



THE CITY OF WINNIPEG

BID OPPORTUNITY

BID OPPORTUNITY NO. 760-2010

**MARION WASTEWATER PUMPING STATION - INSTALLATION OF PUMPING
UNITS AND BUILDING UPGRADES, CONTRACT NO. 23**

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PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

- B1.1 MARION WASTEWATER PUMPING STATION - INSTALLATION OF PUMPING UNITS AND BUILDING UPGRADES, CONTRACT NO. 23

B2. SUBMISSION DEADLINE

- B2.1 The Submission Deadline is 12:00 noon Winnipeg time, October 26, 2010..
- B2.2 Bids determined by the Manager of Materials to have been received later than the Submission Deadline will not be accepted and will be returned upon request.
- B2.3 The Contract Administrator or the Manager of Materials may extend the Submission Deadline by issuing an addendum at any time prior to the time and date specified in B2.1.

B3. SITE INVESTIGATION

- B3.1 Further to C3.1, the Contract Administrator or an authorized representative will be available at the Site from 9:30 am to 11:30 am on October 14, 2010 to provide Bidders access to the Site.
- (a) Bidders must wear CSA approved safety footwear and a hard hat while in the waste water pumping facility.
- B3.2 The Bidder shall not be entitled to rely on any information or interpretation received at the Site investigation unless that information or interpretation is the Bidder's direct observation, or is provided by the Contract Administrator in writing.

B4. ENQUIRIES

- B4.1 All enquiries shall be directed to the Contract Administrator identified in D3.1.
- B4.2 If the Bidder finds errors, discrepancies or omissions in the Bid Opportunity, 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 Bid Opportunity 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 Bid Opportunity 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.

B5. ADDENDA

- B5.1 The Contract Administrator may, at any time prior to the Submission Deadline, issue addenda correcting errors, discrepancies or omissions in the Bid Opportunity, or clarifying the meaning or intent of any provision therein.
- B5.2 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.

- B5.2.1 Addenda will be available on the Bid Opportunities page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/bidopp.asp>
- B5.2.2 The Bidder is responsible for ensuring that he has received all addenda and is advised to check the Materials Management Division website for addenda regularly and shortly before the Submission Deadline, as may be amended by addendum.
- B5.3 The Bidder shall acknowledge receipt of each addendum in Paragraph 10 of Form A: Bid. Failure to acknowledge receipt of an addendum may render a Bid non-responsive.
- B6. SUBSTITUTES**
- B6.1 The Work is based on the Plant, Materials and methods specified in the Bid Opportunity.
- B6.2 Substitutions shall not be allowed unless application has been made to and prior approval has been granted by the Contract Administrator in writing.
- B6.3 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.
- B6.4 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.
- B6.5 The Contract Administrator, after assessing the request for approval of a substitute, may in his 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.
- B6.6 The Contract Administrator will provide a response in writing, at least two (2) Business Days prior to the Submission Deadline, only to the Bidder who requested approval of the substitute.
- B6.6.1 The Bidder requesting and obtaining the approval of a substitute shall be entirely responsible for disseminating information regarding the approval to any person or persons he wishes to inform.
- B6.7 If the Contract Administrator approves a substitute as an "approved equal", any Bidder may use the approved equal in place of the specified item.
- B6.8 If the Contract Administrator approves a substitute as an "approved alternative", any Bidder bidding that approved alternative may base his 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 B15.

- B6.9 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.
- B6.10 Notwithstanding B6.2 to B6.9, and in accordance with B7.6 deviations inconsistent with the Bid Opportunity document shall be evaluated in accordance with B15.1(a).

B7. BID COMPONENTS

- B7.1 The Bid shall consist of the following components:
- (a) Form A: Bid;
 - (b) Form B: Prices;
 - (c) Bid Security
 - (i) Form G1: Bid Bond and Agreement to Bond, or Form G2: Irrevocable Standby Letter of Credit and Undertaking, or a certified cheque or draft;
- B7.2 Further to B7.1, the Bidder should include the written correspondence from the Contract Administrator approving a substitute in accordance with B6.
- B7.3 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, to constitute a responsive Bid.
- B7.4 The Bid shall be submitted enclosed and sealed in an envelope clearly marked with the Bid Opportunity number and the Bidder's name and address.
- B7.4.1 Samples or other components of the Bid which cannot reasonably be enclosed in the envelope may be packaged separately, but shall be clearly marked with the Bid Opportunity number, the Bidder's name and address, and an indication that the contents are part of the Bidder's Bid.
- B7.5 Bidders are advised not to include any information/literature except as requested in accordance with B7.1.
- B7.6 Bidders are advised that inclusion of terms and conditions inconsistent with the Bid Opportunity document, including the General Conditions, will be evaluated in accordance with B15.1(a).
- B7.7 Bids submitted by facsimile transmission (fax) or internet electronic mail (e-mail) will not be accepted.
- B7.8 Bids shall be submitted to:
- The City of Winnipeg
Corporate Finance Department
Materials Management Division
185 King Street, Main Floor
Winnipeg MB R3B 1J1

B8. BID

- B8.1 The Bidder shall complete Form A: Bid, making all required entries.
- B8.2 Paragraph 2 of Form A: Bid shall be completed in accordance with the following requirements:
- (a) if the Bidder is a sole proprietor carrying on business in his own name, his name shall be inserted;
 - (b) if the Bidder is a partnership, the full name of the partnership shall be inserted;
 - (c) if the Bidder is a corporation, the full name of the corporation shall be inserted;

- (d) if the Bidder is carrying on business under a name other than his own, the business name and the name of every partner or corporation who is the owner of such business name shall be inserted.

B8.2.1 If a Bid is submitted jointly by two or more persons, each and all such persons shall identify themselves in accordance with B8.2.

B8.3 In Paragraph 3 of Form A: Bid, the Bidder shall identify a contact person who is authorized to represent the Bidder for purposes of the Bid.

B8.4 Paragraph 12 of Form A: Bid shall be signed in accordance with the following requirements:

- (a) if the Bidder is a sole proprietor carrying on business in his own name, it shall be signed by the Bidder;
- (b) if the Bidder is a partnership, it shall be signed by the partner or partners who have authority to sign for the partnership;
- (c) if the Bidder is a corporation, it shall be signed by its duly authorized officer or officers and the corporate seal, if the corporation has one, should be affixed;
- (d) if the Bidder is carrying on business under a name other than his 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.

B8.4.1 The name and official capacity of all individuals signing Form A: Bid should be printed below such signatures.

B8.5 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.

B9. PRICES

B9.1 The Bidder shall state a price in Canadian funds for each item of the Work identified on Form B: Prices.

B9.1.1 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.

B9.2 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.

B9.3 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.

B9.4 Payments to Non-Resident Contractors are subject to Non-Resident Withholding Tax pursuant to the Income Tax Act (Canada).

B10. QUALIFICATION

B10.1 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.

B10.2 The Bidder and any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:

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

B10.3 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;
- (c) have a written workplace safety and health program if required pursuant to The Workplace Safety and Health Act (Manitoba);
- (d) have previously carried out confined space entry work of a similar nature to the work specified in a wastewater lift station or facility with similar safety related characteristics; and
- (e) be normally engaged in and fully competent in electrical and instrumentation works of a similar nature and employ qualified journeyman familiar with the equipment and devices being installed.

B10.4 Further to B10.3(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) a valid COR certification number under the Certificate of Recognition (COR) Program administered by the Manitoba Construction Safety Association or by the Manitoba Heavy Construction Association's Safety, Health and Environment Program; or
- (b) a report or letter to that effect from an independent reviewer acceptable to the City. (A list of acceptable reviewers and the review template are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt>)

B10.5 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.

B10.6 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.

B11. BID SECURITY

B11.1 The Bidder shall provide bid security in the form of:

- (a) a 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 the form included in the Bid Submission (Form G1: Bid Bond and Agreement to Bond); or
- (b) an irrevocable standby letter of credit, in the amount of at least ten percent (10%) of the Total Bid Price, and undertaking issued by a bank or other financial institution registered to conduct business in Manitoba and drawn on a branch located in Winnipeg, in the form included in the Bid Submission (Form G2: Irrevocable Standby Letter of Credit and Undertaking); or
- (c) a certified cheque or draft payable to "The City of Winnipeg", in the amount of at least fifty percent (50%) of the Total Bid Price, drawn on a bank or other financial institution registered to conduct business in Manitoba.

B11.1.1 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.

- B11.1.2 All signatures on bid securities shall be original.
- B11.1.3 The Bidder shall sign the Bid Bond.
- B11.1.4 The Surety shall sign and affix its corporate seal on the Bid Bond and the Agreement to Bond.
- B11.2 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 executed by the successful Bidder and the performance security furnished as provided herein. The bid securities of all other Bidders will be released when a Contract is awarded.
- B11.2.1 Where the bid security provided by the successful Bidder is in the form of a certified cheque or draft pursuant to B11.1(c), it will be deposited and retained by the City as the performance security and no further submission is required.
- B11.2.2 The City will not pay any interest on certified cheques or drafts furnished as bid security or subsequently retained as performance security.
- B11.3 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 Bid Opportunity.

B12. OPENING OF BIDS AND RELEASE OF INFORMATION

- B12.1 Bids will be opened publicly, after the Submission Deadline has elapsed, in the office of the Corporate Finance Department, Materials Management Division, or in such other office as may be designated by the Manager of Materials.
 - B12.1.1 Bidders or their representatives may attend.
- B12.2 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 Closed Bid Opportunities (or Public/Posted Opening & Award Results) page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/default.stm>
- B12.3 After award of Contract, the name(s) of the successful Bidder(s) and the Contract Amount(s) will be available on the Closed Bid Opportunities (or Public/Posted Opening & Award Results) page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/default.stm>
- B12.4 The Bidder is advised that any information contained in any Bid may be released if required by City policy or procedures, by The Freedom of Information and Protection of Privacy Act (Manitoba), by other authorities having jurisdiction, or by law.

