



THE CITY OF WINNIPEG

BID OPPORTUNITY

BID OPPORTUNITY NO. 62-2016

**CONSTRUCTION OF TRUNK SEWER AND LDS SEPARATION – COCKBURN &
CALROSSIE SEWER RELIEF WORKS (CONTRACT 2)**

BIDDERS PLEASE SEE NOTE D19

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PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

B1.1 CONSTRUCTION OF TRUNK SEWER AND LDS SEPARATION – COCKBURN & CALROSSIE SEWER RELIEF WORKS (CONTRACT 2)

B2. SUBMISSION DEADLINE

B2.1 The Submission Deadline is 12:00 noon Winnipeg time, March 22, 2016.

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 Bidder may view the Site 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 B17.
- 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.

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 B17.1(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.
- B10.2 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. DISCLOSURE

- B11.1 Various Persons provided information or services with respect to this Work. In the City's opinion, this relationship or association does not create a conflict of interest because of this full

disclosure. Where applicable, additional material available as a result of contact with these Persons is listed below.

B11.2 The Persons are:

- (a) N/A

B12. QUALIFICATION

B12.1 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.

B12.2 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>

B12.3 The Bidder and/or any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:

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

B12.4 Further to B12.3(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/>).

B12.5 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.

B12.6 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.

B13. BID SECURITY

B13.1 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.

B13.1.1 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.

B13.1.2 All signatures on bid securities shall be original.

B13.1.3 The Bidder shall sign the Bid Bond.

B13.1.4 The Surety shall sign and affix its corporate seal on the Bid Bond and the Agreement to Bond.

B13.2 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.

B13.2.1 Where the bid security provided by the successful Bidder is in the form of a certified cheque or draft pursuant to B13.1(c), it will be deposited and retained by the City as the performance security and no further submission is required.

B13.2.2 The City will not pay any interest on certified cheques or drafts furnished as bid security or subsequently retained as performance security.

B13.3 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.

B14. OPENING OF BIDS AND RELEASE OF INFORMATION

B14.1 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.

B14.1.1 Bidders or their representatives may attend.

B14.1.2 Bids determined by the Manager of Materials, or his/her designate, to not include the bid security specified in B13 will not be read out.

B14.2 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/>

- B14.3 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/>
- B14.4 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.

B15. IRREVOCABLE BID

- B15.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 11 of Form A: Bid.
- B15.2 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.

B16. WITHDRAWAL OF BIDS

- B16.1 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.
- B16.1.1 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.
- B16.1.2 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.
- B16.1.3 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 B16.1.3(b), declare the Bid withdrawn.
- B16.2 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 B15.2 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.

B17. EVALUATION OF BIDS

- B17.1 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 B12 (pass/fail);
 - (c) Total Evaluated Bid Price;

(d) economic analysis of any approved alternative pursuant to B7.

B17.2 Further to B17.1(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.

B17.3 Further to B17.1(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.

B17.4 Further to B17.1(c), the Total Bid Price shall be the sum of the quantities multiplied by the unit prices for each item shown on either of Form B: Prices.

B17.4.1 Further to B17.1(a), in the event that a unit price is not provided on either 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.

B17.4.2 Further to B17.1(c) the Evaluated Total Bid Price shall include Site Occupancy Costs shown on either Form B: Prices. Site Occupancy Costs shall be the Initial Span bid in the Charged Days, multiplied by the Site Occupancy Unit Price listed in Form B: Prices

B18. AWARD OF CONTRACT

B18.1 The City will give notice of the award of the Contract or will give notice that no award will be made.

B18.2 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.

B18.2.1 Without limiting the generality of B18.2, 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.

B18.3 The Work of this Contract is contingent upon Council approval of sufficient funding in the 2016 Capital Budget. If the Capital Budget approved by Council does not include sufficient funding for the Work, the City will have no obligation to award a Contract.

B18.4 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 B17.

B18.4.1 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
- 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 land drainage sewers in accordance with the applicable Specifications and Drawings.

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

- (a) Construction of land drainage sewers ranging in size from 300mm to 1200mm diameter by trenchless installation methods.
- (b) Connection to the existing Byng Place gate chamber.
- (c) Abandonment of existing catch basin connections to combined sewers.
- (d) Connection of existing catch basins to new land drainage sewers.
- (e) Trenchless crossing of the CN Letteulier rail line along Byng Place west of Pembina Highway.
- (f) Surface restoration and related works.

D3. DEFINITIONS

D3.1 When used in this Bid Opportunity:

- (a) **“Site Occupancy”** means a system for monitoring and administering progress of the Work. Site occupancy involves the Contract Administrator setting a completion date for the Work along with a daily Contract Administration cost (Site Occupancy cost) for each Working Day the contractor is able to work. The Contractor bids the number of anticipated Working Days to complete the Work, and depending on the actual Working Days to complete the Work, there may be a bonus payment or deduction applied to the final payment.
- (b) **“Charged Day”** means the unit of measurement of time for Site Occupancy. For purposes of assessing Charged Days, a Charged Day will be equivalent to a Working Day as defined in C1.1 (jj) and amended in D16.
- (c) **“Initial Span”** means the number of Charged Days bid by the Contractor for Site Occupancy on Form B: Prices.
- (d) **“Final Span”** means the number of Charged Days assessed for Site Occupancy as calculated pursuant to D19.3.

D4. CONTRACT ADMINISTRATOR

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

Ray Offman, M.Sc., (CE), P.Eng.
Infrastructure Engineer/ Project Manager

Telephone No. 204 896-1209
Facsimile No. 204 896-0754

D4.2 At the pre-construction meeting, Ray Offman 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

D7.5 Bids Submissions must be submitted to the address in B8.8

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 B13.1(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 the General Conditions for the return of the executed Contract.
- D14.2 The detailed work schedule shall consist of the following:
- (a) A critical path method (CPM) schedule for the work; and
 - (b) A Gantt chart for the Work based on the CPM schedule;
- as acceptable by the Contract Administrator.
- D14.3 Further to D14.2(a), the CPM schedule shall clearly identify start and completion dates of the following Work items:
- (a) Commencement Date
 - (b) Tie-in to existing Byng Place gate chamber
 - (c) Shaft Construction
 - (d) Sewer Construction (each Manhole to Manhole segment)
 - (e) Surface restoration
 - (f) Substantial Performance
 - (g) Total Performance.

- D14.4 Further to D14.2(b), the Gantt chart shall, on a weekly basis, show the time required to carry out the Work of each trade or specification division. Time shall be on the horizontal axis and the type of trade shall be on the vertical axis.
- D14.5 The Contractor shall update the schedule to the Contract Administrator prior to each weekly construction site meeting for review and discussion at the meetings.

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 Contractor shall commence the Work on the Site no later than the date of Total Performance as indicated in D18, less the number of Working Days bid as Initial Span for Site Occupancy and indicated on Form B: Prices. For purposes of establishing this date, Charged Days will be applied assuming five (5) charged days per calendar week, and not including Statutory Holidays or the period between Substantial Performance as stated in D17 and May 15, 2017. If the Contractor has not commenced work by this date, Charged Days will be assessed for each day following this date, at the rate of five (5) Charged Days per calendar week, not including Statutory Holidays.

D16. WORKING DAYS

- D16.1 Further to C1.1(jj), the Contract Administrator's determination of whether or not atmospheric and Site conditions are such that a Working Day is deemed to have elapsed may be based at one time on one type of work while at another time a Working Day may be based on another type of work. When more than one type of major work is involved, the quantity of equipment that must be able to work in order to meet the requirements of a Working Day may vary considerably from that specified in the General Conditions.
- D16.2 Notwithstanding C1.1(jj), a Working Day includes a Saturday, Sunday, or a statutory or civic holiday when the Contractor chooses to undertake work requiring the presence of the Contract Administrator and/or City resources.
- D16.3 In the event that incidental work is behind schedule which, in the opinion of the Contract Administrator, should have been or could have been carried out by the Contractor in conjunction with or immediately following work of a major type, the City hereby reserves the right to charge Working Days on the incidental work until such time as it is up to schedule.
- D16.4 When the major type of work involves restoration of the site to the condition it was prior to rainfall, Working Days shall not be charged.

D16.5 The Contract Administrator will furnish the Contractor with a weekly record for each major type of work, the equipment used, the time it worked and Working Days charged. This record will be provided at regular site meetings.

D17. SUBSTANTIAL PERFORMANCE

D17.1 The Contractor shall achieve Substantial Performance by February 20, 2017.

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 30, 2017.

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. SITE OCCUPANCY

D19.1 Definitions

D19.1.1 Wherever the following terms are used, the intent and meaning will be interpreted as follows:

- (a) Charged Days: Means the unit of measurement for time of Site Occupancy. For the purpose of assessing Charged Days, a Charged Day will be equivalent to a Working Day as defined in C1.1 (jj) and amended in D15.3.
- (b) Initial Span: Means the number of Charged Days bid by the Contractor for Site Occupancy on Form B: Prices.
- (c) Final Span: Means the number of Charged Days assessed for Site Occupancy as calculated pursuant to D19.2.1.

D19.2 Measurement

D19.2.1 Time shall be of the essence of the Contract. The Contractor shall provide the necessary material, labour and equipment to ensure that the Works will be completed within the consecutive amount of Charged Days Bid for Initial Span for Site Occupancy, and in no case later than the date specified for Substantial Performance for all work excluding permanent restoration and in no case later than the date specified for Total Performance for all Works. Failure to complete the Work within the Bid number of Charged Days will result in the deduction of Site Occupancy costs, as further defined herein. The total amount of Charged Days will be measures in whole numbers.

D19.2.2 Charged Days will be assessed for every day except for the following:

- (a) Days prior to the Contractor starting work on a stage of the Contract. The Contractor shall provide a minimum of 14 days' notice to the City for commencement of the work. Failure of the Contractor to commence work as indicated, in the opinion of the Contract Administrator, may result in the assessment of Charged Days equivalent to the estimated costs incurred to the City;
- (b) Days not worked due to Force Majeure.
- (c) Days between Substantial Performance and May 15, 2017, should the date of Substantial Performance be achieved at a time when permanent pavement works has been suspended as a result of inclement seasonal weather.

D19.2.3 Should Substantial Performance be achieved at a date when permanent restorations can take place, Charged Days will be assessed until such time that permanent restorations are suspended.

