



THE CITY OF WINNIPEG

BID OPPORTUNITY

BID OPPORTUNITY NO. 980-2011

**INSTALLATION OF CONCRETE CULVERT AT PEMBINA HIGHWAY AND
BEAUJOLAIS COULEE**

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PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

B1.1 INSTALLATION OF CONCRETE CULVERT AT PEMBINA HIGHWAY AND BEAUJOLAIS COULEE

B2. SUBMISSION DEADLINE

B2.1 The Submission Deadline is 12:00 noon Winnipeg time, December 15, 2011.

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

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

B3. SITE INVESTIGATION

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

B4. ENQUIRIES

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

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

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

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

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

B5. ADDENDA

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

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

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

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

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

B6. SUBSTITUTES

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

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

B6.3 Requests for approval of a substitute will not be considered unless received in writing by the Contract Administrator at least four (4) 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 four (4) Business Days prior to the Submission Deadline, only to the Bidder who requested approval of the substitute.

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

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

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

B6.9 No later claim by the Contractor for an addition to the Total Bid Price because of any other changes in the Work necessitated by the use of an approved equal or an approved alternative will be considered.

B6.10 Notwithstanding B6.2 to B6.9, and in accordance with B7.6 deviations inconsistent with the Bid Opportunity document shall be evaluated in accordance with B15.1(a).

B7. BID COMPONENTS

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

B8. BID

- B8.1 The Bidder shall complete Form A: Bid, making all required entries.
- B8.2 Paragraph 2 of Form A: Bid shall be completed in accordance with the following requirements:
- (a) if the Bidder is a sole proprietor carrying on business in his own name, his name shall be inserted;
 - (b) if the Bidder is a partnership, the full name of the partnership shall be inserted;
 - (c) if the Bidder is a corporation, the full name of the corporation shall be inserted;
 - (d) if the Bidder is carrying on business under a name other than his own, the business name and the name of every partner or corporation who is the owner of such business name shall be inserted.
- B8.2.1 If a Bid is submitted jointly by two or more persons, each and all such persons shall identify themselves in accordance with B8.2.

- B8.3 In Paragraph 3 of Form A: Bid, the Bidder shall identify a contact person who is authorized to represent the Bidder for purposes of the Bid.
- B8.4 Paragraph 12 of Form A: Bid shall be signed in accordance with the following requirements:
- (a) if the Bidder is a sole proprietor carrying on business in his own name, it shall be signed by the Bidder;
 - (b) if the Bidder is a partnership, it shall be signed by the partner or partners who have authority to sign for the partnership;
 - (c) if the Bidder is a corporation, it shall be signed by its duly authorized officer or officers and the corporate seal, if the corporation has one, should be affixed;
 - (d) if the Bidder is carrying on business under a name other than his own, it shall be signed by the registered owner of the business name, or by the registered owner's authorized officials if the owner is a partnership or a corporation.
- B8.4.1 The name and official capacity of all individuals signing Form A: Bid should be printed below such signatures.
- B8.5 If a Bid is submitted jointly by two or more persons, the word "Bidder" shall mean each and all such persons, and the undertakings, covenants and obligations of such joint Bidders in the Bid and the Contract, when awarded, shall be both joint and several.

B9. PRICES

- B9.1 The Bidder shall state a price in Canadian funds for each item of the Work identified on Form B: Prices.
- B9.2 The quantities listed on Form B: Prices are to be considered approximate only. The City will use said quantities for the purpose of comparing Bids.
- B9.3 The quantities for which payment will be made to the Contractor are to be determined by the Work actually performed and completed by the Contractor, to be measured as specified in the applicable Specifications.
- B9.4 Payments to Non-Resident Contractors are subject to Non-Resident Withholding Tax pursuant to the Income Tax Act (Canada).

