



**THE CITY OF WINNIPEG**

# **BID OPPORTUNITY**

**BID OPPORTUNITY NO. 920-2014**

**LEE BOULEVARD OUTLET CHAMBER UPGRADES**

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## **PART B - BIDDING PROCEDURES**

### **B1. CONTRACT TITLE**

B1.1 LEE BOULEVARD OUTLET CHAMBER UPGRADES

### **B2. SUBMISSION DEADLINE**

B2.1 The Submission Deadline is 12:00 noon Winnipeg time, November 10, 2014.

B2.2 Bids determined by the Manager of Materials to have been received later than the Submission Deadline will not be accepted and will be returned upon request.

B2.3 The Contract Administrator or the Manager of Materials may extend the Submission Deadline by issuing an addendum at any time prior to the time and date specified in B2.1.

### **B3. SITE INVESTIGATION**

B3.1 Further to C3.1, the Contract Administrator or an authorized representative will be available at the Site from 9:00 am to 10:00 am on October 23, 2014 to provide Bidders access to the Site.

B3.2 The Bidder is advised that Site Investigation is not mandatory, but is highly recommended to view Site clearances and restrictions that could impede work progress.

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

B3.4 Further to B3.1, the Bidder may view the Site at any time without making an appointment.

### **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. CONFIDENTIALITY**

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

- (a) was known to the Bidder before receipt hereof; or
- (b) becomes publicly known other than through the Bidder; or

(c) is disclosed pursuant to the requirements of a governmental authority or judicial order.

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

## **B6. ADDENDA**

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

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

B6.2.1 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>

B6.2.2 The Bidder is responsible for ensuring that he/she 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.

B6.3 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.

## **B7. SUBSTITUTES**

B7.1 The Work is based on the Plant, Materials and methods specified in the Bid Opportunity.

B7.2 Substitutions shall not be allowed unless application has been made to and prior approval has been granted by the Contract Administrator in writing.

B7.3 Requests for approval of a substitute will not be considered unless received in writing by the Contract Administrator at least five (5) Business Days prior to the Submission Deadline.

B7.4 The Bidder shall ensure that any and all requests for approval of a substitute:

- (a) provide sufficient information and details to enable the Contract Administrator to determine the acceptability of the Plant, Material or method as either an approved equal or alternative;
- (b) identify any and all changes required in the applicable Work, and all changes to any other Work, which would become necessary to accommodate the substitute;
- (c) identify any anticipated cost or time savings that may be associated with the substitute;
- (d) certify that, in the case of a request for approval as an approved equal, the substitute will fully perform the functions called for by the general design, be of equal or superior substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule and the dates specified in the Supplemental Conditions for Substantial Performance and Total Performance;
- (e) certify that, in the case of a request for approval as an approved alternative, the substitute will adequately perform the functions called for by the general design, be similar in substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule and the dates specified in the Supplemental Conditions for Substantial Performance and Total Performance.

- B7.5 The Contract Administrator, after assessing the request for approval of a substitute, may in his/her sole discretion grant approval for the use of a substitute as an “approved equal” or as an “approved alternative”, or may refuse to grant approval of the substitute.
- B7.6 The Contract Administrator will provide a response in writing, at least two (2) Business Days prior to the Submission Deadline, to the Bidder who requested approval of the substitute.
- B7.6.1 The Contract Administrator will issue an Addendum, disclosing the approved materials, equipment, methods and products to all potential Bidders. The Bidder requesting and obtaining the approval of a substitute shall be responsible for disseminating information regarding the approval to any person or persons he/she wishes to inform.
- B7.7 If the Contract Administrator approves a substitute as an “approved equal”, any Bidder may use the approved equal in place of the specified item.
- B7.8 If the Contract Administrator approves a substitute as an “approved alternative”, any Bidder bidding that approved alternative may base his/her Total Bid Price upon the specified item but may also indicate an alternative price based upon the approved alternative. Such alternatives will be evaluated in accordance with B16.
- B7.9 No later claim by the Contractor for an addition to the Total Bid Price because of any other changes in the Work necessitated by the use of an approved equal or an approved alternative will be considered.
- B7.10 Notwithstanding B7.2 to B7.9, and in accordance with B8.6 deviations inconsistent with the Bid Opportunity document shall be evaluated in accordance with B16.1(a).

## **B8. BID COMPONENTS**

- B8.1 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;
- B8.2 Further to B8.1, the Bidder should include the written correspondence from the Contract Administrator approving a substitute in accordance with B7.
- B8.3 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.
- B8.4 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.
- B8.4.1 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.
- B8.5 Bidders are advised not to include any information/literature except as requested in accordance with B8.1.

B8.6 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 B16.1(a).

B8.7 Bids submitted by facsimile transmission (fax) or internet electronic mail (e-mail) will not be accepted.

B8.8 Bids shall be submitted to:

The City of Winnipeg  
Corporate Finance Department  
Materials Management Division  
185 King Street, Main Floor  
Winnipeg MB R3B 1J1

**B9. BID**

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

B9.2 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/her own name, his/her name shall be inserted;
- (b) if the Bidder is a partnership, the full name of the partnership shall be inserted;
- (c) if the Bidder is a corporation, the full name of the corporation shall be inserted;
- (d) if the Bidder is carrying on business under a name other than his/her own, the business name and the name of every partner or corporation who is the owner of such business name shall be inserted.

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

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

B9.4 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/her own name, it shall be signed by the Bidder;
- (b) if the Bidder is a partnership, it shall be signed by the partner or partners who have authority to sign for the partnership;
- (c) if the Bidder is a corporation, it shall be signed by its duly authorized officer or officers 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/her own, it shall be signed by the registered owner of the business name, or by the registered owner's authorized officials if the owner is a partnership or a corporation.

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

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

## **B10. PRICES**

- B10.1 The Bidder shall state a price in Canadian funds for each item of the Work identified on Form B: Prices.
- B10.1.1 Notwithstanding C12.2.3(c), prices on Form B: Prices shall not include the Manitoba Retail Sales Tax (MRST, also known as PST), which shall be extra where applicable.
- B10.2 The quantities listed on Form B: Prices are to be considered approximate only. The City will use said quantities for the purpose of comparing Bids.
- B10.3 The quantities for which payment will be made to the Contractor are to be determined by the Work actually performed and completed by the Contractor, to be measured as specified in the applicable Specifications.
- B10.4 Payments to Non-Resident Contractors are subject to Non-Resident Withholding Tax pursuant to the Income Tax Act (Canada).

## **B11. QUALIFICATION**

- B11.1 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.
- B11.2 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>
- B11.3 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);
- B11.4 Further to B11.3(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 copy of their valid Manitoba COR certificate and Letter of Good Standing (or Manitoba equivalency) as issued under the Certificate of Recognition (COR) Program administered by the Construction Safety Association of Manitoba or by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ Program; or
  - (b) a copy of their valid Manitoba SECOR™ certificate and Letter of Good Standing (or Manitoba equivalency) as issued under the Small Employer Certificate of Recognition Program (SECOR™) administered by the Construction Safety Association of Manitoba or by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ Program; or



- (c) 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/>.)

B11.5 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.

B11.6 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.

## **B12. BID SECURITY**

B12.1 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.

B12.1.1 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.

B12.1.2 All signatures on bid securities shall be original.

B12.1.3 The Bidder shall sign the Bid Bond.

