



THE CITY OF WINNIPEG

BID OPPORTUNITY

BID OPPORTUNITY NO. 685-2011

FLOOD PUMPING STATION GATE CHAMBER REHABILITATION – PHASE 1

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PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

B1.1 FLOOD PUMPING STATION GATE CHAMBER REHABILITATION – PHASE 1

B2. SUBMISSION DEADLINE

B2.1 The Submission Deadline is 12:00 noon Winnipeg time, September 8, 2011.

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 on September 1, 2011 from 9:00 a.m. to 10:00 a.m. at Hawthorne Flood Pumping Station and from 10:00 a.m. to 11:00 a.m. at Hart Flood Pumping Station to provide Bidders access to typical Sites.

B3.2 The Bidder is advised that Site should be viewed to identify any Site restrictions that could impede the Work progress.

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

B4. ENQUIRIES

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

B9.2 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>

- (b) have successfully carried out work similar in nature, scope and value to the Work; and
- (c) be fully capable of performing the Work required to be in strict accordance with the terms and provisions of the Contract; and
- (d) have a written workplace safety and health program if required pursuant to The Workplace Safety and Health Act (Manitoba).

B10.3 Further to B10.2, 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>)

B10.4 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.

B10.5 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.
- B12.1.2 Bids determined by the Manager of Materials, or his designate, to not include the bid security specified in B11 will not be read out.
- 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>
- 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>
- 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 B10B9.4 (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 replacement of cast-iron slide gates (control gates), rehabilitation of existing embedded wall thimbles, gate chamber concrete repair, and cleaning of flap gates.

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

- (a) Hawthorne Flood Pumping Station
 - (i) Replacement of wall thimble and cast-iron slide gate.
- (b) Ash Flood Pumping Station
 - (i) Replacement of cast-iron slide gate and rehabilitation of existing wall thimble.
- (c) Jessie Flood Pumping Station
 - (i) Replacement of cast-iron slide gate and rehabilitation of existing wall thimble.
- (d) Hart Flood Pumping Station
 - (i) Replacement of cast-iron slide gate and rehabilitation of existing wall thimble.

D3. CONTRACT ADMINISTRATOR

D3.1 The Contract Administrator is KGS Group, represented by:

Mr. Colin Siepman, P.Eng.
Senior Structural Engineer
3rd Floor- 865 Waverley Street
Telephone No. (204) 896-1209
Facsimile No. (204) 896-0754

D3.2 At the pre-construction meeting, Colin Siepman 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: Director of Legal Services
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, broad form property damage cover and products and completed operations, to remain in place at all times during the performance of the Work and throughout the warranty period;
 - (b) 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) an all risks Installation Floater carrying adequate limits to cover all machinery, equipment, supplies and/or materials intended to enter into and form part of any installation.

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 If the bid security provided in his Bid was not a certified cheque or draft pursuant to B11.1(c), 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 the General Conditions 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 Sites but in no event later than the date specified in the GC:4.1 for the return of the executed Contract.

D13. EMERGENCY CONTACT LIST

D13.1 At least two (2) business days prior to the commencement of any work on the sites, the Contractor shall provide the Contract Administrator with a list of emergency phone numbers, including, but not limited to, the nearest hospital from each site, underground services contacts and the supervisor identified in D4 that can be contacted 24 hours a day to respond to an emergency.

SCHEDULE OF WORK

D14. COMMENCEMENT

- D14.1 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.
- D14.2 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; and
 - (vii) the Detailed Work Schedule specified in D12; and
 - (viii) the Emergency Contact list specified in D13.
 - (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.
- D14.3 The Contractor shall commence the Work within seven (7) Working Days of receipt of the letter of intent.
- D14.4 The City intends to award this Contract within two (2) weeks of the Submission Deadline.

D15. CRITICAL STAGES

- D15.1 The Contractor shall achieve critical stages of the Work in accordance with the following requirements:
- (a) The new cast-iron slide gates have long delivery periods and must be ordered as soon as possible upon award of Contract.
 - (b) The existing slide gates shall not be removed until the replacement slide gates have been examined by the Contract Administrator, unless otherwise approved by the Contract Administrator.
 - (c) No on site work shall be allowed until November 15, 2011.
 - (d) Cast-iron slide gates must be installed and functional by February 28, 2012.
- D15.2 In the event of work deferral(s) due to high river water levels as referenced in E13, the Contractor shall achieve critical stages of the Work in accordance with the following requirements:
- (a) The existing slide gates shall not be removed until the replacement slide gates have been examined by the Contract Administrator, unless otherwise approved by the Contract Administrator.
 - (b) No on site work shall be allowed until November 15, 2012.
 - (c) Cast-iron slide gates must be installed and functional by February 28, 2013.

D16. SUBSTANTIAL PERFORMANCE

- D16.1 The Contractor shall achieve Substantial Performance by February 28, 2012.
- D16.2 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.

- D16.3 In the event of work deferrals(s) due to high water levels as referenced in E13, the Contractor shall achieve Substantial Performance by February 28, 2013.
- D16.4 The date on which the Work has been certified by the Contract Administrator as being substantially performed to the requirements of the Contract through the issue of a certificate of Substantial Performance is the date on which Substantial Performance has been achieved.

D17. TOTAL PERFORMANCE

- D17.1 The Contractor shall achieve Total Performance by March 30, 2012.
- D17.2 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.
- D17.3 In the event of work deferral(s) due to high water levels as referenced in E13, the Contractor shall achieve Total Performance by March 30, 2013.
- D17.4 The date on which the Work has been certified by the Contract Administrator as being totally performed to the requirements of the Contract through the issue of a certificate of Total Performance is the date on which Total Performance has been achieved.

