administrator's presence once flap gates have been installed to ensure compliance with the allowable leakage rate of 1.24L/min per meter of seated perimeter at any head.
- (e) The Contractor shall arrange to have a field representative of the flap gate supplier/manufacturer to be present during field testing.
- (f) The leakage test for the flap and slide gate will be performed concurrently by closing the slide gate and filling the flap gate chamber to the specified slide gate seating head. The leakage rate will be assessed by measuring the combined leakage rate through both the slide gate and flap gate. Visual assessments of leakage will be obtained on either side of the control gates.
- (g) Water used for testing purposes must be chlorine free. Potable drinking water shall be de-chlorinated if used for testing purposes.
- (h) The Contractor will be responsible to pump water from the Assiniboine River or supply water from a delivery truck or hydrant into the chamber for testing purposes.
- (i) If a gate fails the field leakage test, the Contract Administrator will direct the flap gate supplier/manufacturer's field representative to undertake adjustments, replacements or other modifications and the Contractor shall repeat the test. The sequence shall be repeated until the gate passes no more than the allowable leakage rate.

E26.5 Training

- (a) The Contractor shall include costs for providing training to City staff by a factory-trained representative on the operation and maintenance of the equipment.
- (b) The training session shall be conducted on-site, in conjunction with commissioning. The Contractor shall provide a qualified instructor as well as the necessary course materials.
- (c) At the request of the Contract Administrator, training shall be provided in one session for operation and maintenance staff. The training shall cover operation and maintenance.
- (d) If requested by the Contract Administrator, training shall be completed in conjunction with commissioning of the equipment.

E26.6 Measurement and Payment

- (a) Supply, installation and testing of the cast iron flap gate and associated wall thimble will be paid for at the Contract Unit Price for "Cast Iron Flap Gate".
 - (i) 85% of the "Cast Iron Flap Gate" will be paid on upon installation.
 - (ii) The remaining 15% of the "Cast Iron Flap Gate" will be paid on the successful field testing of the gate.

E27. CONCRETE SURFACE, CRACK & SPALL REPAIRS

E27.1 Description

- (a) This specification shall cover the demolition and repair work related to existing concrete surface, cracks and spall repairs.
- (b) The locations and extent of repairs shall be as determined by the Contract Administrator in presence of Contractor.

E27.2 Materials

- (a) Materials shall be as indicated in the Construction Methods section below and in project drawings. Equivalent products and/or alternative construction methods shall be approved by the Contract Administrator prior to repairs. The Contractor shall supply to the Contract Administrator, Material Data Sheets and Product Information for approval prior to commencing repairs for review and approval.

E27.3 Construction Methods

- (a) Concrete crack repairs:
 - (i) Identify all cracks scheduled for repair as identified by the Contract Administrator.
 - (ii) Remove any loose material from the concrete surface adjacent to cracks by wire brushing a 50 to 75 mm wide strip along the cracks, and vacuuming all dust from the surface.
 - (iii) Install surface ports for injection along the cracks at spacing ranging from 100 to 300 mm depending on the width of the crack. The base plate of each entry port shall be adhered onto the concrete surface using Kemko 022 or Sikadur 33. The ports shall be coated with the same material over the top of the base plate to assure a good seal and stability of the port during the injection process.
 - (iv) Surface seal material with paste adhesive Kemko 022 or Sikadur 33. Paste shall be applied to the face of the crack between injection ports to build a confinement area for the liquid epoxy resin.
 - (v) After curing of the surface seal, a two-component epoxy resin/hardener suitable for the structural repair of cracks and delaminations in concrete; Kemko 038 or Sikadur 52 shall be injected into the crack starting at the lowest injection port. The injection will continue at the same port until there is an appearance of epoxy resin at the next port adjacent to the entry port being pumped. The

injection epoxy resin shall be selected based on the thickness of the crack (for hairline cracks Kemko 068 or Sikadur 55 will be used).

