



**THE CITY OF WINNIPEG**

# **BID OPPORTUNITY**

**BID OPPORTUNITY NO. 695-2005**

**2005 COMBINED SEWER RENEWALS BY CIPP INTERNAL POINT REPAIRS –  
CONTRACT 20**

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## **PART B - BIDDING PROCEDURES**

### **B1. PROJECT TITLE**

- B1.1 2005 COMBINED SEWER RENEWALS BY CIPP INTERNAL POINT REPAIRS – CONTRACT 20

### **B2. SUBMISSION DEADLINE**

- B2.1 The Submission Deadline is 12:00 noon Winnipeg time, February 3, 2006.
- B2.2 Bid Submissions 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 GC:3.1, 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 D3.1.
- B4.2 If the Bidder finds errors, discrepancies or omissions in the Bid Opportunity, or is unsure of the meaning or intent of any provision therein, the Bidder shall notify the Contract Administrator of the error, discrepancy or omission, or request a clarification as to the meaning or intent of the provision at least five (5) Business Days prior to the Submission Deadline.
- B4.3 Responses to enquiries which, in the sole judgment of the Contract Administrator, require a correction to or a clarification of the Bid Opportunity will be provided by the Contract Administrator to all Bidders by issuing an addendum.
- B4.4 Responses to enquiries which, in the sole judgment of the Contract Administrator, do not require a correction to or a clarification of the Bid Opportunity will be provided by the Contract Administrator only to the Bidder who made the enquiry.
- B4.5 The Bidder shall not be entitled to rely on any response or interpretation received pursuant to B4 unless that response or interpretation is provided by the Contract Administrator in writing.

### **B5. ADDENDA**

- B5.1 The Contract Administrator may, at any time prior to the Submission Deadline, issue addenda correcting errors, discrepancies or omissions in the Bid Opportunity, or clarifying the meaning or intent of any provision therein.
- B5.2 The Contract Administrator will issue each addendum at least two (2) Business Days prior to the Submission Deadline, or provide at least two (2) Business Days by extending the Submission Deadline.
- B5.2.1 Addenda will be available on the Bid Opportunities page at The City of Winnipeg, Corporate Finance, Materials Management Branch internet site at <http://www.winnipeg.ca/matmgt>.

B5.2.2 The Bidder is responsible for ensuring that he has received all addenda and is advised to check the Materials Management Branch internet site for addenda shortly before submitting his Bid.

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 shall 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.

## **B7. BID SUBMISSION**

B7.1 The Bid Submission consists of the following components:

- (a) Form A: Bid;
- (b) Form B: Prices;
- (c) 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 All components of the Bid Submission 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 in ink, to constitute a responsive Bid.

B7.3 The Bid Submission shall be submitted enclosed and sealed in an envelope clearly marked with the Bid Opportunity number and the Bidder's name and address.

B7.3.1 Samples or other components of the Bid Submission 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 Submission.

B7.4 Bid Submissions submitted by facsimile transmission (fax) or internet electronic mail (e-mail) will not be accepted.

B7.5 Bid Submissions shall be submitted to:

The City of Winnipeg  
Corporate Finance Department  
Materials Management Branch  
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 shall be printed below such signatures.
- B8.4.2 All signatures shall be original and shall be witnessed except where a corporate seal has been affixed.
- 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 Submission and the Contract, when awarded, shall be both joint and several.

## **B9. PRICES**

- B9.1 The Bidder shall state a price in Canadian funds for each item of the Work identified on Form B: Prices.
- B9.2 The quantities listed on Form B: Prices are to be considered approximate only. The City will use said quantities for the purpose of comparing Bids.
- B9.3 The quantities for which payment will be made to the Contractor are to be determined by the Work actually performed and completed by the Contractor, to be measured as specified in the applicable Specifications.

## **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;
  - (b) be responsible and not be suspended, debarred or in default of any obligation to the City;
  - (c) be financially capable of carrying out the terms of the Contract;
  - (d) have all the necessary experience, capital, organization, and equipment to perform the Work in strict accordance with the terms and provisions of the Contract;
  - (e) have successfully carried out work, similar in nature, scope and value to the Work;
  - (f) employ only Subcontractors who:
    - (i) are responsible and not suspended, debarred or in default of any obligation 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 Branch internet site at <http://www.winnipeg.ca/matmgt>); and
    - (ii) have successfully carried out work similar in nature, scope and value to the portion of the Work proposed to be subcontracted to them, and are fully capable of

performing the Work required to be done in accordance with the terms of the Contract;

- (g) have a written workplace safety and health program in accordance with The Workplace Safety and Health Act (Manitoba);

B10.2 Further to B10.1(g), the Bidder shall, within three (3) Business Days of a request by the Contract Administrator, provide proof satisfactory to the Contract Administrator that the Bidder 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 - Option 1 administered by the Manitoba Heavy Construction Association's Safety, Health and Environment Program; or
- (b) a valid COR certification number under the Certificate of Recognition (COR) Program administered by the Manitoba Construction Safety Association; 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 Branch internet site at <http://www.winnipeg.ca/matmgt>.)

B10.3 The Bidder shall be prepared to 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.

B10.4 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.

B11.2 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 Bid Submissions will be opened publicly, after the Submission Deadline has elapsed, in the office of the Corporate Finance Department, Materials Management Branch, or in such other office as may be designated by the Manager of Materials.

B12.1.1 Bidders or their representatives may attend.

B12.1.2 Bid Submissions determined by the Manager of Materials, or his designate, to not include the bid security specified in B11 will not be read out.

B12.2 After the public opening, the names of the Bidders and their Total Bid Prices as read out (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 Branch internet site at <http://www.winnipeg.ca/matmgt>.

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

B12.4 The Bidder is advised that any information contained in any Bid Submission 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 GC:23.3, 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 shall:

- (a) retain the Bid Submission until after the Submission Deadline has elapsed;
- (b) open the Bid Submission 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 (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 Submission 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 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 Submission 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.

## **B16. AWARD OF CONTRACT**

B16.1 The City will give notice of the award of the Contract by way of a letter of intent, 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.

## **PART C - GENERAL CONDITIONS**

### **C1. GENERAL CONDITIONS**

C1.1 The *General Conditions for Construction Contracts* (Revision 2000 11 09) are applicable to the Work of the Contract.

C1.1.1 The *General Conditions for Construction Contracts* are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Branch internet site at <http://www.winnipeg.ca/matmgt>.

## **PART D - SUPPLEMENTAL CONDITIONS**

### **GENERAL**

#### **D1. GENERAL CONDITIONS**

- D1.1 In addition to the *General Conditions for Construction Contracts*, these Supplemental Conditions are applicable to the Work of the Contract.
- D1.2 The General Conditions are amended by striking out "The City of Winnipeg Act" wherever it appears in the General Conditions and substituting "The City of Winnipeg Charter".
- D1.3 The General Conditions are amended by striking out "Tender Package" wherever it appears in the General Conditions and substituting "Bid Opportunity".
- D1.4 The General Conditions are amended by striking out "Tender Submission" wherever it appears in the General Conditions and substituting "Bid Submission".
- D1.5 The General Conditions are amended by deleting GC:6.16 and GC:6.17. The City of Winnipeg is now within the jurisdiction of the Manitoba Ombudsman pursuant to The Ombudsman Act.