D18. LIQUIDATED DAMAGES

- D18.1 If the Contractor fails to achieve Substantial Performance in accordance with the Contract by the day fixed herein for Substantial Performance, the Contractor shall pay the City one thousand, (\$1000) per Calendar Day for each and every Calendar Day following the day fixed herein for Substantial Performance during which such failure continues, up to a maximum of 30 Calendar Days.
- D18.2 The amount specified for liquidated damages in D18.1 is based on a genuine pre-estimate of the City's damages in the event that the Contractor does not achieve Total Performance by the day fixed herein for same.
- D18.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

CONTROL OF WORK

D19. JOB MEETINGS

- D19.1 Regular bi-weekly job meetings will be held during the installation portion of the work. 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. INVOICES

D21.1 Further to C12, the Contractor shall submit an invoice for each order delivered to:

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

Facsimile No.: (204) 949-0864
Email: CityWpgAP@winnipeg.ca

D21.2 Invoices must clearly indicate, as a minimum:

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

D21.3 The City will bear no responsibility for delays in approval of invoices which are improperly submitted.

D21.4 Bids Submissions must be submitted to the address in B7.8

D22. PAYMENT

D22.1 Further to C12, the City may at its option pay the Contractor by direct deposit to the Contractor's banking institution.

D23. PAYMENT SCHEDULE

D23.1 Further to C12, payment shall be in accordance with the following payment schedule:

- (a) Cast Iron Slide Gates and Thimbles
 - (i) 10% payment on approval of shop drawings
 - (ii) 65% payment on delivery to Site
 - (iii) 25% payment on commissioning

WARRANTY

D24. WARRANTY

D24.1 Warranty period shall begin on the date of Total Performance and shall expire one (1) year thereafter unless extended pursuant to C13.2.1 or C13.2.2, in which case it shall expire when provided for thereunder.

D24.2 Notwithstanding C13.2 or D24.1, the Contract Administrator may permit the warranty period for a portion or portions of the Work to begin prior to the date of Total Performance if:

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

D24.2.1 In such case, the date specified by the Contract Administrator for the warranty period to begin shall be substituted for the date specified in C13.2 for the warranty period to begin.

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. 685-2011

FLOOD PUMPING STATION GATE CHAMBER REHABILITATION – PHASE 1

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

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

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

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

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

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

_____ day of _____, 20____ .

SIGNED AND SEALED
in the presence of:

(Witness as to Principal if no seal)

(Name of Principal)

Per: _____ (Seal)

Per: _____

(Name of Surety)

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

**FORM H2: IRREVOCABLE STANDBY LETTER OF CREDIT
(PERFORMANCE SECURITY)**
(See D10)

(Date)

The City of Winnipeg
Legal Services Department
185 King Street, 3rd Floor
Winnipeg MB R3B 1J1

RE: PERFORMANCE SECURITY - BID OPPORTUNITY NO. 685-2011

FLOOD PUMPING STATION GATE CHAMBER REHABILITATION – PHASE 1

Pursuant to the request of and for the account of our customer,

(Name of Contractor)

(Address of Contractor)

WE HEREBY ESTABLISH in your favour our irrevocable Standby Letter of Credit for a sum not exceeding in the aggregate

Canadian dollars.

This Standby Letter of Credit may be drawn on by you at any time and from time to time upon written demand for payment made upon us by you. It is understood that we are obligated under this Standby Letter of Credit for the payment of monies only and we hereby agree that we shall honour your demand for payment without inquiring whether you have a right as between yourself and our customer to make such demand and without recognizing any claim of our customer or objection by the customer to payment by us.

The amount of this Standby Letter of Credit may be reduced from time to time only by amounts drawn upon it by you or by formal notice in writing given to us by you if you desire such reduction or are willing that it be made.

Partial drawings are permitted.

We engage with you that all demands for payment made within the terms and currency of this Standby Letter of Credit will be duly honoured if presented to us at:

(Address)

and we confirm and hereby undertake to ensure that all demands for payment will be duly honoured by us.

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>Drawing No.</u>	<u>Drawing Name/Title</u>
1-0114F-S0001-001	Ash FPS - Slide Gate Refurbishment – Structural Plan, Sections and Details
1-0144F-S0001-001	Hart FPS - Slide Gate Refurbishment – Structural Plan, Sections and Details
1-0145F-S0001-001	Hawthorne FPS - Slide Gate Refurbishment – Structural Plan, Sections and Details
1-0149F-S0001-001	Jessie FPS - Slide Gate Refurbishment – Structural Plan, Sections and Details

GENERAL REQUIREMENTS

E2. DANGEROUS WORK CONDITIONS

- E2.1 Further to clause C6.26 of the General Conditions for Construction, 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
- E2.2 The Contractor shall be aware of the potential hazards that can be encountered in gate chambers, manholes and sewers such as explosive gases, toxic gases and oxygen deficiency.
- E2.3 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 an 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 and shall be marked with a calibration sticker indicating the date of last calibration.
- E2.4 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.
- E2.5 Workers must wear a respirator or supplied air at all times when entering a chamber, manhole or sewer where live sewage is present.

- E2.6 The Contractor shall provide a photo ionization detector (PID) on site at all times to monitor potential hydrocarbon vapours in the confined spaces. The gas detector and safety equipment conforming to the Act shall be made available to the Contract Administrator for his use during inspections. In addition, the contract administrator shall collect discrete air samples for laboratory analysis.
- E2.7 The Contract Administrator may issue a Stop Work Order to the Contractor if the above guidelines are not being followed. The Contractor shall not resume his operations until the Contract Administrator is satisfied the Contractor is following the appropriate procedures. The Contractor shall have no claim for extra time or costs due to the Stop Work Order for not following these safety guidelines.