B10. QUALIFICATION

- B10.1 The Bidder shall:
- (a) undertake to be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba; and
 - (b) be financially capable of carrying out the terms of the Contract; and
 - (c) have all the necessary experience, capital, organization, and equipment to perform the Work in strict accordance with the terms and provisions of the Contract.
- B10.2 The Bidder and any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:
- (a) be responsible and not be suspended, debarred or in default of any obligations to the City. A list of suspended or debarred individuals and companies is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/debar.stm>
- B10.3 The Bidder and/or any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:
- (a) have successfully carried out work similar in nature, scope and value to the Work; and

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

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

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

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

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

B11. BID SECURITY

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

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

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

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

B11.1.3 The Bidder shall sign the Bid Bond.

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

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

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

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

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

B12. OPENING OF BIDS AND RELEASE OF INFORMATION

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

B12.1.1 Bidders or their representatives may attend.

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

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

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

B13. IRREVOCABLE BID

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

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

B14. WITHDRAWAL OF BIDS

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

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

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

B14.1.3 If a Bidder gives notice of withdrawal prior to the Submission Deadline, the Manager of Materials will:

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

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

B15. EVALUATION OF BIDS

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

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

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

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

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

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

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

B16. AWARD OF CONTRACT

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

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

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

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

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

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

PART C - GENERAL CONDITIONS

C0. GENERAL CONDITIONS

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

PART D - SUPPLEMENTAL CONDITIONS

GENERAL

D1. GENERAL CONDITIONS

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

D2. SCOPE OF WORK

D2.1 The Work to be done under the Contract shall consist of the construction and installation of a new 1650 millimetre diameter concrete culvert and associated slope stabilization work.

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

- (a) Site Preparation
- (b) Trenchless Installation of Concrete Culvert
- (c) Open Trench-Installation of Concrete Culvert
- (d) Inlet and Outlet Construction
- (e) Tie-Ins and Abandonments
- (f) Slope Stabilization Work
- (g) Site Restoration and Cleanup

D3. DEFINITIONS

D3.1 When used in this Bid Opportunity:

- (a) "AWWA" means American Waterworks Association
- (b) "CSA" means Canadian Standards Association
- (c) "NSF" means National Sanitation Foundation
- (d) "ASTM" means American Society for Testing and Materials
- (e) "DFO" means Department of Fisheries and Oceans
- (f) "PVC" means Polyvinyl Chloride
- (g) "CSP" means Corrugated Steel Pipe

D4. CONTRACT ADMINISTRATOR

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

Frank Iwanchuk
Senior Municipal Technician
99 Commerce Drive Winnipeg, MB R3P 0Y7
Telephone No. (204) 928-7422
Facsimile No. (204) 284-2040

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

D5. CONTRACTOR'S SUPERVISOR

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

D6. NOTICES

- D6.1 Except as provided for in C23.2.2, all notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the Contractor shall be sent to the address or facsimile number identified by the Contractor in Paragraph 2 of Form A: Bid.
- D6.2 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the City, except as expressly otherwise required in D6.3, D6.4 or elsewhere in the Contract, shall be sent to the attention of the Contract Administrator at the address or facsimile number identified in D4.1.
- D6.3 Notwithstanding C21., all notices of appeal to the Chief Administrative Officer shall be sent to the attention of the Chief Financial Officer at the following facsimile number:
- The City of Winnipeg
Chief Financial Officer
Facsimile No.: (204) 949-1174
- D6.4 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications required to be submitted or returned to the City Solicitor shall be sent to the following address or facsimile number:
- The City of Winnipeg
Legal Services Department
Attn: Director of Legal Services
185 King Street, 3rd Floor
Winnipeg MB R3B 1J1
Facsimile No.: (204) 947-9155

D7. FURNISHING OF DOCUMENTS

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

SUBMISSIONS

D8. AUTHORITY TO CARRY ON BUSINESS

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

D9. SAFE WORK PLAN

- D9.1 The Contractor shall provide the Contract Administrator with a Safe Work Plan at least five (5) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract.
- D9.2 The Safe Work Plan should be prepared and submitted in the format shown in the City's template which is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/Safety/default.stm>