- (vi) When epoxy adhesive travel is indicated by appearance at the next adjacent port, injection can be discontinued on the entry port being pumped and epoxy injection shall be transferred to the next adjacent port where epoxy adhesive has appeared. The first entry port must be plugged. The epoxy injection on any intermediate entry port being pumped shall not be discontinued unless the injection pressure reaches 150-160 psi or directed by the Contract Administrator. The above steps will be repeated until cracks are completely filled along their length.
 - (vii) As soon as the crack is full and all injection ports are blocked, the pump shall be run for several seconds to create a pressure of 100 psi in the crack that will be maintained for one (1) minute. Once the epoxy adhesive in the crack is pressurized and no leaks are observed, the pump shall be disconnected from the port and the injection port shall be plugged.
 - (viii) The above steps shall be repeated for all cracks or set of cracks that are connected, until all cracks are injected.
 - (ix) For every day that injection work is performed, an Injection Report shall be completed to document type of injection equipment, location, quantity of materials, and amount of crack length injected each day.
 - (x) After all injection work is completed and cured, the injection ports and the crack seal shall be removed (after 12 hours) by grinding to obtain a smooth concrete surface.
 - (xi) Cleanup work area and demobilize.
- (b) Concrete Surface and Spall Repairs:
- (i) Identify all spalled areas scheduled for repair as identified by the Contract Administrator.
 - (ii) Saw cut the perimeter of the patch to a minimum of 13 mm (for concrete surface repairs) and 38 mm (for concrete spall repairs) outside the limits of the spalled/deteriorated area designated for repair.
 - (iii) Chip and remove the delaminated concrete until sound concrete is encountered to provide a solid bond.
 - (iv) Remove any coatings that may reduce bond between the existing concrete and repair mortar/grout.
 - (v) Remove a minimum of 25 mm of concrete from around all encountered rebar to provide a solid bonding area.
 - (vi) Prepare demolished concrete surface to CSP-3 profile.
 - (vii) Surface prepare reinforcement to SSPC-SP3 (power tool cleaning).
 - (viii) Power wash the prepared surfaces to receive the repair mortar.
 - (ix) Repair overhead and sidewall patches using a Sikatop 123 Plus repair mortar. The product shall be prepared and installed according to the manufacturer's instructions.
 - (x) Refer to drawings for details.

E27.4 Measurement and Payment

- (a) Concrete Crack Repairs will be measured on a length basis and will be paid for at the Contract Unit Price for "Concrete Crack Repairs". Length to be paid for will be the total length of repaired concrete cracks inspected, accepted and measured by the Contract Administrator.
- (b) Concrete Surface Repairs shall be considered incidental to "Cast-in-Place Concrete" and no measurement or payment will be made for this item.

- (c) Concrete Spall Repairs will be measured on area basis and will be paid for at the Contract Unit Price for "Concrete Spall Repairs". Area to be paid for will be the total area of refinishing inspected, accepted and measured by the Contract Administrator.

CONTRACTOR SUPPLIED STANDARDIZED GOODS

E28. GENERAL REQUIREMENTS

- E28.1 Comply with the general requirements of E28 for all Standardized Goods supplied by the Contractor.
- E28.2 Comply with the following Standardized Goods requirements:
 - E28.2.1 Control System and Motor Control Equipment in accordance with E29.
 - E28.2.2 Instrumentation in accordance with E30.
- E28.3 Contact the Contract Administrator regarding any potential uncertainty as to whether a good is covered under a standardization agreement.
- E28.4 The Contractor may utilize a Standardization Vendor to provide other goods required under the Contract, in addition to Standardized Goods.
- E28.5 The Contractor shall separately track all goods supplied under each standardization agreement.
 - E28.5.1 In the event that one or more Standardization Vendors are utilized to procure goods not covered under a standardization agreement, the Contractor shall ensure such goods are quoted, ordered, tracked and accounted in a separate manner.
- E28.6 Pricing:
 - E28.6.1 The City has obtained discounted pricing for Standardized Goods. Each Standardization Vendor is obligated to sell Standardized Goods to all prospective Contractors at the discounted price, provided the goods are for the City of Winnipeg.
 - E28.6.2 The Standardization Vendors may at their option provide lump sum pricing for goods packages. The Standardization Vendor is not required to provide breakout pricing details to the Contractor.
 - E28.6.3 The Contractor and Subcontractors shall not utilize the City's agreements with the Standardization Vendors for any purpose other than City work.
 - E28.6.4 The City may audit the goods purchased from the Standardization Vendors under the standardization agreements and may identify to the Standardization Vendors any goods procured that are not associated with the Contract.
- E28.7 The Contractor is responsible for ensuring that the Material supplied by the Standardization Vendors meets the requirement of the Contract. The Contractor shall review and confirm quotations supplied by the Standardization Vendors to ensure that all required Material is supplied.
- E28.8 Without limiting or otherwise affecting any other term or condition of the Contract, including (non-exhaustive) D34.2.1:
 - E28.8.1 The supply of goods through a Standardization Vendor shall not relieve the Contractor of their obligations.
 - E28.8.2 Errors or omissions by a Standardization Vendor shall not be a cause for a Change in Work.
 - E28.8.3 Delays by a Standardization Vendor shall not be a cause for a Change in Work where the delay could have been avoided through reasonable planning, contingency allocation, or communication by the Contractor.