B13. IRREVOCABLE BID

- B13.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 11 of Form A: Bid.
- B13.2 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 executed and the performance security 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.

B14. WITHDRAWAL OF BIDS

- B14.1 A Bidder may withdraw his Bid without penalty by giving written notice to the Manager of Materials at any time prior to the Submission Deadline.

- B14.1.1 Notwithstanding C23.3, the time and date of receipt of any notice withdrawing a Bid shall be the time and date of receipt as determined by the Manager of Materials.
- B14.1.2 The City will assume that any one of the contact persons named in Paragraph 3 of Form A: Bid or the Bidder's authorized representatives named in Paragraph 12 of Form A: Bid, and only such person, has authority to give notice of withdrawal.
- B14.1.3 If a Bidder gives notice of withdrawal prior to the Submission Deadline, the Manager of Materials will:
- (a) retain the Bid until after the Submission Deadline has elapsed;
 - (b) open the Bid to identify the contact person named in Paragraph 3 of Form A: Bid and the Bidder's authorized representatives named in Paragraph 12 of Form A: Bid; and
 - (c) if the notice has been given by any one of the persons specified in B14.1.3(b), declare the Bid withdrawn.
- B14.2 A Bidder who withdraws his Bid after the Submission Deadline but before his Bid has been released or has lapsed as provided for in B13.2 shall be liable for such damages as are imposed upon the Bidder by law and subject to such sanctions as the Chief Administrative Officer considers appropriate in the circumstances. The City, in such event, shall be entitled to all rights and remedies available to it at law, including the right to retain the Bidder's bid security.

B15. EVALUATION OF BIDS

- B15.1 Award of the Contract shall be based on the following bid evaluation criteria:
- (a) compliance by the Bidder with the requirements of the Bid Opportunity, or acceptable deviation there from (pass/fail);
 - (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B10 (pass/fail);
 - (c) Total Bid Price;
 - (d) economic analysis of any approved alternative pursuant to B6.
- B15.2 Further to B15.1(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.
- B15.3 Further to B15.1(b), the Award Authority shall reject any Bid submitted by a Bidder who does not demonstrate, in his Bid or in other information required to be submitted, that he is responsible and qualified.
- B15.4 Further to B15.1(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.
- B15.4.1 If there is any discrepancy between the Total Bid Price written in figures, the Total Bid Price written in words and the sum of the quantities multiplied by the unit prices for each item, the sum of the quantities multiplied by the unit prices for each item shall take precedence.
- B15.4.2 Further to B15.1(a), in the event that a unit price is not provided on Form B: Prices, the City will determine the unit price by dividing the Amount (extended price) by the approximate quantity, for the purposes of evaluation and payment.

B16. AWARD OF CONTRACT

- B16.1 The City will give notice of the award of the Contract or will give notice that no award will be made.

- B16.2 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 responsible and qualified, and the Bids are determined to be responsive.
- B16.2.1 Without limiting the generality of B16.2, the City will have no obligation to award a Contract where:
- (a) the prices exceed the available City funds for the Work;
 - (b) the prices are materially in excess of the prices received for similar work in the past;
 - (c) the prices are materially in excess of the City's cost to perform the Work, or a significant portion thereof, with its own forces;
 - (d) only one Bid is received; or
 - (e) in the judgment of the Award Authority, the interests of the City would best be served by not awarding a Contract.
- B16.3 Where an award of Contract is made by the City, the award shall be made to the responsible and qualified Bidder submitting the lowest evaluated responsive Bid, in accordance with B15.
- B16.3.1 Following the award of contract, a Bidder will be provided with information related to the evaluation of his Bid upon written request to the Contract Administrator.

PART C - GENERAL CONDITIONS

C0. GENERAL CONDITIONS

- C0.1 The *General Conditions for Construction* (Revision 2006 12 15) are applicable to the Work of the Contract.
- C0.1.1 The *General Conditions for Construction* are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at http://www.winnipeg.ca/matmgt/gen_cond.stm
- C0.2 A reference in the Bid Opportunity 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. SCOPE OF WORK

D2.1 The Work to be done under the Contract shall consist of the replacement of the superstructure of the Marion Wastewater Pumping Station, installation of wastewater pumping units, and associated modifications and upgrades to the ventilation, electrical, and automation components.

D2.2 The major components of the Work are as follows:

- (a) Demolition of the existing superstructure.
- (b) Construction of a new cast-in-place concrete foundation consisting of pile supported grade beams.
- (c) Construction of a new cast-in-place structural floor slab near grade level.
- (d) Construction of a new masonry block and brick cavity wall.
- (e) Construction of a new wood truss metal clad roofing system.
- (f) Site restoration and clean up.
- (g) Temporary bypass pumping and flow control.
- (h) Removal of two (2) existing dry-pit wastewater pumping units and piping.
- (i) Installation of Two (2) 50 hp dry-pit wastewater pumping units.
- (j) Supply and Installation of suction and discharge piping, gate valves, check valves and other fittings.
- (k) Supply and installation of new ventilation equipment.
- (l) Demolition of the entire electrical distribution including lighting.
- (m) Supply and installation of electrical distribution and lighting.
- (n) Installation of an automation control system for the wastewater pumping and ventilation.

D3. CONTRACT ADMINISTRATOR

D3.1 The Contract Administrator is SNC Lavalin Inc., represented by:

Steven Scribner, P.Eng.
Manager, Project and Construction Services
SNC-Lavalin Inc.
148 Nature Park Way, Winnipeg, MB, R3P 0X7

Telephone No. (204) 786-8080
Facsimile No. (204) 786-7934

D3.2 At the pre-construction meeting, Steven Scribner will identify additional personnel representing the Contract Administrator and their respective roles and responsibilities for the Work.

D4. CONTRACTOR'S SUPERVISOR

- D4.1 At the pre-construction meeting, the Contractor shall identify his designated supervisor and any additional personnel representing the Contractor and their respective roles and responsibilities for the Work.

D5. NOTICES

- D5.1 Except as provided for in C23.2.2, all notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the Contractor shall be sent to the address or facsimile number identified by the Contractor in Paragraph 2 of Form A: Bid.
- D5.2 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the City, except as expressly otherwise required in D5.3, D5.4 or elsewhere in the Contract, shall be sent to the attention of the Contract Administrator at the address or facsimile number identified in D3.1.
- D5.3 Notwithstanding C21., all notices of appeal to the Chief Administrative Officer shall be sent to the attention of the Chief Financial Officer at the following facsimile number:
The City of Winnipeg
Chief Financial Officer
Facsimile No.: (204) 949-1174

- D5.4 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications required to be submitted or returned to the City Solicitor shall be sent to the following address or facsimile number:
The City of Winnipeg
Legal Services Department
Attn: City Solicitor
185 King Street, 3rd Floor
Winnipeg MB R3B 1J1
Facsimile No.: (204) 947-9155

D6. FURNISHING OF DOCUMENTS

- D6.1 Upon award of the Contract, the Contractor will be provided with five (5) complete sets of the Bid Opportunity. If the Contractor requires additional sets of the Bid Opportunity, they will be supplied to him at cost.

SUBMISSIONS

D7. AUTHORITY TO CARRY ON BUSINESS

- D7.1 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.

D8. SAFE WORK PLAN

- D8.1 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.

D8.2 The Safe Work Plan should be prepared and submitted in the format shown in the City's template which is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/Safety/default.stm>

D9. INSURANCE

D9.1 The Contractor shall provide and maintain the following insurance coverage:

- (a) commercial general liability insurance, in the amount of at least two million dollars (\$2,000,000.00) inclusive, with The City of Winnipeg added as an additional insured, with a cross-liability clause, such liability policy to also contain contractual liability, unlicensed motor vehicle liability, non-owned automobile liability and products and completed operations, to remain in place at all times during the performance of the Work and throughout the warranty period;
- (b) automobile liability insurance for owned automobiles used for or in connection with the Work in the amount of at least two million dollars (\$2,000,000.00) at all times during the performance of the Work and until the date of Total Performance;
- (c) all risks course of construction insurance in the amount of one hundred percent (100%) of the total Contract Price, written in the name of the Contractor and The City of Winnipeg, at all times during the performance of the Work and until the date of Total Performance.

D9.2 Deductibles shall be borne by the Contractor.

D9.3 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.

D9.4 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.

D10. PERFORMANCE SECURITY

D10.1 The Contractor shall provide and maintain performance security until the expiration of the warranty period in the form of:

- (a) a performance bond of a company registered to conduct the business of a surety in Manitoba, in the form attached to these Supplemental Conditions (Form H1: Performance Bond), in the amount of fifty percent (50%) of the Contract Price; or
- (b) an irrevocable standby letter of credit issued by a bank or other financial institution registered to conduct business in Manitoba and drawn on a branch located in Winnipeg, in the form attached to these Supplemental Conditions (Form H2: Irrevocable Standby Letter of Credit), in the amount of fifty percent (50%) of the Contract Price; or
- (c) a certified cheque or draft payable to "The City of Winnipeg", drawn on a bank or other financial institution registered to conduct business in Manitoba, in the amount of fifty percent (50%) of the Contract Price.

D10.1.1 Where the performance security is in the form of a certified cheque or draft, it will be deposited by the City. The City will not pay any interest on certified cheques or drafts furnished as performance security.

D10.2 The Contractor shall provide the City Solicitor with the required performance security within seven (7) Calendar Days of notification of the award of the Contract by way of letter of intent 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.

D11. SUBCONTRACTOR LIST

D11.1 The Contractor shall provide the Contract Administrator with a complete list of the Subcontractors whom the Contractor proposes to engage (Form J: Subcontractor List) at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract.

D12. DETAILED WORK SCHEDULE

D12.1 The Contractor shall provide the Contract Administrator with a detailed work schedule at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract.

D12.2 The detailed work schedule shall consist of the following:

(a) a Gantt chart for the Work acceptable to the Contract Administrator.