E3. COLD WEATHER REQUIREMENTS

- E3.1 Should any concrete Work be required to be carried out when the daily mean temperature is below 5°C or anticipated to be below 5°C within the next 24 hours, cold weather requirements will be specified herein.
- E3.2 All freshly placed concrete shall be protected from the elements and from defacements due to construction operations.
- E3.3 The following are minimum requirements for protecting concrete during and after placement during freezing weather, but mere adherence to these requirements will not relieve the Contractor of the necessity for producing concrete which has not been weakened or injured by frost or freezing, or replacing such damaged Work at no additional cost to the City;
- (a) Before any concrete is placed, all ice, snow, and frost shall be completely removed from all formwork, and other surfaces against which concrete temperatures of such surfaces raised above 7°C for twenty-four (24) hours minimum prior to concreting. Where concrete Work is to come in contact with the earth, the surface of the earth shall be completely free of frost when concrete is placed thereon.
 - (b) Concrete aggregates and water shall be heated to not over 80°C. Concrete shall be not less than 20°C or more than 30°C in temperature when deposited. Concrete when placed during freezing weather, or if freezing is anticipated during curing period, shall be fully enclosed and the temperature of same maintained at not less than 20°C for five (5) days nor less than 5°C for an additional five (5) days.
 - (c) Heating enclosures shall be strong and wind-proof, well ventilated with heating units so located as to prevent local overheating or drying of the concrete or damage from combustion gases. Only indirect fired heaters will be accepted. Units must be vented outside the enclosure. No direct fired units will be accepted.
 - (d) The Contractor shall inform the Contract Administrator well in advance as to the methods of enclosure and frost protection he proposes to employ.
- E3.4 Cold weather requirements shall be considered incidental to the Works of this Contract and no measurement or payment will be made for this item.

E4. SHOP DRAWINGS

- E4.1 Description
- (a) This Specification shall revise, amend and supplement the requirements of CW1100.
 - (i) The term 'shop drawings' means drawings, diagrams, illustrations, schedules, performance charts, brochures, and other data, including site erection drawings which are to be provided by the Contractor to illustrate details of a portion of the work.
 - (ii) The Contractor shall submit specified shop drawings to the Contract Administrator for review. All submissions must be in metric units. Where data is in imperial units, the correct metric equivalent shall also be on all submissions for Engineering review.

- (b) Shop Drawings
 - (i) Original drawings are to be prepared by Contractor, Subcontractor, supplier, distributor, or manufacturer, which illustrate appropriate portion of work; showing fabrication, layout, setting or erection details as specified in appropriate sections.
- (c) Contractor's Responsibilities
 - (i) Review shop drawings, product data and samples prior to submission and stamp and sign drawings indicating conformance to the Contract requirements.
 - (ii) Verify:
 - (a) Field Measurements
 - (b) Field Construction criteria
 - (c) Catalogue numbers and similar data
 - (iii) Coordinate each submission with requirements of work and Contract Documents. Individual shop drawings will not be reviewed until all related drawings are available.
 - (iv) Notify Contract Administrator, in writing at time of submission, of deviations from requirements of Contract Documents
 - (v) Responsibility for deviations in submission from requirements of Contract Documents is not relieved by Contract Administrator's review of submission, unless Contract Administrator gives written acceptance of specified deviations.
 - (vi) Responsibility for errors and omissions in submission is not relieved by Contract Administrator's review of submittals.
 - (vii) The Contractor shall make any corrections required by the Contract Administrator and shall resubmit the required number of corrected copies of Shop Drawings. The Contractor shall direct specific attention in writing or on resubmitted Shop Drawings to revisions other than the corrections requested by the Contract Administrator on the previous submission.
 - (viii) After Contract Administrator's review and return of copies, distribute copies to sub-trades as required.
 - (ix) Maintain one (1) complete set of reviewed shop drawings, filed by Specification Section Number, at the site of the work for use and reference of the Contract Administrator and Subcontractors.
- (d) Submission Requirements
 - (i) Schedule submissions at least 7 Calendar days before dates reviewed submissions will be needed, and allow for a 7 Calendar day period for review by the Contract Administrator of each individual submission and re-submission, unless noted otherwise in the Contract Documents.
 - (ii) Submit five (5) paper prints of shop drawings. The Contractor is advised that the Contract Administrator will retain three (3) copies of all submittals and return two (2) copies to the Contractor.
 - (iii) Accompany submissions with transmittal letter, containing:
 - (a) Date
 - (b) Project title and Bid Opportunity Number
 - (c) Contractor's name and address
 - (d) Number of each shop drawing, product data and sample submitted
 - (e) Specification Section, Title, Number and Clause
 - (f) Drawing Number and Detail/ Section Number
 - (g) Other pertinent data
 - (iv) Submission shall Include:
 - (a) Date and revision dates.
 - (b) Project title and Bid Opportunity number.
 - (c) Name of:
 - (i) Contractor

- (ii) Subcontractor
 - (iii) supplier
 - (iv) manufacturer
 - (v) separate detailer when pertinent
 - (d) Identification of product of material.
 - (e) Relation to adjacent structure or materials.
 - (f) Field dimensions, clearly identified as such.
 - (g) Specification section name, number and clause number or drawing number and detail/section number.
 - (h) Applicable standards, such as CSA or CGSB numbers.
 - (i) Contractor's stamp, initialed or signed, certifying review of submission, verification of field measurements and compliance with Contract Documents.
- (e) Other Considerations
- (i) Fabrication, erection, installation or commissioning may require modifications to equipment or systems to conform to the design intent. Revise pertinent shop drawings and resubmit.
 - (ii) Material and equipment delivered to the site of the works will not be paid for at least until pertinent shop drawings have been submitted and reviewed.
 - (iii) Incomplete shop drawing information will be considered as stipulated deductions or the purposes of progress payment certificates.
 - (iv) No delay or cost claims will be allowed that arise because of delays in submission, re-submissions and review of shop drawings.