E28.8.4 The Contractor shall engage directly with the persons listed as the Standardized Vendor contact in the following sections E29.7 and E30.7 unless otherwise directed by the Contract Administrator.

E28.9 Submittals

E28.9.1 Submittals shall be provided for Standardized Goods in accordance with the Specifications and typical industry practice. Submittals shall not be bypassed for Standardized Goods.

E29. STANDARDIZED CONTROL SYSTEM AND MOTOR CONTROL EQUIPMENT

E29.1 The City has standardized on a specific vendor for the supply and delivery of control system and motor control equipment. The Standardization Vendor was selected via RFP 756-2013 and was awarded to Schneider Electric Canada Inc. (Schneider).

- (a) Refer to E29.7 for contact information.
- (b) Copies of the tender documents are available from City of Winnipeg Material Management's website.

E29.2 Goods to be procured via this standardization agreement includes but is not limited to:

- (a) Modicon Programmable Automation Controllers (PACs) M580, M580S, M340 including all associated IO and Network hardware.

E29.3 For clarity, this standardization agreement does not include:

- (a) Computer workstation hardware including operating systems;
- (b) Computer server hardware, including operating systems and general terminal server / client software;
- (c) Thin client terminals;
- (d) Fused and un-fused disconnect switches not incorporated into a MCC or other motor starter;
- (e) Control stations and pendants not incorporated into a MCC or other motor starter;
- (f) Electrical Transformers not in a MCC or motor starter;
- (g) Panelboards not integrated in a MCC;
- (h) Switchboards / Switchgear not integrated in a MCC;
- (i) Control Panels to house PLCs;
- (j) Instrumentation;
- (k) Power supplies not integrated with the PLC / HMI systems; and
- (l) Terminal blocks not integrated with the PLC / HMI systems

E29.4 The following model series shall be utilized unless otherwise indicated in the Specifications, Drawings or otherwise approved by the Contract Administrator:

- (a) Modicon M580, M580S (for SIL level applications)
- (b) Modicon X80 PLC I/O; Modicon Ethernet Switches

E29.5 Commissioning and start-up:

E29.5.1 Commissioning and start-up of all goods purchased under this standardization agreement shall be performed by Schneider Electric Systems Canada Inc.

