



**THE CITY OF WINNIPEG**

# **BID OPPORTUNITY**

**BID OPPORTUNITY NO. 237-2009**

**CONSTRUCTION OF VALVE CHAMBER SUPERSTRUCTURE, INSTALLATION OF  
VALVE ACTUATORS AND ASSOCIATED WORKS**

## TABLE OF CONTENTS

### PART A - BID SUBMISSION

Form A: Bid	1
Form B: Prices	4
Form G1: Bid Bond and Agreement to Bond	5
Form G2: Irrevocable Standby Letter of Credit and Undertaking	7

### PART B - BIDDING PROCEDURES

B1. Contract Title	1
B2. Submission Deadline	1
B3. Site Investigation	1
B4. Enquiries	1
B5. Addenda	2
B6. Substitutes	2
B7. Bid Components	3
B8. Bid	4
B9. Prices	4
B10. Qualification	5
B11. Bid Security	5
B12. Opening of Bids and Release of Information	6
B13. Irrevocable Bid	6
B14. Withdrawal of Bids	7
B15. Evaluation of Bids	7
B16. Award of Contract	8

### PART C - GENERAL CONDITIONS

C0. General Conditions	1
------------------------	---

### PART D - SUPPLEMENTAL CONDITIONS

#### General

D1. General Conditions	1
D2. Scope of Work	1
D3. Definitions	1
D4. Contract Administrator	1
D5. Contractor's Supervisor	2
D6. Notices	2
D7. Furnishing of Documents	2

#### Submissions

D8. Authority to Carry on Business	2
D9. Safe Work Plan	3
D10. Insurance	3
D11. Performance Security	3
D12. Subcontractor List	4
D13. Detailed Work Schedule	4

#### Schedule of Work

D14. Commencement	4
D15. Substantial Performance	5
D16. Total Performance	5
D17. Liquidated Damages	5

#### Control of Work

D18. Job Meetings	6
D19. Prime Contractor – The Workplace Safety and Health Act (Manitoba)	6

#### Measurement and Payment

D20. Payment	6
--------------	---

**Warranty**

D21. Warranty	6
Form H1: Performance Bond	7
Form H2: Irrevocable Standby Letter of Credit	9
Form J: Subcontractor List	11

**PART E - SPECIFICATIONS**

**General**

E1. Applicable Specifications and Drawings	1
--	---

**General Requirements**

E2. Condition, Protection of and Access to Reservoir Compounds and Aqueducts	3
E3. Site Security and Safety	5
E4. Environmental Protection	5