B12.1.4 The Surety shall sign and affix its corporate seal on the Bid Bond and the Agreement to Bond.

B12.2 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.

B12.2.1 Where the bid security provided by the successful Bidder is in the form of a certified cheque or draft pursuant to B12.1(c), it will be deposited and retained by the City as the performance security and no further submission is required.

B12.2.2 The City will not pay any interest on certified cheques or drafts furnished as bid security or subsequently retained as performance security.

B12.3 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.

## **B13. OPENING OF BIDS AND RELEASE OF INFORMATION**

B13.1 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.

- B13.1.1 Bidders or their representatives may attend.
- B13.1.2 Bids determined by the Manager of Materials, or his/her designate, to not include the bid security specified in B12 will not be read out.
- B13.2 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/>
- B13.3 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/>
- B13.4 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.

**B14. IRREVOCABLE BID**

- B14.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 11 of Form A: Bid.
- B14.2 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.

**B15. WITHDRAWAL OF BIDS**

- B15.1 A Bidder may withdraw his/her Bid without penalty by giving written notice to the Manager of Materials at any time prior to the Submission Deadline.
- B15.1.1 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.
- B15.1.2 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.
- B15.1.3 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 B15.1.3(b), declare the Bid withdrawn.
- B15.2 A Bidder who withdraws his/her Bid after the Submission Deadline but before his/her Bid has been released or has lapsed as provided for in B14.2 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.

## **B16. EVALUATION OF BIDS**

- B16.1 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 B11 (pass/fail);
  - (c) Total Bid Price;
  - (d) economic analysis of any approved alternative pursuant to B7.
- B16.2 Further to B16.1(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.
- B16.3 Further to B16.1(b), the Award Authority shall reject any Bid submitted by a Bidder who does not demonstrate, in his/her Bid or in other information required to be submitted, that he/she is responsible and qualified.
- B16.4 Further to B16.1(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.
- B16.4.1 Further to B16.1(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.

## **B17. AWARD OF CONTRACT**

- B17.1 The City will give notice of the award of the Contract or will give notice that no award will be made.
- B17.2 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.
- B17.2.1 Without limiting the generality of B17.2, 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.
- B17.3 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 B16.
- B17.3.1 Following the award of contract, a Bidder will be provided with information related to the evaluation of his/her Bid upon written request to the Contract Administrator.

## **PART C - GENERAL CONDITIONS**

### **C0. GENERAL CONDITIONS**

- C0.1 The *General Conditions for Construction* (Revision 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 modifications to the existing Lee Boulevard Outlet Chamber including the addition of an upstream manhole, installation of two control gates and installation of a bypass pump, complete with electrical and automation controls.

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

- (a) Partial Demolition of the Existing Outlet Chamber;
- (b) Installation of a new manhole to the east of the existing outlet chamber;
- (c) Installation of two control gates: one (1) flap gate and one (1) slide gate that have been procured by the City of Winnipeg under a separate Supply Bid Opportunity;
- (d) Installation of a submersible pump and discharge piping in the new manhole;
- (e) Installation of pump electrical, including all automation and controls; and
- (f) Extension of the existing Turfstone pavers to the new pump manhole, located directly upstream of the Outlet Chamber.

#### **D3. DEFINITIONS**

D3.1 When used in this Bid Opportunity:

- (a) "**LDS**" means Land Drainage Sewer;
- (b) "**SRB**" means Storm Water Retention Basin;
- (c) "**AWWA**" means American Water and Wastewater Association;
- (d) "**CSA**" means Canadian Standards Association.

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

D4.1 The Contract Administrator is KGS Group, represented by:

Colin Siepman, P.Eng.  
Senior Structural Engineer and Project Manager

Telephone No. 204 896-1209  
Facsimile No. 204 896-0754  
Email. CSiepman@kgsgroup.com

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

D4.3 Bids Submissions must be submitted to the address in B8.8

**D5. CONTRACTOR'S SUPERVISOR**

D5.1 At the pre-construction meeting, the Contractor shall identify his/her designated supervisor and any additional personnel representing the Contractor and their respective roles and responsibilities for the Work.

**D6. OWNERSHIP OF INFORMATION, CONFIDENTIALITY AND NON DISCLOSURE**

D6.1 The Contract, all deliverables produced or developed, and information provided to or acquired by the Contractor are the property of the City and shall not be appropriated for the Contractors own use, or for the use of any third party.

D6.2 The Contractor shall not make any public announcements or press releases regarding the Contract, without the prior written authorization of the Contract Administrator.

D6.3 The following shall be confidential and shall not be disclosed by the Contractor to the media or any member of the public without the prior written authorization of the Contract Administrator;

- (a) information provided to the Contractor by the City or acquired by the Contractor during the course of the Work;
- (b) the Contract, all deliverables produced or developed; and
- (c) any statement of fact or opinion regarding any aspect of the Contract.

D6.4 A Contractor who violates any provision of D6 may be determined to be in breach of Contract.

**D7. NOTICES**

D7.1 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.

D7.2 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the City, except as expressly otherwise required in D7.3, D7.4 or elsewhere in the Contract, shall be sent to the attention of the Contract Administrator at the facsimile number identified in D4.1.

D7.3 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

D7.4 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 facsimile number:

The City of Winnipeg  
Legal Services Department  
Attn: Director of Legal Services

Facsimile No.: 204 947-9155

**D8. FURNISHING OF DOCUMENTS**

D8.1 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/her at cost.

## **SUBMISSIONS**

### **D9. AUTHORITY TO CARRY ON BUSINESS**

D9.1 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.

### **D10. SAFE WORK PLAN**

D10.1 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.

D10.2 The Safe Work Plan should be prepared and submitted in the format shown in the City's template which is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/Safety/default.stm>

### **D11. INSURANCE**

D11.1 The Contractor shall provide and maintain the following insurance coverage:

- (a) commercial general liability insurance, in the amount of at least two million dollars (\$2,000,000.00) inclusive, with The City of Winnipeg added as an additional insured, with a cross-liability clause, such liability policy to also contain contractual liability, unlicensed motor vehicle liability, non-owned automobile liability, broad form property damage cover and products and completed operations, to remain in place at all times during the performance of the Work and throughout the warranty period;
- (b) if applicable, Automobile Liability Insurance covering all motor vehicles, owned and operated and used or to be used by the Contractor directly or indirectly in the performance of the Work. The Limit of Liability shall not be less than \$2,000,000 inclusive for loss or damage including personal injuries and death resulting from any one accident or occurrence.
- (c) an all risks Installation Floater carrying adequate limits to cover all machinery, equipment, supplies and/or materials intended to enter into and form part of any installation.

D11.2 Deductibles shall be borne by the Contractor.

D11.3 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.

D11.4 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.

### **D12. PERFORMANCE SECURITY**

D12.1 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.

D12.1.1 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.

D12.2 If the bid security provided in his/her Bid was not a certified cheque or draft pursuant to B12.1(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.

### **D13. SUBCONTRACTOR LIST**

D13.1 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.

### **D14. DETAILED WORK SCHEDULE**

D14.1 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.

D14.2 The detailed work schedule shall consist of the following:

- (a) a Gantt chart for the Work;
  - (b) a daily manpower schedule for the Work;
- all acceptable to the Contract Administrator.

