



THE CITY OF WINNIPEG

BID OPPORTUNITY

BID OPPORTUNITY NO. 612-2011

2011 INTERCEPTOR INSPECTIONS

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PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

B1.1 2011 INTERCEPTOR INSPECTIONS

B2. SUBMISSION DEADLINE

B2.1 The Submission Deadline is 12:00 noon Winnipeg time, August 24, 2011.

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

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

B3. SITE INVESTIGATION

B3.1 Further to C3.1, the Bidder may view the Site without making an appointment.

B3.2 The Bidder is advised that the sewers may be located in easements through private property or City owned parklands and right-of-ways where a paved access may not exist. It will be the Bidder's responsibility to identify these sewers and arrange for access and to restore any surface to private and City owned property.

B4. ENQUIRIES

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

B4.2 If the Bidder finds errors, discrepancies or omissions in the Bid Opportunity, or is unsure of the meaning or intent of any provision therein, the Bidder shall notify the Contract Administrator of the error, discrepancy or omission, or request a clarification as to the meaning or intent of the provision at least five (5) Business Days prior to the Submission Deadline.

B4.3 Responses to enquiries which, in the sole judgment of the Contract Administrator, require a correction to or a clarification of the Bid Opportunity will be provided by the Contract Administrator to all Bidders by issuing an addendum.

B4.4 Responses to enquiries which, in the sole judgment of the Contract Administrator, do not require a correction to or a clarification of the Bid Opportunity will be provided by the Contract Administrator only to the Bidder who made the enquiry.

B4.5 The Bidder shall not be entitled to rely on any response or interpretation received pursuant to B4 unless that response or interpretation is provided by the Contract Administrator in writing.

B5. ADDENDA

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

B5.2 The Contract Administrator will issue each addendum at least two (2) Business Days prior to the Submission Deadline, or provide at least two (2) Business Days by extending the Submission Deadline.

B5.2.1 Addenda will be available on the Bid Opportunities page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/bidopp.asp>

B5.2.2 The Bidder is responsible for ensuring that he has received all addenda and is advised to check the Materials Management Division website for addenda regularly and shortly before the Submission Deadline, as may be amended by addendum.

B5.3 The Bidder shall acknowledge receipt of each addendum in Paragraph 10 of Form A: Bid. Failure to acknowledge receipt of an addendum may render a Bid non-responsive.

B6. SUBSTITUTES

B6.1 The Work is based on the Plant, Materials and methods specified in the Bid Opportunity.

B6.2 Substitutions shall not be allowed unless application has been made to and prior approval has been granted by the Contract Administrator in writing.

B6.3 Requests for approval of a substitute will not be considered unless received in writing by the Contract Administrator at least five (5) Business Days prior to the Submission Deadline.

B6.4 The Bidder shall ensure that any and all requests for approval of a substitute:

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

B6.5 The Contract Administrator, after assessing the request for approval of a substitute, may in his sole discretion grant approval for the use of a substitute as an "approved equal" or as an "approved alternative", or may refuse to grant approval of the substitute.

B6.6 The Contract Administrator will provide a response in writing, at least two (2) Business Days prior to the Submission Deadline, only to the Bidder who requested approval of the substitute.

B6.6.1 The Bidder requesting and obtaining the approval of a substitute shall be entirely responsible for disseminating information regarding the approval to any person or persons he wishes to inform.

B6.7 If the Contract Administrator approves a substitute as an "approved equal", any Bidder may use the approved equal in place of the specified item.

B6.8 If the Contract Administrator approves a substitute as an "approved alternative", any Bidder bidding that approved alternative may base his Total Bid Price upon the specified item but may also indicate an alternative price based upon the approved alternative. Such alternatives will be evaluated in accordance with B15.

- B6.9 No later claim by the Contractor for an addition to the Total Bid Price because of any other changes in the Work necessitated by the use of an approved equal or an approved alternative will be considered.
- B6.10 Notwithstanding B6.2 to B6.9, and in accordance with B7.6 deviations inconsistent with the Bid Opportunity document shall be evaluated in accordance with B15.1(a).

B7. BID COMPONENTS

- B7.1 The Bid shall consist of the following components:
- (a) Form A: Bid;
 - (b) Form B: Prices;
 - (c) Bid Security
 - (i) Form G1: Bid Bond and Agreement to Bond, or Form G2: Irrevocable Standby Letter of Credit and Undertaking, or a certified cheque or draft;
- B7.2 Further to B7.1, the Bidder should include the written correspondence from the Contract Administrator approving a substitute in accordance with B6.
- B7.3 All components of the Bid shall be fully completed or provided, and submitted by the Bidder no later than the Submission Deadline, with all required entries made clearly and completely, to constitute a responsive Bid.
- B7.4 The Bid shall be submitted enclosed and sealed in an envelope clearly marked with the Bid Opportunity number and the Bidder's name and address.
- B7.4.1 Samples or other components of the Bid which cannot reasonably be enclosed in the envelope may be packaged separately, but shall be clearly marked with the Bid Opportunity number, the Bidder's name and address, and an indication that the contents are part of the Bidder's Bid.
- B7.5 Bidders are advised not to include any information/literature except as requested in accordance with B7.1.
- B7.6 Bidders are advised that inclusion of terms and conditions inconsistent with the Bid Opportunity document, including the General Conditions, will be evaluated in accordance with B15.1(a).
- B7.7 Bids submitted by facsimile transmission (fax) or internet electronic mail (e-mail) will not be accepted.
- B7.8 Bids shall be submitted to:
- The City of Winnipeg
Corporate Finance Department
Materials Management Division
185 King Street, Main Floor
Winnipeg MB R3B 1J1

B8. BID

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

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

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

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

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

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

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

B8.5 If a Bid is submitted jointly by two or more persons, the word "Bidder" shall mean each and all such persons, and the undertakings, covenants and obligations of such joint Bidders in the Bid and the Contract, when awarded, shall be both joint and several.

B9. PRICES

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

B9.1.1 Notwithstanding C12.2.3(c), prices on Form B: Prices shall not include the Manitoba Retail Sales Tax (MRST, also known as PST), which shall be extra where applicable.

B9.2 The quantities listed on Form B: Prices are to be considered approximate only. The City will use said quantities for the purpose of comparing Bids.

B9.3 The quantities for which payment will be made to the Contractor are to be determined by the Work actually performed and completed by the Contractor, to be measured as specified in the applicable Specifications.

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

B10. QUALIFICATION

B10.1 The Bidder shall:

- (a) undertake to be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba; and
- (b) be financially capable of carrying out the terms of the Contract; and
- (c) have all the necessary experience, capital, organization, and equipment to perform the Work in strict accordance with the terms and provisions of the Contract.

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

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

B10.3 The Bidder and/or any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:

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

B10.4 Further to B10.3(c), the Bidder shall, within five (5) Business Days of a request by the Contract Administrator, provide proof satisfactory to the Contract Administrator that the Bidder/Subcontractor has a workplace safety and health program meeting the requirements of The Workplace Safety and Health Act (Manitoba), by providing:

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

B10.5 The Bidder shall submit, within three (3) Business Days of a request by the Contract Administrator, proof satisfactory to the Contract Administrator of the qualifications of the Bidder and of any proposed Subcontractor.