**Division 01 – General Requirements**

**Division 03 – Concrete**

**Division 05 – Metals**

**Division 06 – Wood, Plastics, and Composites**

**Division 07 – Thermal & Moisture Protection**

**Division 08 – Openings**

**Division 09 – Finishes**

**Division 23 – Heating, Ventilating, and Air Conditioning**

**Division 26 – Electrical**

**Division 29 – Instrumentation and Controls**

**Division 31 – Earthwork**

**Division 32 – Exterior Improvements**

**APPENDIX A – FORMS (see 011100 and 019141)**

**APPENDIX B – PRE-PURCHASED EQUIPMENT SHOP DRAWINGS (see 011100)**

## **PART B - BIDDING PROCEDURES**

### **B1. CONTRACT TITLE**

- B1.1 CONSTRUCTION OF VALVE CHAMBER SUPERSTRUCTURE, INSTALLATION OF VALVE ACTUATORS AND ASSOCIATED WORKS

### **B2. SUBMISSION DEADLINE**

- B2.1 The Submission Deadline is 12:00 noon Winnipeg time, May 21, 2009.
- 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 May 11, 2009 to provide Bidders access to the Sites. The Bidder is advised that the Work for this Bid Opportunity will be conducted at two specific sites. The Site Investigation will commence at Branch II Aqueduct Interconnector valve chamber at the northeast corner of Bishop Grandin and Lagimodiere Blvd. from 9:00 a.m. to 10:00 a.m. and then proceed to the valve chamber LAV1 at MacLean Pumping Station at the intersection of Marion Street and Lagimodiere Blvd., from 10:15 a.m. to 11:15 a.m..
- B3.2 The Bidder is advised that some of equipment (supplied by others) to be installed for this Bid Opportunity is for the retrofit of existing large diameter butterfly valves. Interested Contractors will have an opportunity to view the proposed installation(s) to satisfy themselves of mounting configurations and space requirements for the proposed equipment.
- B3.3 The Bidder is advised that the valve chambers are Confined Entry locations. Persons wishing to enter the chambers will be required to supply all necessary personal protective safety equipment, including body harness, hard hats, and safety boots. The City of Winnipeg will provide a retrieval hoist, lighting, and gas detector. Personnel attending the site shall be properly trained in Confined Space entry in accordance with Manitoba legislation and their individual company policy.
- B3.4 The Bidder shall not be entitled to rely on any information or interpretation received at the Site investigation unless that information or interpretation is the Bidder's direct observation, or is provided by the Contract Administrator in writing.
- B3.5 The Bidder is advised that site investigations involving drilling, excavation or other subsurface investigations are EXPRESSLY PROHIBITED without first obtaining written permission from the Contract Administrator, and securing all required utility clearances.

### **B4. ENQUIRIES**

- B4.1 All enquiries shall be directed to the Contract Administrator identified in D4.1.
- 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 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.

B9.3 Prices from Non-Resident Bidders are subject to a 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; and
- (c) have a written workplace safety and health program if required pursuant to The Workplace Safety and Health Act (Manitoba);

### **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](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 following:

- (a) Construction of a 1-storey superstructure on an existing cast-in-place valve chamber, installation of three (3) electric valve actuators (supplied by others) on existing large diameter butterfly valves, electrical wiring, controls, miscellaneous mechanical and site works, located at the Branch II Aqueduct Interconnector Chamber at the corner of Bishop Grandin and Lagimodiere Boulevard.
- (b) Removal and replacement of one (1) electric valve actuator and gearbox (supplied by others) on an existing 1050 millimetre butterfly valve, including reconnection of electrical and control cables, located in a buried valve chamber LAV1 at MacLean Reservoir near Marion Avenue and Lagimodiere Boulevard.

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

- (a) Branch II Interconnector Valve Chamber
  - (i) Construction of a structural steel framed superstructure over the existing chamber, including prefabricated, preinsulated building panels.
  - (ii) Installation of three (3) electric valve actuators (supplied by others) on one (1) 1350 and two (2) 1650 existing Butterfly Valves.
  - (iii) Supply and installation of electrical and control cables and equipment
  - (iv) Supply and installation of HVAC mechanical equipment
  - (v) Miscellaneous site works including excavation, grading, construction of granular road base and asphalt paving.
  - (vi) Landscaping
- (b) MacLean LAV1
  - (i) Removal and replacement of one (1) electric valve actuator and quarter turn gearbox (supplied by others) on one (1) 1050 existing Butterfly Valve.
  - (ii) Reconnect existing electrical and control cabling

#### **D3. DEFINITIONS**

D3.1 When used in this Bid Opportunity:

- (a) "AWWA" means American Waterworks Association
- (b) "CSA" means Canadian standard Association
- (c) "NSF" means National Sanitation Foundation

#### **D4. CONTRACT ADMINISTRATOR**

D4.1 The Contract Administrator is AECOM Canada Ltd., represented by:

Greg Blazek, P. Eng.  
Municipal Engineer  
99 Commerce Drive, Winnipeg, MB R3P 0Y7  
Telephone No. (204) 284-0580

Facsimile No. (204) 475-3646

- D4.2 At the pre-construction meeting, Mr. Blazek will identify additional personnel representing the Contract Administrator and their respective roles and responsibilities for the Work.