E29.6 Training

E29.6.1 Programmable Controller Local Training

- (a) Overview

- (i) Provide instruction to designated City personnel in the operation and maintenance of the Schneider programmable controller control system components and associated Schneider tools and equipment.
 - (ii) This training shall be provided by Schneider.
 - (iii) This training does not relieve the Contractor of other training requirements associated with the control system.
- (b) Location
- (i) The location of the training will be in the City of Winnipeg, in a facility provided by the City.
 - (ii) The room will be classroom style.
- (c) Submittals
- (i) Submit the names and qualifications of the proposed instructors.
 - (ii) Submit training proposal complete with hour by hour schedule including brief overview of content of each training segment a minimum of 30 Working Days prior to the anticipated date of beginning of training.
- (d) Quality Assurance
- (i) Provide competent instructors thoroughly familiar with all aspects of the programmable controller control system.
 - (ii) The Contract Administrator may reject instructors it deems to not be qualified.
 - (iii) In the event that the training provided is not satisfactory, reduction of payment may be applied.
- (e) Duration
- (i) The training shall be a minimum of one (1) day in duration.
- (f) Materials
- (i) Provide equipment, visual and audio aids, and materials.
 - (ii) Supply manual for each trainee, describing in detail the information included in each training program.
- (g) Attendees
- (i) The attendees are expected to include, but not be limited to: electrical and instrumentation maintenance personnel and programmable controller support specialists.
- (h) Content
- (i) Overview of the equipment.
 - (ii) Equipment maintenance training including:
 - ◆ Installation
 - ◆ Troubleshooting
 - ◆ Preventative maintenance
 - ◆ Replacement of modules
 - ◆ Network communication troubleshooting and diagnostics.
 - ◆ Fieldbus troubleshooting and diagnostics
 - ◆ Programmable controller redundancy strategies and operation.
 - (iii) Maintenance use of programmable controller programming software, including:
 - ◆ Basic operation of the software
 - ◆ Connecting to programmable controllers
 - ◆ Download and upload of software configuration.
 - ◆ Diagnostics and troubleshooting.
- (i) Number of Sessions:
- (i) Provide a minimum of two (2) sessions.

E29.7 The contact information for all quotations and purchases from Schneider is:

Garth Eastman
21 Omands Creek Blvd
Winnipeg, MB, R2R 2V2
Telephone: 204-228-7807
E-mail: garth.eastman@se.com

E29.7.1 Goods to be procured directly from Schneider using the Schneider contact:

- (a) Further to E29.2, goods to be procured via Schneider includes but is not limited to:
- (i) PLC to Infi90 Termination Unit migration cables.
 - (ii) Training sessions.

E29.7.2 Goods to be procured via EECOL Electric (EECOL) Winnipeg as Schneider's High Tech Automation Distributor:

- (a) Further to E29.2, goods to be procured via EECOL includes but is not limited to:
- (i) Programmable Controllers (PLCs) including all associated components hardware and software;
 - (ii) Programmable Controller Programming Software.

(b) The EECOL contact:

Sean Eschyschyn
Regional Industrial Manager
EECOL Electric
Sean.Eschyschyn@eecol.com
1760 Wellington Ave. MB R3H 0E9
P (204) 774-2800 C (204) 399-9304

(d) All correspondence related to requests-for-quotations to EECOL for goods listed under E29.7.2(a) shall be copied to the Schneider contact listed under E29.7.

For whatever reason, if EECOL is unable to receive or respond to request-for-quotations for goods listed under E29.7.2(a), request-for-quotations may be issued directly to the Schneider contact listed under E29.7.

E29.8 Quotations and orders:

E29.8.1 Reference the following in all quotation requests and purchase orders:

- (a) This Tender number; and
- (b) A statement indicating:
- "This request / purchase order is subject to the Terms and Conditions of City of Winnipeg Request for Proposal RFP 756-2013."

E30. STANDARDIZED INSTRUMENTATION

E30.1 The City has standardized on a specific vendor for the supply and delivery of specific instrumentation. The Standardization Vendor was selected via RFP 449-2014 and was awarded to Trans-West Supply Company Inc. (Trans-West).

- (a) Copies of the tender documents are available from City of Winnipeg Material Management's website.

E30.2 Goods to be procured via this standardization agreement include but are not limited to:

- (a) Temperature Transmitters including temperature elements and thermowells;
- (b) Ultrasonic Level Transmitters; and
- (c) Associated accessories.