D14.3 Further to D14.2(a), the Gantt chart shall show the time on a weekly basis, required to carry out the Work of each trade, or specification division. The time shall be on the horizontal axis, and the activity/task shall be on the vertical axis.

D14.4 Further to D14.2(b), the daily manpower schedule shall list the daily number of individuals on the Site for each trade.

## **SCHEDULE OF WORK**

### **D15. COMMENCEMENT**

D15.1 The Contractor shall not commence any Work until he/she is in receipt of a letter of intent from the Award Authority authorizing the commencement of the Work.

D15.2 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 D9;
  - (ii) evidence of the workers compensation coverage specified in C6.15;
  - (iii) the Safe Work Plan specified in D10;
  - (iv) evidence of the insurance specified in D11;



- (v) the performance security specified in D12;
  - (vi) the Subcontractor list specified in D13; and
  - (vii) The Detailed Work Schedule specified in D14.
- (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.

D15.3 The City intends to award this Contract by December 12, 2014.

#### **D16. CRITICAL STAGES**

D16.3 The Contractor shall achieve critical stages of the Work in accordance with the following requirements:

- (a) New manhole, pump and associated discharge piping, control gates and electrical automation controls shall be installed and operational by February 27, 2015.
- (b) All final site restoration shall be completed by June 5, 2015.

#### **D17. SUBSTANTIAL PERFORMANCE**

D17.1 The Contractor shall achieve Substantial Performance by February 27, 2015.

D17.2 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.

D17.3 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.

#### **D18. TOTAL PERFORMANCE**

D18.1 The Contractor shall achieve Total Performance by June 5, 2015.

D18.2 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.

D18.3 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.

#### **D19. LIQUIDATED DAMAGES**

D19.1 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 dollars (\$1,000.00) per Working Day for each and every Working Day following the day fixed herein for Substantial Performance during which such failure continues.

D19.2 The amount specified for liquidated damages in D19.1 is based on a genuine pre-estimate of the City's damages in the event that the Contractor does not achieve Substantial Performance by the day fixed herein for same.

D19.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

## **D20. SCHEDULED MAINTENANCE**

- D20.1 The Contractor shall allow KGS Group and a pipe inspection Contractor access to perform an inspection of the 900mm and 1800mm diameter LDS pipes following installation of flow control measures and dewatering of the outlet chamber.

## **CONTROL OF WORK**

### **D21. JOB MEETINGS**

- D21.1 Regular bi-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.
- D21.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever he/she deems it necessary.

### **D22. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)**

- D22.1 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).

### **D23. THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA) – QUALIFICATIONS**

- D23.1 Further to B11.4, the Contractor/Subcontractor must, throughout the term of the Contract, have a Workplace Safety and Health Program meeting the requirements of The Workplace Safety and Health Act (Manitoba). At any time during the term of the Contract, the City may, at its sole discretion and acting reasonably, require updated proof of compliance, as set out in B11.4.

## **MEASUREMENT AND PAYMENT**

### **D24. INVOICES**

- D24.1 Further to C12, the Contractor shall submit a monthly invoice for work performed in the previous calendar month to the Contract Administrator listed in D4.1.
- D24.2 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 work performed;
  - (e) the amount payable with GST and MRST shown as separate amounts; and
  - (f) the Contractor's GST registration number.
- D24.3 The City will bear no responsibility for delays in approval of invoices which are improperly submitted.
- D24.4 Bid Submissions must be submitted to the address in B8.8

**D25. PAYMENT**

D25.1 Further to C12, the City may at its option pay the Contractor by direct deposit to the Contractor's banking institution.

**WARRANTY**

**D26. WARRANTY**

D26.1 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.

D26.1.1 For the purpose of Performance Security, the warranty period shall be one (1) year.

D26.2 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.

D26.2.1 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 D12)

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. 920-2014

LEE BOULEVARD OUTLET CHAMBER UPGRADES

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 D12)

\_\_\_\_\_  
(Date)

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

RE: PERFORMANCE SECURITY - BID OPPORTUNITY NO. 920-2014  
LEE BOULEVARD OUTLET CHAMBER UPGRADES

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 (2007 Revision), International Chamber of Commerce Publication Number 600.

\_\_\_\_\_  
(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>
22 14 29.16	Submersible Sump Pump
22 14 29.17	Submersible Sump Pump - Discharge Piping
25 05 01	Controls – General Requirements
25 05 54	Controls Identification
25 30 01	RTU Control Panel
25 30 02	Controls: Instrumentation
26 05 01	Common Work Results – Electrical
26 05 20	Wire and Box Connectors (0-1000 V)
26 05 21	Wires and Cables (0-1000 V)
26 05 32	Outlet Boxes, Conduit Boxes and Fittings
26 05 34	Conduits, Conduit Fastenings and Conduit Fittings
26 05 43. 01	Installation of Cables in Trenches and Ducts
26 24 02	Service Entrance Board
26 24 17	Panelboards Breaker Type
26 27 26	Wiring Devices
26 28 21	Moulded Case Circuit Breakers
26 29 03	Control Devices

<u>Drawing No.</u>	<u>Drawing Name/Title</u>
	Cover Sheet
1-0539L-C0001-001	Municipal – Plan, Profile and Section
1-0539L-S0001-001	Structural – Gate Chamber Partial Demolition – Plan, Sections and Details
1-0539L-S0002-001	Structural – Gate Chamber and Pump Manhole – Plan and Sections
1-0539L-S0003-001	Structural – Concrete Reinforcing – Plan, Section and Details
1-0539L-S0004-001	Structural – Miscellaneous Metals – Sections and Details
1-0539L-M0001-001	Mechanical – Plan and Sections
1-0539L-E0001-001	Electrical – Single Line Diagram
1-0539L-E0002-001	Electrical – Submersible Pump P-1 – Schematic and Wiring Diagram
1-0539L-E0003-001	Electrical – Site Plan
1-0539L-E0004-001	Electrical – Plan and Sections
1-0539L-E0005-001	Electrical – Miscellaneous Details
1-0539L-E0006-001	Electrical – RTU Panel – 120VAC Power and Fuse Distribution
1-0539L-E0007-001	Electrical – RTU Panel – 24VDC Power and Fuse Distribution
1-0539L-E0008-001	Electrical – RTU Panel – Digital Input DI 09-10 – UPS Alarm and Power Distribution
1-0539L-E0009-001	Electrical – RTU Panel – 5607 I/O Board – Discrete Inputs
1-0539L-E0009-002	Electrical – RTU Panel – 5607 I-O Board – Discrete Inputs
1-0539L-E0010-001	Electrical – RTU Panel – 5607 I-O Board – Analog Inputs
1-0539L-E0011-001	Electrical – RTU Panel – 5607 I-O Board – Discrete Outputs

## 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 Space 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 with supplied air at all times when entering a chamber, manhole or sewer where live sewage is present.
- E2.6 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. FLOW CONTROL

- E3.1 In order to maintain access to the gate chamber and upstream and downstream LDS pipes, flow control measures must be in place to maintain dry work conditions during construction. During winter months, the SRB Lake may receive flow of an undetermined amount from groundwater infiltration, watermain breaks, snow melt and other unforeseen sources.
- E3.2 Install and maintain a temporary bypass pump at the existing upstream manhole, discharging downstream of the cofferdam erected inside the 1800mm diameter LDS pipe as described in E3.4. The pump shall be capable of pumping 200 USGPM to maintain the SRB water elevation at 228.451m.
- E3.3 Install and maintain a sewer plug inside the 900mm diameter LDS pipe immediately upstream of the existing upstream manhole 'S1' throughout the duration of underground works to isolate the work area from the SRB lake.
- E3.4 Install and maintain a cofferdam immediately downstream of the outlet chamber, inside the 1800mm diameter LDS pipe to prevent back flow from downstream SRBs. The cofferdam shall be constructed in accordance with "Sandbag Dike Construction Instructions" as published by the Government of Manitoba Emergency Measures Organization. The cofferdam shall be constructed with 6 mil polyethylene sheeting to ensure water tightness. The cofferdam shall be constructed to a mandatory minimum elevation of 500 mm. The height of the cofferdam shall be increased in the case of high downstream water levels to maintain a minimum 150 mm freeboard.
- E3.5 Maintain a submersible sump pump in the outlet chamber to dewater potential leakage from the upstream plug and downstream cofferdam. All pumping shall be discharged downstream of the cofferdam into the land drainage system.