D19.3 Final Span

D19.3.1 Extensions to the Initial Span will determine the Final Span and will be calculated as follows:

- (a) Final Span = $(F \div A) \times I$
- (b) Where: Final Span = adjusted number of Charged Days allowed (a fraction of a day will be rounded up to a full day);
 - (i) F = Final Contract Amount (excluding Site Occupancy)
 - (ii) I = Initial Span of the Contract
 - (iii) A = Total amount at Award (excluding Site Occupancy)

D19.4 Site Occupancy Payment

D19.4.1 Payment for Site Occupancy for the Contract will be made as follows:

- (a) If the number of Charged Days equals the Final Span, no payment or deduction will be made
- (b) If the number of Charged Days is less than the Final Span, a payment equal to the Contract Unit Price per Charged Day multiplied by the difference between the Final Span and the actual number of Charged Days, to a maximum amount of two percent (2%) of the Total Bid Price, will be made to the Contractor
- (c) If the number of Charged Days exceeds the Final Span, a deduction equal to the Contract Unit Price per Charged Day multiplied by the difference between the actual number of Charged Days and the Final Span will be made from the payment to the Contractor.

D20. SCHEDULED MAINTENANCE

D20.1 The Contractor shall perform the following scheduled maintenance in the manner and within the time periods required by the Specifications:

- (a) Sodding as specified in CW3510;
- (b) Maintenance of GrassPave access road following manufacturers recommendations until well established;

D20.2 Determination of Substantial Performance and Total Performance shall be exclusive of scheduled maintenance identified herein. All scheduled maintenance shall be completed prior to the expiration of the warranty period. Where the scheduled maintenance cannot be completed during the warranty period, the warranty period shall be extended for such period of time as it takes the Contractor to complete the scheduled maintenance.

CONTROL OF WORK

D21. JOB MEETINGS

- D21.1 Regular weekly job meetings will be held at the Site. These meetings shall be attended by a minimum of one representative of the Contract Administrator, one representative of the City and one representative of the Contractor. Each representative shall be a responsible person capable of expressing the position of the Contract Administrator, the City and the Contractor respectively on any matter discussed at the meeting including the Work schedule and the need to make any revisions to the Work schedule. The progress of the Work will be reviewed at each of these meetings.
- 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. COORDINATION WITH OTHERS

- D22.1 Work by others on or near the Site will include but not necessarily be limited to:
- (a) Manitoba Hydro – relocation of infrastructure in Parker Lands
 - (b) City of Winnipeg Parks and Open Space – Maintenance of Toilers Park.
 - (c) City of Winnipeg Traffic Services Branch - Erection and maintenance of temporary traffic control for this project.
 - (d) City of Winnipeg – Southwest Bus Rapid Transit Project – details to be determined.

D23. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)

- D23.1 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).

D24. THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA) – QUALIFICATIONS

- D24.1 Further to B12.4, 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 B12.4.

D25. TRUCK TRAVEL ROUTES

- D25.1 Further to clauses 3.5 of CW 1130:
- (a) Provide truck travel routes to the Contract Administrator for approval at least seven (7) calendar days prior to any truck traffic entering the work areas.
 - (i) Travel routes shall minimize the number of passes over the streets where work is planned.
 - (ii) Coordinate travel routes with shaft locations to minimize the number of passes required.
 - (b) Construction traffic on Byng Place east of Pembina Highway will be limited to the segment of roadway under which pipe is being installed. Damage to this street segment that is attributed to not adhering to this routing will be repaired to an agreed upon state at the Contractor's expense. The segments are as follows:
 - (i) Segment 1 – Riverside Drive to midpoint
 - (ii) Segment 2 – midpoint to Pembina Highway

D26. TRAFFIC CONTROL AND MANAGEMENT

D26.1 Further to clauses 3.6 and 3.7 of CW 1130:

- (a) Where directed, the Contractor shall construct and maintain temporary asphalt ramps to alleviate vertical pavement obstructions such as manholes and planning drop-offs to the satisfaction of the Contract Administrator. Payment shall be in accordance with CW 3410.
- (b) In accordance with the Manual of Temporary Traffic Control in Work Areas on City Streets, the Contractor ("Agency" in the manual) shall make arrangements with the Traffic Services Branch of the City of Winnipeg to place all temporary regulatory signs. The Contractor shall bear all costs associated with the placement of temporary traffic control devices by the Traffic Services Branch of the City of Winnipeg in connection with the works undertaken by the Contractor.

D26.2 Further to Section 3.7 of CW 1130 of the Site Requirements the Contractor shall be responsible to redirect and maintain traffic with appropriate signing in accordance with The City of Winnipeg. "Manual of Temporary Traffic Control in Work Areas on City Streets" at all times during construction as follows:

- (a) Residential Streets: No traffic access will be allowed.
- (b) Intersecting street, private approach and lane access shall be maintained at all times.
- (c) Pembina Highway
 - (i) All northbound and southbound lanes to remain open during peak AM and PM hours;
 - (ii) No more than one lane in each direction may be closed during off peak hours; and
 - (iii) Maintain turning movement for Winnipeg Transit buses west onto Byng place from southbound Pembina Highway.

D26.3 The Contractor shall be responsible for all signage including but not limited to lane diversions, lane divisions, and general construction barricades, except for that signage identified in the Manual of Temporary Traffic Control in Work Areas on City Streets as being the responsibility of the Public Works Department, Traffic Services Branch. The Contractor will provide the City and Contract Administrator a suitable Traffic Accommodation Strategy covering all the details for traffic management (cones and signage etc.) in each street at least seven (7) business days prior to commencement of any lane closures.

D26.4 The Contractor shall not interfere with traffic signals. All modification of traffic signals shall be done by the Public Works Department, Traffic Signals Branch.

D26.5 The Contractor shall be responsible for contacting Public Works Department, Traffic Management Branch Lane Closures via the web form at winnipeg.ca/publicworks/trafficControl/laneClosures/ at least three (3) business days prior to the commencement of any lane closures on Regional Streets. The Contractor shall also be responsible for reporting any changes to lane closure locations or commencement and/or completion dates to the aforementioned contact.

D26.6 Further to clause 3.7 of CW 1130, for Local / Non-Regional streets (Heatherdale Avenue, Parker Avenue, Rockman Street, Byng Place and Riverside Drive):

D26.6.1 The Contractor shall sign the street "Road Closed – No Through Traffic".

D26.6.2 "Road Closed Local Access Only" in accordance with the Manual Temporary Traffic Control.

D26.6.3 Bus access to the Windermere Terminal Bus Loop west of Pembina Highway between Byng Place and Windermere Avenue shall be maintained at all times.

D26.6.4 Intersecting street and private approach access shall be maintained at all times.

D26.7 Should the Contractor be unable to maintain an existing access to a residence or business, he/she shall review the planned disruption with the business or 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

D26.8 The Contractor shall not park company or private vehicles inside the barricaded work zone in a manner that will block sightlines for vehicles and pedestrians approaching and crossing.

D26.9 Pedestrian and ambulance/ emergency vehicle access must be maintained at all times.

D27. PEDESTRIAN SAFETY

D27.1 Further to Section 3.6 of CW 1130 of the Site Requirements, the Contractor shall maintain safe pedestrian crossing at intersections at all times. If possible, only one pedestrian crossing at an intersection is to be blocked by construction at any one time. If more than one pedestrian crossing is blocked by construction at an intersection at the same time the Contractor shall provide flag persons to safely escort pedestrians across the intersection. The Contractor shall leave pedestrian crossing locations safe and free of equipment that may hamper pedestrians when no construction activities are being performed at a particular crossing location.

D27.2 Temporary metal secure fencing or alternative as approved by the Contract Administrator shall be installed at all open excavations, trench cages, cans and shafts for the project duration. The Contractor shall be responsible for maintaining the fence in a proper working condition. No measurement for payment shall be made for this work.

D28. WATER USE

D28.1 Charges incurred for the permits and water meters shall be paid for by the Contractor when taken out. The Contractor shall forward the invoice to the Contract Administrator for reimbursement. The billing for water usage sent to the Contractor shall be forwarded to the Contract Administrator for payment. The Bid Opportunity number shall be noted on each permit.

D29. CONFINED SPACE ENTRY

D29.1 The Contractor's attention is drawn to the Province of Manitoba Workplace Safety and Health Act ("the Act"), and the Regulations and Guidelines there-under pertaining to Confined Entry Work, and in particular the requirements for conducting hazard/risk assessment and providing personal protective equipment (PPE).

D29.2 The Contractor shall assist and provide Supplied Air Breathing Apparatus conforming to the requirements of the Act, Regulations and Guidelines for the use of the Contract Administrator where confined entry is required to allow for inspection of the Work.

MEASUREMENT AND PAYMENT

D30. PAYMENT

D30.1 Further to C12, the City may at its option pay the Contractor by direct deposit to the Contractor's banking institution.

D30.2 Further to D19, no payment will be made for Site Occupancy, other than as set out in D19.4. Site Occupancy Amount on Form B: Prices will be used for evaluation of Bids.

WARRANTY

D31. WARRANTY

D31.1 Warranty is as stated in C13 of the G.C.