B10.6 The Bidder shall provide, on the request of the Contract Administrator, full access to any of the Bidder's equipment and facilities to confirm, to the Contract Administrator's satisfaction, that the Bidder's equipment and facilities are adequate to perform the Work.

B11. BID SECURITY

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

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

B11.1.1 If the Bidder submits alternative bids, the bid security shall be in the amount of the specified percentage of the highest Total Bid Price submitted.

B11.1.2 All signatures on bid securities shall be original.

B11.1.3 The Bidder shall sign the Bid Bond.

B11.1.4 The Surety shall sign and affix its corporate seal on the Bid Bond and the Agreement to Bond.

B11.2 The bid security of the successful Bidder and the next two lowest evaluated responsive and responsible Bidders will be released by the City when a Contract for the Work has been duly executed by the successful Bidder and the performance security furnished as provided herein. The bid securities of all other Bidders will be released when a Contract is awarded.

B11.2.1 Where the bid security provided by the successful Bidder is in the form of a certified cheque or draft pursuant to B11.1(c), it will be deposited and retained by the City as the performance security and no further submission is required.

B11.2.2 The City will not pay any interest on certified cheques or drafts furnished as bid security or subsequently retained as performance security.

B11.3 The bid securities of all Bidders will be released by the City as soon as practicable following notification by the Contract Administrator to the Bidders that no award of Contract will be made pursuant to the Bid Opportunity.

B12. OPENING OF BIDS AND RELEASE OF INFORMATION

B12.1 Bids will be opened publicly, after the Submission Deadline has elapsed, in the office of the Corporate Finance Department, Materials Management Division, or in such other office as may be designated by the Manager of Materials.

B12.1.1 Bidders or their representatives may attend.

B12.2 Following the Submission Deadline, the names of the Bidders and their Total Bid Prices (unevaluated, and pending review and verification of conformance with requirements) will be available on the Closed Bid Opportunities (or Public/Posted Opening & Award Results) page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/default.stm>

B12.3 After award of Contract, the name(s) of the successful Bidder(s) and the Contract amount(s) will be available on the Closed Bid Opportunities (or Public/Posted Opening & Award Results) page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/default.stm>

B12.4 The Bidder is advised that any information contained in any Bid may be released if required by City policy or procedures, by The Freedom of Information and Protection of Privacy Act (Manitoba), by other authorities having jurisdiction, or by law.

B13. IRREVOCABLE BID

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

B13.2 The acceptance by the City of any Bid shall not release the Bids of the next two lowest evaluated responsive Bidders and these Bidders shall be bound by their Bids on such Work until a Contract for the Work has been duly executed and the performance security furnished as herein provided, but any Bid shall be deemed to have lapsed unless accepted within the time period specified in Paragraph 11 of Form A: Bid.

B14. WITHDRAWAL OF BIDS

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

B14.1.1 Notwithstanding C23.3, the time and date of receipt of any notice withdrawing a Bid shall be the time and date of receipt as determined by the Manager of Materials.

B14.1.2 The City will assume that any one of the contact persons named in Paragraph 3 of Form A: Bid or the Bidder's authorized representatives named in Paragraph 12 of Form A: Bid, and only such person, has authority to give notice of withdrawal.

- B14.1.3 If a Bidder gives notice of withdrawal prior to the Submission Deadline, the Manager of Materials will:
- (a) retain the Bid until after the Submission Deadline has elapsed;
 - (b) open the Bid to identify the contact person named in Paragraph 3 of Form A: Bid and the Bidder's authorized representatives named in Paragraph 12 of Form A: Bid; and
 - (c) if the notice has been given by any one of the persons specified in B14.1.3(b), declare the Bid withdrawn.

B14.2 A Bidder who withdraws his Bid after the Submission Deadline but before his Bid has been released or has lapsed as provided for in B13.2 shall be liable for such damages as are imposed upon the Bidder by law and subject to such sanctions as the Chief Administrative Officer considers appropriate in the circumstances. The City, in such event, shall be entitled to all rights and remedies available to it at law, including the right to retain the Bidder's bid security.

B15. EVALUATION OF BIDS

B15.1 Award of the Contract shall be based on the following bid evaluation criteria:

- (a) compliance by the Bidder with the requirements of the Bid Opportunity, or acceptable deviation there from (pass/fail);
- (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B10 (pass/fail);
- (c) Total Bid Price;
- (d) economic analysis of any approved alternative pursuant to B6.

B15.2 Further to B15.1(a), the Award Authority may reject a Bid as being non-responsive if the Bid is incomplete, obscure or conditional, or contains additions, deletions, alterations or other irregularities. The Award Authority may reject all or any part of any Bid, or waive technical requirements or minor informalities or irregularities, if the interests of the City so require.

B15.3 Further to B15.1(b), the Award Authority shall reject any Bid submitted by a Bidder who does not demonstrate, in his Bid or in other information required to be submitted, that he is responsible and qualified.

B15.4 Further to B15.1(c), the Total Bid Price shall be the sum of the quantities multiplied by the unit prices for each item shown on Form B: Prices.

B15.4.1 If there is any discrepancy between the Total Bid Price written in figures, the Total Bid Price written in words and the sum of the quantities multiplied by the unit prices for each item, the sum of the quantities multiplied by the unit prices for each item shall take precedence.

B15.4.2 Further to B15.1(a), in the event that a unit price is not provided on Form B: Prices, the City will determine the unit price by dividing the Amount (extended price) by the approximate quantity, for the purposes of evaluation and payment.

B16. AWARD OF CONTRACT

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

B16.2 The City will have no obligation to award a Contract to a Bidder, even though one or all of the Bidders are determined to be responsible and qualified, and the Bids are determined to be responsive.

B16.2.1 Without limiting the generality of B16.2, the City will have no obligation to award a Contract where:

- (a) the prices exceed the available City funds for the Work;

- (b) the prices are materially in excess of the prices received for similar work in the past;
- (c) the prices are materially in excess of the City's cost to perform the Work, or a significant portion thereof, with its own forces;
- (d) only one Bid is received; or
- (e) in the judgment of the Award Authority, the interests of the City would best be served by not awarding a Contract.

B16.3 Where an award of Contract is made by the City, the award shall be made to the responsible and qualified Bidder submitting the lowest evaluated responsive Bid, in accordance with B15.

B16.3.1 Following the award of contract, a Bidder will be provided with information related to the evaluation of his Bid upon written request to the Contract Administrator.

PART C - GENERAL CONDITIONS

C0. GENERAL CONDITIONS

- C0.1 The *General Conditions for Construction* (Revision 2006 12 15) are applicable to the Work of the Contract.
- C0.1.1 The *General Conditions for Construction* are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at http://www.winnipeg.ca/matmgt/gen_cond.stm
- C0.2 A reference in the Bid Opportunity to a section, clause or subclause with the prefix “**C**” designates a section, clause or subclause in the *General Conditions for Construction*.