**D5. CONTRACTOR'S SUPERVISOR**

- D5.1 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.

**D6. NOTICES**

- D6.1 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.
- D6.2 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the City, except as expressly otherwise required in D6.3, D6.4 or elsewhere in the Contract, shall be sent to the attention of the Contract Administrator at the address or facsimile number identified in D4.1.
- D6.3 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 address or facsimile number:

The City of Winnipeg  
Chief Financial Officer  
Administration Building, 3rd Floor  
510 Main Street  
Winnipeg MB R3B 1B9  
Facsimile No.: (204) 949-1174

- D6.4 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  
Internal Services Department  
Legal Services Division  
Attn: City Solicitor  
185 King Street, 3rd Floor  
Winnipeg MB R3B 1J1  
Facsimile No.: (204) 947-9155

**D7. FURNISHING OF DOCUMENTS**

- D7.1 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**

**D8. AUTHORITY TO CARRY ON BUSINESS**

- D8.1 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.

#### **D9. SAFE WORK PLAN**

- D9.1 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.
- D9.2 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>

#### **D10. INSURANCE**

- D10.1 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 and AECOM Canada Ltd. 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.
- D10.2 Deductibles shall be borne by the Contractor.
- D10.3 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.
- D10.4 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.

#### **D11. PERFORMANCE SECURITY**

- D11.1 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.

D11.1.1 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.

D11.2 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.

## **D12. SUBCONTRACTOR LIST**

D12.1 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.

## **D13. DETAILED WORK SCHEDULE**

D13.1 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.

D13.2 The detailed work schedule shall consist of the following:

- (a) a critical path method (C.P.M.) schedule for the Work;
- (b) a Gantt chart for the Work based on the C.P.M. schedule;

all acceptable to the Contract Administrator.

D13.3 Further to D13.2(a), the C.P.M. schedule shall clearly identify the start and completion dates of all of the following activities/tasks making up the Work as well as showing those activities/tasks on the critical path:

- (a) Branch II Interconnector Valve Chamber
  - (i) Superstructure construction
  - (ii) Building electrical
  - (iii) Building Mechanical
  - (iv) Installation of Actuators ( supplied by Others)
  - (v) Commissioning
  - (vi) Site Works
- (b) MacLean LAV1
  - (i) Actuator Installation
  - (ii) Commissioning
- (c) Substantial Performance
- (d) Total Performance

D13.4 Further to D13.2(b), 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**

### **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 D8;
    - (ii) evidence of the workers compensation coverage specified in C6.15;
    - (iii) the Safe Work Plan specified in D9;
    - (iv) evidence of the insurance specified in D10;
    - (v) the performance security specified in D11;
    - (vi) the Subcontractor list specified in D12;
    - (vii) the detailed work schedule specified in D13; 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.
- D14.3 The Contractor shall commence the Work on the Site within seven (7) Working Days of receipt of the letter of intent.

#### **D15. SUBSTANTIAL PERFORMANCE**

- D15.1 The Contractor shall achieve Substantial Performance by September 30, 2009.
- 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 October 15, 2009.
- 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 Substantial Performance or Total Performance in accordance with the Contract by the days fixed herein for same, the Contractor shall pay the City the following amounts per Calendar Day for each and every Calendar Day following the days fixed herein for same during which such failure continues:
- (a) Substantial Performance – one thousand dollars (\$1,000);
  - (b) Total Performance – five hundred dollars (\$500).
- 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.

## **CONTROL OF WORK**

### **D18. JOB MEETINGS**

D18.1 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.

D18.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever he deems it necessary.

### **D19. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)**

D19.1 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**

### **D20. PAYMENT**

D20.1 Further to C12, the City may at its option pay the Contractor by direct deposit to the Contractor's banking institution.