D10. INSURANCE

- D10.1 The Contractor shall provide and maintain the following insurance coverage:
- (a) commercial general liability insurance, in the amount of at least two million dollars (\$2,000,000.00) inclusive, with The City of Winnipeg added as an additional insured, with a cross-liability clause, such liability policy to also contain contractual liability, unlicensed motor vehicle liability, non-owned automobile liability and products and completed operations, to remain in place at all times during the performance of the Work and throughout the warranty period;
 - (b) automobile liability insurance for owned automobiles used for or in connection with the Work in the amount of at least two million dollars (\$2,000,000.00) at all times during the performance of the Work and until the date of Total Performance;
- D10.2 Deductibles shall be borne by the Contractor.
- D10.3 The Contractor shall provide the City Solicitor with a certificate(s) of insurance, in a form satisfactory to the City Solicitor, at least two (2) Business Days prior to the commencement of any Work but in no event later than the date specified in C4.1 for the return of the executed Contract.
- D10.4 The Contractor shall not cancel, materially alter, or cause each policy to lapse without providing at least thirty (30) Calendar Days prior written notice to the Contract Administrator.

D11. PERFORMANCE SECURITY

- D11.1 The Contractor shall provide and maintain performance security until the expiration of the warranty period in the form of:
- (a) a performance bond of a company registered to conduct the business of a surety in Manitoba, in the form attached to these Supplemental Conditions (Form H1: Performance Bond), in the amount of fifty percent (50%) of the Contract Price; or
 - (b) an irrevocable standby letter of credit issued by a bank or other financial institution registered to conduct business in Manitoba and drawn on a branch located in Winnipeg, in the form attached to these Supplemental Conditions (Form H2: Irrevocable Standby Letter of Credit), in the amount of fifty percent (50%) of the Contract Price; or
 - (c) a certified cheque or draft payable to "The City of Winnipeg", drawn on a bank or other financial institution registered to conduct business in Manitoba, in the amount of fifty percent (50%) of the Contract Price.
- D11.1.1 Where the performance security is in the form of a certified cheque or draft, it will be deposited by the City. The City will not pay any interest on certified cheques or drafts furnished as performance security.
- D11.2 The Contractor shall provide the City Solicitor with the required performance security within seven (7) Calendar Days of notification of the award of the Contract by way of letter of intent and prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract.

D12. SUBCONTRACTOR LIST

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

D13. DETAILED WORK SCHEDULE

- D13.1 The Contractor shall provide the Contract Administrator with a detailed work schedule at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract.
- D13.2 The detailed work schedule shall consist of the following:
- (a) a critical path method (C.P.M.) schedule for the Work;
 - (b) a Gantt chart for the Work based on the C.P.M. schedule;
- all acceptable to the Contract Administrator.
- D13.3 Further to D13.2(a), the C.P.M. schedule shall clearly identify the start and completion dates of all of the following activities/tasks making up the Work as well as showing those activities/tasks on the critical path:
- (a) Commencement
 - (b) Site Preparation
 - (c) Construction of Shear Key
 - (d) Trenchless Installation of Concrete Culvert
 - (e) Open Trench-Installation of Concrete Culvert
 - (f) Inlet and Outlet Construction
 - (g) Tie-Ins and Abandonments
 - (h) Slope Stabilization Work
 - (i) Site Restoration and Cleanup
 - (j) Substantial Performance
 - (k) Total Performance
- D13.4 Further to D13.2(b), the Gantt chart shall show the time on a weekly basis, required to carry out the Work of each trade, or specification division. The time shall be on the horizontal axis, and the type of trade shall be on the vertical axis.