E4.2 Measurements and Payment

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

E5. FLOW CONTROL

- E5.1 In order to maintain access to the gate chamber, flow control measures must be in place to maintain dry work conditions during construction. During winter months, the gate chamber may receive flow of an undetermined amount from groundwater infiltration, watermain breaks, snow melt, high river levels, and other unforeseen sources.
- E5.2 Install and maintain a cofferdam as required to hold back water from flowing into the gate chamber during construction. Cofferdams constructed upstream of the gate chamber shall not exceed one-half of the pipe diameter as to not restrict flows in case of emergency conditions (e.g. watermain break). Cofferdams constructed downstream of the gate chamber shall not exceed one-half of the pipe diameter or a maximum height of 1.22 m (4'-0"). Maintain a 150 mm (6") freeboard at all times.
- E5.3 Install and maintain a bypass pumping line as required based on nominal winter flows.
- E5.4 Discharge hoses for by-pass pumping shall not be laid across vehicle or pedestrian traffic areas and must be protected from freezing during winter months. Pumping equipment used shall be set-up in a location and in such a way to not be a noise problem for nearby residences.
- E5.5 Any temporary closures used to block air flow as part of specification E3 at the outfall pipe shall be designed to be easily disconnected from the pipe in case of emergency flow conditions.
- E5.6 Costs for flow control will be considered incidental to Site Development and Restoration.

E6. MOBILIZATION AND DEMOBILIZATION

- E6.1 Mobilization and demobilization will include but not be limited to start-up costs, equipment setup and removal, field office and storage facilities set-up and removal and site cleanup.

- E6.2 Mobilization and demobilization will be measured on a unit basis and paid for at the Contract Unit Price for "Mobilization and Demobilization" in accordance with this specification, accepted and measured by the Contract Administrator.
- E6.3 50% of the Mobilization and Demobilization unit price will be paid on the first progress payment.
- E6.4 The remaining 50% if the Mobilization and Demobilization unit price will be paid subsequent to the completion of the Work and restoration and clean up of all Sites.

E7. SITE DEVELOPMENT AND RESTORATION

E7.1 Description

This specification shall cover all aspects of the Site Development and restoration Work, including erection, maintenance and removal of safety fencing, snow clearing, general access development, access maintenance and removal and Site restoration.

E7.2 Materials

E7.2.1 Equipment

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

E7.3 Construction Methods

E7.3.1 Site and Construction Access

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

E7.3.2 Site Security

At the end of each Work Day, all Gate Chamber openings, including the outfall pipe and hatch covers shall be locked and secured to prevent access.

E7.3.3 Environmental Regulations

- (a) The Contractor shall adhere to all relevant Federal and Provincial environmental regulations.
- (b) The Contractor shall plan to Work in accordance with the current environmental regulations of "Manitoba Stream Crossing Guidelines for Protection of Fish and Fish Habitat", Fisheries and Oceans, and Manitoba Natural Resources
- (c) The Contractor shall supply, in writing, prior to the commencement of Work on-Site to cleanup minor spills, should they occur. The Contractor shall supply the name, address and phone number of a local supplier, where additional kits are available on short notice.

E7.4 CSO Monitoring Equipment

- (a) The Flood Pumping Stations in this Contract contain sensitive electronic monitoring equipment. Protect all instruments and associated conduits from damage. The monitoring equipment consists of but is not limited to the list below:
 - (i) Inclinometer (located on Flap Gate) – Jessie FPS
 - (ii) Radar-based Water Level Measuring Devices (Mounted on underside of Gate Chamber Ceiling) – Jessie FPS, Hawthorne FPS, and Ash FPS.

- (b) Notify the Contract Administrator if temporary relocation is required to ensure the monitoring equipment is not damaged. Relocation of monitoring equipment will be completed by others.

E7.5 General Site Cleanup and Restoration

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

E7.6 Method of Measurement and Payment

The site development and restoration will be measured and paid for at the Contract Lump Sum Price for "Site Development and Restoration," which price shall be payment in full for supplying all materials and for performing all operations herein described and all other items incidental to the work included in the Specification.

E8. DEMOLITION OF STRUCTURES

E8.1 Description of Work

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

- (a) Demolition of gate chamber concrete to specified limits shown on the Drawings
- (b) Removal and disposal of construction debris

E8.1.1 The Work required under this section shall include, but is not limited to, the following:

Removal of existing concrete, performing saw cutting, demolition, existing equipment to be maintained, demolition and disposal of existing concrete, and clean up of Work Site in anticipation of new Work for those demolition areas indicated on the drawings.

E8.1.2 The work to be done by the Contractor under this Section shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies, and all things necessary for and incidental to the satisfactory performance and completion of all Works as described hereinafter.

E8.2 References

- E8.2.1 CSA S350-M1980, Code of Practice for Safety in Demolition of Structures.
- E8.2.2 Manitoba Workplace Safety and Health Act, and all applicable National, Provincial, and Municipal regulations.

E8.3 Protection

- E8.3.1 Prevent damage of existing gates and structure to remain. Provide bracing, shoring as required. Make good any damage caused by the demolition Work.
- E8.3.2 Take precautions to support affected structures and, if safety of structure being demolished or adjacent structures appears to be endangered, cease operations and notify the contract administrator.