PART D - SUPPLEMENTAL CONDITIONS

GENERAL

D1. GENERAL CONDITIONS

D1.1 In addition to the *General Conditions for Construction*, these Supplemental Conditions are applicable to the Work of the Contract.

D2. SCOPE OF WORK

D2.1 The Work to be done under the Contract shall consist of the inspections of interceptor sewers and their corresponding manholes which are mostly located in Fort Garry and St. Vital.

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

- (a) Mobilization to the site
- (b) Inspection of sewers using CCTV and Sonar
- (c) Inspection of selected sewers using Laser
- (d) Inspection of river siphon crossings using Sonar
- (e) Cleaning of manholes
- (f) Inspection of manholes using 360° spherical optical scanner
- (g) Demobilization

D3. DEFINITIONS

D3.1 When used in this Bid Opportunity:

- (a) **WRc** means "Water Research Centre" which is the accepted standard for sewer condition coding and assessment.

D4. CONTRACT ADMINISTRATOR

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

Armand Delaurier, C.E.T.
Senior Municipal Technologist
99 Commerce Drive
Winnipeg, MB R3P 0Y7

Telephone No. (204) 477-5381

Facsimile No. (204) 284-2040

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

D5. CONTRACTOR'S SUPERVISOR

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

D6. NOTICES

D6.1 Except as provided for in C23.2.2, all notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the Contractor shall be sent to the address or facsimile number identified by the Contractor in Paragraph 2 of Form A: Bid.

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

D6.3 Notwithstanding C21., all notices of appeal to the Chief Administrative Officer shall be sent to the attention of the Chief Financial Officer at the following facsimile number:

The City of Winnipeg
Chief Financial Officer

Facsimile No.: (204) 949-1174

D6.4 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications required to be submitted or returned to the City Solicitor shall be sent to the following address or facsimile number:

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

Facsimile No.: (204) 947-9155

D7. FURNISHING OF DOCUMENTS

D7.1 Upon award of the Contract, the Contractor will be provided with five (5) complete sets of the Bid Opportunity. If the Contractor requires additional sets of the Bid Opportunity, they will be supplied to him at cost.

SUBMISSIONS

D8. AUTHORITY TO CARRY ON BUSINESS

D8.1 The Contractor shall be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba, or if the Contractor does not carry on business in Manitoba, in the jurisdiction where the Contractor does carry on business, throughout the term of the Contract, and shall provide the Contract Administrator with evidence thereof upon request.

D9. SAFE WORK PLAN

D9.1 The Contractor shall provide the Contract Administrator with a Safe Work Plan at least five (5) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract.

D9.2 The Safe Work Plan should be prepared and submitted in the format shown in the City's template which is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/Safety/default.stm>

D10. INSURANCE

D10.1 The Contractor shall provide and maintain the following insurance coverage:

- (a) commercial general liability insurance, in the amount of at least two million dollars (\$2,000,000.00) inclusive, with The City of Winnipeg added as an additional insured, with a cross-liability clause, such liability policy to also contain contractual liability, unlicensed motor vehicle liability, non-owned automobile liability and products and completed

operations, to remain in place at all times during the performance of the Work and throughout the warranty period;

- (b) automobile liability insurance for owned automobiles used for or in connection with the Work in the amount of at least two million dollars (\$2,000,000.00) at all times during the performance of the Work and until the date of Total Performance;

D10.2 Deductibles shall be borne by the Contractor.

D10.3 The Contractor shall provide the City Solicitor with a certificate(s) of insurance, in a form satisfactory to the City Solicitor, at least two (2) Business Days prior to the commencement of any Work but in no event later than the date specified in C4.1 for the return of the executed Contract.

D10.4 The Contractor shall not cancel, materially alter, or cause each policy to lapse without providing at least thirty (30) Calendar Days prior written notice to the Contract Administrator.

D11. PERFORMANCE SECURITY

D11.1 The Contractor shall provide and maintain performance security until the expiration of the warranty period in the form of:

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

D11.1.1 Where the performance security is in the form of a certified cheque or draft, it will be deposited by the City. The City will not pay any interest on certified cheques or drafts furnished as performance security.

D11.2 The Contractor shall provide the City Solicitor with the required performance security within seven (7) Calendar Days of notification of the award of the Contract by way of letter of intent and prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract.

D12. SUBCONTRACTOR LIST

D12.1 The Contractor shall provide the Contract Administrator with a complete list of the Subcontractors whom the Contractor proposes to engage (Form J: Subcontractor List) at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract.

D13. EQUIPMENT LIST

D13.1 The Contractor shall provide the Contract Administrator with a complete list of the equipment which the Contractor proposes to utilize (Form K: Equipment List) at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract.

D14. DETAILED WORK SCHEDULE

- D14.1 The Contractor shall provide the Contract Administrator with a detailed work schedule at least o (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract.
- D14.2 The detailed work schedule shall consist of the following:
- (a) a critical path method (C.P.M.) schedule for the Work;
 - (b) a Gantt chart for the Work based on the C.P.M. schedule;
 - (c) a Traffic Control Plan that identifies locations and approximate timing of proposed lane closures and parking restrictions, and
 - (d) a detailed deployment schedule for the Work at each site
- all acceptable to the Contract Administrator.
- D14.3 Further to D14.2(b), the Gantt chart shall show the time on a weekly basis, required to carry out the Work of each trade, or specification division. The time shall be on the horizontal axis, and the type of trade shall be on the vertical axis.
- D14.4 Further to D14.2(d), the daily manpower schedule shall list the list a detailed deployment schedule for each deployment location detailing the required time line for.
- (a) Lane closures;
 - (b) Multi-sensor deployment time;
 - (c) CCTV inspection schedule;
 - (d) Laser profiling schedule;
 - (e) Multi-sensor tool retrieval schedule, and
 - (f) Lane re-opening time(s).

D15. SECURITY CLEARANCE

- D15.1 Each individual proposed to perform the following portions of the Work:
- (a) any Work on private property;
 - (b) communicating with residents and homeowners in person or by telephone;
- shall be required to obtain a Criminal Record Search Certificate from the police service having jurisdiction at his place of residence.
- D15.2 Prior to the commencement of any Work specified in D15.1, and during the term of the Contract if additional or replacement individuals are proposed to perform Work, the Contractor shall supply the Contract Administrator with a Criminal Record Search Certificate obtained not earlier than one (1) year prior to the Submission Deadline, or a certified true copy thereof, for each individual proposed to perform such Work.
- D15.3 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 D15.1.
- D15.4 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.
- D15.5 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 D15.1.

SCHEDULE OF WORK

D16. COMMENCEMENT

- D16.1 The Contractor shall not commence any Work until he is in receipt of a letter of intent from the Award Authority authorizing the commencement of the Work.
- D16.2 The Contractor shall not commence any Work on the Site until:
- (a) the Contract Administrator has confirmed receipt and approval of:
 - (i) evidence of authority to carry on business specified in D8;
 - (ii) evidence of the workers compensation coverage specified in C6.15;
 - (iii) the Safe Work Plan specified in D9;
 - (iv) evidence of the insurance specified in D10;
 - (v) the performance security specified in D11;
 - (vi) the Subcontractor list specified in D12;
 - (vii) the equipment list specified in D13;
 - (viii) the detailed work schedule specified in D14; and
 - (ix) the security clearances specified in D15.
 - (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.
- D16.3 The Contractor shall commence the Work on the Site within ten (10) Working Days of receipt of the letter of intent.