#### **D2. SCOPE OF WORK**

- D2.1 The Work to be done under the Contract shall consist of trenchless point repairs by Cured-In-Place-Pipe (CIPP) methods.
- D2.2 The major components of the Work are as follows:
- (a) Mobilization to the Site;
  - (b) Sewer cleaning and video inspection;
  - (c) Sewer preparation – Solid Debris Cutting, Intruding Connection Removal, etc.;
  - (d) Trenchless point repairs by CIPP methods;
  - (e) Surface restoration, Site cleanup and demobilization.

#### **D3. CONTRACT ADMINISTRATOR**

- D3.1 The Contract Administrator is UMA Engineering Ltd., represented by:  
Armand Delaurier, C.E.T.  
Project Coordinator  
1479 Buffalo Place, Winnipeg Manitoba R3T 1L7  
Telephone No. (204) 284-0580  
Facsimile No. (204) 475-3646
- D3.2 At the pre-construction meeting, Mr. Delaurier will identify additional personnel representing the Contract Administrator and their respective roles and responsibilities for the Work.

#### **D4. CONTRACTOR'S SUPERVISOR**

- D4.1 At the pre-construction meeting, the Contractor shall identify his designated supervisor and any additional personnel representing the Contractor and their respective roles and responsibilities for the Work.

## **D5. NOTICES**

- D5.1 Except as provided for in GC:23.2.2, all notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the Contractor shall be sent to the address or facsimile number identified by the Contractor in Paragraph 2 of Form A: Bid.
- D5.2 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the City, except as expressly otherwise required in D5.3, D5.4 or elsewhere in the Contract, shall be sent to the attention of the Contract Administrator at the address or facsimile number identified in D3.1.
- D5.3 All notices of appeal to the Chief Administrative Officer shall be sent to the attention of the Chief Financial Officer at the following address or facsimile number:
- The City of Winnipeg  
Chief Administrative Officer Secretariat  
Administration Building, 3rd Floor  
510 Main Street  
Winnipeg MB R3B 1B9  
Facsimile No.: (204) 949-1174
- D5.4 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications required to be submitted or returned to the City Solicitor shall be sent to the following address or facsimile number:
- The City of Winnipeg  
Corporate Services Department  
Legal Services Division  
185 King Street, 3rd Floor  
Winnipeg MB R3B 1J1  
Facsimile No.: (204) 947-9155

## **D6. FURNISHING OF DOCUMENTS**

- D6.1 Upon award of the Contract, the Contractor will be provided with five (5) complete sets of the Bid Opportunity. If the Contractor requires additional sets of the Bid Opportunity, they will be supplied to him at cost.

## **SUBMISSIONS**

### **D7. SAFE WORK PLAN**

- D7.1 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 GC:4.1 for the return of the executed Contract.
- D7.2 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 Branch internet site at <http://www.winnipeg.ca/matmgt>.

### **D8. INSURANCE**

- D8.1 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) all inclusive, with The City of Winnipeg and UMA Engineering Ltd. being added as an additional insured, with a cross-liability clause, such liability policy to also contain a contractual liability, an unlicensed motor vehicle liability and a products and completed operations endorsement to remain in place at all times during the performance of the Work and throughout the warranty period;
- (b) automobile liability insurance for owned and non-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;

D8.2 Deductibles shall be borne by the Contractor.

D8.3 The Contractor shall provide the City Solicitor with a certificate of insurance of each policy, in a form satisfactory to the City Solicitor, 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 GC:4.1 for the return of the executed Contract.

## **D9. PERFORMANCE SECURITY**

D9.1 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.

D9.1.1 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.

D9.2 If the bid security provided in his Bid Submission was not a certified cheque or draft pursuant to B11.1(c), the Contractor shall provide the City Solicitor with the required performance security within seven (7) Calendar Days of notification of the award of the Contract by way of letter of intent and prior to the commencement of any Work on the Site but in no event later than the date specified in GC:4.1 for the return of the executed Contract.

## **D10. SUBCONTRACTOR LIST**

D10.1 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 GC:4.1 for the return of the executed Contract.

## **D11. EQUIPMENT LIST**

D11.1 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 GC:4.1 for the return of the executed Contract.

## **D12. DETAILED WORK SCHEDULE**

- D12.1 The Contractor shall provide the Contract Administrator with a detailed work schedule at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in GC:4.1 for the return of the executed Contract.
- D12.2 The detailed work schedule shall consist of the following:
- (a) a Gantt chart for the Work based on the C.P.M. schedule; all acceptable to the Contract Administrator.
- D12.3 Further to D12.2, the C.P.M. schedule shall clearly identify the start and completion dates of all of the following activities/tasks making up the Work as well as showing those activities/tasks on the critical path:
- (a) Commencement date;
  - (b) Sewer cleaning;
  - (c) Sewer video inspections;
    - (i) pre-lining
    - (ii) post-lining
  - (d) Pipe Preparation (Solid Debris Cutting, Intruding Connection Removal, etc.);
  - (e) Trenchless point repairs;
  - (f) Manhole rehabilitation;
  - (g) Site cleanup and demobilization;
  - (h) Substantial Performance
  - (i) Total Performance
- D12.4 Further to D12.2(a), the Gantt chart shall show the time on a weekly basis, required to carry out the Work of each trade, or specification division. The time shall be on the horizontal axis, and the type of trade shall be on the vertical axis.

## **D13. SECURITY CLEARANCE**

- D13.1 Each individual proposed to perform Work:
- (a) on private property;
  - (b) within City facilities other than:
    - (i) an underground structure such as a manhole;
    - (ii) in areas and times normally open to the public;

shall be required to obtain a Criminal Record Search Certificate from the police service having jurisdiction at his place of residence.

- D13.2 Prior to the commencement of any Work, 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 Work within City facilities or on private property.



- D13.3 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 within City facilities or on private property.
- D13.4 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.
- D13.5 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 Work under the Contract within City facilities or on private property.

## **SCHEDULE OF WORK**

### **D14. COMMENCEMENT**

- D14.1 The Contractor shall not commence any Work until he is in receipt of a letter of intent from the Award Authority authorizing the commencement of the Work.
- D14.2 The Contractor shall not commence any Work on the Site until:
- (a) the Contract Administrator has confirmed receipt and approval of:
    - (i) evidence that the Contractor is 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;
    - (ii) evidence of the workers compensation coverage specified in GC:6.14;
    - (iii) the Safe Work Plan specified in D7;
    - (iv) evidence of the insurance specified in D8;
    - (v) the performance security specified in D9;
    - (vi) the Subcontractor list specified in D10;
    - (vii) the equipment list specified in D11;
    - (viii) the detailed work schedule specified in D12; and
    - (ix) the security clearances specified in D13.
  - (b) the Contractor has attended a pre-construction meeting with the Contract Administrator, or the Contract Administrator has waived the requirement for a pre-construction meeting.
- D14.3 Commencement of the Work shall be at the discretion of the Contractor provided the commencement date will allow the achievement of Substantial Performance of the work in accordance with D16.