E8.4 Execution

E8.4.1 Inspection

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

E8.4.2 Safety Code and Requirements

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

E8.4.3 Demolition

- (a) Demolish structures to permit construction of new work as indicated.
- (b) Remove existing equipment, services, and obstacles where required for refinishing or making good of existing surfaces, and replace as Work progresses.
- (c) At end of each day's Work, leave Work in safe condition so that no part is in dangers of toppling or falling
- (d) Do not sell or burn materials on Site.
- (e) Damage to concrete that is to remain shall be minimized. Concrete shall be demolished by sawcutting and subsequent jackhammering using hand-held breakers or jack hammers (maximum 10 kgs/20 lbs.). Other methods of performing concrete demolition may be submitted for review and approval to the Contract Administrator. The Contractor shall take measures to ensure that the concrete beyond the limits of demolition is not fractured or shattered. The Contractor shall remove using acceptable methods and replace any concrete which is deemed to be fractured as a result of demolition methods employed by the Contractor. This repair Work shall be performed at no additional cost to the City of Winnipeg.

E8.4.4 Demolition Tolerances

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

E8.4.5 Abrasive Wiresaw and Sawcutting

- (a) Areas of demolition shall be delineated from existing concrete that is to remain using either abrasive disc sawcutting, or abrasive wiresawing.
- (b) All sawcuts shall be performed straight and normal to the surface being cut, following the locations shown on the drawings, or as directed by the Contract Administrator.
- (c) Overruns at the junctions of sawcuts, and mis-starts shall be cleaned and filled with dry patching mortar of matching colour, as directed by the Contract Administrator.
- (d) Minimum depths of sawcuts shall be 50 mm (2") unless otherwise shown on drawings.

E8.4.6 Disposal of Demolished Material

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

E8.5 Measurement and Payment

E8.5.1 Demolition

Demolition of gate chamber concrete will be measured on a lump sum basis and paid for at the Contract Lump Sum Price for "Demolition."

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

E9. CONCRETE REPAIR

E9.1 Description

Concrete repairs shall include internal repairs to the gate chambers by man entry techniques. The repairs shall include repair of cracks, delaminated, spalled and deteriorated areas of the existing gate chamber concrete. Concrete repair Works shall be carried out at the locations noted on the drawings and indicated by the Contract Administrator. The Contractor will review the repairs and method of repairs with the Contract Administrator prior to starting the work.

E9.2 Materials

(a) The Contractor shall implement the materials and construction methods as described below to complete the works. Equivalent products and/or alternative construction methods shall be approved by the Contract Administrator prior to repairs. The Contractor shall supply to the Contract Administrator, Material Data Sheets and Product Information prior to commencing repairs for review and approval.

E9.3 Construction Methods

(a) Concrete Spall Repairs

- (i) Identify all spalled areas scheduled for repair as identified by the Contract Administrator.
- (ii) Saw cut the perimeter of the patch to a minimum of 13 mm outside the limits of the spalled/deteriorated area designated for repair.
- (iii) Chip and remove the delaminated concrete until sound concrete is encountered to provide a solid bond.
- (iv) Remove a minimum of 25 mm of concrete from around all encountered rebar to provide a solid bonding area.
- (v) Repair overhead and sidewall patches using a non-shrink, sulphate resistant mortar; Emaco S88 SR (or approved equivalent in accordance with B6) if depth of patch is 50 mm or less. The approved product shall be prepared and installed according to the manufacturer's instructions.
- (vi) For patches 50 mm or deeper, use a non-shrink, cementitious grout; Sika 212 HP (or approved equivalent in accordance with B6). This procedure shall require that the repair area be formed and the approved product be prepared and pumped into place as per the manufacturer's instructions.

(b) Concrete Crack Repairs

- (i) Identify all cracks scheduled for repair as identified by the Contract Administrator.
- (ii) Remove any loose material from concrete surface adjacent to cracks by wire brushing a 50 to 75 mm wide strip along the cracks, and vacuuming all dust from the surface.
- (iii) Install surface ports for injection along the cracks at spacing ranging from 100 to 300 mm depending on the width of the crack. The base plate of each entry port shall be adhered onto the concrete surface using Kemko 022 paste (or approved equivalent in accordance with B6). The ports shall be coated with the same material over the top of the base plate to assure a good seal and stability of the port during the injection process.

- (iv) Surface seal material (Kemko 022 or approved equivalent in accordance with B6) shall be applied to the face of the crack between injection ports to build a confinement area for the liquid epoxy resin.
- (v) After curing of the surface seal, a two-component epoxy resin/hardener suitable for the structural repair of cracks and delaminations in concrete; Kemko 038 or Kemko 068 resin (or approved equivalent in accordance with B6) shall be injected into the crack starting at the lowest injection port. The injection will continue at the same port until there is an appearance of epoxy resin at the next port adjacent to the entry port being pumped. The injection epoxy resin shall be selected based on the thickness of the crack (for hairline cracks Kemko 068 will be used).
- (vi) When epoxy adhesive travel is indicated by appearance at the next adjacent port, injection can be discontinued on the entry port being pumped and epoxy injection shall be transferred to the next adjacent port where epoxy adhesive has appeared. The first entry port must be plugged. The epoxy injection on any intermediate entry port being pumped shall not be discontinued unless the injection pressure reaches 150-160 psi or directed by the Contract Administrator. The above steps will be repeated until cracks are completely filled along their length.
- (vii) As soon as the crack is full and all injection ports are blocked, the pump shall be run for several seconds to create a pressure of 100 psi in the crack that will be maintained for one (1) minute. Once the epoxy adhesive in the crack is pressureized and no leaks are observed, the pump shall be disconnected from the port and the injection port shall be plugged.
- (viii) The above steps shall be repeated for all cracks or set of cracks that are connected, until all cracks are injected.
- (ix) For every day that injection work is performed, an Injection Report shall be completed to document type of injection equipment, location, quantity of materials, and amount of crack length injected each day.
- (x) After all injection work is completed and cured, the crack seal shall be removed (after 12 hours) by grinding to obtain a smooth concrete surface.
- (xi) Cleanup work area and demobilize.