## **WARRANTY**

### **D21. WARRANTY**

D21.1 Notwithstanding C13.2, the warranty period shall begin on the date of Total Performance and shall expire one (1) year thereafter, except where longer warranty periods are specified in the respective Specification sections, unless extended pursuant to C13.2.1 or C13.2.2, in which case it shall expire when provided for thereunder.

D21.1.1 For the purpose of Performance Security, the warranty period shall be one (1) year.

D21.2 Notwithstanding C13.2, the Contract Administrator may permit the warranty period for a portion or portions of the Work to begin prior to the date of Total Performance if a portion of the Work cannot be completed because of unseasonable weather or other conditions reasonably beyond the control of the Contractor but that portion does not prevent the balance of the Work from being put to its intended use.

D21.2.1 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 D11)

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. 237-2009

CONSTRUCTION OF VALVE CHAMBER SUPERSTRUCTURE, INSTALLATION OF VALVE ACTUATORS AND ASSOCIATED WORKS

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>
<b>DIVISION 01</b>	<b>GENERAL REQUIREMENTS</b>
011100	Summary of Work
016100	Common Product Requirements
017800	Closeout Submittals
019113	General Commissioning (Cx) Requirements
019141	Commissioning Training
<b>DIVISION 03</b>	<b>CONCRETE</b>
034800	Precast Concrete Specialties
<b>DIVISION 05</b>	<b>METALS</b>
051223	Structural Steel for Buildings
055000	Metal Fabrications
<b>DIVISION 06</b>	<b>WOOD, PLASTICS AND COMPOSITES</b>
061000.01	Rough Carpentry – Short Form
<b>DIVISION 07</b>	<b>THERMAL AND MOISTURE PROTECTION</b>
072100	Building Insulations
072113	Board Insulation
072600	Sheet Vapour Retarders
074100	Insulated Roof Panels
076200	Sheet Metal Flashing
079000	Joint Sealants
<b>DIVISION 08</b>	<b>OPENINGS</b>
081100	Metal Doors & Frames
087100	Door Hardware – General
<b>DIVISION 09</b>	<b>FINISHES</b>
091110	Metal Stud System
092250	Stucco System
099113	Exterior Painting

<u>Specification No.</u>	<u>Specification Title</u>
<b>DIVISION 23</b>	<b>HEATING, VENTILATING AND AIR CONDITIONING (HVAC)</b>
230500	Common Work Results for HVAC
230513	Common Motor Requirements for HVAC Equipment
230553.01	Mechanical Identification
230593	Testing, Adjusting and Balancing for HVAC
230713	Duct Insulation
230933	Electric and Electronic Control System for HVAC
233113.01	Metal Ducts – Low Pressure to 500 PA
233300	Air Duct Accessories
233315	Dampers – Operating
233425	Packaged Roof and Wall Exhausters
233720	Louvres, Intakes and Vents
238239.01	Unit Heaters – Electric
<b>DIVISION 26</b>	<b>ELECTRICAL</b>
260500	Common Work Results for Electrical
260520	Wire and Box Connectors 0-1000 V
260521	Wires and Cables (0 -1000 V)
260528	Grounding – Secondary
260529	Hangers and Supports for Electrical Systems
260532	Outlet Boxes, Conduit Boxes and Fittings
260534	Conduits, Conduit Fastenings and Conduit Fittings
262417	Panelboards Breaker Type
262726	Wiring Devices
262821	Moulded Case Circuit Breakers
262823	Disconnect Switches – Fused and Non-Fused
265300	Exit Lights
<b>DIVISION 29</b>	<b>INSRUMENTATION AND CONTROLS</b>
290500	Common Work – Instrumentation and Controls
291001	Enclosures
291501	Instrumentation Cable
292501	Transmitters and Indicators
293001	Switches and Relays
293011	Miscellaneous Panel Devices
293021	Power Supplies
294011	PLC I/O Index
294021	Instrumentation Index
294051	Programmable Logic Controllers
295001	Instrumentation Specification Sheets
<b>DIVISION 31</b>	<b>EARTHWORK</b>
310000.01	Earthwork – Short Form
312213	Rough Grading
312333.01	Excavating, Trenching and Backfilling
<b>DIVISION 32</b>	<b>EXTERIOR IMPROVEMENTS</b>
321123	Aggregate Base Courses
321216.01	Asphalt Paving – Short Form
329119.13	Topsoil Placement and Grading
329219.16	Hydraulic Seeding
329310	Trees, Shrubs and Ground Cover Planting
<u>Drawing No.</u>	<u>Drawing Name/Title</u>
D-11753	Construction of Valve Chamber Superstructure – Cover Sheet and Key Plan
D-11754	Construction of Valve Chamber Superstructure – Location Plan, Site Access, Layout and Landscaping
D-11755	Construction of Valve Chamber Superstructure – Floor Plan, Roof Plan and Details