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. 62-2016

CONSTRUCTION OF TRUNK SEWER AND LDS SEPARATION – COCKBURN & CALROSSIE SEWER RELIEF WORKS (CONTRACT 2)

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. 62-2016

CONSTRUCTION OF TRUNK SEWER AND LDS SEPARATION – COCKBURN & CALROSSIE
SEWER RELIEF WORKS (CONTRACT 2)

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>Drawing No.</u>	<u>Drawing Name/Title</u>
LD-7799	Cover Sheet
LD-7800	General Plan and Manhole Schedule
LD-7801	Derek Street - From Sta 1+000 to Heatherdale Av
LD-7802	Heatherdale Avenue - From Derek St to Sta 1+170
LD-7803	Heatherdale Avenue - From Sta 1+170 to Rockman St
LD-7804	Rockman Street - From Heatherdale Av to Sta 1+340
LD-7805	Rockman Street - From Sta 1+340 to Sta 1+440
LD-7806	Rockman Street - From Sta 1+440 to Byng Place
LD-7807	Byng Place - From Rockman St to Sta 1+650
LD-7808	Byng Place - CNR Crossing
LD-7809	Byng Place - Pembina Highway Crossing
LD-7810	Byng Place - From Sta 1+830 to Sta 1+930
LD-7811	Byng Place - From Sta 1+930 to Sta 2+040
LD-7812	Byng Place - From Sta 2+040 to Sta 2+150
LD-7813	Byng Place - From Sta 2+150 to MH 12
LD-7814	Byng Place - From MH 12 to Existing Gate Chamber
LD-7815	Parker Avenue - From Sta 0+900 to Sta 1+110
LD-7816	Parker Avenue - From Sta 1+110 to Sta 1+220
LD-7817	Parker Avenue - From Sta 1+220 to Sta 1+330
LD-7818	Parker Avenue - From Sta 1+330 to Sta 1+440
LD-7819	Parker Avenue - From Sta 1+440 to Sta 1+550
LD-7820	Parker Avenue - From Sta 1+550 to Sta 1+670
LD-7821	Miscellaneous Details
LD-7822	Gate Chamber Connection
LD-7823	Miscellaneous Details

E2. SOILS INVESTIGATION REPORT

- E2.1 Further to C3.1, a geotechnical soils investigation was completed and geotechnical test holes have been drilled in the vicinity of the proposed Works to determine the character of the subsurface soil to facilitate the design of the Work. The information listed is considered accurate at the locations indicated and at the time of the investigation. However, considerable variations in the soil conditions may exist between test holes and fluctuations in ground water levels can be expected seasonally. The geotechnical investigation report with test hole logs is included as an appendix.

GENERAL REQUIREMENTS

E3. OFFICE FACILITIES

- E3.1 The Contractor shall supply office facilities meeting the following requirements:
- (a) The field office shall be located near the Site of Work.
 - (b) The field office shall be for the exclusive use of the Contract Administrator and City staff and will be used for weekly site meetings.
 - (c) The building shall have a minimum floor area of 20 square metres, with window area of 3 square metres and a door entrance with suitable lock satisfactory to the Contract Administrator.
 - (d) The building shall be suitable for all-weather use. It shall be capable of maintain temperature range between 16 C and 25 C.
 - (e) The building shall be supplied with adequate lighting and 120 Volt power supply.
 - (f) The building shall be supplied with fluorescent lights and electrical wall outlets.
 - (g) The building shall be furnished with one desk, one meeting table, one drafting table, one filing cabinet and six chairs, all satisfactory to the Contract Administrator.
 - (h) A portable toilet shall be located near the field office building. The toilet shall have a locking door.
 - (i) The field office shall be cleaned weekly immediately prior to the Job Site Meetings to the satisfaction of the Contract Administrator.
- E3.2 The office facilities will be provided from the date of the commencement of the Work to the date of Substantial Performance. The office shall be relocated during construction to a location as approved by the Contract Administrator.
- E3.3 Measurement and Payment
- (a) The Contractor shall be responsible for all installation, transportation and removal costs, all operating costs, provision of aforementioned furnishings and equipment, and the general maintenance of the office facilities.
 - (b) Payment for the office facility will be considered incidental to site development and restoration.

E4. WATERWAY BY-LAW AND PERMITS

- E4.1 The application for the Waterway permit is in progress and is expected to in place before the date of award.
- E4.2 The Contractor shall note that all Works fall within 107 metres (350 feet) of the regulated summer water level of the Red River and are therefore within the jurisdiction of the Waterway By-law. The Contractor shall adhere to restrictions imposed by the permit.
- E4.3 Under no circumstances will stockpiling of any material be permitted within 107 metres of the regulated summer water level of the Red River.

E5. ENVIRONMENTAL PROTECTION

- E5.1 The Contractor shall plan and implement the Work of this Contract strictly in accordance with the requirements of the environmental protection measures as herein specified.
- E5.2 The Contractor is advised that at least the following Acts, Regulations, and By-laws apply to the Work:
- E5.2.1 Federal
- (a) Canadian Environmental Protection Act (CEPA) c.16

- (b) Canadian Environmental Assessment Act (CEAA) c.37
- (c) Transportation of Dangerous Goods Act and Regulations c.34
- (d) The Fisheries Act
- (e) Navigable Water Protection Act

E5.2.2 Provincial

- (a) The Dangerous Goods Handling and Transportation Act D12
- (b) The Endangered Species Act E111
- (c) The Environment Act c.E125
- (d) The Fire Prevention Act F80
- (e) The Manitoba Nuisance Act N120
- (f) The Public Health Act c.P210
- (g) The Workplace Safety and Health Act W120
- (h) And current applicable associated regulations.

E5.3 The Contractor is advised that the following environmental protection measures apply to the Work.

- (a) Materials Handling and Storage
 - (i) Construction materials shall not be deposited or stored on riverbanks or river shorelines unless written acceptance from the Contract Administrator is received in advance.
 - (ii) Construction materials and debris shall be prevented from entering the Red River and Assiniboine River. In the event that materials and/or debris inadvertently enter the watercourse, the Contract shall be required to remove the material and restore the watercourse to its original condition.
- (b) Fuel Handling and Storage
 - (i) The Contractor shall obtain all necessary permits from Manitoba Conservation for the handling and storage of fuel products and shall provide copies to the Contract Administrator.
 - (ii) All fuel handling and storage facilities shall comply with The Dangerous Goods and Transportation Act Storage and Handling of Petroleum Products Regulation and any local land use permits.
 - (iii) Fuels, lubricants, and other potentially hazardous materials as defined in The Dangerous Goods and Transportation Act shall be stored and handled within the approved storage areas.
 - (iv) In accordance with Section 2.5 (Construction: General Guidelines) of the Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat, (DFO and DNR, 1996), the Contractor shall ensure that any temporary fuel storage areas established for construction of the project are contained by an impermeable dike and are located a minimum distance of 100 metres away from the high water line of the Red River. Dikes shall be designed, constructed, and maintained to retain not less than 100% of the capacity of the total number of containers or 110% of the largest container, whichever is greatest. The dikes shall be constructed of clay or similar impervious material. If this type of material is not available, the dike shall be constructed of locally available material and lined with high density polyethylene (HDPE). Furthermore, the fuel storage area(s) shall be secured by a barrier such as a high fence and gate to prevent vandalism.
 - (v) The Contractor shall ensure that all fuel storage containers are inspected daily for leaks and spillage.
 - (vi) Products transferred from the fuel storage area(s) to specific Work Sites shall not exceed the daily usage requirement.

- (vii) When servicing requires the drainage or pumping of fuels, lubricating oils or other fluids from equipment, a groundsheet of suitable material (such as HDPE) and size shall be spread on the ground to catch the fluid in the event of a leak or spill.
 - (viii) Refuelling of mobile equipment and vehicles shall take place at least 100 metres from a watercourse.
 - (ix) The area around storage Sites and fuel lines shall be distinctly marked and kept clear of snow and debris to allow for routine inspection and leak detection.
 - (x) A sufficient supply of materials, such as absorbent material and plastic oil booms to clean up minor spills shall be stores nearby on-site. The Contractor shall ensure that additional material can be made available on short notice.
- (a) Waste Handling and Disposal
- (i) The construction area shall be kept clean and orderly at all times during and at completion of construction.
 - (ii) At no time during construction shall personal or construction waste be permitted to accumulate for more than one day at any location on the construction Site, other than at a dedicated storage area as may be approved by the Contract Administrator.
 - (iii) All resulting debris shall be deposited at a Waste Disposal Ground operating under the authority of Manitoba Regulation #150/91. Exceptions are liquid industrial and hazardous wastes which may require special disposal methods (see SC:21.4 D).
 - (iv) Indiscriminate dumping, littering, or abandonment shall not take place.
 - (v) No on-site burning of waste is permitted.
 - (vi) Waste storage areas shall not be located so as to block natural drainage.
 - (vii) Run-off from a waste storage area shall not be allowed to cause siltation of a watercourse.
 - (viii) Waste storage areas shall be left in a neat and finished appearance and/or restored to their original condition to the satisfaction of the Contract Administrator.
 - (ix) Equipment shall not be cleaned near watercourses; contaminated water from onshore cleaning operations shall not be permitted to enter watercourses.
- (b) Dangerous Goods/Hazardous Waste Handling and Disposal
- (i) Dangerous goods/hazardous wastes are identified by, and shall be handled according to, The Dangerous Goods Handling and Transportation Act and Regulations.
 - (ii) The Contractor shall be familiar with The Dangerous Goods Handling and Transportation Act and Regulations.
 - (iii) The Contractor shall have on-site staff that is trained and certified in the handling of the dangerous/hazardous goods, when said dangerous/hazardous goods are being utilized on-site for the performance of the Work.
 - (iv) Different waste streams shall not be mixed.
 - (v) Disposal of dangerous goods/hazardous wastes shall be at approved hazardous waste facilities.
 - (vi) Liquid hydrocarbons shall not be stored or disposed of in earthen pits on-site.
 - (vii) Used oils shall be stored in appropriate drums, or tankage, until shipment to waste oil recycling centres, incinerators, or secure disposal facilities approved for such wastes.
 - (viii) Used oil filters shall be drained, placed in suitable storage containers, and buried or incinerated at approved hazardous waste treatment and disposal facilities.
 - (ix) Dangerous goods/hazardous waste storage areas shall be located at least 100 metres away from the high water line and be dyked.
 - (x) Dangerous goods/hazardous waste storage areas shall not be located so as to block natural drainage.
 - (xi) Run-off from a dangerous goods/hazardous waste storage area shall not be allowed to cause siltation of a watercourse.

(xii) Dangerous goods/hazardous waste storage areas shall be left in a neat and finished appearance and/or restored to their original condition to the satisfaction of the Contract Administrator.

(c) Emergency Response

(i) The Contractor shall ensure that due care and caution is taken to prevent spills.

(ii) The Contractor shall report all major spills of petroleum products or other hazardous substances with significant impact on the environment and threat to human health and safety (as defined in Table 1 below) to Manitoba Conservation, immediately after occurrence of the environmental accident, by calling the 24-hour emergency phone number (204) 945-4888. The Contract Administrator shall also be notified.

(iii) The Contractor shall designate a qualified supervisor as the on-site emergency response co-ordinator for the project. The emergency response co-ordinator shall have the authority to redirect manpower in order to respond in the event of a spill.