### **D15. WORKING DAYS**

- D15.1 Further to GC:1.1(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.
- D15.2 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.

- D15.3 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.
- D15.4 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.

#### **D16. SUBSTANTIAL PERFORMANCE**

- D16.1 The Contractor shall achieve Substantial Performance within thirty-five (35) consecutive Working Days of the commencement of the Work as specified in D14.
- D16.2 Notwithstanding the above, the Contractor shall achieve Substantial Performance by no later than June 30, 2006.
- D16.3 When the Contractor considers the Work to be substantially performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Substantial Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be reinspected.
- D16.4 The date on which the Work has been certified by the Contract Administrator as being substantially performed to the requirements of the Contract through the issue of a certificate of Substantial Performance is the date on which Substantial Performance has been achieved.

#### **D17. TOTAL PERFORMANCE**

- D17.1 The Contractor shall achieve Total Performance within forty-five (45) consecutive Working Days of the commencement of the Work as specified in D14. Notwithstanding the above, the Contractor shall achieve Total Performance by no later than July 15, 2006.
- D17.2 When the Contractor or the Contract Administrator considers the Work to be totally performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Total Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be reinspected.
- D17.3 The date on which the Work has been certified by the Contract Administrator as being totally performed to the requirements of the Contract through the issue of a certificate of Total Performance is the date on which Total Performance has been achieved.

#### **D18. LIQUIDATED DAMAGES**

- D18.1 If the Contractor fails to achieve critical stages, 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 dollars (\$1,000);
  - (b) Total Performance – Five Hundred dollars (\$500).

D18.2 The amounts specified for liquidated damages in D18.1 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.

D18.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

#### **D19. SCHEDULED MAINTENANCE**

D19.1 The Contractor shall perform the following scheduled maintenance in the manner and within the time periods required by the Specifications:

(a) Warranty Inspection as specified in E2.

D19.2 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**

#### **D20. JOB MEETINGS**

D20.1 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.

D20.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever he deems it necessary.

#### **D21. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)**

D21.1 Further to GC:6.26, 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).

#### **D22. TRAFFIC CONTROL**

D22.1 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 during construction as follows.

(a) Maintain one lane of traffic in each direction on Ellice Street.

(b) Maintain one lane of traffic in each direction on Elizabeth Road.

(c) Maintain one lane of traffic in each direction on Grant Avenue.

(d) Maintain one lane of traffic in each direction on Keewatin Street.

(e) Maintain one lane of traffic in each direction on Kenaston Boulevard.

(f) Maintain one lane of traffic in each direction on Academy Road.

- (g) Maintain one lane of traffic in each direction on Logan Avenue.
- (h) Maintain one lane of traffic in each direction on Sargent Avenue.
- (i) Maintain access to private approaches at all times.

D22.2 Further to Section 3.6 of CW 1130 of the General Requirements, the Contractor shall maintain safe pedestrian crossings 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.

D22.3 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 intersections.

### **D23. WATER SUPPLY**

D23.1 Further to Section 3.14 of CW 2140 and Section 3.7 of CW 1120 of the General Requirements water supply for the Work may be taken from City of Winnipeg hydrants.

D23.2 Charges incurred for the permits and water meters shall be paid for by the Contractor when the permit is 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.

D23.3 The Contractor shall make the following arrangements for hydrant turn on and turn off.

- (a) Contact City of Winnipeg Water Services Division (WSD) for hydrant turn on and turn off required between 0800 hours and 1500 hours Monday to Friday. Notice for turn on and turn off shall be provided on the previous business day.
- (b) Contact Emergency Services Branch (986-2626) with a minimum of 2 hours notice for hydrant turn on and turn off required outside of the above hours.
- (c) The Contractor shall wait at the hydrant from the requested turn on or turn off time until City staff arrives to turn on or turn off the hydrant.

D23.4 Hydrants shall be considered to be "in the Contractor's control" from the time the City has turned the hydrant on until the City has turned the hydrant off.

D23.5 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.

D23.6 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.

D23.7 The Contractor shall provide a traffic ramp for hydrant connection hoses that cross roadways. The ramp shall be designed and constructed to not present a hazard to vehicles travelling over it and to ensure that no part of the hose is run over by a motor vehicle. Traffic ramps shall be satisfactory to the Contract Administrator.

**D24. CONFINED SPACE ENTRY**

- D24.1 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 assessments and providing personal protective equipment (PPE).
- D24.2 The Contractor shall 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.

**WARRANTY**

**D25. WARRANTY**

- D25.1 Notwithstanding GC:13.2, the Contract Administrator may permit the warranty period for a portion or portions of the Work to begin prior to the date of Total Performance if:
- (a) a portion of the Work cannot be completed because of unseasonable weather or other conditions reasonably beyond the control of the Contractor but that portion does not prevent the balance of the Work from being put to its intended use.
- D25.2 In such case, the date specified by the Contract Administrator for the warranty period to begin shall be substituted for the date specified in GC:13.2 for the warranty period to begin.

**FORM H1: PERFORMANCE BOND**  
(See D9)

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 dated the

\_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, for:

BID OPPORTUNITY NO. 695-2005

2005 COMBINED SEWER RENEWALS BY CIPP INTERNAL POINT REPAIRS – CONTRACT 20

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)

\_\_\_\_\_  
(Name of Principal)

Per: \_\_\_\_\_ (Seal)

Per: \_\_\_\_\_

\_\_\_\_\_  
(Name of Surety)

By: \_\_\_\_\_ (Seal)  
(Attorney-in-Fact)

**FORM H2: IRREVOCABLE STANDBY LETTER OF CREDIT  
(PERFORMANCE SECURITY)**  
(See D9)

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

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

RE: PERFORMANCE SECURITY - BID OPPORTUNITY NO. 695-2005

2005 COMBINED SEWER RENEWALS BY CIPP INTERNAL POINT REPAIRS – CONTRACT 20

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)



**FORM K: EQUIPMENT**  
(See D11)

2005 COMBINED SEWER RENEWALS BY CIPP INTERNAL POINT REPAIRS – CONTRACT 20

<p>1. Category/type:</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>
<p>2. Category/type:</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>
<p>3. Category/type:</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>

**FORM K: EQUIPMENT**  
(See D11)

2005 COMBINED SEWER RENEWALS BY CIPP INTERNAL POINT REPAIRS – CONTRACT 20

<p><b>4. Category/type:</b></p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>
<p><b>5. Category/type:</b></p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>
<p><b>6. Category/type:</b></p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>

## PART E - SPECIFICATIONS

### GENERAL

#### E1. APPLICABLE SPECIFICATIONS, STANDARD DETAILS AND DRAWINGS

- E1.1 *The City of Winnipeg Standard Construction Specifications* in its entirety, whether or not specifically listed on Form B: Prices, shall apply to the Work.
- E1.1.1 *The City of Winnipeg Standard Construction Specifications* is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Branch internet site at <http://www.winnipeg.ca/matmgt>.
- E1.1.2 The version in effect three (3) Business Days before the Submission Deadline shall apply.
- E1.1.3 Further to GC:2.4(d), Specifications included in the Bid Opportunity shall govern over *The City of Winnipeg Standard Construction Specifications*.
- E1.2 The following Drawings are applicable to the Work:

<u>Drawing No.</u>	<u>Drawing Name/Title</u>
	Cover Sheet
5710	Bannerman Avenue – MH at Salter Street to 1 <sup>st</sup> MH W of Aikins Street
5711	Beach Avenue – 1 <sup>st</sup> MH W of Cameron Street to MH at Cameron Street
5712	Burnell Street – 1 <sup>st</sup> MH N of Ellice Avenue to MH at Ellice Avenue
5713	Ducharme Avenue – MH at Villeneuve Avenue to 1 <sup>st</sup> MH E of Villeneuve Avenue
5714	Eaton Street – MH at Herbert Avenue to 1 <sup>st</sup> MH N of Herbert Avenue at 1 <sup>st</sup> Lane
5715	Elizabeth Road – MH at De Bourmont Avenue to 1 <sup>st</sup> MH W of De Bourmont Avenue
5716	Grant Avenue – 1 <sup>st</sup> Node W of Borbank Street to MH at Borbank Street
5717	Keewatin Street – 1 <sup>st</sup> MH N of Logan Avenue to 2 <sup>nd</sup> MH N of Logan Avenue
5718	Kenaston Boulevard – 2 <sup>nd</sup> MH S of Taylor Avenue to 1 <sup>st</sup> MH S of Taylor Avenue
5719	Kenaston Boulevard – 1 <sup>st</sup> MH N of Academy Road to MH at Academy Road
5720	Kings Drive – MH at Pasadena Avenue to MH at Townsend Avenue
5721	Lanark Avenue – 1 <sup>st</sup> MH S of Academy Road to MH at Academy Road
5722	Lindsay Street – MH at Grosvenor Avenue to MH at N PI of Grosvenor Avenue
5723	Lindsay Street – 1 <sup>st</sup> MH S of Academy Road to MH at Academy Road
5724	Lindsay Street – 1 <sup>st</sup> MH N of Academy Road to MH at Academy Road
5725	Martin Avenue – 2 <sup>nd</sup> MH W of London Street to 1 <sup>st</sup> MH E of Grey Street
5726	McCalman Avenue – 1 <sup>st</sup> MH E of Grey Street to MH at Grey Street
5727	Montrose Street – MH at Corydon Avenue to 1 <sup>st</sup> MH S of Corydon Avenue
5728	Niagara Street – MH at S PI of Corydon Avenue to 1 <sup>st</sup> MH S of Corydon Avenue
5729	Oak Street – 1 <sup>st</sup> MH S of Academy Road to MH at Academy Road
5730	Parker Avenue – MH at Wynne Street to 1 <sup>st</sup> MH E of Wynne Street
5731	Smart Street – 1 <sup>st</sup> MH N of Logan Avenue to MH at Logan Avenue
5732	Strathcona Street – 1 <sup>st</sup> MH S of Sargent Avenue to MH at Sargent Avenue
5733	Waterloo Street – 3 <sup>rd</sup> MH N of Corydon Avenue to 4 <sup>th</sup> MH N of Corydon Avenue
5734	Waverley Street – MH at Corydon Avenue to 1 <sup>st</sup> MH N of Corydon Avenue
5735	Wellington Crescent – 1 <sup>st</sup> Node S of Academy Road to 1 <sup>st</sup> MH S of Academy Road

#### E2. INTERNAL POINT REPAIRS BY CIPP METHODS

- E2.1 Description
- (a) This Specification shall cover the repair of defective sewers at select locations by trenchless methods utilizing CIPP products.

- (b) The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, material, equipment, tools, supplies, and all other things necessary for and incidental to the satisfactory performance and completion of all Works shown on the Drawings and hereinafter specified.

## E2.2 Materials

### E2.2.1 CIPP Point Repair Products

- (a) Minimum material requirements for Internal CIPP point repairs shall conform to ASTM D5813 "Standard Specification for Cured-In-Place Thermosetting Resin Sewer Pipe" and the supplemental requirements noted herein.
- (b) In accordance with ASTM D5813 and the supplemental requirements noted herein, CIPP point repairs shall be designed as Type III for end use in a fully deteriorated conduit. CIPP point repairs shall be carried out with Grade 1 – thermosetting polyester resin or Grade 2 – epoxy resin.
- (c) Ambient cure resins shall be permitted.

### E2.2.2 Verification of Existing Sewer Dimensions

- (a) Prior to manufacture of the point repair fabric tube for any location the Contractor shall site verify dimensional requirements (diameter, length, etc.) for each section of sewer where point repairs are proposed.
- (b) At each location a minimum of 2 sets of measurements shall be made on each pipe to confirm the existing pipe's cross section dimensions. The measurements shall be made at the entrance to the pipe and at a distance of 500 mm or greater within the section.
- (c) Cross section dimensions shall be obtained by the use of a set of calibrated calipers, a steel tape, or other suitable measuring device. A cloth or non-calibrated tape is not suitable for use. The measurements shall be accurate to +/- 1 mm.
- (d) Dimensional requirements for the remainder of the pipe shall be estimated based on the dimensional checks and the maintenance inspections provided herein.

## E2.3 Design Requirements

### E2.3.1 Design Objectives

- (a) The design objectives for carrying out internal point repairs by CIPP methods include:
  - (i) Maximize the structural enhancement of the point repair system by provision of a close-fit liner with no annulus between the liner and the host pipe.
  - (ii) Provide minimal impact or increase the hydraulic capacity of the rehabilitated sewer.
  - (iii) Provide a smooth transition between the point repair and the host pipe to prevent the build-up of solids and minimize wear on the point repair system due to routine sewer cleaning and maintenance activities
  - (iv) Eliminate infiltration and exfiltration at the point of repair
  - (v) Fill any existing voids outside the pipeline at the point of repair
  - (vi) Prevention of root intrusion
  - (vii) Provide sufficient chemical resistance to prevent future materials degradation related to the conveyance of sewage.
  - (viii) Minimize sewer service disruption as a result of the repair.
  - (ix) Minimize the time required to complete the repair.
  - (x) Minimize disruption to vehicular and pedestrian traffic.

- (xi) Minimize the impact of construction on commercial, industrial, and institutional enterprises.
- (b) The point repair system selected for use and the Contractor's approach to effecting internal point repairs shall be geared towards maximizing the achievement of these design objectives.