E9.4 Measurement and Payment

- (a) Concrete Spall Repairs will be measured on a square meter basis and paid for at the Contract Unit Price for "Concrete Spall Repairs." Said price shall be payment in full for supplying all materials and performing all operations herein described and all other items incidental to the work included in this specification.
- (b) Concrete Crack Repairs will be measured on a linear meter basis and paid for at the Contract Unit Price for "Concrete Crack Repairs". Said price shall be payment in full for supplying all materials and performing all operations herein described and all other items incidental to the Work included in this specification.

E10. CAST-IN-PLACE CONCRETE CONSTRUCTION

E10.1 Description

- E10.1.1 This specification will cover construction of cast-in-place concrete and shall supplement, revise and amend CW 2160.

E10.2 Materials

- (a) Concrete Mix Design
Concrete mix design shall be as indicated in the Construction Notes on the Drawings.
- (b) Grout
 - (i) Grout shall be Sika Grout 212 or approved equivalent in accordance with B6
- (c) Reinforcing Steel
 - (i) Bar accessories:

- To be made of a non-corroding material
 - Shall not stain, blemish or spall the concrete surface for the life of the concrete
 - Shall be approved by the Contract Administrator
 - Bar chairs shall be PVC.
- (d) Bonding Agent shall be ACRYL 60 by BASF or approved equivalent in accordance with B6.
- (e) Cast iron slide gates and wall thimbles shall be in accordance with E11 of this specification.
- (f) Shop Drawings:
- (i) Provide shop drawings in accordance with E4 of this specification.
 - (ii) Submit shop drawings for reinforcing steel a minimum of two (2) weeks prior to the fabrication of any reinforcing steel.

E10.3 Construction Methods

E10.3.1 Construction Method Submission

- (a) No Work shall commence on construction of cast-in-place concrete until after the Contract Administrator's review of the Contractors Construction Method submission.
- (b) The Contractor shall prepare for the Contract Administrators review a Construction Method submission detailing:
 - (a) Construction sequence to be followed including all methods to be employed.
 - (b) Specialized equipment to be used.
 - (c) Any design revisions proposed to accommodate the Contractor's proposed construction method.
 - (d) Proposed method for setting and levelling of the embedded wall thimble (Hawthorne Flood Pumping Station only).
- (c) The Contractor shall respond to any concerns that may be raised by the Contract Administrator after review of Construction Method submission.

E10.3.2 Cast-in-place Concrete Chamber Construction

- (a) Construct cast in place concrete in accordance with CW 2160, except as supplemented, revised or amended in this specification and as indicated in the construction notes on the Drawings.
- (b) Adjust the location of reinforcing steel adjacent to openings to frame those openings in accordance with good practice, and maintain the bar spacing intent.
- (c) Do not use welded splices for reinforcing steel.
- (d) Order all wall reinforcement steel in lengths to best suit the spacing of walers so that reinforcing bars will not be bent or misformed in order to remove the walers.

E10.3.3 Slide Gate Wall Thimble

- (a) Install wall thimble (if applicable) in accordance with E11 of this specification.

E10.4 Measurement and Payment

- E10.4.1 Construction of cast-in-place concrete will be paid for at the Contract Lump Sum Price for "Cast-in-place Concrete." Said price shall be payment in full for supplying all materials and performing all operations herein described and all other items incidental to the Work included in this specification.

E11. CAST IRON SLIDE GATES

E11.1 Description

This specification shall cover the supply, delivery, installation and testing of cast iron slide gates, wall thimbles, mechanical lift operator, stems, wall brackets and mechanical accessories.

E11.2 Submittals

E11.2.1 Submit shop drawings of cast iron slide gates, wall thimbles, mechanical lift operators, stems, wall brackets, and accessories in accordance with E4.

E11.2.2 Submit Operating and Maintenance Manuals in accordance with E4.

Provide five (5) copies of all the manufacturer's brochures and technical literature detailing correct installation procedure and recommend operating and maintenance instructions. Manuals shall be bound with the project title and gate description identified on the front cover. One set of manuals shall be provided for each size of gate. Final payment for slide gates will not be made until the above information has been provided to the Contract Administrator.

E11.2.3 Provide the following information to the Contract Administrator prior to the delivery of slide gate and operator assemblies in accordance with E4.

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

(b) Copies of the test reports for Performance and Leakage tests. Include on the report shall be the signature of the official who is responsible for the gate assembly and testing.

E11.3 General Design

(a) Specification Standard: AWWA C560-07

(b) Mounting: Type F wall thimble.

(c) Seating Head: Maximum design seating head and unseating head for all gates will be from centerline of the gate to the top of the gate chamber unless noted otherwise in the drawings.

(i) Ash FPS: 6.68 m

(ii) Hart FPS: 8.10 m

(iii) Hawthorne FPS: 5.47 m

(iv) Jessie FPS: 8.75 m

(d) Operator and Lift: Enclosed gear lift with pedestal. Operator to be finished with a 50 millimetre x 50 millimetre square nut suitable for attachment of an electric portable drill for opening. Operator shall turn counterclockwise to open.

(e) Stem Cover: Gear lift to be complete with stem cover with acrylic window with gradations in suitable increments for the entire range of gate operation.

(f) Stem Guides: Adjustable in both horizontal and vertical directions.