- E30.3 For clarity, this standardization agreement does not include:
- (a) Flowmeters - Coriolis;
 - (b) Flowmeters – Thermal Dispersion;
 - (c) Flowmeters – Ultrasonic;
 - (d) Flow switches (i.e. mechanical);
 - (e) Pressure switches;
 - (f) Temperature switches;
 - (g) Radar Level Transmitters; and
 - (h) Level Switches (non-ultrasonic based).
- E30.4 The following model series shall be utilized unless otherwise indicated in the Specifications, Drawings or otherwise approved by the Contract Administrator:
- (a) Ultrasonic Level Transmitters
 - (i) Integrated applications: SITRANS Probe LU
- E30.5 Field setup and commissioning:
- E30.5.1 Field setup and commissioning of the standardized instrumentation shall be performed by Trans-West under the standardization agreement for the following:
- (a) The first instrument of each type installed on site; and
 - (b) A minimum of five additional instruments of each type, or 10% of the actuators of that type, whichever is greater.
- E30.5.2 The Contractor may provide field setup and commissioning services for the remaining instrumentation via alternate means, provided that this does not result in a reduction of the services or quality of work.
- E30.5.3 The services provided are to include at all standard manufacturer recommended start-up and commissioning procedures, as well as the following:
- (a) Visual Inspection
 - (i) Inspect instrument for signs of damage,
 - (ii) Verify mechanical and piping installation per drawings and manufacturer requirements,
 - (iii) Verify wiring installation per drawings and manufacturer requirements, and
 - (iv) Inspect electrical terminal compartment for foreign objects.
 - (b) Mechanical Inspection
 - (i) Check all connections and bolts for tightness and to the correct torque,
 - (ii) Check for alignment, and
 - (iii) Ensure appropriate clearances for all connecting bushings and connecting faces.
 - (c) Electrical Inspection
 - (i) Check all power wiring connections for tightness,
 - (ii) Check all fuses in the instrument for continuity,
 - (iii) Confirm input voltage is correct, and
 - (iv) Confirm that the signal / fieldbus connections are correct.
 - (d) Start-up Services
 - (i) Coordinate turning on power to the instrument,
 - (ii) Configure all applicable settings and parameters that could not be configured prior to installation,
 - (iii) Perform functional tests,

- (iv) Coordinate with City personnel and designated representatives to confirm and finalize the application requirements,
 - (v) Configure and document all settings, as appropriate for the application,
 - (vi) Coordinate to perform test demonstrations to verify instrument performance,
 - (vii) Verify that all configuration values are in the correct state, and
 - (viii) Transfer the configuration settings to on-site personnel.
- (e) Documentation
- (i) Provide a signed documented commissioning form for each instrument, in a format acceptable to the Contract Administrator.
- (f) Travel
- (i) Provide all travel and accommodations at no additional cost.
- (g) Personnel:
- (i) Personnel shall be factory trained in the maintenance, configuration, and service of the proposed instrumentation.

E30.5.4 Responsibility of the Contractor:

- (a) It is the responsibility of the Contractor to ensure that the installation of the instrumentation is complete and that the instrument is ready to commission prior to engaging Trans-West to commission any instrumentation.

E30.6 Training

E30.6.1 Local Training Session – General Requirements

- (a) Overview:
- (i) Provide instruction to designated City personnel in the operation, configuration, and maintenance of the proposed instruments and associated components.
- (b) Location:
- (i) The location of the training will be in the City of Winnipeg, in a facility provided by the City.
 - (ii) The room will be classroom style.
- (c) Submittals:
- (i) Submit the names and qualifications of the proposed instructors.
 - (ii) Submit training proposal complete with hour by hour schedule including brief overview of content of each training segment a minimum of 30 Calendar Days prior to the anticipated date of beginning of training.
- (d) Quality Assurance:
- (i) Provide competent instructors thoroughly familiar with all aspects of the instruments.
 - (ii) The Contract Administrator may reject instructors it deems to not be qualified.
 - (iii) In the event that the training provided is not satisfactory, reduction in payment may be applied.
- (e) Materials:
- (i) Provide equipment, visual and audio aids, and materials.
 - (ii) Sample instruments of each type shall be provided, along with all equipment required to power and configure the instruments.
 - (iii) Supply manual for each trainee, describing in detail the information included in each training program.
- (f) Attendees:
- (i) The attendees are expected to include, but not be limited to:
 - ◆ Electrical and instrumentation maintenance personnel.