#### E2.3.2 Point Repair Liner Design

- (a) Point repair liners shall be designed in accordance with Appendix X1 of ASTM F1216 as a gravity pipe in a partially or fully deteriorated pipe condition and the supplemental requirements herein. The required design condition (partially or fully deteriorated) for each repair area is noted in Appendix A – 2005 TPR Locations and Design Conditions of these Specifications.
- (b) The liner shall be sized in accordance with the design objectives to provide a close-fit with the host pipe with no annulus with the exception of the maximum allowable diametric shrinkage due to curing permitted in ASTM D5813.
- (c) For both partially and fully deteriorated designs a design check shall be performed to confirm that the rehabilitated section of pipe will have a hydraulic capacity equal to or greater than the existing pipeline. This design check shall be based on full flow capacity and the use of Manning's formula. The assumed long-term Manning's 'n' for the CIPP section shall be 0.012. The roughness of the existing section shall be estimated based on the observed condition of the pipeline from the maintenance inspection.
- (d) The design features of the point repair system shall also include:
  - (i) Tapered end section to promote a smooth transition from point repair to host pipe.
  - (ii) A means to facilitate flow through by-pass of existing wastewater during the course of the repair.

#### E2.3.3 Point Repair Design – Partially Deteriorated

- (a) Partially deteriorated design, where specified, shall be designed in accordance with Appendix X1 of ASTM F1216 and the following minimum design checks:
  - (i) Wall thickness determination by restrained buckling analysis.
  - (ii) A design check to determine whether wall thickness will be governed by long term flexural stress.
  - (iii) Design checks to determine whether any localized thickening is required for missing segments or holes.
- (b) In the case of a pipeline with invert "flats" supplemental design checks shall be carried out to determine whether wall thickness is governed by:
  - (i) Buckling, by assuming the flat functions as a pin-ended strut.
  - (ii) Stress, by assuming the flat functions as a pinned member, subjected to axial and transverse loads.
  - (iii) Deflection, by assuming that allowable deflection is limited to 3% of the length of the flat.
- (c) For partially deteriorated design the following minimum design assumptions shall be employed:
  - (i) The groundwater load shall be calculated based on the assumption that the groundwater table is 2.0 m below the existing ground surface.
  - (ii) The combined loading shall include an allowance for an AASHTO HSS25 concentrated live load.
  - (iii) An enhancement factor (K) of 7.

- (iv) The value assumed for ovality of the existing conduit shall be a minimum of 3% unless a greater value is specified in Appendix A – 2005 TPR Locations and Design Conditions or warranted based on the Contractor's observation of the CCTV inspection prior to effecting the point repair.
- (v) The long-term value for the flexural strength shall be deemed to be:
  - the projected value at 50 years of continuous application of the design load based on the specific resin and felt composite proposed for use as established by ASTM D2990 - Standard Test Methods for Tensile, Compressive, and Flexural Creep and Creep-Rupture of Plastics
  - In the case of having no ASTM D2990 values, 25% of the flexural strength value as established by ASTM D790 Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials
- (vi) The minimum factor of safety (N) to be utilized in the restrained buckling analysis shall be 2.

#### E2.3.4 Point Repair Design - Fully Deteriorated

- (a) Fully deteriorated design, where specified, shall be based on the modified AWWA formula as detailed in Appendix X1 of ASTM F1216 and the following minimum design assumptions shall be employed:
  - (i) The total external pressure on the pipe shall include an allowance for an AASHTO HSS25 concentrated live load.
  - (ii) The minimum soil density utilized in computation of the dead load shall be 1920 kg/m<sup>3</sup>.
  - (iii) The height of water above the pipe shall be based on the assumption that the groundwater table is 2.0 m below the existing ground surface.
  - (iv) The ovality reduction factor shall be based on a minimum value of 2% unless a greater value is specified in Appendix A – 2005 TPR Locations and Design Conditions or warranted based on the Contractor's observation of the maintenance inspection prior to effecting the point repair.
  - (v) The long-term value for the flexural strength shall be deemed to be:
    - the projected value at 50 years of continuous application of the design load based on the specific resin and felt composite proposed for use as established by ASTM D2990 - Standard Test Methods for Tensile, Compressive, and Flexural Creep and Creep-Rupture of Plastics,
    - in the case of having no ASTM D2990 values, 25% of the flexural strength value as established by ASTM D790 Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials
  - (vi) The modulus of soil reaction (E's) shall be assumed to be 6900 kPa unless a higher or lower value is specified herein.
  - (vii) The minimum factor of safety (N) to be utilized in the fully deteriorated design analysis shall be 2.

#### E2.3.5 Existing Sewer Design Conditions

- (a) The assessment of liner system design conditions and site specific repairs required to accommodate lining were based on the conditions observed from sewer inspections that were performed prior to 2005 as part of the City of Winnipeg's Sewer Cleaning and Inspection Programs. Condition Coding for the sewer inspections are contained in Appendix B – Condition Coding for Sewer Inspections. Digital copies of these inspections may be obtained by request from UMA Engineering Ltd.
- (b) The Contractor shall be aware the video inspections provided were completed immediately after sewer cleaning and the amount of sediment and debris present at



the time of this Bid Opportunity may not be the same. The Contractor shall be responsible to determine the actual amount of sediment and debris in the sewers included in this Work.

- (c) The site specific design conditions and specific repair requirements are shown in Appendix A – 2005 TPR Locations and Design Conditions.

#### E2.3.6 Submittals

- (a) At least 15 days prior to commencing the Work, the following submittals are required in accordance with E4 Shop Drawings:

(i) Design Submission

- A design submission detailing all point repair thickness computations in accordance with these specifications and the Contractor's interpretation of the condition of the sewer from the maintenance/pre-lining video inspections sealed by a Professional Engineer licensed to practice in the Province of Manitoba.
- Independent third party verification of the flexural strength of the composite fabric tube and resin system(s) proposed for use based on ASTM D790 or ASTM D2990. If independent third party testing results are not available for the proposed fabric tube and resin system(s), samples of said system shall be provided to the Contract Administrator for independent test verification.
- Samples shall be provided in accordance with the requirements of E2.5.3 (full diameter confined sample). The samples shall be provided a minimum of three weeks in advance of the repair system being used on the Works of this project. The samples shall originate from a "sample repair" performed in the Contractors shop or from an "actual repair" (extension of repair at manhole) being performed on another project. The Contract Administrator shall be notified of the date and location of the sample preparation in order that they may witness the sample preparation if they choose to do so. The Contractor shall be responsible for transporting the sample to Winnipeg for testing.

(ii) Resin Samples

- The Contractor shall arrange for the manufacturer of the resin to forward a reference sample of each resin proposed for use to a test laboratory designated by the Contract Administrator to be used as a comparative reference sample for infrared spectrum testing. The supply and delivery of the sample shall be at no cost to the City. The cost of the infrared testing shall be borne by the City.
- The Contractor, at his own expense, shall deliver a sample of each resin to be used on the project, from the wet-out facility to a test laboratory designated by the Contract Administrator. The resin shall be a representative sample of the resin proposed for use prior to the addition of the catalyst. The Contract Administrator will coordinate an infrared analysis of the sample(s). The cost of the infrared testing shall be borne by the City.

(iii) The Contractor shall submit an Operations Protocol outlining:

- Details of the wet-out operation.
- Documentation that the resin proposed for use has not exceeded its shelf life as recommended by the manufacturer of the resin.
- The volume of resin to be impregnated at each repair location including the proposed excess allowance for polymerization and migration into cracks and joints of the host pipe.