D12.3 Further to D12.2(a), the Gantt chart shall show the time on a weekly basis, required to carry out the Work of each trade, or specification division. The time shall be on the horizontal axis, and the type of trade shall be on the vertical axis.

SCHEDULE OF WORK

D13. COMMENCEMENT

D13.1 The Contractor shall not commence any Work until he is in receipt of a letter of intent from the Award Authority authorizing the commencement of the Work.

D13.2 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 D7;

(ii) evidence of the workers compensation coverage specified in C6.15;

(iii) the Safe Work Plan specified in D8;

(iv) evidence of the insurance specified in D9;

(v) the performance security specified in D10;

(vi) the Subcontractor list specified in D11;

(vii) the detailed work schedule specified in D12; and

(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.

D13.3 The City intends to award this Contract by November 26, 2010.

D13.3.1 If the actual date of award is later than the intended date, the dates specified for Commencement, Critical Stages, Substantial Performance, and Total Performance will be adjusted by the difference between the aforementioned intended and actual dates.

D14. CRITICAL STAGES

D14.1 The Contractor shall achieve critical stages of the Work in accordance with the following requirements:

(a) The Contractor must ensure that two (2) new pumping units, motors and all related piping, fittings, electrical distribution, etc. must be installed and ready to be put into active service by March 1, 2011. All temporary pumping must be removed by this date.

D15. SUBSTANTIAL PERFORMANCE

D15.1 The Contractor shall achieve Substantial Performance by April 29, 2011.

D15.2 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.

D15.3 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.

D16. TOTAL PERFORMANCE

D16.1 The Contractor shall achieve Total Performance by June 30, 2011.

D16.2 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.

D16.3 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.

D17. LIQUIDATED DAMAGES

D17.1 If the Contractor fails to achieve Critical Stages, Substantial Performance or Total Performance in accordance with the Contract by the days fixed herein for same, the Contractor shall pay the City the following amounts per Working Day for each and every Working Day following the days fixed herein for same during which such failure continues:

- (a) Critical Stages – one thousand five hundred dollars (\$1500);
- (b) Substantial Performance – one thousand dollars (\$1000);
- (c) Total Performance – two hundred dollars (\$200).

D17.2 The amounts specified for liquidated damages in D17.1 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.

D17.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

D18. SCHEDULED MAINTENANCE

D18.1 The Contractor shall perform the following scheduled maintenance in the manner and within the time periods required by the Specifications:

- (a) Landscape Maintenance as specified in CW 3510 of the City of Winnipeg's Standard Construction Specifications

D18.2 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

D19. JOB MEETINGS

- D19.1 Regular weekly job meetings will be held at the Site. These meetings shall be attended by a minimum of one representative of the Contract Administrator, one representative of the City and one representative of the Contractor. Each representative shall be a responsible person capable of expressing the position of the Contract Administrator, the City and the Contractor respectively on any matter discussed at the meeting including the Work schedule and the need to make any revisions to the Work schedule. The progress of the Work will be reviewed at each of these meetings.
- D19.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever he deems it necessary.

D20. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)

- D20.1 Further to C6.24, 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).

MEASUREMENT AND PAYMENT

D21. PAYMENT

- D21.1 Further to C12, the City may at its option pay the Contractor by direct deposit to the Contractor's banking institution.

D22. PAYMENT SCHEDULE

- D22.1 Further to C12, payment shall be in accordance with the following payment schedule:
- (a) A maximum of 50% of Form B, Item 1 or 5% of the Total Bid Price, whichever is less, may be submitted for progress payment upon mobilization as per E7. The remaining amount will be paid out upon Substantial Performance.
 - (b) A maximum of 90% of Form B, Item 4 may be submitted for progress payments prior to the total completion of the associated services, including the provision of record drawing mark-ups and O&M manuals.
 - (c) A maximum of 90% of Form B, Item 5 may be submitted for progress payments prior to the total completion of the associated services, including the provision of record drawing mark-ups and O&M manuals.
 - (d) A maximum of 90% of Form B, Item 6 may be submitted for progress payments prior to the total completion of the associated services, including the provision of record drawing mark-ups and O&M manuals.
 - (e) A maximum of 90% of Form B, Item 7 may be submitted for progress payments prior to the total completion of the associated services, including the provision of record drawing mark-ups and O&M manuals.
 - (f) A maximum of 90% of Form B, Item 8 may be submitted for progress payments prior to the total completion of the associated services, including the provision of record drawing mark-ups and O&M manuals.
- D22.2 The holdbacks identified above are prior to, and do not include, additional holdbacks as required by the Builder's Liens Act.

WARRANTY

D23. WARRANTY

- D23.1 Further to C13, if a defect or deficiency prevents the full and normal use or operation of the Work or any portion thereof, for purposes of calculating the warranty period, time shall be deemed to cease to elapse for the defective or deficient portion, and for any portion of the Work whose use or operation is prevented by such defect or deficiency, as of the date on which the defect or deficiency is observed or the use or operation is prevented and shall begin to run again when the defect or deficiency has been corrected or the Work may be used or operated to the satisfaction of the Contract Administrator.
- D23.2 Notwithstanding C13.2 and D23.1, if any law of Manitoba or of the jurisdiction in which the work was manufactured requires, or if the manufacturer provides, a longer warranty period or a warranty which is more extensive in its nature, then the provisions of such law or manufacture's warranty shall apply.

FORM H1: PERFORMANCE BOND
(See D10)

KNOW ALL MEN BY THESE PRESENTS THAT

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

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

_____ dollars (\$_____)

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

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

BID OPPORTUNITY NO. 760-2010

MARION WASTEWATER PUMPING STATION - INSTALLATION OF PUMPING UNITS AND BUILDING UPGRADES, CONTRACT NO. 23

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

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

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

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

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

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

_____ day of _____, 20____ .

SIGNED AND SEALED
in the presence of:

(Witness as to Principal if no seal)

(Name of Principal)

Per: _____ (Seal)

Per: _____

(Name of Surety)

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

All demands for payment shall specifically state that they are drawn under this Standby Letter of Credit.

Subject to the condition hereinafter set forth, this Standby Letter of Credit will expire on

(Date)

It is a condition of this Standby Letter of Credit that it shall be deemed to be automatically extended from year to year without amendment from the present or any future expiry date, unless at least 30 days prior to the present or any future expiry date, we notify you in writing that we elect not to consider this Standby Letter of Credit to be renewable for any additional period.

This Standby Letter of Credit may not be revoked or amended without your prior written approval.

This credit is subject to the Uniform Customs and Practice for Documentary Credit (1993 Revision), International Chamber of Commerce Publication Number 500.

(Name of bank or financial institution)

Per: _____
(Authorized Signing Officer)

Per: _____
(Authorized Signing Officer)

PART E - SPECIFICATIONS

GENERAL

E1. APPLICABLE SPECIFICATIONS AND DRAWINGS

- E1.1 These Specifications shall apply to the Work.
- E1.2 *The City of Winnipeg Standard Construction Specifications* in its entirety, whether or not specifically listed on Form B: Prices, shall apply to the Work.
- E1.2.1 *The City of Winnipeg Standard Construction Specifications* is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/Spec/Default.stm>
- E1.2.2 The version in effect three (3) Business Days before the Submission Deadline shall apply.
- E1.2.3 Further to C2.4(d), Specifications included in the Bid Opportunity shall govern over *The City of Winnipeg Standard Construction Specifications*.
- E1.3 The following are applicable to the Work:

<u>Specification No.</u>	<u>Specification Title</u>
01 33 00	SUBMITTAL PROCEDURES
01 45 00	QUALITY CONTROL
01 51 00	TEMPORARY UTILITIES
01 52 00	CONSTRUCTION FACILITIES
01 56 00	TEMPORARY BARRIERS AND ENCLOSURES
01 61 00	COMMON PRODUCT REQUIREMENTS
01 73 03	EXECUTION REQUIREMENTS
01 74 11	CLEANING
01 78 00	CLOSEOUT SUBMITTALS
01 89 76	CONCRETE PAVEMENT
03 05 10	CAST-IN-PLACE CONCRETE
03 20 00	CONCRETE REINFORCING
04 05 00	MASONRY
05 50 00	METAL FABRICATIONS
06 10 11	ROUGH CARPENTRY
06 17 53	SHOP - FABRICATED WOOD TRUSSES
07 21 13	BOARD INSULATION
07 21 16	BLANKET INSULATION
07 24 11	EXTERIOR FINISH - DIRECT APPLIED
07 26 00	VAPOUR RETARDERS
07 27 10	AIR BARRIERS
07 46 13	PREFORMED METAL SIDING
07 61 00	SHEET METAL ROOFING
07 92 10	JOINT SEALING
08 11 14	METAL DOORS AND FRAMES
09 91 23	PAINTING
09 96 66	WALL COATINGS
23 05 00	COMMON WORK RESULTS FOR HVAC
23 05 13	COMMON MOTOR REQUIREMENTS FOR HVAC EQUIPMENT
23 05 54	MECHANICAL IDENTIFICATION
23 05 93	TESTING, ADJUSTING AND BALANCING FOR HVAC
23 07 13	DUCT INSULATION
23 31 14	METAL DUCTS - LOW PRESSURE TO 500 PA
23 33 00	AIR DUCT ACCESSORIES
23 33 15	DAMPERS - OPERATING
23 34 00	HVAC FANS
23 37 13	DIFFUSERS, REGISTERS AND GRILLES