<u>Drawing No.</u>	<u>Drawing Name/Title</u>
D-11756	Construction of Valve Chamber Superstructure – Architectural Building Elevations
D-11757	Construction of Valve Chamber Superstructure – Architectural Building and Wall Sections
D-11758	Construction of Valve Chamber Superstructure – Structural Steel Framing Plan, Sections and Elevations
D-11759	Construction of Valve Chamber Superstructure – Electrical Site Plan
D-11760	Construction of Valve Chamber Superstructure – Electrical Lighting and Power Layout
D-11761	Construction of Valve Chamber Superstructure – Electrical Control Schematics and Loop Diagram
D-11762	Construction of Valve Chamber Superstructure – Mechanical Floor Plan, Legend and Schedules
D-11783	Replacement of Valve LAV1 Actuator at MacLean Pumping Station and Reservoir – Electrical Modifications

## GENERAL REQUIREMENTS

### E2. CONDITION, PROTECTION OF AND ACCESS TO RESERVOIR COMPOUNDS AND AQUEDUCTS

#### E2.1 Description

E2.1.1 This Section details operating constraints for all work to be carried out in close proximity to the Branch II and Interconnector Aqueducts, and the MacLean reservoir facility and surrounding piping.

E2.1.2 The Aqueducts and MacLean Reservoir and Pumping Station are critical components of the City of Winnipeg Regional Water Supply System and work in close proximity to the Reservoir and piping shall be undertaken with an abundance of caution.

#### E2.2 Condition of the Aqueducts and Piping

E2.2.1 The Branch II Aqueduct and Interconnector Aqueduct are constructed of pre-stressed concrete cylinder pipe circa 1958-1964, with upgrade work in the vicinity of the Branch II valve chamber in 2004. All Work procedures conducted by the Contractor on and/or near the Aqueduct shall be well planned and executed to ensure that the Aqueduct is not subjected to construction related loads, including excessive vibrations and concentrated or asymmetrical lateral loads during backfill placement.

#### E2.3 General Considerations for Work within the Vicinity of Aqueducts and MacLean Compound

##### E2.3.1 General

- (a) Light duty trucks, and service vehicles will be permitted adjacent to the valve chambers.
- (b) Heavy equipment and cranes will not be permitted to operate directly over or within 3 metres of the centreline of piping.
- (c) Under no circumstances will traffic or equipment be permitted on the buried MacLean Reservoir structure or adjacent valve chambers.
- (d) No work shall commence at the site until the Submittals in Section E2.4.1 have been submitted and accepted, and the Feedermain location has been clearly delineated in the field. Work over the Aqueducts shall only be carried out with equipment that has been reviewed and quantified in terms of its loading implications on the pipe. All proposed construction equipment must be submitted to AECOM for review prior to construction. Work in areas in close proximity to the Aqueducts shall only be carried out with equipment that has been reviewed and quantified in terms of its loading implications by the Contract Administrator.