(iv) The Contractor shall submit a Construction Protocol identifying:

- Limiting capacity of the flow through by-pass piping.

- Details of the proposed liner installation method.
- Means of curing proposed (ambient, steam, etc.) and quality assurance procedures in-place to determine curing requirements are achieved.
- The minimum pressure to hold the tube tight against the existing conduit and the maximum pressure so as not to damage the conduit.
- Anticipated timing for execution of the point repair and, if appropriate, for service lateral reinstatement

## E2.4 Construction Methods

### E2.4.1 Sewer Cleaning and Preparation

- (a) The Contractor shall remove all loose and solid debris and intruding connections, in accordance with the requirements of CW 2140. Sewer Cleaning and Preparation, to adequately prepare the sewer for internal point repairs.

### E2.4.2 Sewer Inspection and Identification of Point Repair Requirements

- (a) The Contractor shall perform all sewer inspections in accordance with CW 2145. A minimum of three sewer inspections shall be performed during the course of the Work:
- (i) pre-point repair inspection - after sewer cleaning and preparation for lining (WRc coding not required)
  - (ii) post-point repair inspection - subsequent to execution of the repairs and any service lateral reinstatement
  - (iii) warranty inspection –final acceptance prior to expiration of the warranty.
- (b) The pre-point repair inspection shall confirm:
- (i) That all necessary cleaning and pipe preparation work has been satisfactorily completed and that the condition of the pipe is consistent with the specific design conditions shown in Appendix A – 2005 TPR Locations and Design Conditions. Upon review of the pre-point repair inspection the Contractor shall advise the Contract Administrator of any condition that is contrary to the specific design conditions or the assumptions made by the Contractor, that may affect either long or short term performance of the repair. The Work shall not commence until the sewer has been inspected and the Contractor has provided his comment.
  - (ii) Sewer connection lateral locations, their condition, and operational status.
  - (iii) Upon review of the pre-point repair inspection the Contract Administrator will advise the Contractor of the limits required for each specific point repair. In general, the limits specified for repair will extend to a minimum of 300 mm in each direction beyond the limits of any defect that warrants repair. In the case of point repairs that terminate at sewer connections the length of the point repair shall extend a minimum distance of 300 mm beyond the limit of the connecting pipe.

The pre-point repair inspection shall be reviewed with the Contract Administrator at least 24 hours prior to performing the Work.

- (c) The post-point repair inspection shall confirm the fit and finish of the point repair system and the adequacy of any connection piping reinstatements.
- (d) The warranty lining inspection shall confirm the fit and finish of the point repair system and any repair work performed during the warranty period.

### E2.4.3 Sewer Connections Laterals

- (a) The Contractor shall confirm the exact location of all live sewer connection laterals by dye testing methods within the point repair areas.

- (b) The Contractor shall submit to the Contract Administrator a sewer connection lateral report for each sewer repair area. The report will provide the following information:
  - (i) Property serviced including the address;
  - (ii) Location of connection (chainage and clock reference);
  - (iii) Diameter of sewer connection lateral;
  - (iv) Material type of sewer connection;
  - (v) Observed condition of connection;
  - (vi) Status of connection (live or dead).

#### E2.4.4 Existing Sewer Flow during Construction

- (a) If the prevailing flow condition in the sewer to be repaired is substantially in excess of the flow through capacity of the Contractor's proposed point repair system the Contractor shall be responsible for bypassing existing sewer flow from upstream sewers during construction around the point of repair. Under no circumstances shall sewer flow be diverted directly to the environment, Land Drainage Sewers, or Storm Relief sewers.

#### E2.4.5 Weather

- (a) The Contractor shall review the Environment Canada weather forecast with the Contract Administrator prior to commencement of point repair operations.
- (b) Where the anticipated weather conditions are such that the sewer flow will substantially exceed the flow through capacity of the Contractor's proposed point repair system commencement of construction shall be delayed until favourable weather is forecast.

#### E2.4.6 Sealing at Manholes

- (a) At manhole entrances and exits, the interface between the exterior surface of the repair and the manhole shall be made watertight. The ends of the point repair shall be neatly trimmed so the liner fits flush with the manhole interior surface. Where required, the benching of the manhole shall be restored to conform to the point repair shape and the standard requirements for manhole benching.
- (b) If the point repair fails to make an adequate seal at manholes (e.g. due to broken or misaligned pipe) the Contractor shall apply a seal at that point with a resin mixture compatible with the liner.

#### E2.4.7 Reinstatement of Sewer Connection Laterals

- (a) After the point repair has adequately cured, the Contractor shall reinstate existing active sewer connection laterals and catchbasin leads. Reinstatement shall be performed from the interior of the pipeline by means of a television camera and a remote controlled cutting device. Sewer connection reinstatement (including catchbasin leads) shall fully restore 100% of the original cross sectional area of the connection. Sewer connection reinstatement may be made by manual means in man accessible and man entry diameter ranges subject to the access requirements of D24.
- (b) If there appear to be any voids between the liner and the existing sewer wall after connection reinstatement, these voids are to be filled with a non-shrink, watertight cement grout, an appropriate polyurethane grout, a resin mixture compatible with the liner system, or other approved grouting product.
- (c) If the voids are due to the condition of the existing connection and host pipe, grouting shall be measured and paid for under sewer connection lateral grouting. If the voids are due to the Contractor's method of reinstatement, deficiencies in the liner installation, or any other reason related to the Contractor's workmanship or method of operations, they shall be filled at the Contractor's expense.

#### E2.4.8 Sewer Inspections

- (a) Upon completion of the Work, the Contractor shall provide the Contract Administrator with an inspection report, prepared in accordance with CW 2145, containing the Pre and Post-Point Repair Inspections. The inspections shall be submitted prior to Total Performance. An inspection report containing the Warranty Inspection shall be submitted prior to Final Acceptance.

#### E2.5 Quality Control

E2.5.1 The following quality control records shall be compiled by the Contractor and submitted to the Contract Administrator subsequent to completion of the construction.

- (a) Resin Impregnation Summary
  - (i) A summary of the resin impregnation including the name and volume of resin supplied, the excess quantity of resin added to during the wet out to account for polymerization and migration into the host pipe, the catalyst used, the method of impregnation, the tube name and type, the method of curing, and the time and location of the operation.
- (b) Curing
  - (i) The resin supplier shall provide a curing schedule (duration and pressure) required to effect a proper cure of the resin and fabric tube composite.

#### E2.5.2 Workmanship

- (a) Completed workmanship shall conform to Clause 6.2 of ASTM D5813 and the supplementary requirements noted herein.
- (b) If the point repair liner does not fit tight against the host pipe at its termination points or at connecting pipe(s), the annular space shall be completely filled with a resin mixture compatible with the point repair system.
- (c) The termination points of the repair shall provide a smooth and uniform flow transition from the host pipe to the repair for the full circumference of the repair.
- (d) Repairs requiring multiple lengths of tube shall use a minimum tube length of 2.5m. Repair joints shall be minimized, and provide an overlap of 150mm.