(iv) The following actions shall be taken by the person in charge of the spilled material or the first person(s) arriving at the scene of a hazardous material accident or the on-site emergency response co-ordinator:

(i) Notify emergency-response co-ordinator of the accident:

- ◆ identify exact location and time of accident
- ◆ indicate injuries, if any
- ◆ request assistance as required by magnitude of accident (Manitoba Conservation 24-hour Spill Response Line (204) 945-4888, Police, Fire Department, Ambulance, company backup)

(ii) Attend to public safety:

- ◆ stop traffic, roadblock/cordon off the immediate danger area
- ◆ eliminate ignition sources
- ◆ initiate evacuation procedures if necessary

(iii) Assess situation and gather information on the status of the situation, noting:

- ◆ personnel on-site
- ◆ cause and effect of spill
- ◆ estimated extent of damage
- ◆ amount and type of material involved
- ◆ proximity to waterways, sewers, and manholes

(iv) If safe to do so, try to stop the dispersion or flow of spill material:

- ◆ approach from upwind
- ◆ stop or reduce leak if safe to do so
- ◆ dike spill material with dry, inert sorbet material or dry clay soil or sand
- ◆ prevent spill material from entering waterways and utilities by diking
- ◆ prevent spill material from entering manholes and other openings by covering with rubber spill mats or diking. Resume any effective action to contain, clean up, or stop the flow of the spilled product.

(v) The emergency response co-ordinator shall ensure that all environmental accidents involving contaminants shall be documented and reported to Manitoba Conservation according to The Dangerous Goods Handling and Transportation Act Environmental Accident Report Regulation 439/87.

(vi) When dangerous goods are used on-site, materials for containment and cleanup of spill material (e.g. absorbent materials, plastic oil booms, and oversized recovery drums) shall be available on-site.

(vii) Minor spills of such substances that may be contained on land with no significant impact on the environment may be responded to with in-house resources without formal notification to Manitoba Environment.

(viii) City emergency response, 9-1-1, shall be used if other means are not available.

- (ix) The on-site emergency response coordinator shall contact The Canadian Coast Guard, Selkirk (204) 785-6030, if the spill material reaches and is on or in the Red or Assiniboine Rivers.

(d) Vegetation

- (i) Vegetation shall not be distributed without written permission of the Contract Administrator. The Contractor shall protect plants or trees which may be at risk of accidental damage. Such measures may include protective fencing or signage and shall be approved in advance by the Contractor Administrator.
- (ii) Trees damaged during construction activities shall be examined by bonded tree care professionals; viable trees damaged during construction activities shall be pruned according to good practise by bonded tree care professionals. Damaged trees which are not viable shall be replaced at the expense of the Contractor.
- (iii) Trees identified to be at risk by the Contract Administrator are to be strapped with 25 x 100 x 2400 millimetre wood planks, or suitably protected as approved by the Contract Administrator.
- (iv) Herbicides and pesticides shall not be used adjacent to any surface watercourses.
- (v) All landowners adjacent to the area of application of herbicides or pesticides shall be notified prior to the Work.
- (vi) Trees or shrubs shall not be felled into watercourses.
- (vii) Areas where vegetation is removed during clearing, construction, and decommissioning activities, shall be revegetated as soon as possible in accordance with the landscaping plans forming part of the contract, or as directed by the Contract Administrator.

(e) Red and Assiniboine Rivers Navigation Protection

Dangerous Goods/Hazardous Waste Handling and Disposal

- (a) The Red and Assiniboine Rivers are open to navigation from approximately mid April to mid November, annually. During this period, it will be the responsibility of the Contractor to fully ensure the safety of river users.
- (b) The Contractor shall provide, install, and maintain adequate warning signs and lighting on any structure beyond the water's edge to notify boats and other craft navigating on the Red River that construction is underway. These warnings shall meet the requirements of the City of Winnipeg Waterways Authority and of the Canadian Coast Guard.
- (c) Prior to commencing any applicable operations over the Red River, the Contractor shall provide to the Contract Administrator a copy of all necessary approvals received by the Contractor.

E6. PROTECTION OF EXISTING TREES

E6.1 The Contractor shall take the following precautionary steps to avoid damage from his construction activities to existing boulevard trees within and adjacent to the limits of construction. Contact the City of Winnipeg Forestry Branch at 204-986-2004 if you require further information on these specifications:

- (a) For trees greater than 100mm in diameter, attach wood strapping material having a minimum thickness of 25 millimetres and minimum length of 2440 millimetres around tree trunks in a manner that will not harm the trees. Do not use nails or other fasteners that penetrate into trees. The width of strapping should suit the size of the tree being protected. Length of strapping may be reduced to suit tree being protected as approved by the Contract Administrator.
- (b) For trees least than 100mm in diameter, these shall be similarly protected as Clause E6.1(a) using appropriately sized wood strapping material.

- (c) Operation of equipment within the dripline of the trees shall be kept to the minimum required to perform the work. Equipment shall not be parked, repaired, refueled; construction materials shall not be stored, and earth materials shall not be stockpiled within the driplines of the trees. The driplines of a tree shall be considered to be the ground surface directly beneath the tips of its outermost branches. The Contractor shall ensure that the operations do no cause flooding or sediment deposit on areas where trees are located.
- (d) Repair, replace and maintain tree protection material during construction of the Work.
- (e) Remove strapping material without harming trees as soon as the construction and restoration work is complete.

- E6.2 Obtain approval from the Contract Administrator to excavate within 2.0 meters of a tree.
- E6.3 Excavate in a manner to minimize damage to root systems. Keep exposed roots in excavations and trenches moist or shaded.
- E6.4 Prune exposed roots with equipment such as trenchers, chain saws, root cutters or other methods acceptable to the Contract Administrator in a manner than will leave a new, clean root end and shall be coated with an appropriate wound dressing to prevent infection.
- E6.5 Take precautions to ensure tree limbs overhanging the Site are not damaged by construction equipment. Consult Forestry Branch on pruning of overhanging or damaged limbs and branches and other unanticipated problems with trees during construction of the Works.
- E6.6 American elm trees not to be pruned between April 1st and August 1st and Siberian elm trees between April 1st and July 1st of any year under provisions of The Dutch Elm Disease Act.
- E6.7 All damages to existing tress caused by the Contractor's construction activities shall be repaired to the requirements and satisfaction of the City of Winnipeg, Public Works Department, Urban Forestry Branch. Damages must be repaired by an individual with a Manitoba Arborist license or by the Forestry Branch.
- E6.8 The Forestry Branch will remove and replace any trees deemed to have died or that are dying due to damage from carelessness during construction. Removal and replacement costs will be determined by size and market place. The market price will be a comparable transplantable tree of the same or different species or may be the appraised value of the existing tree, as determined by an evaluation procedure presently used by Forestry Branch in conjunction with City Claims Branch. The evaluation procedure is in accordance with current International Society of Arboriculture evaluation procedure.
- E6.9 Protection of existing trees, repair of trees and pruning of damaged limbs will not be measured for payment and will be included with Underground or Surface Works. Removal and replacement of existing trees by the Forestry Branch deemed to have died or that are dying due to damage from carelessness during construction will be at the Contractor's cost and will be invoiced or deducted from any payments owing.

E7. TRUCK WEIGHT LIMITS

- E7.1 Spring weight restrictions may apply to streets within the area of Work. The City shall not pay for any portion of material which results in the vehicle exceeding the maximum gross vehicle weight allowed under The City of Winnipeg Traffic By-Law, unless such vehicle is operating under special permit.

E8. MAINTAINING EXISTING SEWER FLOWS, FLOW CONTROL, DIVERSIONS AND BYPASS PUMPING

- E8.1 Maintaining Existing Sewer Flows, Flow Control, Diversions and Bypass Pumping required to complete the Works in the Contract shall be incidental to the Contract as per Clause 4.16.1 of CW 2130.

E9. CLEARING AND GRUBBING

- E9.1 Clearing and Grubbing shall be in accordance with CW 3010.
- E9.2 The clearing and grubbing limits will be marked out by the Contractor Administrator prior to any Work being completed.
- E9.3 No Clearing and Grubbing shall occur between April 15 and August 31.

E10. SITE DEVELOPMENT AND RESTORATION

E10.1 Description

- (a) This Specification shall cover all aspects of the Site Development and Restoration Work, including but not limited to erection, maintenance and removal of safety fencing, traffic control and signage, snow clearing, protection of existing trees, relocate existing site furniture, office facilities, general access development, access maintenance and removal, and Site restoration.

E10.2 Submittals

- E10.2.1 Submit shop drawings for review and approval by the Contract Administrator, in accordance with CW 1110, for the following items:

- (a) Site Access Plan for Toilers Park and Parker Lands.

E10.3 Equipment

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

E10.4 Construction Methods

E10.4.1 Site and Construction Access

- (a) The Contractor shall be responsible to develop suitable Site access. This includes but is not limited to, temporary bridging over structures, temporary removal and reinstallation of safety fencing, any landscaping and grading repairs, removal and restoration of vegetation necessary to restore any Site and construction access areas to their pre-existing condition. Prior to commencing construction the Contractor shall submit their site access plan to the Contract Administrator for approval.
- (b) The Contractor is responsible for obtaining and paying for all required permits and permissions that are necessary for Site access.

E10.4.2 Site Furniture

- (a) The Contractor is responsible for the removal, storage and replacement of site furniture in the same condition or better will be required.

E10.4.3 Vegetation Removal

- (a) Notwithstanding the Work completed as part of E6, vegetation (living trees smaller than 50 mm and sod) removal may be permitted in order to facilitate Site access. Existing vegetation shall not be removed without prior approval from the Contract Administrator. The Contractor shall load and haul any removed vegetation, and dispose of the material off Site immediately upon collection. Stockpiling shall not be permitted within 107 m of the normal summer river level.

E10.4.4 General Site Cleanup and Restoration

- (a) All areas of the construction Site shall be restored to a condition to the same or better than the original condition prior to initiation of Work. This may include, but is not

necessarily limited to the Contractor's lay down area, the removal of the Contract Administrator Site trailer, and removal of all temporary access paths and fencing.

E10.4.5 Topsoil and Sod

- (a) All topsoil and sodding Work shall be performed in accordance with CW 3510. Topsoil and Sodding Work shall include all existing grassed areas disturbed by the Contractor during construction. The Contractor shall restore all areas disturbed during construction to the condition prior to the initiation of the Work or better, using topsoil and sod at his own cost.