- (e) Where work is in close proximity to the Aqueducts, utilize construction practices and procedures that do not impart excessive vibration loads on the Aqueducts or that would cause settlement of the subgrade below the Aqueducts.
- (f) Granular material, construction material, soil or other material shall not be stockpiled on the pipelines or within 5 metres of the pipe centerline.
- (g) Construction operations should be staged in such a manner as to limit multiple construction loads at one time, (e.g. offset crossings sufficiently from each other, rollers should remain a sufficient distance behind spreaders to limit loads. A reasonable offset distance is 3m between loads).
- (h) The contractor and all site supervisory personnel and equipment operators have to be formally briefed to ensure that they are fully cognizant of the associated restrictions, constraints, and risks associated with working adjacent to and over this pipeline. New personnel introduced after commencement of the project need to be formally orientated as to the significance and constraints associated with working over the Aqueducts.

#### E2.3.2 Demolition and Excavation

- (a) Offset backhoe and excavation equipment a minimum of 3 m from Aqueduct centerline, to carry out excavation. While equipment may cross pipelines, do not operate backhoe directly over pipelines.
- (b) No heavy equipment operations will be allowed on the subgrade over the pipeline prior to completion of the sub-base, unless reviewed and approved.

#### E2.3.3 Subgrade Construction

- (a) Subgrade compaction within 3 metres of the Aqueduct shall be completed with a non-vibratory self propelled padfoot type compactor, subject to submission of vehicle specifications including operation weights and dimensions prior to use.
- (b) Subgrade, sub-base and base course construction shall be kept in a rut free condition at all times. Construction equipment is prohibited from crossing pipelines if the grade is insufficient to support the equipment without rutting.
- (c) Construction operations shall be staged to minimize the time period between excavation to subgrade and placement of granular subbase materials. Should bare subgrade be left overnight, measures shall be implemented to protect the subgrade against inadvertent travel over it and to minimize the impact of wet weather.

#### E2.3.4 Subbase and Base Course Construction

- (a) The placement of subbase materials should be bladed into place as opposed to end dumped within 2.5 m of the pipelines. Equipment utilized for blading granular subbase into place should be reviewed and approved for use by the Contract Administrator and shall generally work the material with the equipment operating on the granular fill as opposed to the equipment operating off of the clay subgrade.
- (b) In general any subbase compaction will be limited to static rolling within 2.5 metres of the centerline of the Aqueducts. Compaction for the granular shall be limited to static methods, using equipment reviewed and approved in the Method Statement.
- (c) Use of light weight vibratory equipment for compaction of granular may be permitted subject to a construction method statement submission and review by the Contract Administrator (e.g. 1000 lb plate compactor or walk behind vibratory roller).

E2.3.5 It is the Contractors' responsibility to ensure that all work crew members understand and observe the requirements of E2.2 and E2.3. Prior to commencement of on-site Work, the Contractor's superintendent, foreman and heavy equipment operators shall attend an orientation meeting that will outline restrictions for working on and around the Aqueduct. Failure to comply with these restrictions will be grounds for removing the offending personnel from the site.

## E2.4 Submittals

E2.4.1 Submit proposed construction equipment specifications to the Contract Administrator for review seven (7) days prior to construction. The submissions need to include sufficient data on operational weights, dimensions, and payloads to facilitate assessment that the proposed construction equipment is not in excess of the typical construction loading that this assessment was based on. Submittal shall include:

- (a) Equipment operating weight and dimensions including wheel or track base, track length or axle spacing, track widths or wheel configurations
- (b) Payload weights
- (c) Load distributions in the intended operating configuration

## E3. SITE SECURITY AND SAFETY

### E3.1 Security

E3.1.1 The Contractor shall be responsible for site security and safety, as stated below:

- (a) Report all site trespassing or suspicious activity immediately to McPhillips Control Centre at 986-4781.
- (b) Refrain from providing statements with respect to water supply, site security or emergency situations to the media. All media inquiries in this regard shall be directed to the City of Winnipeg Customer Services.
- (c) Provide secure temporary site storage compound for all specialized components, from the time they are delivered to the Site until they are incorporated into the Works.
- (d) The Contractor is required to take measures necessary to secure the work areas when the work areas are vacated. The Contractor shall ensure that all openings to valve chambers are properly secured when off site. Valve chamber hatches shall be locked. Removable concrete cover openings shall be secured with timber framing or other approved temporary cover, properly secured to prevent easy removal. The City shall be permitted to include a "double lock" mechanism whereby the City can add a City of Winnipeg lock, to permit access to City personnel in off hours.
- (e) The Contractor shall at all times maintain access to valve chambers for City personnel for operation of the infrastructure.

### E3.2 Safety

E3.2.1 Be fully responsible for all aspects of site and public safety, in compliance to D19.

E3.2.2 Arrange for all required safety watches in the vicinity of buried and overhead hydro utilities, and pay all required safety watch fees.

E3.2.3 Install Contractor's locks on City installed lock-out devices, on Aqueduct valves, for replacement of actuator at LAV1, at the following locations:

- (a) MacLean Reservoir

E3.2.4 The City of Winnipeg will provide access to valve locations. The Contractor shall name a primary contact and backup personnel, available on a 24 hour per day basis, with access to lockout keys, in the event of an emergency.

## E4. ENVIRONMENTAL PROTECTION

E4.1 The Contractor shall be aware that the Shoal Lake Aqueduct is for potable water supply and no contamination by fuel, chemicals, etc. shall be permitted at any time. Fuels or chemicals shall not be stored within 30 metres of the Aqueduct.

E4.2 The Contractor shall plan and implement the Work of this Contract strictly in accordance with the requirements of the environmental protection measures as herein specified.

- E4.3 The Contractor is advised that at least the following Acts, Regulations, and By-laws apply to the Work:
- E4.3.1 Federal
- (a) Canadian Environmental Protection Act (CEPA) c.16
  - (b) Transportation of Dangerous Goods Act and Regulations c.34
- E4.3.2 Provincial
- (a) The Dangerous Goods Handling and Transportation Act D12
  - (b) The Endangered Species Act E111
  - (c) The Environment Act c.E125
  - (d) The Fire Prevention Act F80
  - (e) The Manitoba Nuisance Act N120
  - (f) The Public Health Act c.P210
  - (g) The Workplace Safety and Health Act W120
  - (h) And current applicable associated regulations.
- E4.4 The Contractor is advised that the following environmental protection measures apply to the Work.
- E4.4.1 Materials Handling and Storage
- (a) Construction materials shall not be stored within five (5) metres of the Aqueduct centerline.
- E4.4.2 Fuel Handling and Storage
- (a) The Contractor shall abide by the requirements of Manitoba Environment for handling and storage of fuel products.
  - (b) All fuel handling and storage facilities shall comply with The Dangerous Goods and Transportation Act Storage and Handling of Petroleum Products Regulation and any local land use permits.
  - (c) Fuels, lubricants, and other potentially hazardous materials as defined in The Dangerous Goods and Transportation Act shall be stored and handled within the approved storage areas.
  - (d) The Contractor shall ensure that all fuel storage containers are inspected daily for leaks and spillage.
  - (e) Products transferred from the fuel storage area(s) to specific work sites shall not exceed the daily usage requirement.
  - (f) When servicing requires the drainage or pumping of fuels, lubricating oils or other fluids from equipment, a groundsheet of suitable material (such as HDPE) and size shall be spread on the ground to catch the fluid in the event of a leak or spill.
  - (g) Refueling of mobile equipment and vehicles shall take place at least 100 metres from a watercourse.
  - (h) A sufficient supply of materials, such as absorbent material and plastic oil booms, to clean up minor spills shall be stored nearby on-site. The Contractor shall ensure that additional material can be made available on short notice.
- E4.4.3 Waste Handling and Disposal
- (a) The construction area shall be kept clean and orderly at all times during and at completion of construction.
  - (b) At no time during construction shall personal or construction waste be permitted to accumulate for more than one day at any location on the construction site, other than at a dedicated storage area as may be approved by the Contract Administrator.