#### E2.5.3 Physical Samples

- (a) Physical samples of point repairs shall be taken from:
  - (i) At locations where the point repair terminates at a manhole, point repair samples shall be secured from a section of cured liner cut from the manhole. The sample shall consist of a section of liner that has been inverted through a like-diameter form.
  - (ii) The minimum sample size shall be 250 mm in length by the full diameter. The sample shall be provided to the Contract Administrator in tact in the form. The Contractor shall provide the necessary forms for sample forming and secure the samples. The Contract Administrator shall coordinate and pay for material testing.
- (b) The Contractor shall be prepared to construct 6 field samples during the course of the Work at locations where repairs do not terminate at or in close proximity to a manhole. Field samples shall be prepared in accordance with a) at locations designated by the Contract Administrator. Samples shall consist of a section of repair material that has been inserted through a like diameter form and cured in the invert of the manhole under existing flow conditions.
- (c) A plate sample shall be prepared for each point repair undertaken in addition to the physical samples noted above from material taken from the actual repair (tube and

resin) and cured in a manhole section adjacent to the repair for the duration of the repair.

- (d) Where feasible, connection coupons of sufficient size shall be obtained from connection reinstatement operations.
- (e) All physical samples shall be tested to confirm the flexural strength and flexural modulus in accordance with the requirements of ASTM D5813 and D790.
- (f) The point repair liner thickness will be measured in accordance with the requirements of ASTM D5813 and ASTM D3567 for conformance with the design requirements.

#### E2.5.4 Sewer Inspections

- (a) Upon completion of the Work, the Contractor shall provide the Contract Administrator with an inspection report, prepared in accordance with CW 2145, containing the pre and post-lining inspections prior to Total Performance. An inspection report containing the warranty inspection shall be submitted prior to Final Acceptance.

#### E2.5.5 Sewer Connections

- (a) The liner shall be cut to reinstate the full diameter of the existing sewer connections. The finish of the cut out shall provide a smooth transition from the connection to the liner.

#### E2.5.6 Infrared Spectroscopy

- (a) The infrared spectrum of the field samples (based on the Contractor-supplied resin from the wet-out) will be compared to the reference spectrum generated from the resin sample provided by the resin manufacturer to verify the installed material acceptability.

#### E2.5.7 Post Construction Design Review for Total Performance

- (a) The Contract Administrator will perform a post-construction design review to ensure that the completed design meets the 50 year design life structural requirements prior to Total Performance. The design review shall utilize the measured values for flexural strength, flexural modulus, and liner thickness from the confined pipe or test plate sample testing.
- (b) The design strength values shall be further reduced to account for creep based on the creep reduction values recommended through ASTM D2990 testing or 75% reduction in the case of no ASTM D2990 testing to assess the suitability of the liner to meet the 50 year design life requirement. The use of full enhancement factors in this analysis shall be limited to point repairs that are confirmed by visual classification to be close-fit liners based on the post-lining sewer inspection.
- (c) The Contractor will be advised of any discrepancies between the constructed point repairs and the design requirements.
- (d) The Contractor shall be required to confirm that any point repair deemed as structurally deficient will comply with the 50 year design life requirement through further testing (e.g. confirmation of actual ovality, determination of a more representative groundwater elevation locally through monitoring, further strength testing and thickness measurements, etc.).
- (e) If further testing fails to confirm the point repair will meet the 50-year design life requirement, the Contractor shall be required to structurally enhance the installed point repair (e.g. by adding a supplemental point repair) to meet the design requirements specified herein.
- (f) Any remedial action shall be reviewed with the Contract Administrator prior to implementation.

- (g) All costs associated with further testing, monitoring or structural enhancement shall be borne entirely by the Contractor.

## E2.6 Method of Measurement and Basis of Payment

### E2.6.1 Mobilization and Demobilization

- (a) Mobilization and Demobilization will be measured on a unit basis. Mobilization shall include the supply, delivery, and set-up of equipment, personnel, and office and storage facilities to the job site. Demobilization shall include the removal of equipment, personnel, office and storage facilities, and site clean up.
- (b) Fifty percent (50%) of the Mobilization and Demobilization unit price will be paid on the first progress payment.
- (c) The remaining fifty percent (50%) of the Mobilization and Demobilization unit price will be paid subsequent to the completion of the lining and site clean up.

### E2.6.2 Internal Point Repairs

- (a) Internal Point Repairs shall be measured on a length basis for each size of internal point repair acceptably installed. The length to be paid for shall be the total number of linear metres of point repair carried out but not greater than the specified length identified for repair during the review of the pre-repair inspection.
- (b) Payment shall be at the Contract unit price for "Internal Point Repairs" for each size of repair and shall be full compensation for the supply of all equipment and materials and the performing of all operations to complete the Work as specified including any items incidental to the Work.

### E2.6.3 Reinstatement of Sewer Connections

- (a) The reinstatement of sewer connections shall be measured on a unit basis for each sewer connection that is acceptably reconnected.
- (b) Payment shall be at the Contract unit price for the "Reinstatement of Sewer Connections" and shall be compensation in full for the supply of all equipment and materials and the performing of all operations to complete the Work as specified including any items incidental to the Work.
- (c) Where additional payment is to be made for grouting at sewer connections, it shall be measured and paid for as "Sewer Connection Grouting".

### E2.6.4 Miscellaneous Repairs

- (a) Removal of Intruding Sewer Services and Solid Debris Cutting
  - (i) Removal of intruding sewer services and solid debris cutting shall be measured and paid in accordance with CW 2140.

### E2.6.5 Flow Control

- (a) Flow control shall not be measured for payment and shall not be paid separately. Payment shall be included in the prices bid for Internal Point Repairs.

## E3. PROTECTION OF TREES

E3.1 Further to Clause 2 of the Standard Provisions, the Contractor shall take the following precautionary steps to avoid damage from his construction activities to existing boulevard trees within the limits of the construction area:

E3.2 The Contractor shall not stockpile materials and soil or park vehicles and equipment on boulevards within 2 metres of trees.

- E3.3 Excavations shall be carried out in such a manner so as to minimize damage to existing root systems. Where roots must be cut to facilitate an excavation they shall be neatly pruned at the face of the excavation and coated with an appropriate wound dressing to prevent infection.
- E3.4 Work on site shall be carried out in such a manner so as to minimize damage to existing tree branches. Where damage to tree branches does occur, the Contractor shall neatly prune the damaged branch and coat them with an appropriate wound dressing to prevent infection.
- E3.5 All damages to existing trees caused by the Contractor's construction activities shall be repaired to the requirements and satisfaction of the City of Winnipeg, Parks and Recreation Department, Forestry Branch.
- E3.6 No separate measurement or payment will be made for protection of trees. It shall be considered incidental to the Contract Work.