D17. WORKING DAYS

- D17.1 Further to C1.1(gg), 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.
- D17.2 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.
- D17.3 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.
- D17.4 The Contract Administrator will furnish the Contractor with a daily record for each major type of work showing various information concerning the equipment, the time it worked, could have worked and Working Days charged. This report is to be signed each day by an authorized representative of the Contractor.

D18. HOURS OF WORK

- D18.1 All Work shall be carried out between the hours of 07:00 and 22:00 Monday to Friday and between 09:00 and 21:00 Saturday.
- D18.2 No Work shall be performed outside the hours stated in D18.1 or on Sunday or statutory or civic holidays without written permission from the Contract Administrator. Approval will only be granted if it is in the best interests of the City to do so. Any work for Saturday, Sunday, or holidays will be counted as a Working Day.

D19. SUBSTANTIAL PERFORMANCE

- D19.1 The Contractor shall achieve Substantial Performance within twenty-seven (27) consecutive Working Days of the commencement of the Work as specified in D16.
- D19.2 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.
- D19.3 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.

D20. TOTAL PERFORMANCE

- D20.1 The Contractor shall achieve Total Performance within ten (10) consecutive Working Days of the achievement of Substantial Performance as specified in D19.
- D20.2 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.
- D20.3 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.

D21. LIQUIDATED DAMAGES

- D21.1 If the Contractor fails to achieve Substantial Performance or Total Performance in accordance with the Contract by the days fixed herein for same, the Contractor shall pay the City the following amounts per Working Day for each and every Working Day following the days fixed herein for same during which such failure continues:
- (a) Substantial Performance – one thousand five hundred dollars (\$1,500.00);
 - (b) Total Performance – seven hundred and fifty dollars (\$750.00).
- D21.2 The amounts specified for liquidated damages in D21.1 are based on a genuine pre-estimate of the City's losses in the event that the Contractor does not achieve critical stages, Substantial Performance or Total Performance by the days fixed herein for same.
- D21.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

CONTROL OF WORK

D22. JOB MEETINGS

- D22.1 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.

D22.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever he deems it necessary.

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).

MEASUREMENT AND PAYMENT

D24. PAYMENT

D24.1 Further to C12, the City may at its option pay the Contractor by direct deposit to the Contractor's banking institution.

WARRANTY

D25. WARRANTY

D25.1 Warranty is as stated in C13.

D25.2 The Contractor shall maintain backup copies of all video and inspection data for the duration of the Warranty Period.

FORM H1: PERFORMANCE BOND
(See D11)

KNOW ALL MEN BY THESE PRESENTS THAT

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

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

_____ dollars (\$_____.)

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

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

BID OPPORTUNITY NO. 612-2011

2011 INTERCEPTOR INSPECTIONS

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 D11)

(Date)

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

RE: PERFORMANCE SECURITY - BID OPPORTUNITY NO. 612-2011
2011 INTERCEPTOR INSPECTIONS

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

(Name of Contractor)

(Address of Contractor)

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

_____ Canadian dollars.

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

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

Partial drawings are permitted.

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

(Address)

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

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

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

(Date)

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

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

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

(Name of bank or financial institution)

Per: _____
(Authorized Signing Officer)

Per: _____
(Authorized Signing Officer)

PART E - SPECIFICATIONS

GENERAL

E1. APPLICABLE SPECIFICATIONS AND DRAWINGS

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

<u>Appendix No.</u>	<u>Title</u>
A	2011 Interceptor Inspections (6 pages)
B	Fugitive Emission Material Safety Data Sheet – Hydrogen Sulphide Gas (4 pages)

<u>Drawing No.</u>	<u>Drawing Name/Title</u>
	Key Map
1	Interceptor Inspections Map 1
2	Interceptor Inspections Map 2
3	Interceptor Inspections Map 3
4	Interceptor Inspections Map 4
5	Interceptor Inspections Map 5
6	Interceptor Inspections Map 6
7	Interceptor Inspections Map 7
8	Interceptor Inspections Map 8
D-8211	Water Supply Hose Traffic Ramp
SD-019	Backflow Protection Arrangement
	Historical Drawings

- E1.4 In addition to the Contract Drawings, several historical drawings are provided for information.
- E1.5 Bidders are reminded that requests for approval of substitutes as an approved equal or an approved alternative shall be made in accordance with B6.

E2. CONFINED SPACE ENTRY

- E2.1 The Contractor shall be aware that Hydrogen Sulphide Gas is present in all underground structures connected to the City's sewer systems and has been known to accumulate in concentrations sufficient to cause serious harm or death to personnel who are not using adequate Personal Protective Equipment.
- E2.2 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 assessments and providing personal protective equipment (PPE).
- E2.2.1 Further to E2.2, the Contractor shall use an approved and properly maintained Supplied Air Breathing Apparatus when entering and working in sewers, manholes and catch basins.

E2.3 The Contractor shall also be aware that while all manholes have been fitted with ladder rungs and/or stirrups to facilitate access and egress, these fixtures should not be relied upon for the safe access or egress of manholes.

E3. WATER SUPPLY

E3.1 Further to specifications CW 1120, section 3.1, CW 2140 and CW 2145, water supply for the Work may be taken from City of Winnipeg hydrants in accordance with the following:

- (a) Water shall be taken from "white-cap" hydrants only. The location of "white-cap" hydrants are shown on the Drawings and labelled "WCH".
- (b) Submit a list of proposed "white-cap" hydrant locations to the City of Winnipeg Water Services Division (WSD) for approval. If a proposed hydrant location is not approved, the Contractor shall submit an alternate hydrant location for approval.
- (c) Only hydrants approved by WSD shall be used for water supply.
- (d) The Contractor shall supply and use a Backflow Prevention Arrangement as shown on Standard Drawing SD-019 when taking water from City hydrants. WSD will supply a meter and locks for the Backflow Prevention Arrangement.
- (e) The Contractor is permitted to turn approved hydrants on and off provided the Contractor has received training by Water Services Division and the turn-ons and turn-offs are done in the presence of the Contract Administrator.
- (f) Hydrants approved for use shall be considered to be "in the Contractor's control" from the time the City has turned the hydrant on until the Contractor has notified the City the hydrant is no longer being used and the meter box has been removed.
- (g) Between November 1 and April 30 of any year the Contractor shall take all necessary precautions to prevent freezing of hydrants and related appurtenances for hydrants in their control and shall be responsible to pump out hydrants turned off by Emergency Services. Heating and hoarding of hydrants will be required by the Contractor. All costs associated with heating and hoarding shall be included in the price of "Sewer Cleaning" and no separate measurement or payment will be made.
- (h) If a hydrant or appurtenance is damaged due to freezing or improper turn-on or turn-off procedures while in the Contractor's control, WSD will assess the damage and determine if WSD will repair the damage or if the Contractor will be responsible to repair the damage. Costs for repairs completed by WSD will be deducted from payments owing the Contractor. Repairs completed by the Contractor will be at the Contractor's expense.
- (i) Erect and maintain signage (bump signs) warning oncoming traffic of hose crossings to the satisfaction of the Contract Administrator and the Manual of Temporary Traffic Control. Construct ramps as shown on attached Drawing D-8211.
- (j) Direct hook-up of sewer flushing equipment to a hydrant is not permitted unless approved by the Contract Administrator.
- (k) WSD may instruct the Contractor to make other arrangements for hydrant turn-ons and turn-offs.