23 37 20	LOUVRES, INTAKES AND VENTS
23 38 18	PVC DUCTS - LOW PRESSURE TO 500 PA
23 41 00	PARTICULATE AIR FILTRATION
23 55 01	DUCT HEATERS
26 05 01	COMMON WORK RESULTS - ELECTRICAL
26 05 21	WIRES AND CABLES (0-1000 V)
26 05 27	GROUNDING - PRIMARY
26 05 28	GROUNDING - SECONDARY
26 05 29	HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS
26 05 31	SPLITTERS, JUNCTION, PULL BOXES AND CABINETS
26 05 32	OUTLET BOXES, CONDUIT BOXES AND FITTINGS
26 05 34	CONDUITS, CONDUIT FASTENINGS AND FITTINGS
26 05 44	INSTALLATION OF CABLES IN TRENCHES AND IN DUCTS
26 08 05	ACCEPTANCE TESTING
26 12 17	DRY TYPE TRANSFORMERS UP TO 600 V PRIMARY
26 24 17	PANELBOARDS BREAKER TYPE
26 27 26	WIRING DEVICES
26 28 21	MOULDED CASE CIRCUIT BREAKERS
26 28 23	DISCONNECT SWITCHES - FUSED AND NON-FUSED
26 29 10	MOTOR STARTERS TO 600 V
26 29 23	VARIABLE FREQUENCY DRIVES
26 50 00	LIGHTING
26 52 01	UNIT EQUIPMENT FOR EMERGENCY LIGHTING
27 30 00	VOICE COMMUNICATIONS
31 23 10	EXCAVATING, TRENCHING AND BACKFILLING
40 05 01	COMMON WORK RESULTS - AUTOMATION
40 80 08	FACTORY ACCEPTANCE TEST
40 80 11	AUTOMATION COMMISSIONING
40 91 00	AUTOMATION – PROCESS MEASUREMENT DEVICES
40 92 00	AUTOMATION - PRIMARY CONTROL DEVICES
40 94 43	PROGRAMMABLE LOGIC CONTROLLERS (PLCs)
40 95 13	CONTROL PANELS
40 95 20	HUMAN MACHINE INTERFACE (HMI)
40 99 01	TRAINING
40 99 90	MAINTENANCE AND SUPPORT

<u>Drawing No.</u>	<u>Drawing Name/Title</u>
1-0159L-D0001	COVER PAGE
1-0159L-C0001	MARION WASTEWATER PUMPING STATION – SITE PLAN
1-0159L-B0002	MARION WASTEWATER PUMPING STATION – PLAN – MAIN FLOOR AND ROOF
1-0159L-B0003	MARION WASTEWATER PUMPING STATION – BUILDING SECTIONS
1-0159L-B0004	MARION WASTEWATER PUMPING STATION – BUILDING ELEVATIONS
1-0159L-B0005	MARION WASTEWATER PUMPING STATION – SECTIONS AND DETAILS – TYPICAL
1-0159L-S0001	MARION WASTEWATER PUMPING STATION – GENERAL NOTES
1-0159L-S0002	MARION WASTEWATER PUMPING STATION – PLAN & DETAILS - FOUNDATION
1-0159L-S0003	MARION WASTEWATER PUMPING STATION – PLANS & SECTIONS – STRUCTURAL SLAB
1-0159L-S0004	MARION WASTEWATER PUMPING STATION – SECTIONS – STRUCTURAL SLAB
1-0159L-S0005	MARION WASTEWATER PUMPING STATION – PLAN – ROOF FRAMING
1-0159L-M0001	MARION WASTEWATER PUMPING STATION – SITE PLAN AND PLAN VIEWS
1-0159L-M0002	MARION WASTEWATER PUMPING STATION – SECTION VIEWS
1-0159L-M0003	MARION WASTEWATER PUMPING STATION – HVAC PLAN LAYOUT – MAIN FLOOR
1-0159L-M0004	MARION WASTEWATER PUMPING STATION – ELEVATION – HVAC

1-0159F-E0001	MARION FLOOD PUMPING STATION – ARC FLASH STUDY – SINGLE LINE DIAGRAM
1-0159F-E0002	MARION FLOOD PUMPING STATION – PANEL LAYOUT – CSTE
1-0159L-E0003	MARION WASTEWATER PUMPING STATION – ELECTRICAL SINGLE LINE DIAGRAM
1-0159L-E0004	MARION WASTEWATER PUMPING STATION – ELECTRICAL PLAN LAYOUT – MAIN FLOOR
1-0159L-E0005	MARION WASTEWATER PUMPING STATION – LIGHTING PLAN LAYOUT – MAIN FLOOR
1-0159L-E0006	MARION WASTEWATER PUMPING STATION – ELECTRICAL AND LIGHTING PLAN – MOTOR ROOM
1-0159L-E0007	MARION WASTEWATER PUMPING STATION – ELECTRICAL AND LIGHTING PLAN – PUMP ROOM
1-0159L-E0008	MARION WASTEWATER PUMPING STATION – ELECTRICAL SCHEDULES
1-0159L-E0009	MARION WASTEWATER PUMPING STATION – MOTOR STARTER SCHEMATIC – VFD-P-L1 – WASTEWATER LIFT PUMP
1-0159L-E0010	MARION WASTEWATER PUMPING STATION – CONNECTION DIAGRAM – VFD-P-L1 – WASTEWATER LIFT PUMP
1-0159L-E0011	MARION WASTEWATER PUMPING STATION – MOTOR STARTER SCHEMATIC – VFD-P-L2 – WASTEWATER LIFT PUMP
1-0159L-E0012	MARION WASTEWATER PUMPING STATION – CONNECTION DIAGRAM – VFD-P-L2 – WASTEWATER LIFT PUMP
1-0159L-E0013	MARION WASTEWATER PUMPING STATION – MOTOR STARTER SCHEMATIC – SF-L1 – VENTILATION FAN
1-0159L-E0014	MARION WASTEWATER PUMPING STATION – MOTOR STARTER SCHEMATIC – SF-L2 – VENTILATION FAN
1-0159L-E0015	MARION WASTEWATER PUMPING STATION – DETAILS – TELEPHONE NETWORK
1-0159L-E0016	MARION WASTEWATER PUMPING STATION – ELECTRICAL DETAILS
1-0159L-E0017	MARION WASTEWATER PUMPING STATION – GROUNDING INSTALLATION DETAILS
1-0159L-A0001	MARION WASTEWATER PUMPING STATION – PANEL LAYOUT – CONTROL PANEL CP-L1
1-0159L-A0002	MARION WASTEWATER PUMPING STATION – POWER DISTRIBUTION – CONTROL PANEL CP-L1
1-0159L-A0003-001	MARION WASTEWATER PUMPING STATION – PLC MODULE WIRING DIAGRAM – CONTROL PANEL CP-L1 – DISCRETE INPUTS
1-0159L-A0003-002	MARION WASTEWATER PUMPING STATION – PLC MODULE WIRING DIAGRAM – CONTROL PANEL CP-L1 – DISCRETE INPUTS
1-0159L-A0004	MARION WASTEWATER PUMPING STATION – PLC MODULE WIRING DIAGRAM – CONTROL PANEL CP-L1 – DISCRETE OUTPUTS
1-0159L-A0005	MARION WASTEWATER PUMPING STATION – PLC MODULE WIRING DIAGRAM – CONTROL PANEL CP-L1 – ANALOG INPUTS
1-0159L-A0006	MARION WASTEWATER PUMPING STATION – PLC MODULE WIRING DIAGRAM – CONTROL PANEL CP-L1 – ANALOG OUTPUTS
1-0159L-A0007	MARION WASTEWATER PUMPING STATION – NETWORK DIAGRAM – ETHERNET NETWORK
1-0159L-A0008	MARION WASTEWATER PUMPING STATION – PANEL LAYOUT – POWER DISTRIBUTION PANEL PDP-L1
1-0159L-A0009	MARION WASTEWATER PUMPING STATION – POWER DISTRIBUTION – POWER DISTRIBUTION PANEL PDP-L1
1-0159L-A0010	MARION WASTEWATER PUMPING STATION – PANEL LAYOUT – VENTILATION CONTROL PANEL CP-L2
1-0159L-A0011	MARION WASTEWATER PUMPING STATION – POWER DISTRIBUTION – VENTILATION CONTROL PANEL CP-L2
1-0159L-A0012	MARION WASTEWATER PUMPING STATION – AUTOMATION CONDUIT RISER DIAGRAM
1-0159L-A0013	MARION WASTEWATER PUMPING STATION – PANEL LAYOUT – FIELD DEVICE JUNCTION BOXES

1-0159L-A0014	MARION WASTEWATER PUMPING STATION – INSTALLATION DETAILS – SUBMERSIBLE LEVEL TRANSMITTER
1-0159L-A0015	MARION WASTEWATER PUMPING STATION – PANEL LAYOUT – ISB-L100-B & JBA-L100-B
1-0159L-A0020	MARION WASTEWATER PUMPING STATION – LOOP DIAGRAM – WET WELL LEVEL – L100-LT-A
1-0159L-A0021	MARION WASTEWATER PUMPING STATION – LOOP DIAGRAM – WET WELL LEVEL – L100-LT-B
1-0159L-A0022	MARION WASTEWATER PUMPING STATION – LOOP DIAGRAM – STATION FLOOD – LOOP L105
1-0159L-A0023	MARION WASTEWATER PUMPING STATION – LOOP DIAGRAM – FLOW METER – LOOP L110
1-0159L-A0026	MARION WASTEWATER PUMPING STATION – LOOP DIAGRAM – 600 VOLT POWER FAIL – LOOP L501
1-0159L-A0027	MARION WASTEWATER PUMPING STATION – LOOP DIAGRAM – 120 VOLT POWER FAIL – LOOP L502
1-0159L-A0028	MARION WASTEWATER PUMPING STATION – LOOP DIAGRAM – TVSS – LOOP L503
1-0159L-A0030	MARION WASTEWATER PUMPING STATION – LOOP DIAGRAM – OCCUPANCY SWITCH – LOOP L600
1-0159L-A0031	MARION WASTEWATER PUMPING STATION – LOOP DIAGRAM – RECIRCULATION DAMPER CONTROL – LOOP L601
1-0159L-A0032	MARION WASTEWATER PUMPING STATION – LOOP DIAGRAM – HEATER TEMPERATURE CONTROL – LOOP L602
1-0159L-A0033	MARION WASTEWATER PUMPING STATION – LOOP DIAGRAM – AIR FLOW SWITCH – LOOP L603
1-0159L-A0034	MARION WASTEWATER PUMPING STATION – LOOP DIAGRAM – MAIN FLOOR TEMPERATURE – LOOP L604
1-0159L-P0001	MARION WASTEWATER PUMPING STATION – PROCESS & INSTRUMENTATION DIAGRAM – WASTEWATER PUMPING
1-0159L-P0002	MARION WASTEWATER PUMPING STATION – PROCESS & INSTRUMENTATION DIAGRAM – VENTILATION