E3.6 Costs for flow control will be considered incidental to the Works of this contract and no direct measurement or payment will be made for this item.

#### **E4. COLD WEATHER REQUIREMENTS**

E4.1 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.

E4.2 All freshly placed concrete shall be protected from the elements and from defacements due to construction operations.

E4.3 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.

E4.4 Cold weather requirements shall be considered incidental to the Works of this Contract and no measurement or payment will be made for this item.

#### **E5. SHOP DRAWINGS**

E5.1 Description

- (a) This Specification shall revise, amend and supplement the requirements of CW1110.
  - (i) The term 'shop drawings' means drawings, diagrams, illustrations, schedules, performance charts, brochures, and other data, including site erection drawings which are to be provided by the Contractor to illustrate details of a portion of the work.
  - (ii) The Contractor shall submit specified shop drawings to the Contract Administrator for review. All submissions must be in metric units. Where data is in imperial units, the correct metric equivalent shall also be on all submissions for Engineering review.
- (b) Shop Drawings
  - (i) Original drawings are to be prepared by Contractor, Subcontractor, supplier, distributor, or manufacturer, which illustrate appropriate portion of work; showing fabrication, layout, setting or erection details as specified in appropriate sections.
- (c) Contractor's Responsibilities
  - (i) Review shop drawings, product data and samples prior to submission and stamp and sign drawings indicating conformance to the Contract requirements.

- (ii) Verify:
    - (i) Field Measurements
    - (ii) Field Construction criteria
    - (iii) Catalogue numbers and similar data
  - (iii) Coordinate each submission with requirements of Work and Contract Documents. Individual shop drawings will not be reviewed until all related drawings are available.
  - (iv) Notify Contract Administrator, in writing at time of submission, of deviations from requirements of Contract Documents
  - (v) Responsibility for deviations in submission from requirements of Contract Documents is not relieved by Contract Administrator's review of submission, unless the Contract Administrator gives written acceptance of specified deviations.
  - (vi) Responsibility for errors and omissions in submission is not relieved by the Contract Administrator's review of submittals.
  - (vii) The Contractor shall make any corrections required by the Contract Administrator and shall resubmit the required number of corrected copies of Shop Drawings. The Contractor shall direct specific attention in writing or on resubmitted Shop Drawings to revisions other than the corrections requested by the Contract Administrator on the previous submission.
  - (viii) After Contract Administrator's review and return of copies, distribute copies to sub-trades as required.
  - (ix) Maintain one (1) complete set of reviewed shop drawings, filed by Specification Section Number, at the site of the work for use and reference of the Contract Administrator and Subcontractors.
- (d) Submission Requirements
- (i) Schedule submissions at least 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:
    - (i) Date
    - (ii) Project title and Bid Opportunity Number
    - (iii) Contractor's name and address
    - (iv) Number of each shop drawing, product data and sample submitted
    - (v) Specification Section, Title, Number and Clause
    - (vi) Drawing Number and Detail/ Section Number
    - (vii) Other pertinent data
  - (iv) Submission shall Include:
    - (i) Date and revision dates.
    - (ii) Project title and Bid Opportunity number.
    - (iii) Name of:
      - (i) Contractor
      - (ii) Subcontractor
      - (iii) supplier
      - (iv) manufacturer
      - (v) separate detailer when pertinent
    - (iv) Identification of product of material.
    - (v) Relation to adjacent structure or materials.

- (vi) Field dimensions, clearly identified as such.
  - (vii) Specification section name, number and clause number or drawing number and detail/section number.
  - (viii) Applicable standards, such as CSA or CGSB numbers.
  - (ix) Contractor's stamp, 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.

#### E5.2 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.

### **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% of the Mobilization and Demobilization unit price will be paid subsequent to the Substantial Performance of the Work and restoration and cleanup of all Sites.

### **E7. SITE DEVELOPMENT AND RESTORATION**

#### E7.1 Description

- (a) This Specification shall supplement the requirements of CW1130.
- (b) 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 excavations and underground structure openings shall be secured to prevent access. Safety fence shall also be closed and secured to prevent public 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 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.

#### E7.5 Permanent Surface Restorations

- (a) If required, permanently restore all existing surface areas disturbed by construction activities including but not limited to areas disturbed by; construction equipment, placement of equipment trailers and where construction materials were stockpiled, shall be restored as follows:
  - (i) Boulevards, ditches and grassed areas – sodding using imported topsoil in accordance with CW 3510.
  - (ii) Asphalt surfaces – match existing base course and asphalt thickness or a minimum of 150 millimetres of base course and 75 millimetres of Type 1A Asphaltic Concrete, whichever is greater, in accordance with CW 3410.
  - (iii) Miscellaneous concrete slabs, including sidewalk - in accordance with CW 3235
  - (iv) Interlocking stones – in accordance with CW 3330.
  - (v) Concrete curb and gutter – in accordance with CW 3240.

#### E7.6 Method of Measurement and Payment

The site development and restoration shall be measured on a lump sum basis and paid for at the Contract Lump Sum Price for "Site Development and Restoration," which prices shall be payment in fill for supplying all materials and for performing all operations herein described and all other items incidental to the Work included in this Specification.

50% of the Site Development and Restoration unit price will be paid for on the first progress payment following commencement of the work on the specific Site being developed.

The remaining 50% of the Site Development and Restoration unit price will be paid subsequent to the completion of the Work and restoration and cleanup of the Site.

### **E8. TRAFFIC MANAGEMENT**

#### E8.1 Further to clause 3.7 of CW 1130:

- E8.1.1 Maintain traffic open on Raphael Street and Comdale Avenue during the Works.
- E8.1.2 No stockpiling of material will be permitted on the roadway.
- E8.1.3 Intersecting street and private approach access shall be maintained at all times.
- E8.1.4 Should the Contractor be unable to maintain pedestrian or vehicular access to a residence or business, he shall review the planned disruption with the residence and the Contract Administrator, and take reasonable measures to minimize the impact. The Contractor shall provide a minimum of 24 hours notification to the affected residence or business and the Contract Administrator, prior to disruption of access.
- E8.1.5 Pedestrian access and ambulance/emergency vehicle access must be maintained at all times.
- E8.2 Payment
- No separate pay item exists for this work. All work associated with Traffic Management is considered incidental to Site Development and Restoration.