E10.5 Method of Measurement and Payment

- (a) Site development and restoration will be measured and paid for at the Contract Lump Sum Price for "Site Development and Restoration", which price shall be payment in full for supplying all materials and for performing all operations herein described and all other items incidental to the Work included in this Specification.
- (b) 50% of the Site Development and Restoration unit price will be paid on the first progress payment following commencement of the Work.
- (c) The remaining 50% of the Site Development and Restoration unit price will be paid subsequent to the completion of the Work and the clean-up and restoration of the Site.

E11. EXCAVATION, BEDDING AND BACKFILL

E11.1 Submittals

- (a) Submit shoring designs to Contract Administrator, in accordance with CW 2030.

E11.2 Existing Utilities

- (a) Arrange and pay for any required safety watches around existing utilities as per CW 1120.

E11.3 Disposal of Unsuitable or Surplus Excavated Material

- (a) The Contractor is responsible for arranging for a disposal site for all excavated material, and associated works including transportation and payment of tipping fees.
- (b) There shall be no measurement of surplus soil material disposed of at any disposal site. No additional payment will be made for disposal of surplus soil materials. It shall be considered incidental to the cost of the Work.

E11.4 Foundation, Bedding and Backfill

- (a) Type 3 foundations shall be used in all shafts.
- (b) Type 3 bedding and initial backfill shall be used in place of sand in all mainline sewer shafts.
- (c) For all open cut sections shall have all foundation and bedding as recommended by approved pipe supplier and agreed with City.

E11.5 Backfilling and Surface Restoration

E11.5.1 Initial backfilling of all excavations shall be carried out by the following methods:

- (a) All shafts located under paved area and within one (1) meter of paved areas, associated with Pembina Highway, shall be backfilled with Class 1 backfill as per SD-002.
- (b) All shafts located under paved areas and boulevard areas, other than those associated with Pembina Highway shall be backfilled with Class 3 backfill as per SD-002.
- (c) For all open cut sections shall have all backfill as per CW 2030.
- (d) Material excavated when frozen, or when air temperature is less than 0 °C shall not be used as fill or backfill until material completely thaws.

- (e) The Contractor shall have personnel available for immediate repairs of settlement at shaft locations from the start of construction until final restoration is complete.

E11.5.2 Final surface restoration shall be as follows:

- (a) The excavation shall be jetted and tamped twice, as per CW 2030.
- (b) After the second jetting operation is completed, the excavation is to be subcut to 1.5m below final surface elevation and recompacted in 300mm lifts to the subgrade level using vibratory compaction methods in accordance with CW 2030 backfill.
- (c) Pavement shall be completed in accordance with CW 3310 or CW 3410, depending on type of existing pavement surface.
- (d) Boulevard restoration shall be completed in accordance with CW 3510.

E11.6 Measurement and Payment

E11.6.1 Further to CW 2130:

- (a) Trenchless Installation, Open Trench Installation and Catch Basin connections: All costs associated with backfilling and surface restoration shall be incidental to the Work.

E12. TRENCHLESS EXCAVATION

E12.1 Further to Clause 3.4.1 of CW 2130, all sewers shall be installed by trenchless methods. Where necessary tie-ins to existing sewers may be through open cut methods.

E12.2 Selection of excavation equipment for installation of sewers by trenchless methods shall be the responsibility of the Contractor and shall be made based on expected soil conditions as detailed on the test hole logs. Trenchless sewer installation may be by any suitable methods including coring, pipe jacking or by tunnel boring machine that will meet the design objective and not conflict with the Traffic Management plan described in D25 and D26.

E12.3 The Contractor shall make allowances in the choice of equipment to account for reasonable and minor deviations in ground conditions and shall have contingency plans for the removal of boulders and other minor changes in ground conditions.

E12.4 Methods for dealing with and paying for Trenchless Excavation Obstructions are shown in Section E13.

- (a) The notice shall provide details of the change in subsurface soil conditions or obstructions encountered, any proposed construction procedure revision that the Contractor intends to undertake, as well as any other relevant supporting information.
- (b) The Contract Administrator shall review the notice as expeditiously as possible to assess whether the change in conditions and revised construction procedures amount to a Change in Work.

E13. TRENCHLESS EXCAVATION OBSTRUCTIONS

E13.1 Contingency plans for removal of the obstructions encountered in trenchless excavations must be approved by the Contract Administrator as follows:

- (a) Drill or excavate a shaft at the location of the obstruction, drilling, splitting or breaking the obstruction into smaller components if required, and removal of the obstruction.
- (b) Remove the obstruction through the jacking head or core hole following drilling, splitting or breaking the obstruction into smaller components as required.
- (c) Other removal methods.

E13.2 Where the Contract Administrator deems that the obstruction encountered represents a Change in Work, it shall be valued in accordance with GC:7.4 (c) and the following supplemental requirements:

- (a) The first four (4) hours of handling obstructions for each occurrence shall be the responsibility of the Contractor. The Contractor shall notify the City and Project Coordinator upon immediate discovery of each obstruction occurrence.
- (b) Equipment rates for equipment required in support of the obstruction removal shall be compensated at the MHCA rental rates. Equipment not listed in the MHCA rate schedule shall have their rates established by the Contractor prior to the commencement of Work in accordance with the procedure documented in the MHCA rental guide for establishing equipment rental rates and shall be subject to the approval of the Contract Administrator.
- (c) Standby equipment that cannot reasonably be deployed elsewhere during the duration of the obstruction removal shall be compensated at 50% of its established rate as noted in E13.2(b) above.
- (d) Labour rates and material costs associated with obstruction removal shall be compensated as per GC:7.4 (c) and 7.4.1 with the provision that any removal and replacement of pavements shall be compensated at the Contract Unit Price for such Work.

E14. PAVEMENT SURFACE RESTORATION – STREET CLASSIFICATION AND SURFACE TYPE

- E14.1 The Contractor will follow the City's Street By-law No. 1481/77 and Street Cuts Manual (2015) for all pavement restoration unless otherwise shown on the drawing or specifications or as directed by the Contract Administrator.
- E14.2 The street material and condition within the project work area are classified as follows:
 - (a) Parker Avenue – Concrete – Poor
 - (b) Rockman Street (Heatherdale Ave to Rosemount Ave) – Asphalt over Concrete – Good
 - (c) Rockman Street (Rosemount Ave to Byng Place) – Asphalt – Poor
 - (d) Byng Place (Rockman St to CN Railway) – Asphalt – Good
 - (e) Byng Place (CN Railway to Riverside Dr) – Asphalt – Poor
 - (f) Pembina Highway – Asphalt over Concrete – Good
- E14.3 Notwithstanding the restoration requirements identified in E14.4, all street segments within the work area impacted by the Work as determined by the Contract Administrator shall be maintained and restored with the following additional requirements.
 - (a) Review and record the condition of each street segment with the Contract Administrator and a City Representative from Public Works prior to the initiation of Work.
- E14.4 Review and record the condition of each street segment with the Contract Administrator and a City Representative from Public Works prior to surface restoration. The surface restoration required for each street segment will be agreed upon at this time.
- E14.5 Pavement Restoration Guidelines are summarized in the following tables:

(a) Asphalt & Asphalt over concrete

Rated Pavement Condition of Segment	Regional (Priority I)		Collector (Priority II)		Local (Priority III)	
	Action Required	Responsibility	Action Required	Responsibility	Action Required	Responsibility
New	Grind & repave full lane width - length of project	Utility conducting work	Grind & repave full lane width - length of project	Utility conducting work	Grind & repave full lane width - length of project	Utility conducting work
Good						
Fair	Decision after inspection by Public Works Department <i>See Note (A-2)</i>		Decision after inspection by Public Works Department <i>See Notes (A-2) & (A-3)</i>		Decision after inspection by Public Works Department <i>See Notes (A-2) & (A-3)</i>	
Poor			Isolated repairs accepted	Utility conducting work	Isolated repairs accepted	Utility conducting work

NOTES:

- (A-1) This table is only a guide. The actual extent of all pavement restorations are subject to pre-construction inspection, and final approval by the Public Works Department.
- (A-2) Factors used by Public Works to determine the extent of pavement restoration:
 (Generally, in order of importance)
- Condition of pavement prior to start of project;
 - Age of pavement;
 - Classification of segment (e.g. arterial vs. collector);
 - Planned work in the right-of-way (future street projects);
 - Length of project;
 - Number of cuts project requires (i.e. one cut at each end vs. 15 in a row, 10m apart)
- (A-3) In some cases - locations where renewal work is warranted and/or Streets Maintenance is considering improvements in the current or following construction year - partnering with the Public Works Department may be possible. A pre-construction meeting with the Area Inspector is required to determine the extent of the work required and amount payable by the Department.

(c) Portland cement concrete

Rated Pavement Condition of Segment	Regional (Priority I)		Collector (Priority II)		Local (Priority III)		
	Action Required	Responsibility	Action Required	Responsibility	Action Required	Responsibility	
New	Full panel repair	Utility conducting work	Full panel repair	Utility conducting work	Half panel repair	Utility conducting work	
Good	Half panel repair		Half panel repair		Decision after inspection by Public Works Department <i>See Note (B-2)</i>	Decision after inspection by Public Works Department <i>See Note (B-2)</i>	
Fair	Decision after inspection by Public Works Department <i>See Note (B-2)</i>		Decision after inspection by Public Works Department <i>See Note (B-2)</i>				
Poor			Isolated repairs accepted	Utility conducting work			

NOTES:

(B-1) This table is only a guide. The actual extent of all pavement restorations are subject to pre-construction inspection, and final approval by the Public Works Department.