<u>Filename</u>	<u>Document Code</u>	<u>Document Name/Title</u>
760-2010_Cable_Schedule.pdf	113368-0000-47EL-0002	Cable Schedule
760-2010_FRS.pdf	113368-0000-48ER-0001	Functional Requirements Specification
760-2010_Forms.pdf		Forms
760-2010_Geotechnical_Report.pdf		Geotechnical Investigation And Foundation Engineering Report For Marion Pumping Station Winnipeg, Manitoba
760-2010_IO_List.pdf	113368-0000-48EL-0001	I/O List
760-2010_Lamacoid_Schedule.pdf	113368-0000-47EL-0003	Lamacoid Schedule

E1.4 The following are included for reference:

<u>Drawing No.</u>	<u>Drawing Name/Title</u>
173	Marion St. Pumping Station
411	Marion Forcemain – Winnipeg & St. Boniface Approaches to Norwood Bridge
415	Marion Forcemain – Thrust Blocks and Miscellaneous Details
00-107-10-M22	Marion Flood Pumping Station Isometric

E2. SOILS INVESTIGATION REPORT

- E2.1 Further to C3.1, the document entitled "Geotechnical Investigation And Foundation Engineering Report For Marion Pumping Station Winnipeg, Manitoba" dated June 3, 2010 and prepared by The National Testing Laboratories Limited, is included with this Bid Opportunity.

GENERAL REQUIREMENTS

E3. HAZARDOUS MATERIALS

- E3.1 If asbestos or other hazardous materials are encountered during the Work of the Contract, the Contractor shall stop all work and notify the Contract Administrator immediately. Removal of hazardous materials shall be dealt with by the City and the Contractor shall await further instruction by the Contract Administrator.

E4. SCOPE OF WORK

The below scope of work is a general description of the work and does not represent a sequence or listing of activities in any particular order. The Contractor is responsible for performing the work in an appropriate, efficient, and logical manner.

- E4.1 Mobilization and Demobilization
- (a) Mobilization and demobilization will include but not be limited to start-up costs, equipment set-up and removal, storage facilities set-up and removal and site cleanup.
- E4.2 Forcemain Manhole and Tee Installation
- (a) Install a standard 1800 manhole at the forcemain temporary discharge location. Manhole location to be confirmed with the Contract Administrator prior to construction.
 - (i) All excavation to be via soft-dig (hydro-vac).
 - (b) Install a flanged tee on the 500 mm dia forcemain to allow for temporary pumping.
- E4.3 Flow Control and Temporary Bypass Pumping
- (a) Provide flow control and temporary bypass pumping as per E15 and E16.
- E4.4 Structural / Architectural
- (a) Demolition of the existing superstructure.
 - (b) Locate the existing 500mm dia. forcemain prior to drilling piles. Locate to be via tracing or other approved method. Excavation of forcemain will not be accepted.
 - (c) Mark the location of all underground structures, sewers, forcemain, and utilities. Wait for the City to confirm the locations. Do not proceed with construction prior to approval from the Contract Administrator.
 - (d) Construction of a new cast-in-place concrete foundation consisting of pile supported grade beams.
 - (e) Construction of a new cast-in-place structural floor slab near grade level.
 - (f) Construction of a new masonry block and brick cavity wall.
 - (g) Construction of a new wood truss metal clad roofing system.
 - (h) Extend concrete paving / driveway as shown on the drawings.
 - (i) Site restoration and clean up.
- E4.5 Mechanical – Wastewater Pumping
- (a) Cleanout the wet well as per E19.
 - (b) Removal of two (2) existing dry-pit wastewater pumping units and piping.
 - (c) Installation of two (2) 50 hp dry-pit wastewater pumping units.

- (d) Supply and installation of suction and discharge piping, gate valves, check valves and other fittings.
- (e) Installation of a flowmeter (Supplied under Automation Scope of Work)
- (f) Supply and installation of a new 450mm gate valve and piping in the inlet valve chamber.
- (g) Miscellaneous services for a complete installation.

E4.6 Mechanical - HVAC

- (a) Provide new ventilation and heating system including, but not limited to the following:
 - (i) Demolition of the existing supply fan and associated ductwork
 - (ii) Supply and installation of two supply fans including motors.
 - (iii) Supply and installation of ductwork, grilles, and louvers.
 - (iv) Supply and installation of four dampers controlled by an actuator. (Actuators to be supplied under Automation Scope of Work)
- (b) Supply and install three fire extinguishers as shown on the drawings.

E4.7 Electrical

- (a) Modify existing CSTE at the flood pumping station as follows:
 - (i) Remove the existing 150A wastewater pumping station feeder breaker.
 - (ii) Install new wastewater pumping station feeder breaker and required mounting brackets.
- (b) Supply and install and temporary electrical provisions as required to complete the work as specified.
- (c) Remove the following existing equipment:
 - (i) Wastewater pumping station feeder cable
 - (ii) Pump motor starters
 - (iii) Lighting
 - (iv) Switches
 - (v) Receptacles
 - (vi) Pull boxes
 - (vii) Conduit, junction boxes, wiring, and any other component of the existing electrical distribution within the station.
- (d) Supply, install, and connect:
 - (i) Lighting fixtures
 - (ii) Switches
 - (iii) Receptacles
 - (iv) Pull boxes
 - (v) Field device junction boxes
 - (vi) Conduit
- (e) Supply, install, connect and test the following:
 - (i) A permanent direct buried feeder cable between the CSTE and the wastewater pumping station.
 - (ii) 600V distribution panel, PDP-L1
 - (iii) 600-120/240V 15 kVA transformer, XFMR-L10
 - (iv) 120/240V distribution panel, PNL-L10
 - (v) Variable frequency drives, VFD-P-L1 and VFD-P-L2.
 - (vi) Ventilation motor starters.
 - (vii) Emergency lighting systems
 - (viii) Grounding rods and associated grounding cables.

- (f) Install arc flash labels supplied by Contract Administrator.

E4.8 Automation

- (a) Supply, install, test, and commission the complete automation system as per drawings and specifications.
- (b) Work shall include, but not be limited to the following:
 - (i) Connect, wire, setup, calibrate, and commission all existing and new instrumentation.
 - (ii) Supply the following control panels:
 - (i) CP-L1
 - (ii) CP-L2
 - (iii) Supply power distribution panel PDP-L1.
 - (iv) Program, test, and commission Programmable Logic Controller (PLC) and touch-panel Human-Machine Interface (HMI).
 - (v) Install automation wiring to the VFDs. Test and commission.
 - (vi) Install automation wiring to the ventilation motor starters and duct heater. Test and commission.
 - (vii) Supply, install, and commission instruments as follows:
 - (i) Wet well level transmitter L100-LT-B
 - (ii) Flowmeter, L110-FIT
 - (iii) Damper Actuators L601-FV-1, L601-FV-2, L601-FV-3
 - (iv) Supply Air Temperature, L602-TT
 - (v) Air flow switch, L603-FSL
 - (vi) Main Floor Temperature, L604-TT
- (c) The following instrumentation is existing:
 - (a) Contractor to maintain and use existing Displaced Pressure Cell system (L100-LT).
 - (b) Contractor to use existing Flygt Ball system Station High Water Alarm (L105-LSH).

E4.9 Automation – Additional Labour

- (a) Provide a labour rate in Form B for additional automation labour which may be required for additional support, or other purposes.
- (b) Payment will be based upon the additional labour required.

E5. EQUIPMENT SUPPLIED BY OTHERS

E5.1 Pumps and motors

- (a) The City will supply the following equipment:
 - (i) Two (2) 151 l/s (2393 USgpm) dry-pit pumping units complete with pump supports,
 - (ii) Two (2) 50 hp pump motors and driveshaft assemblies for installation, as indicated in this Specification and Drawings.
- (b) Inspection of installation of the pumping units, upon completion, will be performed by a qualified technical representative from the manufacturer of the pumping units. The cost of the initial inspection will be paid for by the City.
- (c) Provide the Contract Administrator with seven (7) days notice of when pumps will be installed to allow for arrangements to be made with the pump supplier for initial start-up inspection.

E5.2 Automation Equipment

- (a) The City will supply the following control panels
 - (i) CP-L3 RTU Panel

E5.3 The Contract Administrator will supply arc flash stickers for the electrical equipment.

E6. EQUIPMENT AND MATERIALS

E6.1 The Contractor shall supply all equipment and materials necessary to execute the work, except for the equipment and material listed in E4.8(c) and as shown on the Drawings to be re-used. Also note equipment to be supplied by others in E5.

E6.2 Existing equipment and materials may be re-used only as specifically indicated in these specifications, as shown on the Drawings or as approved by the Contract Administrator.

E7. MOBILIZATION AND DEMOBILIZATION

E7.1 Mobilization and demobilization will include but not be limited to start-up costs, equipment set-up and removal, storage facilities set-up and removal and site cleanup.

E7.2 The Contractor is eligible for payment of mobilization services (as per D22.1) when the Contract Administrator is satisfied that:

- (a) The Contractor has met all the Commencement requirements specified D13.
- (b) The contractor has mobilized equipment and initiated work on Site.

E8. SECURITY

E8.1 The Contractor is responsible for all material and equipment stored on the site.