## **E9. PROTECTION OF EXISTING STRUCTURES**

- E9.1 The Contractor shall take all precautions to prevent damage to existing structures and adjacent property. In the event of damage, the Contractor will be held liable, and shall be required to provide appropriate restoration at his cost, to the satisfaction of the Contract Administrator.
- E9.2 A third party representative of the Contractor having a minimum of three (3) years of residential inspection experience to the satisfaction of the Contract Administrator shall carry-out a pre-construction inspection of adjacent properties and structures to fully catalogue all existing conditions prior to the commencement of any Site construction activities. This inspection will serve as a baseline of existing conditions in the event of damage claims due to construction activities.
- E9.2.1 The pre-construction inspection shall include both interior and exterior inspections of four (4) properties immediately adjacent to the Work Site as identified by the Contract Administrator. The inspection shall document all existing conditions including:
- (a) Photographic documentation of all existing interior and exterior structure conditions.
  - (b) Photographic and written documentation of all existing drywall or plaster damage, including cracking, chipping and other damage. Measurements of the existing damage shall be made, including length, width and depths as appropriate.
  - (c) Photographic and written documentation of any visible existing foundation damage.
- E9.2.2 The City of Winnipeg will be responsible for distribution of a notification letter indicating that a representative of the Contractor is requesting access to the property for inspection.
- E9.2.3 The inspection shall be completed with the assistance of the property owner. Following completion of the inspection, the inspector shall review all inspection findings with the owner and have the owner sign and date the report.
- E9.2.4 The resulting inspection report, including all photographs shall be submitted to the Contract Administrator following completion. The property owner shall receive a duplicate copy of the inspection report.
- E9.2.5 Access to and inspection of private property shall be by only by personnel having submitted a valid background check in accordance with Part F of these specifications and reviewed by the Contract Administrator.
- E9.3 The Contractor is advised that two (2) vibration monitors shall be installed by a testing contractor concurrently with this Contract. These instruments shall be set up at two residences immediately adjacent to the Work Site.

- E9.3.1 The vibration monitor data will be reviewed at regular intervals throughout construction to ensure that construction-induced vibrations are kept below established threshold values to preclude aesthetic and structural damage to adjacent properties.
- E9.3.2 The City of Winnipeg will be responsible for distribution of a notification letter indicating that the Contractor is requesting access to the property for purposes of installation of a vibration monitor.
- E9.3.3 Access to private property shall be by personnel having submitted a valid background check in accordance with Part F of this specification, to the satisfaction of the Contract Administrator.
- E9.4 Measurement and Payment
- E9.4.1 Pre-construction inspections shall be measured on a lump sum basis and paid for at the Contract Lump Sum Price for "Pre-Construction Inspections." Said price shall be payment in full for performing all operations herein described and all other items incidental to the Work included in this Specification.
- E9.4.2 Allowance for vibration monitoring will be measured on a lump sum basis and paid for at the Contract Lump Sum price for "Vibration Monitoring Allowance." Said price shall be payment in full for performing all operations herein described and all other items incidental to the Work included in this Specification.

## **E10. DEMOLITION OF STRUCTURES**

### **E10.1 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.

#### **E10.1.1** 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.

#### **E10.1.2** 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.

### **E10.2 References**

- E10.2.1 CSA S350-M1980, Code of Practice for Safety in Demolition of Structures.
- E10.2.2 Manitoba Workplace Safety and Health Act, and all applicable National, Provincial, and Municipal regulations.

### **E10.3 Protection**

- E10.3.1 Prevent damage of existing gates and structure to remain. Provide bracing, shoring as required. Make good any damage caused by the demolition Work.
- E10.3.2 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.

### **E10.4 Execution**

#### **E10.4.1 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.
- E10.4.2 Safety Code and Requirements
- (b) Unless otherwise specified, carry out demolition in accordance with the City of Winnipeg Safety Directives and Guidelines.
- E10.4.3 Demolition
- (c) Demolish structures to permit construction of new work as indicated.
  - (d) Remove existing equipment, services, and obstacles where required for refinishing or making good of existing surfaces, and replace as Work progresses.
  - (e) At end of each day's Work, leave Work in safe condition so that no part is in danger of toppling or falling
  - (f) Do not sell or burn materials on Site.
  - (g) 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.
- E10.4.4 Demolition Tolerances
- (h) All demolition shall be done using equipment and procedure to prevent over-breakage of the existing structure.
  - (i) 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.
  - (j) 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.
- E10.4.5 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.
- E10.4.6 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 reinforcing steel, shall be removed from Site and disposed of by the Contractor.
- E10.5 Measurement and Payment
- E10.5.1 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.

## **E11. CONCRETE PIPE REPAIRS**

### **E11.1 Description - Provisional**

Concrete pipe repairs include the provisional internal repairs to 900mm and 1800mm diameter LDS pipes by man entry techniques. The Repairs shall include miscellaneous spall and crack repairs. Concrete Pipe Repair Works shall be carried out at the locations field directed by the Contract Administrator based on the results of the maintenance inspection carried out as described in D20. As required, the Contractor will review the repairs and method of repairs with the Contract Administrator prior to starting the Work.

### **E11.2 Materials**

#### **E11.2.1 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 as 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.

#### **E11.2.2 Concrete**

Patching of smaller repairs to concrete sewers (25mm – 75mm thickness) shall be with a sulphate resistant, non-shrink, cementitious mortar, Sika grout 212 SR or approved equal in accordance with B7.

#### **E11.2.3 Bonding Agents**

Bonding agent shall be Sika Latex R or an approved equal in accordance with B7.

#### **E11.2.4 Water Stop**

Water stop shall be Hydrotite or an approved equal in accordance with B7.

#### **E11.2.5 Other Requirements**

- (a) Water shall be potable water, which shall be imported to the Site.
- (b) All materials shall be delivered to the Site in undamaged, unopened containers bearing the supplier's original labels.
- (c) WHMIS labels on all containers shall conform to Canadian regulations, including English and French risk phrases, proper chemical name, shipping class, packing group and UN number.
- (d) MSDS for all materials shall be used which are manufactured from or contain toluene diisocyanate (TDI), toluene, acetone or methyl ethyl ketone.
- (e) No materials shall be used which are flammable or which display shipping Class 3 red warning labels.
- (f) The Contractor shall keep all materials from freezing as per the Manufacturer's specifications.

### **E11.3 Construction Methods**

#### **E11.3.1 Hazard Assessment and Safe Work Plan**

- (a) Before concrete repairs take place within the sewer, the Contractor shall assess the hazards and prepare a safe work plan in accordance with D10.

#### E11.3.2 Equipment Set Up

- (a) In accordance with the safe work plan for the repair, the Contractor shall set up the required safety equipment and controls to safely perform the Work.
- (b) Specialized equipment to perform the repair Work, such as lights, pressure washers, drills and chipping hammers shall in no way adversely affect the operation of the safety equipment required to perform the Work.
- (c) Subsequent to completion of the repairs the Contractor shall remove all equipment from the sewers and manholes.