(B-2) Factors used by Public Works to determine the extent of pavement restoration:

(Generally, in order of importance)

- Condition of pavement prior to start of project;
- Age of pavement;
- Classification of segment (e.g. arterial vs. collector);
- Planned work in the right-of-way (future street projects);
- Length of project;
- Number of cuts project requires (i.e. one cut at each end vs. 15 in a row, 10m apart)

E15. TEMPORARY SURFACE RESTORATION

E15.1 Further to clause 3.3 of CW 1130 and E14, where permanent surface restorations cannot be made due to cold weather, the Contractor shall temporarily restore surfaces as follows:

- (a) backfill and level boulevards and grassed areas to match existing surface elevations,
- (b) cap excavations in asphalt pavement with a 75 millimetre thick layer of hot mix asphalt over a minimum of 150mm of cement stabilized fill, as specified in CW 3410,
- (c) cap excavations in concrete pavement with a 100 millimetre thick layer of concrete for "Temporary Restoration of Utility Pavement Cuts" as specified in CW 3310,
- (d) cap excavations in sidewalk pavement with a 50 millimetre thick layer of concrete for "Temporary Restoration of Utility Pavement Cuts" as specified in CW 3310,
- (e) insulate temporary concrete where required during 24hr curing period,
- (f) where curb has been removed as part of the pavement cut pour temporary curb using "Concrete for Temporary Restoration of Utility Pavement Cuts" as specified in CW 3310.
- (g) remove all temporary pavements prior to permanent restorations.

E15.2 The Contractor shall monitor and maintain temporarily restored surfaces as required until permanent restoration is complete.

- E15.3 If, in the opinion of the Contract Administrator, temporarily restored surfaces are not being adequately maintained or were not properly constructed and pose a danger to the public, maintenance or reconstruction will be done by the City forces with no advance notification the Contractor.
- E15.4 All costs associated with the maintenance or reconstruction of temporary pavement incurred by the City shall be deducted from future payments to the Contractor.
- E15.5 Temporary surface restorations shall be measured on an area basis and paid for at the contract unit price for "Temporary Surface Restorations". The area to be paid for shall be the total number of square metres of street pavement or sidewalk temporarily restored, accepted and measured by the Contract Administrator.
- E15.6 No measurement or payment will be made for the temporary restoration of barrier or lip curb.
- E15.7 No measurement or payment will be made for the temporary restorations of boulevards and grassed areas.
- E15.8 No measurement or payment will be made for the removal of temporary pavement prior to permanent restoration.

E16. BACKFILL UNDER TEMPORARY SURFACE RESTORATIONS

- E16.1 Use Class 2 backfill in excavation under temporary street pavement and sidewalk where Class 3 backfill cannot be jetted and flooded due to cold weather.
- E16.2 Class 2 backfill may be compacted in 600mm lifts where backhoe operated pneumatic plate compactors are used.
- E16.3 Jet and flood Class 2, Class 3 and Class 5 backfilled excavations in spring when ground is not frozen prior to permanent restoration.
- E16.4 No extra payment will be made for the installation of Class 2 backfill under temporary street pavement and sidewalk.

E17. CONCRETE FOR EARLY OPENING OF PAVEMENT RESTORATIONS

- E17.1 Further to CW 3310, all concrete used for final and temporary pavement restoration shall have a minimum compressive strength of 20 MPa 24 hours after placement.
- E17.2 The concrete associated with the Pembina Highway restoration will be early opening concrete and have a depth of 200mm or as agreed with Contract Administrator.

E18. FULL DEPTH PARTIAL SLAB PATCHES

- E18.1 Construct full depth partial slab patches in accordance with CW 3230.
- E18.2 Full depth partial slab patches shall be measured on an area basis and paid for at the Contract Unit price per square meter for "Partial Slab Patches" for each type of pavement.
- E18.3 No differentiation will be made for class of patch.
- E18.4 No separate measurement or payment will be made for Drilled Dowels or Tie Bars, the cost for which shall be included in the prices for "Partial Slab Patches".

E19. MISCELLANEOUS CONCRETE SLAB RENEWALS – SIDEWALKS

- E19.1 Construct miscellaneous concrete slab renewals in accordance with CW 3235. Miscellaneous Concrete slab renewals for sidewalk shall be measured on an area basis and paid for at the

Contract Unit Price per square metre for “Miscellaneous Concrete Slab Renewals – Sidewalk” in Form B of the Bid Submission.

E20. EXPLORATION OF EXISTING UTILITIES AND SERVICES

- E20.1 Further to CW 1120, the Contractor shall perform exploratory excavations by soft dig methods or other methods suitable to the Contract Administrator to verify and locate buried utilities including but not limited to sewers, watermains, large diameter fire service watermains, gas mains, power and telecommunications ducts and conduits, traffic signal conduits, street lighting and other communication cables at proposed crossing locations.
- E20.2 The exploration shall be done following all utility location surveys and a minimum of ten (10) days prior to any construction. The information obtained will determine if an alternate vertical or horizontal alignment of the proposed sewer may be beneficial to minimize conflicts with the existing utilities or services.
- E20.3 The Contractor shall arrange for all required utility locations, safety watches and other required notifications.
- E20.4 The Contractor shall provide a minimum of two (2) Business Days' notice to the Contract Administrator prior to conducting utility exposures.
- E20.5 Measurement and Payment
- (a) Exploration of utility locations and elevations will be incidental to the Contract.

E21. REPAIRS TO EXISTING SEWER AND WATER SERVICES

- E21.1 Repair to existing sewer or water services that conflict with the proposed sewer installation may be necessary. To minimize the potential for damaging existing services, shafts should be located near service locations such that the service locations can be found by exploratory digging.
- E21.2 The Contractor shall attempt to adjust the water service pipe without cutting into the pipe to reroute it around the new sewer.
- E21.3 The Contractor will immediately inform the Contract Administrator of any damage to services and cease all Work in the vicinity. The Contract Administrator will inform the Contractor of the resultant investigation and instruct the Contractor to perform repair works in accordance with CW 2130.
- E21.4 Sewer Service Repair and Replacement
- (a) The regrading or repair of existing 100mm or 150mm sewer services shall be done in accordance with CW 2130.
- E21.5 Water Service Repair and Replacement
- (a) The repair of damaged water service pipes shall be undertaken in accordance with CW 2110. The repair shall comply with the standard City of Winnipeg practice of allowing only one union per service, and fully renewing the remainder of the service to the main or to the curb stop (whichever is shorter). Existing corporation stops, curb stops and boxes may be reused if in good condition and if compatible with the service pipe.
- (b) The Contract Administrator must be notified if any of the water service piping encountered is not copper. If lead water services are encountered, these should be fully renewed with minimum 19 mm copper water services, including new saddle and corporation stop at the main, new curb stop and box. Connect new copper water service to existing lead service with a suitable flange copper to lead adapter.
- E21.6 Measurement and Payment

- (a) Repair or regrading of existing Sewer Service, 100 or 150 mm, paid on a per unit basis for regrading up to 1.5 m long and on a lineal meter basis for regrading sections of sewer service longer than 1.5 m.
- (b) The replacement of water services including connections shall be measured and paid for on a lineal meter basis for size classification of 19 mm, 25 mm, 38 mm and 50 mm.
- (c) Supply and installation of new corporation stops including saddles shall be measured and paid on a unit basis for the same size classifications identified for water service piping.
- (d) Supply and installation of new curb stops and boxes shall be measured and paid on a unit basis for the same size classifications identified for water service piping.
- (e) Connecting to existing water services will be included in the installation of water service piping.
- (f) Relocation of existing water services encountered but not damaged by construction shall be incidental to the construction of sewers.
- (g) No payment will be made for repairs required for damages caused due to Contractor carelessness or as a result of insufficient exploration.

E22. SEWER CONSTRUCTION

E22.1 Description

- (a) This Specification supplements and amends City of Winnipeg Standard Construction Specification CW 2130 Gravity Sewers, and shall cover the installation of sewers and as defined as the Contract Works.

E22.2 Materials

- (a) Pipe Classes indicated on drawings represent long term design conditions and loading. The Contractor shall verify that the pipe class, strength, reinforcing and joint design are suitable for his proposed installation methods and procedures. Design of any pipe to suit installation methods is the responsibility of the Contractor.
- (b) Material of Pipe for 375mm to 600mm diameter in size to be of City of Winnipeg approved products for underground use. Both polyvinyl chloride SDR35 and reinforced concrete to ASTM C76 with strength class type indicated on drawings or listed in the specifications are acceptable.

E22.3 Submittals

- (a) Submit Shop Drawings for reinforced concrete jacking pipe in accordance with ASTM C76 and CW 2130. Shop Drawings shall include the following:
 - (i) All pipe and joint dimensions
 - (ii) Steel reinforcement configuration
- (b) Submit quality control documentation in accordance with ASTM C76 and CW 2130. Quality control documents shall include the following:
 - (i) Mill tests for reinforcing steel
 - (ii) Concrete test results
 - (iii) Results from three-edge bearing test(s).

E22.4 Construction Methods

- (a) Land drainage sewers shall be installed in accordance with CW 2130 and E12.

E22.5 Measurement and Payment

- (a) Measurement and payment for sewer installation shall be in accordance with CW 2130.
- (b) Payment for the relocation of utilities required for the placement of shafts shall be included with sewer installation.

- (c) All costs associated with backfilling and surface restoration shall be incidental to the Work and included with the trenchless pipe installation.

E23. LARGE DIAMETER MANHOLES

E23.1 Description

- (a) This Specification supplements and amends City of Winnipeg Standard Construction Specification CW 2130 Gravity Sewers, and shall cover the installation of large diameter manholes.
- (b) For the purposes of this specification, large diameter manholes are those sized to accommodate pipe larger than 525mm as shown on SD-010.

E23.2 Materials

- (a) Precast concrete sections and adjusting rings, ladder rungs, joint gaskets and cast iron frames and covers in accordance with CW 2130.

E23.3 Submittals

- (a) Submit shoring design, shop drawings for pre-cast sections, reinforcing steel shop drawings and concrete mix design in accordance to CW 2160.

E23.4 Construction Methods

- (a) Manhole installation as per CW 2130 and as per City of Winnipeg SD-010 and SD-010D.
- (b) Large diameter base section shall transition to manhole riser sections as recommended by the manhole manufacturer. The remainder of manhole shall be constructed per SD-010 and SD-010D unless otherwise noted on drawings.
- (c) Manhole benching shall be completed in the field and approved by the Contract Administrator. All surfaces shall slope to the manhole outlet and the channel shall extend from inlet to outlet. Benching shall be constructed as follows:
 - (i) Depth of bench to invert: minimum one-half of largest pipe diameter.
 - (ii) Slope of invert bench: 4% minimum; 12% maximum.