(g) Gate Sizes

(i) Ash FPS: 2134 mm x 2134 mm (84" x 84")

(ii) Hart FPS: 1829 mm X 1829 mm (72" x 72")

(iii) Hawthorne FPS: 1219 mm x 1219 mm (48" x 48")

(iv) Jessie FPS: 2134V mm x 1829H mm (84"x 72")

(h) Acceptable Leakage as per AWWA C560-07.

(i) Mastic shall be used to form a seal between the frame and thimble.

- (j) Frame and gate shall be painted with two coats of international paints – Intergard FP, or Amerlock 400 Epoxy Coating, 125-150 µm per coat dry film thickness or two coats Coal Tar Epoxy - 16 mils thickness, surface preparation to SSPC-SP10.
- (k) The size of fasteners shall be as indicated in the project drawings. Quantity and spacing shall be as recommended by the gate manufacturer.
- (l) The sluice gate shall be as manufactured by Armtec, Hydro Gate, Rodney Hunt, Waterman or approved equivalent in accordance with B6.

E11.4 Materials

- (a) Frame, Slide, guides and yoke ASTM A48 Cast Iron (Class 30) or ASTM A126 Cast Iron (Class B)
- (b) Seating Faces ASTM B21 Naval Bronze, Alloy 482
- (c) Wall Thimble ASTM A48 Cast Iron (Class 30) or ASTM A126 Cast Iron (Class B)
- (d) Wedges ASTM B564 Manganese Bronze, Alloy 865
- (e) Wedge Blocks ASTM A48 Cast Iron (Class 30) or ASTM A126 Cast Iron (Class B)
- (f) Fasteners & Anchors ASTM A276 Type 304 Stainless Steel
- (g) Stem ASTM A276 Type 304 Stainless Steel
- (h) Stem Couplings ASTM A276 Type 304 Stainless Steel
- (i) Stem Guide ASTM A48 Cast Iron (Class 30) or ASTM A126 Cast Iron (Class B) with Bronze bushings
- (j) Operator Pedestal ASTM A48 Cast Iron (Class 30) or ASTM A126 Cast Iron (Class B) or Steel
- (k) Stem Cover Aluminum or Galvanized Steel.
- (l) Shop Drawings
 - (i) Submit shop drawings of cast iron slide gates, wall thimbles, mechanical lift operator, stems, wall brackets and accessories in accordance with E4 of this specification.
- (m) Delivery and Shipping
 - (i) The Contract Administrator will examine the slide gate assemblies, thimbles (if applicable), frames, stems, operators and accessories upon delivery and will reject any equipment that is found to be damaged to the extent that, in the Contract Administrator's opinion, it cannot be put to the use for which it was intended. The Contractor shall arrange with the gate supplier to repair any superficially damaged equipment to the satisfaction of the Contract Administrator.
 - (ii) It shall be the responsibility of the Contractor to negotiate any claims for damage with the carrier and to make arrangements to have any rejected equipment replaced as soon as possible at no extra expense to the City.

E11.5 Construction Methods

E11.5.1 Rehabilitation of Existing Thimbles

- (a) After removal of the existing cast iron slide gate and frame, blast clean the existing wall thimble to SSPC-SP6 (Commercial Blast) surface preparation specifications. Blast materials shall be contained, removed from Site and disposed of by the Contractor.
- (b) Coat thimble with 2 coats of Intergard FP or Amerlock 400 Epoxy Coating. Each coat shall be 125 to 150 µm DFT (dry-film thickness) per coat.

E11.5.2 Installation of New Anchor Bolts

- (a) Layout and trace new anchor bolt pattern onto the existing wall thimble to locate new holes.
- (b) If an existing anchor hole partially interferes with the new anchor, contact the Contract Administrator for required action.
- (c) Drill through the wall thimble flange and through the concrete behind to a depth as indicated on the Drawings.
- (d) Install stainless steel threaded rod as per manufacturer's installation procedures and recommendations. Anchors shall be installed only upon confirmation of correct anchor bolt hole layout and completion of drilling all anchor holes.
- (e) Provide heating as specified in E3 during epoxy adhesive curing time.

E11.5.3 Installation of Cast Iron Slide Gate

- (a) Install cast iron slide gates, wall thimbles (if applicable), mechanical lift operator, stems, wall brackets and accessories as shown on the drawings and in accordance with the manufacturer's recommendations.
- (b) Make arrangements to have a qualified field representative of the slide gate supplier/manufacturer inspect the installation during and after completion and provide a Certificate of Satisfactory Installation to the Contract Administrator.

E11.5.4 Shop Testing

- (a) The fully assembled gate shall be shop inspected, adjusted and tested for operation and leakage at the design head before shipping.

E11.5.5 Field Testing

- (a) Perform leakage tests in the Contract Administrator's presence once slide gates have been installed to ensure compliance with the allowable leakage rate indicated in AWWA C560-07.
- (b) Arrange for a qualified field representative of the slide gate supplier/manufacturer to be present during field testing.
- (c) The leakage test for unseating head will be performed by closing the existing flap gate, filling the chamber with water to the specified design head and measuring the leakage rate through the slide gate.
- (d) The leakage test for seating head cannot be performed in the gate chamber.
- (e) Water used for testing purposes must be chlorine free. Potable drinking water shall be de-chlorinated if used for testing purposes.
- (f) The Contractor will be responsible to pump river water, arrange delivery by tanker truck, or supply water from a hydrant into the chamber for testing purposes.
- (g) If a gate fails the field leakage test, the Contractor shall undertake adjustments, replacements or other modifications recommended by the slide gate supplier/manufacturer's field representative and repeat the test. The sequence shall be repeated until the gate passes the allowable leakage rate.

E11.6 Measurement and Payment

E11.6.1 Supply and delivery of a cast iron slide gate, mechanical lift operator, stem, wall bracket(s) and accessories will be measured and paid for at the Contract Lump Sum Price for "Cast Iron Slide Gates Supply and Delivery – Ash FPS", executed in accordance with this specification and accepted by the Contract Administrator.