#### E11.3.3 Sewer Repairs

- (a) Surface 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 B7) 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 to 100 mm deep, use a non-shrink, cementitious grout; Sika 212 SR (or approved equivalent in accordance with B7). 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.
- (a) 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, Sikadur 33 or approved equivalent in accordance with B7. The ports shall be coated with the same material over the top of the base plate to assure a good seal and stability of the port during the injection process.
  - (iv) Surface seal material with paste adhesive Kemko 022, Sikadur 33 (or approved equivalent in accordance with B7). Paste shall be applied to the face of the crack between injection ports to build a confinement area for the liquid epoxy resin.
  - (v) After curing of the surface seal, a two-component epoxy resin/hardener suitable for the structural repair of cracks and delaminations in concrete; Kemko 038, Sikadur 52 (or approved equivalent in accordance with B7) shall be injected into the crack starting at the lowest injection port. The injection will continue at the same port until there is an appearance of epoxy resin at the next port adjacent to the entry port being pumped. The injection epoxy resin shall be selected based on the thickness of the crack (for hairline cracks Kemko 068 or Sikadur 55 will be used).
  - (vi) When epoxy adhesive travel is indicated by appearance at the next adjacent port, injection can be discontinued on the entry port being pumped and epoxy injection shall be transferred to the next adjacent port where epoxy adhesive has appeared. The first entry port must be plugged. The epoxy injection on any intermediate entry

port being pumped shall not be discontinued unless the injection pressure reaches 150-160 psi or directed by the Contract Administrator. The above steps will be repeated until cracks are completely filled along their length.

- (vii) As soon as the crack is full and all injection ports are blocked, the pump shall be run for several seconds to create a pressure of 100 psi in the crack that will be maintained for one (1) minute. Once the epoxy adhesive in the crack is pressurized and no leaks are observed, the pump shall be disconnected from the port and the injection port shall be plugged.
- (viii) The above steps shall be repeated for all cracks or set of cracks that are connected, until all cracks are injected.
- (ix) For every day that injection work is performed, an Injection Report shall be completed to document type of injection equipment, location, quantity of materials, and amount of crack length injected each day.
- (x) After all injection work is completed and cured, the crack seal shall be removed (after 12 hours) by grinding to obtain a smooth concrete surface.
- (xi) Cleanup work area and demobilize.

#### E11.3.4 Cleanup

All waste shall be cleaned from the site and no waste from the concrete repairs is to enter the downstream LDS pipe.

#### E11.3.5 Deficiencies

If deficiencies are found in the repaired section the Contractor shall bear all costs of correcting the deficiencies including the cost of re-inspection to confirm that the deficiencies are rectified in accordance with these specifications.

### E11.4 Basis of Measurement and Payment

#### E11.4.1 Miscellaneous Concrete Repairs

- (a) Surface repairs will be measured on a square meter area basis and paid for at the Provisional Contract Unit Price for "Surface Repairs". The area to be paid shall be the total square meters of pipe surface repaired in accordance with this Specification, accepted and measured by the Contract Administrator.
- (b) Crack repairs will be measured on a linear meter basis and paid for at the Provisional Contract Unit Price for "Crack Repairs". The area to be paid shall be the total length of crack repair in accordance with this Specification, accepted and measured by the Contract Administrator.

## E12. CAST-IN-PLACE CONCRETE CONSTRUCTION

### E12.1 Description

E12.1.1 This specification will cover construction of cast-in-place concrete and shall supplement, revise and amend CW 2160.

### E12.2 Materials

#### (a) Concrete Mix Design

The Contractor shall be responsible for the design and performance of all concrete mixes supplied under this Specification. Concrete shall be supplied in accordance with the requirements of CSA A23.1-04, with the minimum properties as provided below:

- (i) Concrete Chamber Roof Construction
  - Class of Exposure S-1
  - Maximum Size of Aggregate 19 mm
  - Cement Type Type HS

Maximum Water/Cementing Materials Ratio	0.45
Compressive Strength at 7 Days	20 MPa
Compressive Strength at 56 Days	35 MPa
Slump/Flow	80 mm +/- 20 mm
Air Content	6.5% +/- 1.5%

- (b) Provide a "Mix Design Statement" for each type of concrete to be used certifying constituent materials and mixing proportions to the Contract Administrator at least 2 weeks prior to delivery of Concrete to the Site. Supply reasonable evidence to the Contract Administrator that the mix proportions selected will produce concrete meeting the specified strength, workability and yield.
- (c) Admixtures
  - (i) All admixtures shall be compatible.
  - (ii) Air entraining agent shall meet ASTM C260.
  - (iii) Chemical water reducing admixtures shall meet ASTM C494.
- (d) Grout
  - (i) Grout shall be Sika Grout 212 SR or approved equivalent in accordance with B7
- (e) Reinforcing Steel
  - (i) Bar accessories:
    - To be made of a non-corroding material
    - Shall not stain, blemish or spall the concrete surface for the life of the concrete
    - Shall be approved by the Contract Administrator
    - Bar chairs shall be PVC.
- (f) Bonding Agent shall be Sika Latex R, Acryl 60, Intralok or approved equivalent in accordance with B7.
- (g) Embedded cast iron wall thimbles shall be in accordance with E15 and E16 of this specification.
- (h) Shop Drawings:
  - (i) Provide shop drawings in accordance with E5 of this specification.
  - (ii) Submit shop drawings for reinforcing steel a minimum of two (2) weeks prior to the fabrication of any reinforcing steel.

### E12.3 Construction Methods

#### E12.3.1 Construction Method Submission

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

#### E12.3.2 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.

#### E12.4 Measurement and Payment

- E12.4.1 Construction of the 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.

### **E13. PRE-CAST CONCRETE MANHOLE CONSTRUCTION**

#### E13.1 Description

- E13.1.1 This specification shall cover the construction of the pre-cast concrete manhole in line with the existing 900mm diameter outlet pipe, immediately upstream of the existing outlet chamber.

#### E13.2 Materials

- (a) Pre-cast concrete manhole sections shall be in accordance with section 2.7 of CW 2130.
- (b) Aluminum ladder rungs shall be included in accordance with CW 2130.
- (c) Backfill shall be in accordance with CW 2030.

#### E13.3 Submittals

- (a) Submit shop drawings of the pre-cast manhole, reducer section and all associated appurtenances in accordance with E5 of this Specification.

#### E13.4 Construction Methods

- (a) Install pre-cast concrete manhole as shown on the Drawings in accordance with Clause 3.8 and 3.9 of CW 2130.
- (b) The manhole base will consist of cast-in-place concrete as outlined in the Drawings.
- (c) The manhole roof will consist of cast-in-place concrete as outlined in the Drawings.

#### E13.5 Measurement and Payment

- E13.5.1 Construction of the pre-cast manhole will be measured on a lump sum basis and paid for at the Contract Lump Sum Price for "Pre-cast Concrete Manhole." Said price shall be payment in full for supplying all material and for performing all operations herein described and all other items incidental to the work included in this specification.

### **E14. METAL FABRICATIONS**

#### E14.1 Description

##### E14.1.1 General

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

#### E14.2 Materials

- E14.2.1 All material shall be of a type acceptable to the Contract Administrator, and shall be subject to inspection and testing by the Contract Administrator.
- E14.2.2 Material intended for use in the various assemblies shall be new, straight, and clean with sharply defined profiles.