E23.5 Method of Measurement and Basis of Payment

- (a) Construction of Manholes shall be measured on a vertical metre basis for each diameter of Manhole base. The price shall include but not be limited to the excavation, shoring, backfill, reducers, adjusting rings, frames and covers, benching, rungs, couplings, and all appurtenances and miscellaneous metals and materials.

E24. DROP MANHOLES

E24.1 Description

- (a) This Specification supplements and amends City of Winnipeg Standard Construction Specification CW 2130 Gravity Sewers, and shall cover the installation of drop manholes.

E24.2 Materials

E24.2.1 Precast concrete sections and adjusting rings, ladder rungs, joint gaskets and cast iron frames and covers in accordance with CW 2130.

E24.2.2 Drop Pipe Assembly in accordance with Drawing LD-7821.

E24.3 Submittals

- (a) Submit shoring design, shop drawings for drop pipe and drop bowl assemblies, reinforcing steel shop drawings and concrete mix design in accordance to CW 2160.

E24.4 Construction Methods

- (a) Manhole installation as per CW 2130 and as per SD-010D.
- (b) Drop pipe assembly as per SD-010D and manufacturer's installation instructions.

E24.5 Method of Measurement and Basis of Payment

- (a) Construction of Drop Manholes shall be measured on a vertical metre basis for each diameter of Manhole base. The price shall include but not be limited to the excavation, shoring, backfill, reducers, adjusting rings, frames and covers, benching, rungs, couplings, drop pipe assembly and all appurtenances and miscellaneous metals and materials.

E25. CATCHBASIN RECONNECTIONS AND RENEWALS

- E25.1 The design objective of the project is provide combined sewer relief through the installation of new land drainage sewers, and disconnection of catch basins and drainage inlets from the combined sewer system. The drawings and Form B quantities indicate the worst case scenario where the majority of catch basins and curb and gutter inlets are to be replaced. However, if existing catch basins and curb and gutter inlets are in good shape and generally compliant with current City of Winnipeg standards, or require only minor upgrading such as replacement of a damaged frame or cover, or replacement of a missing debris hood, then the existing catch basin or curb and gutter inlet will be repaired as necessary and reconnected to the new land drainage sewer system.
- E25.2 Reconections of existing catchbasins to the new land drainage sewer and miscellaneous repairs of the catchbasins will be measured and paid for as provisional items.
- E25.3 The condition assessment of existing catch basins and curb and gutter inlets will occur following the commencement of construction. Since the reconnection of catch basins is not typically done until after the mainline pipe and manholes have been installed, the Contractor is advised not to pre-order catch basins for this project until this assessment has been completed.

E26. CATCHBASIN FRAMES AND COVERS

- E26.1 All catch basins shall be supplied with AP-008 Barrier Curb and Gutter Inlet Frame and Box with AP-009 Barrier Curb and Gutter Inlet Cover unless otherwise directed by the Contract Administrator.

E27. SEWER AND MANHOLE CLEANING AND INSPECTION

- E27.1 Existing Sewers, Manholes, Catchbasins and Curb and Gutter Inlets as identified herein shall be cleaned prior to inspection in accordance with CW 2140.
- E27.2 Existing Combined Sewers where catch basin leads have been abandoned shall be cleaned prior to CCTV inspection. Manhole cleaning will be included as part of sewer cleaning in accordance with CW 2140 Clause 4.4.
- E27.3 No payment shall be made for CCTV inspection of existing combined sewers following catch basin lead abandonment.
- E27.4 Existing Catch Basins and Curb Inlets to be connected to the new land drainage sewer system sewer shall be cleaned prior to visual inspection to determine if the units need to be replaced or rehabilitated. This work must be completed before replacement units are ordered. This work shall be measured on a unit basis for each Catch Basin or Curb and Gutter Inlet cleaned and paid for at the Provisional Unit Price for "Catch Basin Cleaning".
- E27.5 Existing land drainage sewers to be abandoned shall be inspected prior to abandonment to confirm there are no active service connections.

E28. VIDEO INSPECTION OF EXISTING SEWERS

- E28.1 Further to CW 2130, Clause 3.19 no payment shall be made for CCTV video inspection of existing sewers following cross connection abandonment

E29. POROUS FLEXIBLE PAVING

E29.1 Description

- (a) This specification describes the supply and installation of the porous flexible paving system to provide vehicular and pedestrian load support for grass areas, while protecting grass roots from harmful effects of traffic.

E29.2 References

- (a) ASTM F 1951-08 Standard Specification for Determination of Accessibility of Surface Systems Under and Around Playground Equipment.
- (b) ASTM D 638-10 Standard Test Method for Tensile Properties of Plastics
- (c) ASTM C 33 Standard Specification for Concrete Aggregates
- (d) AASHTO M6 Standard Specification for Fine Aggregate for Hydraulic Cement Concrete
- (e) Major Components of the Complete System
 - (i) Porous Flexible Paving units, assembled in rolls.
 - (ii) Engineered sand and gravel base course.
 - (iii) Seed soil amendment and fertilizer.
 - (iv) Sand fill.
 - (v) Selected grass from seed, hydroseeding/hydro-mulching, or sod.
 - (vi) Selected topsoil (only for seeded installation).
 - (vii) Mulch (needed only for seeded or hydroseeded installations).
- (f) The porous flexible paving units, sand, and base course work together to support imposed loading.
- (g) The porous flexible paving units, Hydrogrow, and sand fill contribute to vegetation support.

E29.3 Materials

E29.3.1 Submittals

- (a) Installation Instructions: Manufacturer's printed installation instructions. Include methods for maintaining installed products.
- (b) Manufacturer's Material Certification: Product manufacturers shall provide certification of compliance with all applicable testing procedures and related specifications upon written request. Request for certification shall be submitted by the purchasing agency no later than the date of order placement.

E29.3.2 Acceptable Product for porous flexible paving unit

- (a) Trade name: **Grasspave2**
- (b) Manufacturer: Invisible Structures, Inc.
- (c) The Contractor may elect to use an alternative product upon review and approval by the Contract Administrator in accordance with B7. The Contractor shall request the Manufacturer to directly submit written information to the Contract Administrator on the preparation, materials, design, performance, references, and use of proposed products.

E29.3.3 Composition:

- (a) High density polyethylene (HDPE)
- (b) Color: black
- (c) Color Uniformity: Uniform color throughout all units rolls.
- (d) Carbon Black for ultraviolet light stabilization.

E29.3.4 Performance Properties:

- (a) Maximum Loading Capability: 5721 psi (39,273 kPa) when filled with sand.

- (b) Wheelchair Access testing for ADA Compliance: Passing ASTM F 1951-08.
- (c) Wheelchair Access testing for ADA Compliance: Passing Rotational Penetrometer testing.
- (d) Tensile strength, pull-apart testing: 458 lbf/in from ASTM D638 Modified.
- (e) System Permeability (Grasspave2, sand, base course): 2.63 to 38.55 inches of water per hour.
- (f) Effective Imperviousness (E.I.): 10%.

E29.3.5 Base Course

- (a) Sandy gravel material from local sources commonly used for road base construction (recycled materials such as crushed concrete or crushed asphalt are NOT acceptable).
- (b) Conforming to the following sieve analysis and requirements:
 - 100 percent passing sieve size 1 inch (25 mm).
 - 90-100 percent passing sieve size 3/4 inch (19 mm).
 - 70-80 percent passing sieve size 3/8 inch (9 mm).
 - 55-70 percent passing sieve size #4.
 - 45-55 percent passing sieve size #10.
 - 25-35 percent passing sieve size #40.
 - 3-8 percent passing sieve size #200.
- (c) Provide a base course material nearly neutral in pH (range from 6.5 to 7.2) to provide adequate root zone development for turf.
- (d) Material may be either "pit run" or "crusher run." Avoid using clay based crusher run/pit run. Crusher run material will generally require coarse, well-draining sand conforming to AASHTO M6 or ASTM C 33 to be added to mixture (20 to 30 percent by volume) to ensure long-term porosity.
- (e) Alternative materials such as crushed shell, limerock, or crushed lava may be used for base course use, provided they are mixed with sharp sand (20 to 30 percent) to ensure long-term porosity, and are brought to proper compaction. Without added sand, crushed shell and limerock set up like concrete and become impervious.
- (f) Alternative size and/or composition of base course materials should be submitted to Invisible Structures, Inc. (Manufacturer) for approval.

E29.3.6 Sand Fill for Rings and Spaces Between Rings: Clean sharp sand (washed concrete sand). Choose one of the following:

- (a) Coarse, well-draining sand, such as washed concrete sand conforming to AASHTO M6 or ASTM C-33.
- (b) United States Golf Association (USGA) greens, section - sand mix "The Root Zone Mixture."

E29.4 Construction Methods

E29.4.1 Subgrade Preparation:

- (a) Prepare subgrade as specified in CW 3110. Verify subgrade in accordance with porous
- (b) Provide adequate drainage from excavated area if area has potential to collect water, when working with in-place soils that have poor permeability.
- (c) Ensure in-place soil is relatively dry and free from standing water.
- (d) Uniformly grade base.
- (e) Level and clear base of large objects, such as rocks and pieces of wood.

E29.4.2 Base Preparation:

- (a) Install Base as specified in CW 3110 and as shown on the Drawings
- (b) Place a geotextile separation layer between the natural ground and the 'engineered base'.
- (c) Place engineered base in lifts not to exceed 6 inches (150 mm), compacting each lift separately to 100 percent Modified Proctor.
- (d) Leave 1 inch (2.5 cm) of depth below final grade for porous paver unit and sand fill and 0.5 inch (1.25 cm) for depth of sod root zone or topsoil germination area (when applicable).

E29.4.3 Seed Mix

- (a) Spread seed mix (spreader rate = 4.53 kg per 100 m² (10 lbs per 1076 ft²) evenly over the surface of the base course with a hand-held, or wheeled, rotary spreader.
- (b) The seed mix should be placed immediately before installing the flexible porous pavement.