E3.2 Further to Section 3.7 of CW 1120, charges incurred for the permit 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.

E4. MISCELLANEOUS SEWER CLEANING

E4.1 Perform Miscellaneous Sewer Cleaning as required by the Contract Administrator.

E4.2 Clean sewers and other unforeseen locations using all equipment, personnel, traffic control and supporting vehicles, activities and operations employed in the performance of the Work.

E4.3 Miscellaneous sewer cleaning will be measured on a time basis and paid for at the Contract Unit Price for "Miscellaneous Sewer Cleaning". The amount to be paid will be the total number of hours spent cleaning sewers and other miscellaneous locations in this Contract, accepted and measured by the Contract Administrator. Time spent for debris disposal and mobilization/demobilization to and from the site will not be paid for.

E5. MISCELLANEOUS MANHOLE CLEANING

E5.1 For the purpose of the Work, manholes include; access manholes, control structures, and overflow chambers, as identified on the drawings and as listed in Form B: Prices.

E5.2 Perform Miscellaneous Manhole Cleaning as required by the Contract Administrator.

E5.3 Clean manholes using all equipment, personnel, traffic control and supporting vehicles, activities and operations employed in the performance of the Work.

E5.4 Miscellaneous cleaning will be measured on a time basis and paid for at the Contract Unit Price for "Miscellaneous Manhole Cleaning". The amount to be paid will be the total number of hours spent cleaning manholes and other miscellaneous locations in this Contract, accepted and measured by the Contract Administrator. Time spent for debris disposal and mobilization/demobilization to and from the site will not be paid for.

E6. SEWER INSPECTION

E6.1 Description

E6.1.1 The City of Winnipeg Specification CW 2145 shall govern the Work, except as modified herein, required to complete the interceptor inspections in the City of Winnipeg, as identified on the drawings, and as listed in Form B: Prices.

E6.1.2 For tendering purposes, the Work has been divided into separate items based on; type of sewer (gravity sewers and siphons), sewer size, inspection method (CCTV/Sonar and Laser).

E6.2 Sewer Inspection

E6.2.1 Submittals

(a) Sample Documentation:

(i) Provide a sample report of each type of inspection (e.g. SONAR, LASER, CCTV, and Gas) with your submission, including digital MPEG DVD-R video recording and corresponding magnetic data file of an actual sewer performed by each device before beginning the inspection work.

(b) In-pipe Inspection Emergency Plan

(i) The Contractor shall submit an Emergency Plan that outlines proposed methods for recovering in-line inspection equipment that has become lodged, lost or uncontrollable within the sewer. For information, the Contractor's attention is called to Clauses 3.2.1 and 4.7 of CW 2145.

E6.2.2 The general sequence of Work activities is as follows:

(a) Establish access to the inspection site as required.

(b) Mobilize to the inspection site.

(c) Erect temporary traffic control devices.

(d) Open and prepare manhole(s) for insertion of in-line inspection equipment.

(e) Perform the in-line sewer inspection.

(f) Recover the inspection equipment and close the manhole(s).

(g) Remove temporary traffic control devices.

- (h) Demobilize, or move to the next inspection site.
- (i) Carry out any restoration required as result of establishing access to the inspection site.
- (j) Process the inspection data and submit an inspection report.
- (k) The Contractor shall remove all equipment from the interceptor and secondary sewers at the end of each shift.

E6.3 Existing Conditions

E6.3.1 Interceptor Sewers:

- (a) The sewers are mostly located in Fort Garry and in St. Vital.
- (b) The sewers convey sewage to the South End Water Pollution Control Centre (SEWPCC).
- (c) The sewers are mostly located within City of Winnipeg right-of-ways, although some are located on private property.
- (d) Hydraulic analysis has not been undertaken for these sewers, but it is expected that in-line inspections are feasible under dry weather flow conditions. The Contractor shall carry out inspections, however, at times that facilitate obtaining the maximum visible image above the flow surface which are typically at the diurnal low flow periods each day.

E6.3.2 Access Manholes

- (a) Standard manhole openings are 521mm in diameter.
- (b) The City does not wish to modify manholes for equipment access. However, if manholes are required to be modified to accommodate the inspection equipment, the cost will be included in the price for inspection.

E6.3.3 The Contract drawings are based on information contained in the City's GIS database. If the Contractor has trouble interpreting the drawings, or if they believe them to be wrong, the Contract Administrator shall be approached for assistance/clarification.

The Contractor shall assist the Contract Administrator in making any required measurements for the correction of errors found on the drawings.

E6.4 Inspection Reports

E6.4.1 Further to section 3.13, a paper or "hard copy" of the inspection reports is not required and the digital format should be submitted on a CD-R.

- (a) The Contractor shall maintain backup copies of all digital video and inspection data submissions for the duration of the warranty period as stated in C13.
- (b) The Contractor shall supply a portable hard disk drive (HDD), complete with all operating software, power adaptors and USB cable, containing all video inspections and coding data to the City upon completion of the project. The HDD shall be minimum 500 GB in size, 7200 RPM, and connectable via USB 2.0.
- (c) Overall Project Deliverables are detailed in E10.

E6.5 Measurement and Payment

(a) Mobilization and Demobilization

- (i) Mobilization and demobilization will be measured as a single unit and paid for at the Contract Lump Sum Price for "Mobilization and Demobilization" to the City of Winnipeg and shall include all costs associated with mobilization and demobilization including establishing access to each inspection site and restoring the sites post-inspection.

(b) Sewer Inspections

- (i) Sewer inspections will be measured and paid for in accordance with CW 2145.

- (c) Inspection Reports
 - (i) Inspection reports will not be measured for separate payment and will be included with interceptor inspections.
- (d) Basis of Payment
 - (i) Payment will be made at the Contract Unit Price for the "Items of Work" listed on Form B: Prices, measured as specified herein, which price shall be payment in full for performing all operations herein described and all other items incidental to the Work included in this Specification.
 - (ii) For each of the Inspection Sites, seventy-five percent (75%) of the unit price bid for this Work will be paid upon reaching Total Performance. 25 percent (25%) of the bid price will be held back until the Final Inspection Report has been reviewed and acceptance inspection is completed. The holdback for receipt of the Final Inspection Report will not affect the determination or issuance of Total Performance for the Contract.

E7. SEWER INSPECTION EQUIPMENT

E7.1 Sewer Inspection Equipment

E7.1.1 In-Line sewer inspection equipment shall be comprised of a self-propelled track-mounted platform bearing multiple inspection sensors / technologies that can undertake simultaneous remote inspection in sewers of all diameter ranges.