E30.6.2 Local Training Session – Temperature

- (a) Provide local training sessions, in accordance with E30.6.1:
- (b) Duration:
 - (i) Each training session shall be a minimum of six (6) hours in duration, excluding coffee and lunch breaks.
 - (ii) Each day shall be assumed to be independent of other training days, and not necessarily aligned with other on-site work or training.
- (c) Scope:
 - (i) Each training session shall address the complete scope of all products proposed.
- (d) For each instrument type, provide the following training content:
 - (i) Overview of the instrument,
 - (ii) Equipment maintenance training, including:
 - ◆ Installation,
 - ◆ Troubleshooting,
 - ◆ Preventative maintenance,
 - ◆ Replacement of components,
 - ◆ Fieldbus network troubleshooting and diagnostics, and
 - ◆ Calibration procedures.
 - (iii) Maintenance use of associated software and HART/PROFIBUS parameters, including:
 - ◆ Basic operation of software,
 - ◆ Connecting to instruments,
 - ◆ Configuration of parameters,
 - ◆ Download and upload software configuration, and
 - (iv) Diagnostics and troubleshooting.
- (e) Number of Sessions:
 - (i) Provide a minimum of two (2) sessions for each instrument type.

E30.6.3 Local Training Session – Ultrasonic Level

- (a) Provide local training sessions, in accordance with E30.6.1:
- (b) Duration:
 - (i) Each training session shall be a minimum of three (3) hours in duration, excluding coffee and lunch breaks.
 - (ii) Each day shall be assumed to be independent of other training days, and not necessarily aligned with other on-site work or training.
- (c) Scope:
 - (i) Each training session shall address the complete scope of all products proposed.
- (d) For each instrument, provide the following training content:
 - (i) Overview of the instrument,
 - (ii) Equipment maintenance training, including:
 - ◆ Installation,
 - ◆ Troubleshooting,
 - ◆ Preventative maintenance,
 - ◆ Replacement of components,
 - ◆ Fieldbus network troubleshooting and diagnostics, and

- ◆ Calibration procedures.
- (iii) Maintenance use of associated software and HART/PROFIBUS parameters, including:
 - ◆ Basic operation of software,
 - ◆ Connecting to instruments,
 - ◆ Configuration of parameters,
 - ◆ Download and upload software configuration, and
 - ◆ Diagnostics and troubleshooting.
- (e) Number of Sessions:
 - (i) Provide a minimum of two (2) sessions for each instrument type.

E30.7 The contact for all quotations and purchases:

Amurthan (Amu) Abimanan Branch Manager
126 Bannister Road
Winnipeg, MB, R3R 0S3
Telephone: 204-783-0100
Mobile: 204-782-1864
E-mail: amu@transwest-mb.com

E30.8 Quotations and orders:

- E30.8.1 Reference the following in all quotation requests, quotations \ proposals, purchase orders, and invoices:
- (a) This Tender number; and
 - (b) A statement indicating:
"This request / purchase order is subject to the Terms and Conditions of City of Winnipeg Request for Proposal RFP 449-2014."

E31. EXPEDITED SHOP DRAWINGS

- E31.1 In order to expedite Shop Drawings with critical timelines, the bidder of the Lowest Evaluated Responsive Bid, as outlined in B18.1, after receiving written approval from the Contract Administrator, is to arrange for the preparation of Shop Drawings for the following items with critical timelines.
- (a) One Cast Iron Slide Gate and Thimble as indicated in E25.
 - (b) One Cast Iron Flap Gate and Thimble as indicated in E26.
 - (c) One PLC Control Panel Package as indicated in Division 40.
 - (d) One Inclinometer as indicated in Division 40.
- E31.2 If Award is made to the Lowest Evaluated Responsive Bidder, no payment for the expedited preparation of Shop Drawings will be made.
- E31.3 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 submissions noted above, for the preparation and delivery of Shop Drawings. Delivery of Shop Drawings to the City and payment of the above amounts will constitute full and final consideration for each party to the other, and neither party will have any further liability to the other with respect to this Tender.