#### **E4. SHOP DRAWINGS**

- E4.1 The Contractor shall arrange for the preparation of Shop Drawings required by the Contract or as may reasonably be required by the Contract Administrator.
- E4.2 The Contractor shall review all Shop Drawings prior to submitting same to the Contract Administrator. By this review, the Contractor represents that he has determined and verified all field measurements, field construction criteria, materials, catalogue numbers and similar data and that he has checked and coordinated each Shop Drawing with the requirements for the Work and of the Contract. The Contractor's review of each Shop Drawing shall be certified by stamp, date and signature in the manner stipulated by the Contract Administrator.
- E4.3 The Contractor shall promptly submit Shop Drawings to the Contract Administrator in an orderly sequence to prevent delay in the Work or in the Work of other Contractors. At the time of submission, the Contractor shall notify the Contract Administrator of any deviations in the Shop Drawings from the requirements of the Contract.
- E4.4 The Contract Administrator shall review the Shop Drawings promptly or in accordance with a schedule agreed upon in writing. The Contract Administrator, upon completion of the review, shall communicate either his acceptance or rejection of the Shop Drawings to the Contractor. The Contract Administrator's review and acceptance shall be for conformity to the design concept of the Work and for compliance with the Contract.
- E4.5 The acceptance of the Shop Drawings for a component or a subassembly shall not constitute acceptance of the assembly of which it is a part.
- E4.6 The review shall not relieve the Contractor of responsibility for errors and omissions in the Shop Drawings or of responsibility for meeting all requirements of the Contract unless a deviation on the Shop Drawings, identified by the Contractor, has been approved by the Contract Administrator.
- E4.7 The Contractor shall promptly make any changes in the Shop Drawings, which the Contract Administrator may require and which are consistent with the Contract and shall promptly resubmit same to the Contract Administrator for review and acceptance unless otherwise directed by the Contract Administrator. When resubmitting the Shop Drawings, the Contractor shall notify the Contract Administrator of any revisions other than those requested by the Contract Administrator.
- E4.8 No Work called for by Shop Drawings shall be undertaken by the Contractor until the Contract Administrator's review is completed and the acceptance of same has been communicated to the Contractor.

- E4.9 Each Shop Drawing shall:
- (a) be sheet size ISO A4;
  - (b) be submitted as one (1) reproducible transparency and four (4) prints;
  - (c) show, in the lower right hand corner, the following information:
    - (i) the project title;
    - (ii) the Tender Number or other project number assigned by the Contract Administrator;
    - (iii) the name of the depicted item exactly as named in the Specifications or on the Drawings;
    - (iv) the project series number and the name of the area in which item is used;
    - (v) the Specification section number (if applicable);
    - (vi) the option proposed (if applicable);
    - (vii) the drawing date (to be revised for each resubmission);
  - (d) be stamped with the seal of a Professional Engineer licensed to practice in the Province of Manitoba and signed and dated by said Engineer where required.

**E5. SUSPENSION OF WORK ACTIVITIES WHEN SEWER CONTROL GATES ARE ACTIVATED DURING PERIODS OF HIGH RIVER LEVELS**

- E5.1 The Contractor is advised that as the elevation of the Red and Assiniboine Rivers rise from the normal winter or summer levels due to spring runoff or periods of heavy rainfall the City is required to close various control gates located on sewer system outfalls. Similarly, as the elevation of the rivers drop to normal levels, the City is required to open the control gates that have been closed. Control gates begin to be closed when river levels reach elevation 224.51 (James Avenue 9.0). As well, higher river levels can cause the level of flow in sewers to be higher than normal.
- E5.2 In the event the Red and Assiniboine Rivers rise to an elevation where the City has to begin closing control gates, the Contract Administrator will direct that work activities in any sewers affected by the gate closure be suspended and the risk of runoff causing flooding in the sewer evaluated. Work will continue to be suspended as long as there is a risk of the sewer being flooded while the control gate is closed unless the Contractor provides flow control measures approved jointly by the Contract Administrator, City of Winnipeg Collection System and Flood Control Branch and Local Services Branch.
- E5.3 Similarly, as river elevations drop and the City has to open control gates that have been closed, the Contract Administrator will direct that work activities in any sewers affected by the control gate opening be suspended due to the risk of the river flooding the sewer once the gate is opened. Work will continue to be suspended as long as the sewer is being flooded from the river unless the Contractor provides flow control measures approved jointly by the Contract Administrator, City of Winnipeg Collection System and Flood Control Branch and Local Services Branch.
- E5.4 The Contractor will have no claim for extra Work or compensation as a result of suspension of Work due to the City closing and opening control gates during periods of rising and dropping river levels. If in the opinion of the Contract Administrator the suspension will cause the completion of the Work to occur after the specified date for Critical Stages or Substantial Performance and the Contractor's schedule would have reasonably permitted completion of the Work before the required date, the date for Critical Stages or Substantial Performance will be adjusted accordingly.
- E5.5 The following flood activation elevations for each site are as follows:



**Table E5.5: Flood Activation Elevations**

Repair Location						Flood Manual Activation Elevation	
Street Name	Sewer ID	Sewer Length (m)	Drawing Number	Sewer District	Lowest Invert (m)	Elevation at Site (m)	Referenced to Datum
Bannerman Ave	18176	100.8	05710	St. John's	26.45	27.35	James 20
Beach Ave	20874	106.8	05711	Roland	26.38	27.26	James 19
Burnell St	8839	78.8	05712	Aubrey	27.09	28.02	James 19
Ducharme Ave	59679	42.8	05713	St. Norbert	28.32	26.8	James 09
Eaton St	21106	38.5	05714	Roland	25.65	27.26	James 19
Elizabeth Rd	24910	98.0	05715	Windsor Park	28.11	N/A	N/A
Grant Ave	21770	42.2	05716	Ash	26.88	28.05	James 19
Keewatin St	23268	46.8	05717	Clifton	29.44	29.03	James 22
Kenaston Blvd	21151	97.6	05718	Doncaster	29.74	28.05	James 19
Kenaston Blvd	22685	87.3	05719	Ash	27.91	28.05	James 19
Kings Dr	56412	116.9	05720	South West Area 15	29.04	29.87	N/A
Lanark Ave	22	95.4	05721	Ash	26.85	28.05	James 19
Lindsay St	4	12.7	05722	Ash	26.75	28.05	James 19
Lindsay St	68	96.8	05723	Ash	24.68	28.05	James 19
Lindsay St	22555	88.1	05724	Ash	24.68	28.05	James 19
Martin Ave	20945	100.2	05725	Roland	26.19	27.26	James 19
McCalman Ave	21067	110.1	05726	Roland	24.48	27.26	James 19
Montrose St	21903	94.6	05727	Ash	29.38	28.05	James 19
Niagara St	22023	85.6	05728	Ash	28.77	28.05	James 19
Oak St	117	93.7	05729	Ash	25.95	28.05	James 19
Parker Ave	18632	85.0	05730	Cockburn	27.05	26.89	James 15
Smart St	8913	82.4	05731	Aubrey	27.693	28.02	James 19
Strathcona St	23824	99.9	05732	Clifton	27.78	29.03	James 22
Waterloo St	22106	91.9	05733	Ash	26.19	28.05	James 19
Waverley St	22129	96.9	05734	Ash	28.861	28.05	James 19
Wellington Cr	21385	30.9	05735	Ash	27.57	28.05	James 19