E7.1.2 In areas where a self-propelled track-mounted platform is not possible to use during the inspections, the inspections shall be performed using a float system. The Contractor shall notify the Contract Administrator prior to the use of the float platform.

E7.2 In-Line Inspection Platform

E7.2.1 Minimum requirements of the in-line inspection platform include:

- (a) Independently controlled drive tracks that enable the platform to manoeuvre around bends and climb over debris up to 300mm in height.
- (b) Operable under partially or fully submerged flow conditions, for distances up to 2000m upstream and downstream of a single access point.
- (c) Operable in sewers of various cross-section, and constructed of standard pipe materials including brick, clay, concrete, PVC, HDPE, and steel.
- (d) Tethered to facilitate extraction of the platform from the sewer, without causing damage to the sewer infrastructure, in the event the equipment fails or otherwise becomes uncontrollable within the sewer.
- (e) Equipped with sufficient high intensity lighting to illuminate the sewer for visual inspection.
- (f) Capability for simultaneous data collection from multiple inspection sensors/technologies including, but not limited to:
 - (i) CCTV video inspection
 - (ii) Three dimensional (3D) LASER scanning
 - (iii) SONAR scanning

E7.3 In-Line Inspection Sensors / Technologies

E7.3.1 Minimum requirements of the inspection sensors / technologies include:

- (a) CCTV Video Inspection
 - (i) Equipment shall conform to CW 2145, except as modified herein.
 - (ii) Equipment shall be capable of continuously capturing digital video from first generation recordings with no frame loss, regardless of the progression of the inspection.

- (iii) Equipment shall be used to acquire continuous digital video images of the sewer for the entire length being inspected.
- ◆ Perform sewer condition coding in accordance with the requirements of the WRc Manual of Sewer Condition Classification 3Rd Edition.
 - ◆ Perform condition coding using operators who can demonstrate proficiency coding in accordance with the requirements of the WRc "Manual of Sewer Condition Classification 3Rd Edition".
 - ◆ Ensure each operator is fully trained in all aspects of sewer inspection and capable of making accurate observations and recording all conditions that may be encountered in the sewers.
 - ◆ Operators failing to meet the accuracy requirements on two occasions will not be permitted to code on the remainder of the contract until they can demonstrate to the Contract Administrator that they can code in accordance with the requirements of the WRc Manual of Sewer Condition Classification 3Rd Edition.
 - ◆ Incorporate a suitable distance-reading device to measure the location of the equipment in the pipe, to an accuracy of $\pm 0.5\%$ of the length of the inspection.

(b) Three Dimensional (3D) LASER Scanning Inspection

- (i) "Three Dimensional (3D) Laser Scanning" is a technique to determine the surface profile of mainline pipes using a three dimensional (3D) laser on the entire circumference above fluid level of the pipe which does not need to be attached to the CCTV inspection equipment.
- (ii) Three Dimensional (3D) LASER scanning equipment shall provide an accurate determination of pipe geometry (features and defects) above the fluid level.
- (iii) Scanning will be performed in areas identified by the Contract Administrator in the field after CCTV sewer inspection has taken place.
- (iv) Minimum equipment requirements are:
- ◆ The provision of laser scanning Internal Diameter and Deflection graphs will be used to quantify internal pipe wall material loss/gain or deformation (ovality and deflection) at a given location. Pipe cross-sections obtained from high resolution scans will be used to provide quantitative information regarding internal pipe diameter, including ovality. Precision Scans are produced with multi-colour indication depicting deviations from as built conditions as well as localized material gain and/or loss.
 - ◆ The laser shall be Class 1; eye-safe for operator safety.
 - ◆ Surface corrosion measurements accurate to 5mm at 3 metres in 1220mm (48 inch) pipes and larger.
 - ◆ Precision ovality / deflection detailed range laser measurement scans accurate to $\pm 1\%$.
 - ◆ Laser scanning shall be conducted in pipe entities identified by the Contract Administrator in the field and be conducted from access point to access point. Laser equipment shall be moved through the pipeline on a transport vehicle capable of supporting the laser inspection equipment above the water level.
 - ◆ Laser scans shall produce a point cloud with a maximum distance between points of 10 mm in the transverse direction and 40 mm in the longitudinal direction. The rate of scan shall not exceed 9 m / minute.
- (v) Three Dimensional (3D) Laser Scanning Inspection will be measured on a lineal meter basis and paid for at the Contract Unit Price for "Three Dimensional (3D) Laser Scanning". Number of lineal meters to be paid for will be the total number of meters from the start to the finish access point inspected in

accordance with this Specification, accepted and measured by the Contract Administrator.

- ◆ Payment will not be made until the required report submissions are accepted by the Contract Administrator.
- ◆ Payment will not be made for inspections re-performed where the Contract Administrator has determined the requirements of the Specification have not been satisfied.

(c) SONAR Scanning Inspection

- (i) SONAR scanning equipment shall accurately measure the depth to sediment or pipe surface below the fluid level at regular intervals throughout the inspection.
- (ii) Minimum equipment requirements are:
 - ◆ SONAR equipment must be programmable multi-frequency profiling sonar specifically adapted to using sound waves to locate and map subaqueous sewer irregularities by creating continuous SONAR images recorded in "real time" mode.
 - ◆ SONAR equipment shall be digital, and support a range of frequencies from 600 kHz to 2.0 MHz to minimize noise.
 - ◆ The range resolution measurement error shall be no greater than 2.0mm from distances of 1 to 4m, and no greater than 10.2mm from distances of beyond 5m.
 - ◆ The minimum detectable range for the SONAR unit shall be 150mm.
 - ◆ Error tolerances for sediment volume quantification shall be a minimum 92% accuracy for pipelines between 900mm and 1350mm diameter inclusive, and a minimum of 95% accuracy for pipelines equal to or greater than 1800mm diameter.
 - ◆ Sediment/debris calculations accurate to minimum 95% for pipes over 1800 mm (72 inch) diameter.
 - ◆ Sonar range resolution measurement error no greater than 0.08 inches from a distance of 1 to 4m (3 to 12 feet) and no greater than 0.4 inches from distances of beyond 5m (15 feet)
- (iii) Sonar Inspections will be measured on a lineal meter basis and paid for at the Contract Unit Price for "Sonar Inspections". Number of lineal meters to be paid for will be the total number of meters from the start to the finish access point inspected in accordance with this Specification, accepted and measured by the Contract Administrator.
- (iv) For each of the Inspection Sites, seventy-five percent (75%) of the unit price bid for this Work will be paid upon reaching Total Performance. 25 percent (25%) of the bid price will be held back until the Final Inspection Report has been reviewed and acceptance inspection is completed. The holdback for receipt of the Final Inspection Report will not affect the determination or issuance of Total Performance for the Contract.
 - ◆ Payment will not be made for inspections re-performed where the Contract Administrator has determined the requirements of the specification have not been satisfied.