- (c) Indiscriminate dumping, littering, or abandonment shall not take place.
- (d) No on-site burning of waste is permitted.
- (e) Equipment shall not be cleaned near watercourses; contaminated water from onshore cleaning operations shall not be permitted to enter watercourses.

#### E4.4.4 Dangerous Goods/Hazardous Waste Handling and Disposal

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

#### E4.4.5 Emergency Spill Response

- (a) The Contractor shall ensure that due care and caution is taken to prevent spills.
- (b) The Contractor shall report all major spills of petroleum products or other hazardous substances with the potential for impacting the environment and threat to human health and safety to the Contract Administrator and Manitoba Environment, immediately after occurrence of the environmental accident, by calling the 24-hour emergency telephone phone number (204) 945-4888.
- (c) The Contractor shall designate a qualified supervisor as the on-site emergency response coordinator for the project. The emergency response coordinator shall have the authority to redirect manpower in order to respond in the event of a spill.
- (d) The following actions shall be taken by the person in charge of the spilled material or the first person(s) arriving at the scene of a hazardous material accident or the on-site emergency response coordinator:
  - (i) Notify emergency-response coordinator of the accident:
    - identify exact location and time of accident
    - indicate injuries, if any
    - request assistance as required by magnitude of accident (Manitoba Environment 24-hour Spill Response Line (204) 945-4888, Police, Fire Department, Ambulance, company backup)
  - (ii) Assess situation and gather information on the status of the situation, noting:
    - personnel on site
    - cause and effect of spill
    - estimated extent of damage
    - amount and type of material involved
    - proximity to waterways and the Aqueduct
  - (iii) If safe to do so, try to stop the dispersion or flow of spill material:
    - approach from upwind
    - stop or reduce leak if safe to do so
    - dyke spill material with dry, inert sorbent material or dry clay soil or sand
    - prevent spill material from entering waterways and utilities by dyking
    - prevent spill material from entering Aqueduct manholes and other openings by covering with rubber spill mats or dyking
  - (iv) Resume any effective action to contain, clean up, or stop the flow of the spilled product.
- (e) The emergency response coordinator shall ensure that all environmental accidents involving contaminants shall be documented and reported to the Manitoba Environment according to The Dangerous Goods Handling and Transportation Act Environmental Accident Report Regulation 439/87.

#### E4.4.6 Controlled Products

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

- (b) Notwithstanding the aforementioned requirement, materials have been tested by an ANSI accredited laboratory and meet the requirements of ANSI/NSF 60, "Standard for Drinking Water Treatment and Chemicals – Health Effects", and ANSI/NSF 61, "Standard for Drinking Water System Components – Health Effects", as specified in the Specifications, shall be permitted inside the Aqueduct.

**DIVISION 01 – GENERAL REQUIREMENTS**

**DIVISION 03 – CONCRETE**

**DIVISION 05 – METALS**

**DIVISION 06 – WOOD, PLASTICS, AND COMPOSITES**

**DIVISION 07 – THERMAL & MOISTURE PROTECTION**

**DIVISION 08 – OPENINGS**

**DIVISION 09 – FINISHES**

**DIVISION 23 – HEATING, VENTILATING, AND AIR CONDITIONING**

**DIVISION 26 – ELECTRICAL**

**DIVISION 29 – INSTRUMENTATION AND CONTROLS**

**DIVISION 31 – EARTHWORK**

**DIVISION 32 – EXTERIOR IMPROVEMENTS**