E8.2 Provide a chain-link fence around the construction site and lock after working hours. Supply five (5) copies of the key to the City.

E8.3 The Contractor is responsible for ensuring the security of the pumping station.

E8.4 Provide and pay for responsible security personnel to guard the site and contents of site after working hours whenever:

- (a) The pumping station or any associated piece of equipment is not locked and fully secure,
or
- (b) Temporary bypass pumping is active.

E9. SALVAGE

E9.1 All salvaged equipment and materials as determined by the Contract Administrator shall remain property of the City unless specifically noted otherwise. The Contractor shall deliver salvaged equipment and materials to the City of Winnipeg's "Y Yard" outdoor storage compound located at the North East corner of the intersection of Dugald Road and Van Bellegham Avenue, Winnipeg, Manitoba.

E9.2 The Contractor shall notify the Contract Administrator at least 48 hours prior to delivery of salvaged equipment to allow for arrangements to be made to receive the salvaged equipment. All deliveries shall be made between 8:00 am and 3:30 pm on Business days.

E9.3 The Contractor shall remove and haul all rejected salvage from the site and legally dispose of it.

E9.4 Removal and delivery of salvageable and non-salvageable equipment and material shall be considered incidental to the Contract Work and no additional payment will be made for such Work.

E10. DANGEROUS WORK CONDITIONS

E10.1 Further to clause C 6.26 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.

- E10.2 The Contractor shall be aware of the potential hazards that can be encountered in underground chambers, manholes and sewers such as explosive gases, toxic gases and oxygen deficiency. The Contractor's Safe Work Plan should address these issues.
- E10.3 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.
- (a) The Contractor is responsible for all testing requirements.
- E10.4 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.
- E10.5 Workers must wear a respirator or supplied air at all times when entering an underground chamber, manhole or sewer where live sewage is present.
- E10.6 The Contractor shall provide a photo-ionization detector (PID) and toxic gas detector on site at all times to monitor potential hydrocarbon vapours and hydrogen sulphide in the confined spaces. The gas detector and safety equipment conforming to the Act shall be made available to the Contract Administrator for his use during inspections.
- E10.7 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 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.

E11. WATERWAY BY-LAW

- E11.1 The Contractor shall note that all Works within 107 metres (350 feet) of a riverbank are within the jurisdiction of the Waterway By-Law. The City of Winnipeg, Water and Waste Department, will apply and pay for any Waterway Permits for the project, as required. The Contractor shall adhere to restrictions imposed on the permit.
- E11.2 Under no circumstances will stockpiling of any material be permitted within 107 metres of a riverbank or dike.
- (a) The Contractor is responsible for removing excavated materials from the Site immediately.
- (b) The Contractor is responsible for utilizing and placing any backfill brought to the Site immediately.

E12. PROTECTION OF EXISTING TREES

- E12.1 Do not remove existing trees and take the following precautionary steps to avoid damage from construction activities to existing boulevard trees within the limits of the construction area.
- E12.1.1 Do not stockpile materials and soil or park vehicles and equipment on boulevards within 2 metres of trees.
- E12.1.2 Strap mature tree trunks with 25 x 150 x 2400 wood planks. Smaller trees shall be similarly protected using appropriately sized wood planks.
- E12.1.3 Excavations shall be carried out in a manner to minimize damage to existing root systems. Where roots must be cut to facilitate an excavation they shall be neatly pruned at the face of the excavation.

- E12.1.4 Work on site shall be carried out in a manner to minimize damage to existing tree branches. Where damage to tree branches does occur, the Contractor shall neatly prune the damaged branch.
- E12.1.5 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.
- E12.2 All damage to existing trees due to construction activities shall be repaired to the requirements and satisfaction of the City of Winnipeg, Parks and Recreation Department, Forestry Branch at the Contractor's expense.
- E12.3 Costs for protection of trees shall be considered incidental to the Contract Work and shall be done at the Contractor's expense.

E13. TEMPORARY USE OF CITY EQUIPMENT

- E13.1 City facilities, systems and equipment shall not be used during construction without the Contract Administrator's written permission. The Contract Administrator reserves the right to withdraw said permission if, in his opinion, proper care and maintenance are not provided.

E14. EXISTING PUMPING STATION OPERATION DURING CONSTRUCTION

- E14.1 The facility related to the Work is critical to the transport of wastewater for the City of Winnipeg. Under no condition shall the station pumping be shut down without prior permission of the Contract Administrator.
- E14.2 The Contractor is advised that the existing Marion Wastewater Pumping Station will be allowed to be taken out of operation only after the Contractor's schedule of activities, including provisions for temporary by-pass pumping operations, to complete the Work is approved by the Contract Administrator. The Contractor shall plan his construction activities to allow for the minimum amount of disruption time to normal operating status of the stations.
- E14.3 The Contractor shall cooperate with and provide full access at all times for City personnel to carry out maintenance and operational duties.
- (a) No additional payments will be made for providing access to City forces on the site or any potential affect City crews might have on the Contractor's work.

E15. TEMPORARY SHUTDOWN OF THE PUMPING STATION

- E15.1 Temporary shutdown of the wastewater pumping stations will be allowed for the following work activities.
- (a) Removal of existing pumps, suction and discharge piping, valves and fittings inside the station.
- (b) Installation of new pumps, suction and discharge piping, valves and fittings inside the station.
- (c) Connection of new electrical controls to new pumps.
- (d) Sequence work such that a minimum amount of shut-down time at the Station is used for the above mentioned activities (i.e. replace one pumping unit while the other pumping units are still on-line).
- E15.2 Prepare and submit shutdown plans a minimum of 48 hours prior to the proposed shutdown.
- E15.3 All gate operation and other control relating to the wastewater process will be by the City.
- E15.4 Allowable shutdown times for the Marion Station indicated on the Drawings is approximate and the Contractor must monitor the upstream system at all times to ensure the stored level of wastewater will not exceed the critical basement elevation indicated on the Drawings.

- E15.5 Subject to unforeseen flow conditions, 4 hours of allowable shutdown time may be available during the night.
- E15.6 Schedule work activities requiring station shutdown to be done at night, if required by the Contract Administrator, when flow amounts are generally reduced, to maximize the amount of shutdown time available and reduce the risks associated with station shutdown.
- E15.7 Schedule several work activities to be completed in the same shutdown where possible to minimize the number of station shutdowns and amount of temporary by-pass pumping required.
- E15.8 Temporary by-pass pumping, as described in E16, must be installed and operational at all times during construction and ready to be put into service if liquid level in the sewer system reaches the critical basement elevation shown on the drawings or as determined by the Contract Administrator.
- E15.9 Temporary shutdown will include closing the sluice gate or installing a sewer plug in upstream of the station, pump turn off, forcemain draining (if required), pump start up and opening the sluice gate or removing the sewer plug.
- E15.10 Water and Waste Department, Collection System personnel will be available to provide assistance to the Contractor for temporary shutdown of the wastewater pumping station to facilitate completion of the Work.
- E15.11 There will be no charge to temporarily shutdown the wastewater pumping station for the work activity listed.
- E15.12 If an unreasonable number of station shutdowns are required to complete the same work activity due to the Contractor's method of operation, a fee of \$300.00 per hour for Collection System personnel may be charged to the Contractor and deducted from future Progress Payments.
- E15.13 The Contract Administrator reserves the right to cancel a planned station shutdown if in his opinion, flow conditions or the weather forecast would not allow for a shutdown of sufficient duration to complete the work activity. The Contractor shall reschedule the work activity to a more suitable time.
- E15.14 Consecutive back-to-back station shutdowns will not be allowed until the sewer system has returned to normal.

E16. FLOW CONTROL AND TEMPORARY BY-PASS PUMPING

E16.1 Description

- E16.1.1 This specification covers flow control in existing sewers and temporary by-pass pumping of flow during installation of the wastewater pumping units and station modifications for each of the Baltimore and Ash Wastewater Pumping Stations.

E16.2 Materials

E16.2.1 Inflatable Rubber Sewer Plugs

- (a) Made of rubber, capable of remaining in place when inflated to the pressure required to withstand the expected sewer levels.
- (b) Provided with an inflation/deflation hose, monitoring pressure valve, removal rope or cable and safety chain, all of sufficient length to reach ground elevation for monitoring and removal.

E16.2.2 Temporary By-Pass Pumping Equipment

- (a) Non-clog, submersible pumping units, each sized to meet or exceed the required capacity. Complete with all required piping, fittings, floats and pump controls suitable for temporary installation in a sewer manhole.

- (b) Provide model and capacity curves to the Contract Administrator for approval.
- (c) Power supply to be suitably sized for pumping equipment complete with all required controls. Fuel to be in lockable, tamperproof container, approved by Contract Administrator.

E16.2.3 Fittings and Appurtenances

- (a) Fittings, couplings and appurtenances to be used for repairs to existing forcemains and sewers to be approved products for underground use in the City of Winnipeg.

E16.2.4 Bedding and Backfill

- (a) Bedding and initial backfill material to be sand in accordance with CW 2030.
- (b) Backfill excavations in pavement areas to be Class 3 in accordance with Clause 3.8.3 of CW 2030. Backfill in excavations in boulevard areas to be Class 5 in accordance with Clause 3.8.3 of CW 2030.

E16.3 Construction Methods

E16.3.1 General

- (a) Maintain level of sewage in existing sewers below the critical basement elevation shown on the Drawings at all times. The Contract Administrator will provide a mark at a convenient location for reference.
- (b) Allowable shutdown times shown on the drawings are approximate and the Contractor must monitor the upstream system at all times to ensure the stored level of wastewater does not exceed the critical basement elevation.
- (c) Provide a flow control plan to the Contract Administrator for review before construction starts.
- (d) Diversion of wastewater flow directly or indirectly to the environment, Land Drainage Sewers or Storm Relief Sewers will not be allowed.