E29.4.4 Flexible Porous Paving Units

- (a) Install the flexible porous paving units by placing units with rings facing up, and using snap-fit connectors, pegs and holes, provided to maintain proper spacing and interlock the units. Units can be easily shaped with pruning shears or knife. Units placed on curves, slopes, and high traffic areas shall be anchored to the base course, using 40d common nails with fender washer, as required to secure units in place. Tops of rings shall be between 6 mm to 13 mm (0.25" to 0.5") below the surface of adjacent hard-surface pavements.
- (b) Install sand in rings as they are laid in sections by "back-dumping" directly from a dump truck, or from buckets mounted on tractors, which then exit the site by driving over rings already filled with sand. The sand is then spread laterally from the pile using flat bottomed shovels and/or wide "asphalt rakes" to fill the rings. A stiff bristled broom should be used for final "finishing" of the sand. The sand must be "compacted" by using water from hose, irrigation heads, or rainfall, with the finish grade no less than the top of rings and no more than 6 mm (0.25") above top of rings.

E29.4.5 Grass

- (a) Grass coverage on the sand-filled rings must be completed within one week. Sand must be re-installed and leveled and flexible porous paving units checked for integrity if rings become exposed due to wind, rain, traffic, or other factors. (Choose one paragraph below to meet grass installation method desired.)
- (b) Install thin sod directly over sand filled rings, filled no higher than the top of the rings. Sod strips should be placed with very tight joints. Sodded areas must be fertilized and kept moist during root establishment (minimum of 3 weeks). **DO NOT DRIVE ON SYSTEM:** Sodded areas must be protected from any traffic, other than emergency vehicles, for a period of 3 to 4 weeks, or until the root system has penetrated and established well below the flexible porous paving units.
- (c) Adequately water sod or grass seed to assure germination of seed and growth of root system.

E29.4.6 Protection

- (a) Sodded areas must be protected from any traffic, other than emergency vehicles, for a period of 3 to 4 weeks, or until the root system has penetrated below the flexible porous paving units.

E29.4.7 Quality Control

- (a) Remove and replace segments of flexible porous paving units where three or more adjacent rings are broken or damaged, reinstalling as specified, so no evidence of replacement is apparent.

- (b) Perform cleaning during the installation of work and upon completion of the work. Remove all excess materials, debris, and equipment from site. Repair any damage to adjacent materials and surfaces resulting from installation of this work.

E29.5 Measurement and Payment

- (a) Supply, placement and maintenance of porous flexible pavement 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, as computed from measurements made by the Contract Administrator. No payment will be made for porous flexible pavement placed outside of the limits of placement as directed by the Contract Administrator

E30. CONNECTION TO EXISTING GATE CHAMBER

E30.1 Description

- (a) This specification shall cover construction of connection to the existing gate chamber and shall supplement CW 2160 and Drawings LD-7822 and LD-7823. The Contractor shall connect to the existing gate chamber as shown on the drawings and identified in this specification. The connection to existing gate chamber includes all Work required to complete the connection and restore the Site to preconstruction condition or better.
- (b) The connection works include the construction of the bypass pumping pipe shown on Drawing LD-7823 including the pipe, pipe bends, pipe supports, manhole frame and cover, female and end cap cam lock fittings.
- (c) The connection work includes the removal and disposal of the temporary timbers at the existing gate chamber opening.
- (d) Work required within the existing gate chamber shall not take place without the prior approval of the Contract Administrator. The flap gate and sluice gate shall not be operated by the Contractor at any time.

E30.2 Submittals

- (a) No Work shall commence on construction of connection to existing gate chamber until after the Contract Administrator's review of the Contractor's submission of the following items:
 - (i) A shoring plan shall be submitted and approved by the Contract Administrator prior to any Work.
 - (ii) Proposed construction methods and work sequence.
 - (iii) Water control and dewatering plan.

E30.3 Methods

E30.3.1 Existing Gate Chamber

- (a) Backfill around existing gate chamber shall be maintained.

E30.3.2 Backfill

- (a) Backfill in accordance with CW2030 unless otherwise noted on the drawings or directed by the Contract Administrator.

E30.3.3 Bypass Piping

- (a) Installation as shown on Drawing LD-7823.

E30.3.4 Pump Out Manhole

- (a) Installation shall be in accordance with CW2130 and SD-010, except otherwise noted on the drawings or directed by the Contract Administrator.

E30.3.5 Cast in place Concrete Chamber Construction

- (a) Construct cast in place concrete chambers in accordance with CW 2160, except as supplemented, revised or amended in this Specification and as indicated on the Drawings.

E30.4 Measurement and Payment

- (a) The connection to existing gate chamber will be measured and paid for at the Contract Lump Sum Price for "Connection to Existing Gate Chamber". The price shall be payment in full for supplying all materials and for performing all operations herein described and all other items incidental to the Work included in this Specification.

E31. SEWER INSTALLATION THROUGH CANADIAN NATIONAL RAILWAY RIGHT OF WAY

E31.1 Description

E31.1.1 The Contractor shall install the sewer through the CN right of way in accordance with the construction drawings and the requirements of these specifications.

E31.1.2 No excavation will be permitted within five metres from the CN right of way unless otherwise agreed to by the Contract Administrator.

E31.1.3 Installation through the CN right of way is subject to the additional requirements of the railway. The following documents shall be referenced for additional requirements:

- (a) A Guide to the Pipe and Wire Process – Water/Sewer Pipeline – General Guidelines (CN)
- (b) Pipeline Crossing Specifications by CN Rail
- (c) Standards Respecting Pipeline Crossings Under Railways – TC E-10 (Transport Canada)
- (d) Safety Guidelines for Contractors and Non-CN Personnel, December 2013

E31.1.4 Crossing Agreement

- (a) The sewer to be installed through the Canadian National Railway (CN) right of way is dependent on the completion of a crossing agreement between the City of Winnipeg and CN. If the crossing agreement is delayed, the contractor shall not complete the installation of pipe between MH#06 (west of the CN right of way) and MH#07 (east of CN right of way).
- (b) The pipe installation through the CN right of way will be completed when the Contract Administrator informs the Contractor that the agreement has been received.
- (c) It is the City of Winnipeg's expectation that the crossing agreement will be completed prior to the Contractor achieving pipe installation to the CN right of way segment.

E31.2 Submittals

E31.2.1 Pipeline Crossing Warning Signs

- (a) Drawings showing layouts, actual letter sizes and styles, and Project-specific mounting details.
- (b) Manufacturer's literature showing letter sizes and styles, sign materials, and standard mounting details.

E31.3 Materials

E31.3.1 Pipeline Crossing Warning Signs

- (a) In conformance with CSA Standard Z662 and as amended in TC E-10.
- (b) Sign size will be a minimum size of 250mm x 350mm or as appropriate to display text.
- (c) Sign Material: Baked enamel finished 14-gauge (minimum) steel or 12-gauge (minimum) aluminum signs.

- (d) Sign Post: 2-inch U-Channel galvanized steel post meeting ASTM A36 and ASTM A123.
- (e) Fasteners: Stainless steel screws or bolts of appropriate size.

E31.4 Methods

E31.4.1 Flagging and Signals

- (a) A minimum fee has been prepaid for flagging and signals. Additional charges will be invoiced monthly until the Work is completed.
- (b) Prior to the start of construction, a minimum notice of ten working days must be given to CN to arrange flagging protection.

E31.4.2 Settlement and Construction Monitoring

- (a) A baseline survey of the railway shall be conducted and submitted to CN prior to the installation of the sewer lines. The baseline survey should include the top of rail elevation at intervals of 3.05 m (10 feet) along the track and extending a minimum of 10 m beyond the extent of the proposed work.
- (b) During construction, periodic survey monitoring of the rails must be carried out and submitted to CN. The required frequency of survey monitoring and reporting will be provided by CN in writing. Survey data will be reviewed to determine if settlement of any track defects have occurred.

E31.4.3 Emergency Response Plan

- (a) If an urgent or near urgent defect is detected during monitoring, an on-site meeting shall be conducted to determine the cause of the defect and remedial action.
- (b) The Contractor will be required to carry-out remedial action as directed by the Contract Administrator.

E31.4.4 Railway Warning Signs

- (a) Warning signs shall be fabricated and installed at each side of the crossing of the CN Right-of-Way at least 1 metre from the back of curb. Final location shall be approved by the Contract Administrator.
- (b) Signs shall include the following information, printed on a background of sharply contrasting colour:
 - (i) the word "Caution" prominently displayed, in 25 mm high, bold lettering;
 - (ii) the type of pipeline system, "Land Drainage Pipeline", prominently displayed in 13 mm high bold lettering;
 - (iii) the statement "Pipeline Information"; and
 - (iv) the name and logo of the pipeline operating company and emergency notification information, including an emergency telephone number with area code. Contract Administrator will provide the details upon request.
- (c) Sign posts of a minimum length of 1.5m shall be installed directly into the boulevard with a minimum length of 0.6m below grade using appropriate post driver.
 - (i) Top of post to be no greater than 0.9 metres above grade.
- (d) Sign shall be installed so top of sign is flush with the top of the post.

E31.5 Measurement and Payment

- (a) The sewer installation through the CN right of way will be measured and paid for at the Contract Lump Sum Price for "Sewer Installation through CN Right-of-Way". The price shall be payment in full for supplying all materials and for performing all operations herein described and all other items incidental to the Work included in this Specification.
- (b) The Contractor is responsible for all coordination with CN and any fees required to meet the CN requirements before and during the Work.

E32. WORK IN PROXIMITY TO LARGE NATURAL GAS MAINS

- E32.1 The Contractor should be familiar with and comply with the requirements of the latest revision of Manitoba Hydro's "Safe Excavation & Safety Watch Guidelines". This document is available at: http://www.hydro.mb.ca/customer_services/permits_and_inspections/excavation_guidelines.pdf
- E32.2 Work precautions and procedures required for working near gas mains will be incidental to the Contract.

E33. PROVISIONAL ITEMS

- E33.1 The Provisional Items listed on Form B: Prices are part of the Contract.
- E33.2 The Contractor shall not perform Work included in the Provisional Items without prior authorization from the Contract Administrator. All Work included in the Provisional Items will be carried out within the construction areas shown on the Drawings.
- E33.3 Notwithstanding GC:7, the City reserves the right to diminish all or any portion of the items of work listed in the Provisional Items and no claim shall be made for damages on the grounds of loss of anticipated profit or for any other reason.

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) any Work within City facilities other than:
 - (i) an underground structure such as a manhole;
 - (ii) in areas and at times normally open to the public;
- 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: <https://www.commissionaires.ca/en/manitoba/home> .
- 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
- 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
- (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 award of Contract, 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.