- E14.2.3 Steel Sections and Plates: to CAN/CSA G40.20/G40.21, Grade 300 W, except W, HP AND HSS sections, which shall be Grade 350 W.
- E14.2.4 Steel Pipe: to ASTM A53/A53M, seamless, galvanized, as specified by item.
- E14.2.5 Welding materials: to CSA W59.
- E14.2.6 Hot dipped galvanized steel repair material: Galvalloy and Gal-Viz
- E14.2.7 Stud Anchors: to ASTM A108, Grade 1020.
- E14.2.8 Aluminum: to CAN/CSA S157 and the Aluminum Association 'Specifications for Aluminum Structures'. Aluminum for plates shall be Type 6061-T651. Aluminum plate shall have an approved raised oval or multi-grip pattern.
- E14.2.9 Isolation sleeves shall be "Nyltite" – headed sleeves as manufactured by SPAE-Naur of Kitchener, Ontario, or approved equal.
- E14.2.10 Anchor bolts and fasteners: ASTM A276, Type 316 stainless steel, of ample section to safely withstand the forces created by operation of the equipment or the load to which they may be subjected.
- E14.2.11 Paint: Amerlock 2 Epoxy or approved equivalent in accordance with B7; Colour: neutral grey.
- E14.3 Construction Methods
- E14.3.1 Submittals
- (a) The Contractor shall submit the qualifications of the fabricator and welders to the Contract Administrator for acceptance. Submit shop drawings in accordance with E5 clearly indicating material, core thickness, finishes, connections, joints, methods of anchorage, number of anchors, supports, reinforcement, details and accessories. Indicate field measurements on shop drawings.
- E14.3.2 Fabrications
- (a) Fabricate Work square, true, straight and accurate to required size, with joints close fitted and properly secured. Assemble Work in such a way that no disfigurements show in the finished Work, or impair the strength.
- (b) Confirm measurements for all fabrications before fabricating.
- (c) Cut aluminum plate with edges straight and true, as far as practical, maintain the continuity of the pattern at abutting edges.
- (d) Pieces shall be of the sizes indicated on the Drawings and shall not be built up from scrap pieces. Confirm sizes with field measurements,
- (e) Where possible, fit Work and shop assemble, ready for erection.
- (f) Remove and grind smooth burrs, filings, sharp protrusions, and projections from metal fabrications to prevent possible injury. Correct any dangerous or potential harmful installations as directed by the Contract Administrator.
- (g) Angle frames shall be of the same material as the cover plate (except for existing frames designated on the drawings for re-use), and cover plates shall be hinged and be supplied with lifting handles, as shown on the Drawings. Exterior covers shall be supplied with a hasp for a padlock.
- (h) All steel welding shall conform to CSA Standard W.59. Fabricator shall be fully approved by the Canadian Welding Bureau, in conformance with CSA Standard W.47.1. Welding shall be done by currently licensed welders only.
- (i) All aluminum welding shall be in accordance with the requirements of CSA W59.2. The fabricator shall be fully certified in conformance with CSA Standard W47.2. All welding shall be done in a licensed welding shop, and no field welding will be permitted unless approved in writing, in advance, by the Contract Administrator.

- (j) Ensure exposed welds are continuous for length of each joint. File or grind exposed welds smooth and flush.
- (k) Seal exterior steel fabrications to provide corrosion protection in accordance with CAN3-S16.1.
- (l) Use self-tapping shake-proof flat-headed screws on items requiring assembly by screws.

#### E14.3.3 Coatings

- (a) Surface prepare steel fabrications requiring epoxy coating to SSPC SP6 (Commercial Blast).
- (b) Apply two coats of Amerlock 2 Epoxy paint, 150 µm per coat dry film thickness. Colour: Neutral Grey.
- (c) Recoating and curing times shall be as per coating manufacturers recommendations.

#### E14.3.4 Erection

- (a) Do steel welding Work in accordance with CSA W59 and aluminum welding Work in accordance with CSA W59.2
- (b) Erect metal Work in accordance with reviewed shop drawings, square, plumb, straight, and true, accurately fitted, with tight joints and intersections.
- (c) Provide suitable means of anchorage acceptable to Contract Administrator such as dowels, anchor clips, bar anchors, expansion bolts and shields, and toggles where not specifically indicated on the Drawings.
- (d) Provide components for building in accordance with shop drawings and schedule.
- (e) Make field connections with bolts to CAN/CSA-S16, or weld.
- (f) Touch-up rivets, bolts and burnt or scratched surfaces that are to receive paint finish, with zinc primer after completion of erection.
- (g) Repair damaged galvanized surfaces and field welds with self-fluxing, low temperature, zinc-based alloy rods in accordance with ASTM A780, Repair of Damaged Hot Dip Galvanizing Coatings. The general procedure shall be to allow a small amount of the repair alloy to flow then spread by brushing briskly with a wire brush. Brushing shall be sufficient to obtain a bright finish. Repeat process three times to ensure a proper thickness is achieved. Temperatures shall be kept below 177°C (350°F) at all times. All heating of structural steel Work shall be done in the presence of the Contract Administrator.
- (h) Install access hatch frames square and level at the locations show on the Drawings. Embed anchors in concrete as shown on the Drawings. Install covers and adjust hardware to proper function.
- (i) All aluminum surfaces in contact with concrete shall be isolated using alkali resistant bituminous paint meeting the requirements of CGSB 31-GP-3M.
- (j) Install electrochemical isolation gaskets and sleeves to electrically isolate dissimilar metals.

#### E14.4 Measurement and Payment

- E14.4.1 Supply, fabrication, transportation, handling, delivery and placement of metal fabrications will be paid for at the Contract Lump Sum Price for "Metal Fabrications."

### **E15. CAST IRON SLIDE GATE**

#### E15.1 Description

- (a) This Specification shall cover the installation and testing of cast iron slide gates, wall thimbles, mechanical lift operator, stems, wall brackets, and accessories.
- (b) The City of Winnipeg has procured these items under a separate Tender: Bid Opportunity No. 802-2014. Delivery of the thimble is expected by December 15<sup>th</sup>, 2014. Delivery of the



gate, mechanical lift operator, stems and miscellaneous hardware is expected on January 15<sup>th</sup>, 2015. The contractor will be responsible for picking up these materials and transporting them to site. Materials will be stored at 360 McPhillips Street (beside the Wastewater Collection Building). The Contract Administrator will notify the Contractor upon arrival of the equipment.

## E15.2 Construction Methods

### E15.2.1 Installation

- (a) Install the cast iron slide gate, wall thimbles, 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.

### E15.2.2 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.
- (b) Arrange for a qualified field representative of the slide gate supplier/manufacturer to be present during field testing.
- (c) The leakage test for seating head will be performed by closing the slide gate and filling the outlet chamber to the specified design seating head and measuring the leakage rate through the slide gate. The leakage test shall be completed concurrently with the flap gate leakage test.
- (d) Water used for testing purposes must be chlorine free. Potable drinking water shall be de-chlorinated if used for testing purposes.
- (e) The Contractor will be responsible to pump water from the SRB or supply potable water from a delivery truck or hydrant into the chamber for testing purposes.
- (f) If a gate fails the field leakage test, the slide gate supplier/manufacturer's field representative shall undertake adjustments, replacements or other modifications and the Contractor shall repeat the test. The sequence shall be repeated until the gate passes no more than the allowable leakage rate.

## E15.3 Measurement and Payment

- (a) Installation and testing of the cast iron slide gate, wall thimble, mechanical lift operator, stem, wall brackets and accessories will be paid for at the Contract Unit Price for "Installation and Field Testing of Slide Gate, Thimble and Operator".
- (b) 85% of the Installation and Field Testing of Slide Gate, Thimbles and Operator will be paid on upon installation.
- (c) The remaining 15% of the Installation and Field Testing of Slide Gate, Thimbles and Operator will be paid on the successful field testing of the gate.