E16.3.2 Expected Wastewater Flow to the Marion Wastewater Pumping Station

- (a) The expected peak dry weather flow (PDWF) to the Marion Wastewater Pumping Station is 80 l/s (1268 US gpm).
- (b) Critical Basement elevation is 223.172 m.
- (c) Combined sewers can receive flow of an undetermined amount from watermain breaks, snow melt, rain and other unforeseen sources. The Contractor will be responsible to monitor the flow in the sewer and adjust or halt work activities accordingly due to unforeseen flow above the amount identified for PDWF.

E16.3.3 Inflatable Sewer Plugs

- (a) Only inflatable rubber sewer plugs shall be used to plug sewers.
- (b) Clean sewer pipe as required to properly install inflatable sewer plug(s) in accordance with the manufacturer's instructions at the locations shown on the Drawings to isolate the installation location. Installation of inflatable sewer plugs at other locations to be approved by the Contract Administrator before construction starts.
- (c) Secure inflatable sewer plugs at or near the ground surface.
- (d) Continuously monitor air pressure while sewer plug is in place and have proper inflation equipment available at all times.

E16.3.4 Temporary By-Pass Pumping

- (a) For by-pass pumping operations, provide a minimum of two submersible pumps at all times, each with a capacity equal to or greater than the listed PDWF for that station. Both pumps are to be installed and available for operation. A replacement pump with the required capacity shall be immediately provided if one of the two original pumps has to be removed from the site for repairs.

- (i) A combination of smaller sized pumps may be used concurrently if the total discharge flow of the pumps meets the PDWF volumes identified in E16.3.2(a) and providing replacement pumps are available on-site to maintain the PDWF volume.
- (b) Surface mount, vertical lift suction pumps are not acceptable.
- (c) Temporary by-pass pumping may be installed at the following locations:
 - (i) Outfall gate chamber structure as shown on the Drawings. (preferred)
 - (ii) Marion Flood Station wet well.
- (d) Installation of temporary pumping at the outfall gate chamber will require the installation of a temporary weir. The City will not close the positive gate. Provide a design for the temporary review and submit to the Contract Administrator for review.
- (e) Provide detailed information for pumping equipment to be used including pump capacity and dimensions, depth of submergence, pump controls and installation details to the Contract Administrator for review before construction starts.
- (f) Power supply to be approved by the Contract Administrator before set-up. Locate the power supply where it will not adversely affect local residences. Location to be approved by the Contract Administrator before construction starts.
- (g) Provide suitable traffic ramps approved by the Contract Administrator if the by-pass pumping discharge pipe and power supply cables are laid across vehicle or pedestrian traffic areas.
- (h) Provide a check valve on the by-pass pumping discharge pipe to prevent cycling when the pumping station is activated.
- (i) The Contractor is advised that the pumping station will remain in service while the work is being completed, except for planned temporary shutdowns as described in E15. The Contractor shall cooperate and coordinate with the City to allow full access at all times for City staff to carry out maintenance and operational duties.
- (j) Arrange construction activities and schedule to be able to remove temporary inflatable sewer plug(s) and restore pumping station operation at the end by-pass pumping operations.
- (k) If a temporary pump in use fails, it must be replaced immediately with the standby pump and if the flow level in the sewer rises to the mark established by the Contract Administrator, the inflatable sewer plug shall be deflated and flow allowed to go the pumping station or additional temporary pumping must be provided.
- (l) The Contractor shall ensure temporary by-pass pumping equipment and materials will be properly insulated and heated, if required, to be protected from freezing and to maintain proper functioning during cold weather.
- (m) Temporary by-pass pumping equipment and materials shall remain on-site until station construction is completed as described in these Specifications and to the satisfaction of the Contract Administrator.

E16.3.5 Responsibility

- (a) The Contractor will take full responsibility for the temporary bypass pumping, including high water events.
- (b) Provide a 24-hour contact person who can address any issues with the bypass pumping.

E16.4 Measurement and Payment

- E16.4.1 Flow control and temporary by- pass pumping will be measured on a unit basis and paid for at the Contract Unit Price for "Flow Control and Temporary By-Pass Pumping" as shown in Form B: Prices, installed in accordance with this specification, accepted and measured by the Contract Administrator.

E17. WORK PLAN

E17.1 The Contractor is required to develop a detailed work plan and submit to the City for review. The following is a sample work plan which should be considered as an initial starting point for detailed development of a work plan.

- (a) Install fence around the site.
- (b) Shutdown A
 - (i) Install temporary cable to feed the pumping station above ground
- (c) Remove existing underground feeder cable.
- (d) Structural piling and foundation work.
- (e) Pour structural slab
- (f) Relocate existing supply fan to temporary location. Extend ductwork as required.
- (g) Relocate any electrical or other equip on existing building south wall.
- (h) Demolish existing building roof. Horde as required to maintain operation of the existing building.
- (i) Demolish existing building south wall. Shore other walls as required.
- (j) Construct new walls
- (k) Construct new roof
- (l) Pour floor and housekeeping pads
- (m) Install Jib Crane
- (n) Install new electrical equipment
- (o) Install new trench with new feeder cables
- (p) Shutdown B
 - (i) Modify CSTE
 - (ii) Connect new feeder cables
 - (iii) Connect existing motor starters and distribution to new PNL-L1
- (q) Install new HVAC equipment.
- (r) Take first pump out of service and replace.
- (s) Install new discharge header and connect to P-L1.
- (t) Shutdown C
 - (i) Connect new discharge piping
 - (ii) Test and commission P-L1.
- (u) Replace Pump P-L2
- (v) Replace existing electrical distribution
- (w) Demolish all remaining old electrical distribution
- (x) Demolish existing structure.
- (y) Fill / Repair floor next to existing building

E18. WET WEATHER FLOWS IN EXISTING SEWER

E18.1 In the event the flow in the sewer system is expected to exceed the amount indicated for PDWF due to wet weather runoff, the Contract Administrator may suspend work activities that require temporary by-pass pumping and temporary shutdown of the wastewater pumping station. Suspension of these activities will continue until the high flow diminishes in the sewer system.

E18.2 In the opinion of the Contract Administrator, if suspension of work activities that require temporary by-pass pumping and temporary shutdown of the wastewater pumping station cause

a delay in completion of the Work through no fault of the Contractor, the completion date of the Work will be adjusted accordingly.

E18.3 There shall be no claim for additional costs or time due to Station shut-downs from high wet weather flows.

E19. WET WELL CLEAN OUT

E19.1 The Contractor shall be responsible for the clean out of the wet well before starting construction and as construction progresses. Clean out shall be done by mechanical or manual methods and shall remove grit, tallow and other build-ups to the satisfaction of the Contract Administrator.

E19.2 The Contractor shall also ensure that all construction material and debris are removed from the wet well after completing the works and prior to station startup and commissioning.

E19.3 The Contractor shall be responsible to maintain a clean wet well in the station during construction.

E19.4 Costs for clean out of pumping station wet well shall be considered incidental to the Contract Work and no additional payment will be made for such Work.

E20. PUMPING STATION MODIFICATIONS AND MECHANICAL WORK

E20.1 Description

E20.1.1 This Specification covers the piping, equipment, materials and structural modifications to the existing Marion Wastewater Pumping Stations.

E20.1.2 The Contractor shall remove the existing pumping units, motors, piping, equipment and materials as required and install new pumping units, piping, equipment and materials as shown on the drawings or as indicated by the Contract Administrator.

E20.1.3 All equipment and material shall be supplied by the Contractor except as listed in E4.8(c).

E20.2 Materials

E20.2.1 Pumping Units

(a) Two (2) pumps shall be supplied by the City as indicated in section E4.8(c) .

E20.2.2 Pump Motors

(a) Two (2) pump motors and driveshaft assemblies shall be supplied by the City as indicated in section E4.8(c).

E20.2.3 Piping and Fittings

(a) All piping shall be Class 52 ductile iron or ASTM Carbon steel Schedule 80 thickness.

(b) Cast Iron fittings shall conform to AWWA C110.

(c) Fabricated fittings shall conform to ASTM A53 carbon steel grade B, Schedule 800 wall thickness.

(d) Steel fittings shall be ASTM A234 grade B carbon steel, Schedule 80 wall thickness. Dimensions shall be to ANSI B16.9.

(e) All welded steel flanges shall be in conformance with AWWA C207, Class B.

(f) Submit shop drawings in accordance with Section 01 33 00.

E20.2.4 Large Diameter Flanges and Adaptor Flanges

(a) Thread-on flanges for Ductile Iron Pipe: AWWA C115 or ASME B16.1

- (b) Adaptor flanges: Ductile Iron, Grade 65-45-12, conforming to the current ASTM Standard A536 for Ductile Iron Castings. Bolt holes shall be drilled in accordance with AWWA C115 or ASME B16.1.
- (c) Clamping screws on adaptor flanges shall be zinc-plated, heat treated steel with a minimum tensile strength of 28 Mpa.
- (d) Submit shop drawings in accordance with Section 01 33 00.

E20.2.5 Miscellaneous Metal Fabrications

- (a) See Section 05 50 00

E20.2.6 Pipe Supports and Hangers

- (a) Pipe supports and hangers to be as shown on the Drawings and in accordance with Section 05 50 00.

E20.2.7 Fasteners

- (a) Flange nuts and bolts shall be ASTM A276, Type 316 stainless steel sized to requirements of flange. Thread-on bolts to extend past nut a minimum of 6 millimetres.
- (b) Anchors shall be Kwik-bolt or Rawl Stud ASTM A276, Type 316 stainless steel. Embedment depth and size, where not shown on the Drawings, to be as required for load being carried or resisted.

E20.2.8 Gaskets

- (a) Flange gaskets shall be full faced rubberized cloth gaskets, 3mm in thickness.
- (b) Rubber gaskets for adaptor flanges shall conform to AWWA C111, Standard for Rubber-gasket Joints for Cast Iron and Ductile Iron Pressure Pipe and Fittings.