E8. SIPHON INSPECTIONS

- E8.1 The City of Winnipeg Specification CW 2145 shall govern the Work, except as modified herein, required to complete the siphon inspections in the City of Winnipeg, as identified on the Drawings, and as listed in Form B: Prices.
- E8.2 There are four siphons that require inspection using SONAR methods.
- E8.3 There are two siphons that cross under the Red River at Bishop Grandin and two that cross the Red River immediately south of the Crescent Drive Golf Course.

- E8.4 Siphon inspections will be measured on a length basis for each size of sewer and paid for at the Contract Unit Price for "Siphon Inspection" listed on Form B: Prices. Length to be paid for will be the total length of siphon inspected in accordance with this Specification, accepted and measured by the Contract Administrator.
- E8.5 Measurement will be the total metres of siphon inspected based on footage counter of the inspection equipment used to perform the Work, and upon satisfactory confirmation of accuracy where steel tape measurement checks were confirmed on previous inspections.
- E8.6 Payment will be made at the Contract Unit Price for "Siphon Inspection" listed on Form B: Prices, measured as specified herein, which price shall be payment in full for performing all operations herein described and all other items incidental to the Work included in this Specification.
- E8.7 Payment will not be made until the required report submissions are accepted by the Contract Administrator.
- E8.8 Payment will not be made for inspections re-performed where the Contract Administrator has determined the requirements of the specification have not been satisfied.

E9. DIGITAL PANORAMIC MANHOLE INSPECTIONS

- E9.1 Manholes are defined as per E5.1.
- E9.2 Notwithstanding CW 2145, inspect manholes using digital panoramic manhole inspection system such as the IBAK PANORAMO SI or equivalent meeting the following criteria:
- (a) The inspection camera system must be 100% digital. Any analog or NTSC video camera will be deemed unacceptable.
 - (b) The inspection camera system must have two independently or simultaneously controlled digital cameras, one facing in the downward direction and one facing in the upward direction. Each camera must have a minimum of 185 degree field of view.
 - (c) The inspection camera system must provide sufficient illumination of the interior of the manhole to obtain proper exposure without introducing any motion blur. The light shall be positioned to distribute the light evenly onto the structure walls. The lighting must be able to illuminate manholes without the need of any auxiliary lighting.
 - (d) The inspection system shall produce individual images or frames with no more than 0.001 inches (0.025mm) of movement during image or frame exposure to produce crisp, clear images.
 - (e) The inspection camera must provide a minimum of 3000 line of vertical resolution in the side view and a minimum of 500 lines in the perspective view.
 - (f) Contractor is responsible for reviewing collected data, coding observations, however the City must have the ability to view the digital film file in the way that the Contractor can view them, including full control of the virtual pan and tilt.
 - (g) The digital film files must include an unfolded view of the manhole with a minimum of 3000 lines of vertical resolution.
 - (h) The digital film files must include the capability to produce a three dimensional representation of the manhole structure. This data shall be used to perform geometric measurements. This file shall be exportable to common CAD programs for further analysis.
 - (i) The digital files must include a distortion-free virtual pan and tilt allowing the review of the manhole structure from any angle from any depth. The virtual pan and tilt must be able to view 360 degrees in any direction. The virtual pan and tilt must consist of views from the top and bottom camera, any virtual pan and tilts that artificially create this view from a single camera will be deemed unacceptable due to distorted images on the direct side view.

- (j) The virtual pan and tilt and unfolded views must be able to be viewable by the City with all the required software included.
- (k) Sections 3.17.8.5, 3.17.8.6, and 3.17.8.7 are not applicable when utilizing digital panoramic methods.

E9.3 Manhole inspections will be measured on a unit basis and paid for at the Contract Unit Price for "Manhole Inspection", "Control Structure Inspection", and "Overflow Chamber Inspection" for access manholes, control structures, and overflow chambers respectively. Number of units to be paid for will be the total number of manholes inspected in accordance with this specification, accepted and measured by the Contract Administrator.

- (a) Payment will not be made until the required report submissions are accepted by the Contract Administrator.
- (b) Payment will not be made for inspections re-performed where the Contract Administrator has determined the requirements of the specification have not been satisfied.

E10. PROJECT DELIVERABLES

E10.1 The Contractor shall submit a formal Inspection Report, in paper and digital (PDF) formats, that summarizes all inspection activities and includes all inspection data in their raw format, along with any software required to view or utilize the raw data.

E10.2 The Multi-Sensor Inspection Report shall include the following information:

E10.2.1 LASER Scanning inspection:

- (a) Summaries of pipe corrosion and debris build-up, presented as unrolled colour-coded full-circumference graphical illustrations of pipe condition, over the length of the sewer inspected. Where the presence of fluids in the pipe necessitates interpolation to complete the full circumference view, the method and calculations used to support these assumptions shall be presented.
- (b) Cross-sectional scans, taken at regular intervals along the inspected sewer segment, showing measured pipe cross section superimposed over as-built pipe cross section, and colour highlighted to identify all areas of apparent cross-section loss and gain.
- (c) Summaries of pipe ovality and deflection, including:
 - (i) Vertical AND horizontal diameter plots of individual diameter measurements versus pipe length, for each section of sewer inspected.
 - (ii) Ovality plots depicting percent deviation from as-built records.
- (d) LASER data as VRML (Virtual Reality Modeling Language) 3D computer graphic representations, in WRL format, with software viewer that can be used to display and interpret the LASER data.

E10.2.2 SONAR Scanning inspection:

- (a) Graphical summaries of sediment thickness and cumulative sediment volumes in the trough of the pipe below the water line versus pipe location, and pipe capacity depicting actual versus original theoretical storage capacity.
- (b) Statistical average, minimum, and maximum values of sediment accumulation along the sewer, where appropriate, as determined by calculating the portion of the pipe obstructed by sediment and presented as a percentage of the pipe area.
- (c) Video file of SONAR data in AVI file format.

E10.3 All deliverables shall be submitted to the Contract Administrator no later than 60 days from completion of sewer inspection activities.

E11. MANHOLES WITH LIMITED ACCESS

E11.1 Manholes are defined as per E5.1.

E11.2 Manholes with limited access are those that have different degrees of access issues, ranging from no vehicular access to full vehicular access. In addition, some manholes are located on private property and require coordination with the individual landowners to facilitate establishing access and, in some cases, may be subject to certain regulatory requirements while working on the owner's property (e.g. work within a railway right-of-way).

E11.2.1 While the City of Winnipeg has right of entry to all locations along the Interceptor, the Contractor shall comply with all regulatory requirements associated with work required to be carried out on all property not owned by the City of Winnipeg and all reasonable requests and requirements of private landowners.

E11.2.2 All coordination to establish access, for the performance of all Work, and for any restoration required post-inspection to re-establish conditions to a condition equal to or better than their pre-inspection condition shall be provided by the Contractor.