## E16. CAST IRON FLAP GATE

### E16.1 Description

- (a) This Specification shall cover the installation and testing of cast iron flap gates and wall thimbles.
- (b) The City of Winnipeg has procured these items under a separate Tender: Bid Opportunity No. 802-2014. Delivery of the thimble is expected on December 15<sup>th</sup>, 2014. Delivery of the gate and miscellaneous hardware is expected on January 15<sup>th</sup>, 2015. The Contractor will be responsible for picking up these materials and transporting them to site. Materials will be stored at 360 McPhillips Street (beside the Wastewater Collection Building). The Contract Administrator will notify the Contractor upon arrival of the equipment.

## E16.2 Construction Methods

### E16.2.1 Installation

- (a) Install cast iron flap gates and wall thimbles as shown on the Drawings and in accordance with the manufacturer's recommendations.
- (b) Make arrangements to have a qualified field representative of the flap gate supplier/manufacturer inspect the installation during and after completion and provide a Certificate of Satisfactory Installation to the Contract Administrator.

### E16.2.2 Field Testing

- (a) Perform leakage tests in the Contract Administrator's presence once flap gates have been installed to ensure compliance with the allowable leakage rate of 1.24L/min per metre of seated perimeter at any head.
- (b) Arrange for a qualified field representative of the flap gate supplier/manufacturer to be present during field testing.
- (c) The test for seating head will be performed by closing the flap gate and slide gate, filling the outlet chamber between the gates with water to the specified head and measuring the leakage rate through the gates. The leakage test shall be completed concurrently with the slide gate leakage test.
- (d) Water used for testing purposes must be chlorine free. Potable drinking water shall be de-chlorinated if used for testing purposes.
- (e) The Contractor will be responsible to pump water from the upstream SRB or supply water from a delivery truck or hydrant into the chamber for testing purposes.
- (f) If a gate fails the field leakage test, the slide gate supplier/manufacturer's field representative shall undertake adjustments, replacements or other modifications and the Contractor shall repeat the test. The sequence shall be repeated until the gate passes no more than the allowable leakage rate.

## E16.3 Measurement and Payment

- (a) Installation and testing of the cast iron flap gate and associated wall thimble will be paid for at the Contract Unit Price for "Installation and Field Testing of Flap Gates and Thimbles".
- (b) 85% of the Installation and Field Testing of Flap Gate and Thimbles will be paid on upon installation.
- (c) The remaining 15% of the Installation and Field Testing of Flap Gate and Thimbles will be paid on the successful field testing of the gate.

## **E17. INSTALLATION OF PAVING STONE**

### E17.1 Description

E17.1.1 This specification shall cover the extension of the turf pavers to the new manhole.

### E17.2 Materials

- (a) Concrete turf pavers to be Turfstone Pavers by Barkman Concrete, or approved equivalent in accordance with B7 to match existing.
- (b) Sub-base and base course shall be in accordance with CW 3110.
- (c) Grass Seed Mixture shall be in accordance with CW 3520

### E17.3 Construction Methods

- (a) Subgrade preparation shall be in accordance with CW 3110.
- (b) Install Turfstone Pavers as shown on the Drawings and in accordance with CW 3330. The Contractor shall ensure the manufacturer's installation instructions are consistent with this Specification.

- (c) Fill paver voids with seeded topsoil, sod plugs, or a mixture of both to approximately 25mm below the top of the paver surface. The sod or topsoil mix must be fertilized and kept moist during root establishment (minimum of 3 weeks).

**E17.4 Measurement and Payment**

- E17.4.1 Supply, placement and maintenance of the Turfstone Paver Installation will be measured on an area basis. The area to be paid for shall be the total number of square metres placed and maintained in accordance with this Specification and accepted by the Contract Administrator. No payment will be made for Turfstone Pavers placed outside of the limits of placement as directed by the Contract Administrator.

**E18. CASH ALLOWANCE FOR REPAIRS**

**E18.1 Description**

- (a) The Cash Allowance for Repairs is intended to be used for remedial repairs directed and authorized by the Contract Administrator.
- (b) The City reserves the right to delete any or all of the Cash Allowance from the contract if the Work intended to be covered by the Cash Allowance is not required, or if the Works intended are found to be more extensive than the provisional Cash Allowance.

**E18.2 Method of Measurement and Basis of Payment**

- (a) Cost of repairs shall be evaluated by the methods outlined in C7.4, and a Change Order prepared by the Contract Administrator. Cost of the Change Order will be paid on the Progress Estimate and deducted from the Cash Allowance. If the valuation of the authorized work exceeds the Value of the Cash Allowance, the Contract Value will be adjusted by the shortfall.

## PART F - SECURITY CLEARANCE

### F1. SECURITY CLEARANCE

- F1.1 Each individual proposed to perform the following portions of the Work:
- (a) any Work on private property;
  - (b) communicating with residents and homeowners in person or by telephone;
- F1.1.1 Each Individual shall be required to obtain a Criminal Record Search Certificate from the police service having jurisdiction at his/her place of residence. Or
- (a) BackCheck, forms to be completed can be found on the website at: <http://www.backcheck.net/> ; or
  - (b) Commissionaires (Manitoba Division), forms to be completed can be found on the website at: <http://www.commissionaires.mb.ca/> .
- F1.2 The following is a link to information for obtaining the Criminal Record Search certificate from the City of Winnipeg Police Service.  
[http://winnipeg.ca/police/pr/info\\_request.stm#crim\\_record\\_search](http://winnipeg.ca/police/pr/info_request.stm#crim_record_search)
- F1.2.1 The Criminal Record Search shall include a Vulnerable Sector Screening. This can be obtained by following the link below  
[http://winnipeg.ca/police/pr/info\\_request.stm#crim\\_record\\_search](http://winnipeg.ca/police/pr/info_request.stm#crim_record_search)
- (a) Individuals will need to state in the form, that they may be working in City of Winnipeg pools, libraries and community centres;
- F1.2.2 The original Criminal Record Search Certificate (Form P-253) will be provided by the Winnipeg Police Service to the individual applicant. The original has a validation sticker from the Winnipeg Police Service in the top right hand corner. The applicant shall:
- (a) Provide the original Criminal Record Search Certificate (Form P-253) to the Contract Administrator.
- F1.3 Prior to the commencement of any Work specified in F1.1, and during the term of the Contract if additional or replacement individuals are proposed to perform Work, the Contractor shall supply the Contract Administrator with a Criminal Record Search Certificate obtained not earlier than one (1) year prior to the Submission Deadline, or a certified true copy thereof, for each individual proposed to perform such Work.
- F1.4 Any individual for whom a Criminal Record Search Certificate is not provided, or for whom a Criminal Record Search Certificate indicates any convictions or pending charges related to property offences or crimes against another person will not be permitted to perform any Work specified in F1.1.
- F1.5 Any Criminal Record Search Certificate obtained thereby will be deemed valid for the duration of the Contract subject to a repeated records search as hereinafter specified.
- F1.6 Notwithstanding the foregoing, at any time during the term of the Contract, the City may, at its sole discretion and acting reasonably, require an updated criminal records search. Any individual who fails to provide a satisfactory Criminal Record Search Certificate as a result of a repeated criminal records search will not be permitted to continue to perform any Work specified in F1.1.