E20.2.9 Cast-in-Place Concrete

- (a) Concrete to be in accordance with CW 2160 and CSA A23.1.
- (b) Concrete mix design shall be in accordance with performance alternative and shall have the following properties:
 - (i) Class of exposure: S-1
 - (ii) Minimum compressive strength at 28 days: 35 MPa
 - (iii) Maximum slump: 80mm (\pm 20mm)
 - (iv) Air Content: 5% – 8%
 - (v) Maximum Water/Cement Ratio: 0.40
- (c) Lean-Mix concrete design for proportioning of fine aggregate, coarse aggregate, cement, and water shall be as follows:
 - (i) Cement: Type 50
 - (ii) Minimum compressive strength at 28 days: 15 MPa
 - (iii) Slump: 80mm
 - (iv) Air Content: nil
 - (v) Maximum Water/Cement Ratio: 0.49

E20.2.10 Grout

- (a) Grout to be S.P.I. Rapid Repair Grout, Sika Grout 212 or an approved equal.

E20.2.11 Bonding Agent

- (a) Bonding agent to be Acryl-Stix or approved equal.

E20.2.12 Backfill

- (a) In accordance with CW 2030. Class of Backfill to be shown on the Drawings.

E20.2.13 Paint

- (a) See Section 09 91 23.

E20.2.14 Gate Valves

- (a) Cast iron body with flanged ends equipped with outside rising stem, screw and yoke; bronze trimmed cast iron wedge; bronze stem, double O-ring stem seals and 50 millimetre square operating nut.
- (b) Flanges shall conform in dimension and drilling to ANSI/ASME B16.1, Class 125.
- (c) Direction of opening shall be counter clockwise and shall be clearly stamped or indicated with raised letters and arrow.
- (d) Manufacturer's nameplate shall be attached to the valve body with stainless steel fasteners.
- (e) Gate valves shall be as manufactured by Clow Canada, Crane, Mueller Canada or approved equal.
- (f) Submit shop drawings of gate valves in accordance with Section 01 33 00.

E20.2.15 Check Valves

- (a) Ductile iron body with flanged ends and removable inspection cover manufactured and tested in accordance with AWWA C508.
- (b) Flanges shall conform in dimension and drilling to ASME B16.1, Class 125.
- (c) ASTM D2000-BG, Buna - N (NBR) sewage resistant rubber flap and Type 302 stainless steel disc accelerator.
- (d) Attach manufacturer's nameplate to the valve body with stainless steel fasteners.
- (e) Acceptable product: Val-Matic Series 500 or approved equal.
- (f) Submit shop drawings of check valves in accordance with Section 01 33 00.

E20.3 Construction Methods

E20.3.1 General

- (a) Install the new station piping and pumping equipment as indicated in this specification and shown on the Drawings. Make no changes, revisions or substitutions to the layout without obtaining written approval from the Contractor Administrator.
- (b) Be aware of and contend with the wastewater in the existing forcemain when preparing to make the required piping modifications.
- (c) Prior to pumping unit installation, provide a portable sewage pump and discharge hose to remove remaining wastewater in the wet well. The wastewater shall be directed to the upstream manhole or to a sewage hauler for disposal.

E20.3.2 Flow Control and Temporary By-Pass Pumping

- (a) Provide flow control measures and temporary by-pass pumping as shown on the Drawings and in accordance with E16 of this Specification.

E20.3.3 Excavation

- (a) Excavation in accordance with CW 2030. Remove any existing pre-cast riser and manhole sections as excavation progresses. Take care not to damage any adjacent structural components.
- (b) Cover and provide safety precautions acceptable to the Contract Administrator for excavations not backfilled.
- (c) Remove excavated material from the site immediately. Excavated material shall not be stockpiled on-site unless it is determined by the Contract Administrator to be suitable for use as backfill.
- (d) 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.

E20.3.4 Locating Ground Services

- (a) The contractor shall be responsible for locating all services.
- (b) Costs for locating the services shall be considered to incidental to the Contract Work.

E20.3.5 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 in accordance with the following:
 - (i) Security fence shall be chain link fence or approved equal, a minimum 1.80 metres high with metal support posts embedded far enough into the ground and spaced close enough together so the fence will not sag or collapse.
 - (ii) Attach fencing securely to posts.
 - (iii) Secure the gate or end of the fencing to a post with chain and a padlock.
 - (iv) Provide alternate security fence proposal to Contract Administrator for approval.

E20.3.6 Backfill

- (a) Place and compact backfill material as indicated on the Drawings in accordance with CW 2030. Do not place backfill material in a frozen state. Supply heating and hoarding in accordance with CW 2160 if required to ensure material does not freeze before compaction is complete.

E20.3.7 Construction Sequence

- (a) Arrange construction activities and sequence to be able to remove temporary inflatable sewer plug(s) and restore pumping station operation as soon as possible after completion.

E20.3.8 Existing Pump Level Controls and Alarms

- (a) Maintain and protect existing pump controls and float type alarms, located in the wet well or in the other areas of the Station, during the execution of the work until all the new equipment is ready for installation.

E20.3.9 Pumping Unit and Piping Installation

- (a) The existing station pumping setup consists of only two pumps (pumps # 1 and #2) with respective piping.
- (b) Remove all existing piping as indicated in the Specifications and on the Drawings and replace with new piping.
- (c) Installation to be as follows:
 - (i) Prepare and arrange for temporary shutdown of station in accordance with E15 and have temporary by-pass pumping operations in accordance with E16.
 - (ii) Where steel pipe is used for fittings or filler pipes, it shall be field measured and fitted before fabrication.
 - (iii) Piping and fitting welds shall be full penetration butt type in accordance with ANSI/ASME B31.9. Welders shall be fully qualified and licensed by Provincial Authorities. Welds which do not penetrate fully will not be accepted.
 - (iv) Weld steel flanges on both the inside and the outside in conformance with AWWA Standard C207.
 - (v) All pipe and equipment shall be adequately protected from on-site welding procedures.
 - (vi) Pumping units shall be installed as per the manufacturer's installation specifications, complete with all required accessories, at the location indicated on the drawing.

- (d) After new pumps and piping have been installed; all pipes and pipe welds shall be cleaned and prepared for application of primer and paint in accordance with Section 09 91 23.

E20.3.10 Concrete Work

- (a) Make neat openings in walls and floor slabs using concrete coring and cutting equipment and methods.
- (b) Fill openings left in concrete after removal of piping or other equipment with watertight, non-shrink grout. Finish new surfaces flush with the existing surface and match the surrounding surface texture. Primer and paint shall be applied in accordance with Section 09 91 23 if the surrounding surfaces have a paint finish.
- (c) Mix and apply grout in accordance with the manufacturer's instructions.
- (d) Mix and apply bonding agent in accordance with the manufacturer's instructions.
- (e) Neatly grout any concrete surface that has been broken and had the aggregate exposed with a smooth finish similar in texture to that of the surrounding concrete.
- (f) Apply concrete bonding agents between new concrete or grout and existing concrete surfaces. Remove all loose, pitted and scaled concrete and apply bonding agent in accordance with the manufacturer's instructions
- (g) De-scale exposed reinforcing steel and have all rust removed before applying grout.

E20.3.11 Miscellaneous Metal Fabrications

- (a) See Section 05 50 00.

E20.3.12 Paint

- (a) See Section 09 91 23.

E20.3.13 Cleanup

- (a) Cleanup construction debris and materials inside the Station, including the wet-well at the end of each day and before pumping station operation is restored.

E20.4 Measurement and Payment

- (a) Pumping station modifications and mechanical work installations will be measured on a unit basis and paid for at the Contract Unit Price for "Mechanical Work (Wastewater Pumping)" as shown in Form B: Prices as supplied and installed in accordance with this specification, accepted and measured by the Contract Administrator.

E21. PUMP START UP

- E21.1 New pumps supplied by the City and installed by the Contractor shall not be started up by the Contractor without approval from the Contract Administrator. The Contractor shall provide the Contract Administrator his proposed schedule for each pump start up at least one week in advance in order to allow time for the Contract Administrator to make arrangements with the pump supplier to be present for the start up.
- E21.2 If any new pumping equipment (pump, pump controller, motor or drive shaft) fails to operate or perform properly and has to be removed for service as determined by the Contract Administrator, the Contractor shall remove the equipment that fails at no cost to the City and make arrangements with the pump supplier to have the equipment taken to the supplier's shop.
- E21.3 The City shall be responsible for the re-installation of the pumping equipment once it has been repaired or replaced.
- E21.4 The pumping equipment supplier and contact for this Contract is:

Power and Mine Supply Company Ltd.
4 – 75 Meridian Drive
Winnipeg, Manitoba

Attention: Dan Shamlock, P. Eng.
Telephone (204) 694-9300

E22. SURFACE RESTORATION

E22.1 Description

E22.1.1 This specification shall cover surface restoration and associated items of Work for existing surfaces disturbed by construction activities.

E22.2 Construction Methods

E22.2.1 Restoration of all existing surface areas disturbed by construction activities including but not limited to; excavation for new station, operation of construction equipment, placement of field office or equipment trailer, snow clearing and where construction materials were stockpiled, shall be restored as follows.

- (a) Grassed areas: sodding using imported topsoil in accordance with CW 3510.
- (b) Gravel surfaces: in accordance with CW 3150.
- (c) Asphalt surfaces: match existing base course and asphalt thickness or provide a minimum of 150 millimetres of base course and 75 millimetres of Type 1A Asphaltic concrete whichever is greater, in accordance with CW 3410.
- (d) Pavement slabs in accordance with CW 3310.
- (e) Miscellaneous concrete slabs (median slab, sidewalk, bullnose: in accordance with CW3235
- (f) Concrete curb and gutter: in accordance with CW 3240.
- (g) Interlocking pavement stones: CW 3330.

E22.3 Measurement and Payment

E22.3.1 Costs for surface restoration will be included in the contract unit price for "Structural and Architectural".