E11.3 Manholes labelled as having Limited Access include the following:

Table E1: Limited Access Manholes

MH	Location	Issue(s) associated with access	Contact	Number
MH50001577	1916 St Mary's Rd	on private property; MH to Red River outfall		
MH60014417	34 University Crescent	on private property; MH is between University Cr & Agassiz Dr		
MH60016999	Acadia Junior High	In school yard		
MH00014102	CP Rail	on CP property. Contact CP for access and protocol	Terry Reid	771-0085
MH60015291	Crescent Drive Golf Course	access from South Drive through fence gates	CJ	471-7898
MH60015926	Crescent Drive Golf Course	between fairways; CJ's preference for no vehicular equipment	CJ	471-7898
MH60015933	Crescent Drive Golf Course	access from Crescent Drive Golf Course parking lot	CJ	471-7898
MH20012321	Gateway Industries Ltd.	on private property; tight working area around MH	Merv Chochinov	957-5544
MH70000472	Gateway Industries Ltd.	on private property; tight working area around MH	Merv Chochinov	957-5544
MH70000473	Gateway Industries Ltd.	on private property; tight working area around MH	Merv Chochinov	957-5544
MH50014997	Home Depot (Bishop Grandin)	MH accessible but in garden centre in between isles		
MH50007496	MB Hydro	adjacent Hydro property ¹	Louise Willison	lwillison@hydro.mb.ca
MH50007501	MB Hydro	within Hydro property ¹	Louise Willison	lwillison@hydro.mb.ca

MH	Location	Issue(s) associated with access	Contact	Number
MH70006523	1st MH north of SEWPCC	in a field		
MH60017323	Richmond Community Centre	in community centre property amongst trees		
MH50014421	St. Vital Park	No road access		
MH50014422	St. Vital Park	No road access		
MH50014423	St. Vital Park	No road access		
MH50014424	St. Vital Park	No road access		
MH50014427	St. Vital Park	No road access		
MH60013389	U of M	within U of M property - close to Bomber stadium construction		
MH60013430	U of M	within U of M property		
MH60013431	U of M	within U of M property		
MH60013885	U of M	within U of M property - close to Bomber stadium construction		

Note 1. Louise Willison will confirm if on Hydro property and advise of protocol to follow

E11.4 Any costs associated with establishing access to manholes (both limited access manholes and others), including any permits or fees associated with acquiring access, shall be the responsibility of the Contractor and shall be included in the Contractor's lump sum price for Mobilization and Demobilization.

E12. TRAFFIC CONTROL AND MAINTENANCE OF ACCESS

E12.1 Further to Section 3.7 of CW 1130 of the General 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. The "Manual of Temporary Traffic Control in Work Areas on City Streets" can be found online at: (<http://www.winnipeg.ca/publicworks/Transportation/manual-2008-03-27.pdf>).

E12.2 Work shall not be carried out on Regional Streets between 07:00 to 09:00 hours and 15:30 to 17:30 hours Monday to Friday unless approved by the Contract Administrator.

E12.3 Should the City of Winnipeg require that Work on Regional Streets be carried out at night, on Sundays or on public holidays, the Contractor shall comply without additional compensation being considered to meet these requirements.

E12.4 Regional Streets are listed in the Appendix of the City's Manual of Temporary Traffic Control which is available at <http://www.winnipeg.ca/publicworks/Transportation/manual-2008-03-27.pdf>

E12.5 Further to Section 3.8 of CW 1130 of the General Requirements parking restriction signing on Regional Streets will be done by The City of Winnipeg, Traffic Services Branch.

E12.6 The Contractor will be responsible for parking restriction signing required to perform the Work on non-regional and local residential streets. "No Parking" signs will be provided for the Contractor's use.

E12.7 Erect signs no sooner than 24 hours before the Work commences at a particular location.

- E12.8 Record the license plate numbers of vehicles already parked within the limits where the parking restriction signs are placed and fax the information to Winnipeg Police Services, Traffic Branch at 986-6998.
- E12.9 Promptly remove parking restriction signs once the Work at that location is completed. Signs shall not be left in place over a weekend if no Work will be done at that location.
- E12.10 Return signs immediately upon completion of the Work.
- E12.11 Further to Section 3.6 of CW 1130 of the General Requirements, maintain safe pedestrian crossing at intersections at all times. Only one pedestrian crossing at an intersection is to be blocked at any one time. If more than one pedestrian crossing is blocked at an intersection at the same time the Contractor shall provide flag persons to safely escort pedestrians across the intersection.
- E12.12 Do not park company or private vehicles inside the signed work zone in a manner that will block sightlines for vehicles and pedestrians approaching and crossing intersections.
- E12.13 If, in the opinion of the Contract Administrator, the placement of the Contractor's equipment creates an inordinate effect on pedestrian and (or) vehicular traffic, the Contractor shall relocate equipment until favourable traffic conditions return.

E13. NOTICES TO RESIDENTS

- E13.1 Further to CW 2140 Section 3.5 and CW 2145, the Contractor shall deliver notices provided by the Contract Administrator to residents on the affected sewer lines by 16:00 hours 2 days prior to the use of flushing equipment for either sewer cleaning or sewer inspection.
- E13.2 The notices will be in effect for a 3 day period which the Contractor will indicate with dates stamped on the envelope. The Contractor shall make every effort to complete the affected sewer lines within the notification window.
- E13.3 All costs associated with delivering notices shall be included in the price bid for "Sewer Cleaning" and "Sewer Inspection" and no separate measurement or payment will be made.

E14. DAMAGE TO CITY AND PRIVATE PROPERTY

- E14.1 All damage to City and private property caused by cleaning or inspection operations is the responsibility of the Contractor. The Contractor shall repair all damaged property to the satisfaction of the Contract Administrator. All costs associated with these repairs shall be at the Contractors own expense.
- E14.2 Notify the Contract Administrator immediately when damage to property occurs.
- E14.3 The Contractor shall provide written reports to the Contract Administrator for each property attended for investigation of damage. Reports shall include photographs of all damage, dates and times, verbal or written agreements with property owner and all actions taken or proposed to rectify the damage. Reports shall be submitted to the Contract Administrator within 24 hours of attending the property.
- E14.4 Sewers may be located in easements through private property or City owned parklands and right-of-ways where no paved access may exist. It will be the Contractors responsibility to identify these sewers and arrange for access and to restore any surface damage to private and City owned property to the satisfaction of the Contract Administrator.
- E14.5 Sewer backup or "blow-back" on private property resulting from cleaning or inspection activities is not acceptable and shall be avoided at all costs. It is expected that where this possibility exists the Contractor shall take appropriate measures such as making modifications to cleaning equipment and/or taking additional time to clean such sewers.

- E14.5.1 Cleanup of affected residences shall be done by cleaning professionals. Under no circumstances are cleaning equipment operators to enter residences unless they are neat and presentable and the Contract Administrator has received a Criminal Record Search for that individual.
- E14.5.2 Where actual sewage or "grey water" has flooded private property the Contractor shall immediately clean and disinfect all affected areas as well as flush all weeping tile. The Contractor shall immediately hire an independent IICRC certified water damage or flood restoration contractor to assess any damage to contaminated building materials such as drywall, insulation, carpets, weeping tile or sub-floors, and immediately make any required repairs.
- E14.5.3 If a residence is uninhabitable as a result of a sewer back-up the Contractor shall pay for reasonable hotel accommodations and meals for all affected residents.
- E14.6 The Contractor shall provide the Contract Administrator with a 24-hour contact number to arrange for immediate clean-up and repair of private property.