E11.6.2 Supply and delivery of a cast iron slide gate, mechanical lift operator, stem, wall bracket(s) and accessories will be measured and paid for at the Contract Lump Sum Price for "Cast Iron Slide Gates Supply and Delivery – Hart FPS", executed in accordance with this specification and accepted by the Contract Administrator.

- E11.6.3 Supply and delivery of a cast iron slide gate, wall thimble, mechanical lift operator, stem, wall bracket(s) and accessories will be measured and paid for at the Contract Lump Sum Price for "Cast Iron Slide Gates Supply and Delivery – Hawthorne FPS", executed in accordance with this specification and accepted by the Contract Administrator.
- E11.6.4 Supply and delivery of a cast iron slide gate, mechanical lift operator, stem, wall bracket(s) and accessories will be measured and paid for at the Contract Lump Sum Price for "Cast Iron Slide Gates Supply and Delivery – Jessie FPS", executed in accordance with this specification and accepted by the Contract Administrator.
- E11.6.5 Installation and testing of the cast iron slide gate, mechanical lift operator, stem, wall bracket(s), accessories, installation of new anchor bolts and rehabilitation of existing wall thimbles will be measured and paid for at the Contract Lump Sum Price for "Cast Iron Slide Gate Installation and Testing – Ash FPS", executed in accordance with this specification and accepted by the Contract Administrator.
- E11.6.6 Installation and testing of the cast iron slide gate, mechanical lift operator, stem, wall bracket(s), accessories, installation of new anchor bolts and rehabilitation of existing wall thimbles will be measured and paid for at the Contract Lump Sum Price for "Cast Iron Slide Gate Installation and Testing – Hart FPS", executed in accordance with this specification and accepted by the Contract Administrator.
- E11.6.7 Installation and testing of the cast iron slide gate, wall thimble, mechanical lift operator, stem, wall bracket(s), and accessories will be measured and paid for at the Contract Lump Sum Price for "Cast Iron Slide Gate Installation and Testing – Hawthorne FPS", executed in accordance with this specification and accepted by the Contract Administrator.
- E11.6.8 Installation and testing of the cast iron slide gate, mechanical lift operator, stem, wall bracket(s), accessories, installation of new anchor bolts and rehabilitation of existing wall thimbles will be measured and paid for at the Contract Lump Sum Price for "Cast Iron Slide Gate Installation and Testing – Jessie FPS", executed in accordance with this specification and accepted by the Contract Administrator.

E12. CAST IRON FLAP GATES

E12.1 Description

This specification will cover the cleaning and lubrication of the existing cast-iron flap gates.

E12.2 Cleaning Methods

- E12.2.1 Flap gate shall be opened by pulling and securing the existing lift rope attached to the gate. The gate is to be propped open by suitable strut(s) for additional safety during cleaning and lubrication.
- E12.2.2 The seating faces of the flap gate shall be cleaned by use of a stiff bristle steel brush by hand methods only. All corrosion on all seating faces is to be removed. Care shall be taken to not damage or gouge bronze seating faces. Apply a light film of water resistant lubricant (Lubriplate No. 630AA or approved equivalent in accordance with B6) to the seating faces after cleaning.
- E12.2.3 Lubricate the pivot arms with grease as recommended by the City of Winnipeg Water and Waste Department.

E12.3 Measurement and Payment

- E12.3.1 Cleaning and lubrication of the existing cast-iron flap gates will be measured on a lump sum basis, and paid for at the Contract Lump Sum Price for "Flap Gate Cleaning", executed in accordance with this specification and accepted by the Contract Administrator.

E13. DEFERRAL OF WORK

E13.1 Description

This specification will cover deferral of Work if river water levels are not sufficiently low to provide gate chamber access for construction during the Work timeline as indicated in Part B.

E13.2 If river levels are above the maximum allowable cofferdam height outlined in E5 with respect to the outfall invert elevation at the gate chamber entrance as measured on January 14, 2012, the Contractor shall defer the work to the following year. The following list summarizes the local geodetic elevations at which this would occur and the approximate level with respect to James Avenue datum for each station. Levels with respect to James Avenue datum are a guide only as water levels can vary significantly.

<u>Station</u>	<u>Geodetic Elevation</u>	<u>James Avenue Datum Elevation</u>
Ash FPS	224.327 m	4.3 feet
Hart FPS	223.827 m	6.2 feet
Hawthorne FPS	224.670 m	6.8 feet
Jessie FPS	223.300 m	4.5 feet

E13.3 No payment for deferral shall be made if river levels are within the acceptable range for gate chamber entry at the Flood Pumping Station as determined by the Contract Administrator.

E13.4 Measurement and Payment

E13.4.1 Deferral of Work for Ash FPS will be measured and conditionally paid for at the Contract Lump Sum Price for "Work Deferral – Ash FPS" executed in accordance with this specification and accepted by the Contract Administrator.

E13.4.2 Deferral of Work for Hart FPS will be measured and conditionally paid for at the Contract Lump Sum Price for "Work Deferral – Hart FPS" executed in accordance with this specification and accepted by the Contract Administrator.

E13.4.3 Deferral of Work for Hawthorne FPS will be measured and conditionally paid for at the Contract Lump Sum Price for "Work Deferral – Hawthorne FPS" executed in accordance with this specification and accepted by the Contract Administrator.

E13.4.4 Deferral of Work for Jessie FPS will be measured and conditionally paid for at the Contract Lump Sum Price for "Work Deferral – Jessie FPS" executed in accordance with this specification and accepted by the Contract Administrator.