SCHEDULE OF WORK

D14. COMMENCEMENT

- D14.1 The Contractor shall not commence any Work until he is in receipt of a letter of intent from the Award Authority authorizing the commencement of the Work.
- D14.2 The Contractor shall not commence any Work on the Site until:
- (a) the Contract Administrator has confirmed receipt and approval of:
 - (i) evidence of authority to carry on business specified in D8;
 - (ii) evidence of the workers compensation coverage specified in C6.15;
 - (iii) the Safe Work Plan specified in D9;
 - (iv) evidence of the insurance specified in D10;
 - (v) the performance security specified in D11;
 - (vi) the Subcontractor list specified in D12;
 - (vii) the detailed work schedule specified in D13; and
 - (b) the Contractor has attended a pre-construction meeting with the Contract Administrator, or the Contract Administrator has waived the requirement for a pre-construction meeting.
- D14.3 The Contractor shall commence the Work on the Site within four (4) Working Days of receipt of the letter of intent.

D14.4 The City intends to award this Contract by January 9, 2012.

D14.4.1 If the actual date of award is later than the intended date, the dates specified for Commencement, Critical Stages, Substantial Performance, and Total Performance will be adjusted by the difference between the aforementioned intended and actual dates.

D15. CRITICAL STAGES

D15.1 The Contractor shall achieve critical stages of the Work in accordance with the following requirements:

- (a) Installation of concrete culvert complete with inlet and outlet structures, installation and tie-in of all related LDS piping, completion of slope stabilization work, and completion of granular fill on east side of Pembina Highway to a minimum elevation of 227.75 m as shown on the Drawings – March 15, 2012.

D15.2 The critical stage is based on Department of Fisheries and Oceans requirement to not permit any in-channel construction activity from April 1 – June 15.

D16. SUBSTANTIAL PERFORMANCE

D16.1 The Contractor shall achieve Substantial Performance by March 15, 2012.

D16.2 When the Contractor considers the Work to be substantially performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Substantial Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be reinspected.

D16.3 The date on which the Work has been certified by the Contract Administrator as being substantially performed to the requirements of the Contract through the issue of a certificate of Substantial Performance is the date on which Substantial Performance has been achieved.

D17. TOTAL PERFORMANCE

D17.1 The Contractor shall achieve Total Performance by August 15, 2012.

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 Calendar Day for each and every Calendar Day following the days fixed herein for same during which such failure continues:

- (a) Critical Stage – three thousand dollars (\$3,000);
- (b) Substantial Performance – one thousand dollars (\$1,500);
- (c) 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.

CONTROL OF WORK

D19. JOB MEETINGS

- D19.1 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.
- D19.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever he deems it necessary.

D20. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)

- D20.1 Further to C6.24, the Contractor shall be the Prime Contractor and shall serve as, and have the duties of the Prime Contractor in accordance with The Workplace Safety and Health Act (Manitoba).

MEASUREMENT AND PAYMENT

D21. PAYMENT

- D21.1 Further to C12, the City may at its option pay the Contractor by direct deposit to the Contractor's banking institution.

WARRANTY

D22. WARRANTY

- D22.1 Warranty is as stated in C13.

FORM H1: PERFORMANCE BOND
(See D11)

KNOW ALL MEN BY THESE PRESENTS THAT

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

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

_____ dollars (\$_____.)

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

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

BID OPPORTUNITY NO. 980-2011

INSTALLATION OF CONCRETE CULVERT AT PEMBINA HIGHWAY AND BEAUJOLAIS COULEE

which is by reference made part hereof and is hereinafter referred to as the "Contract".

NOW THEREFORE the condition of the above obligation is such that if the Principal shall:

- (a) carry out and perform the Contract and every part thereof in the manner and within the times set forth in the Contract and in accordance with the terms and conditions specified in the Contract;
- (b) perform the Work in a good, proper, workmanlike manner;
- (c) make all the payments whether to the Obligee or to others as therein provided;
- (d) in every other respect comply with the conditions and perform the covenants contained in the Contract; and
- (e) indemnify and save harmless the Obligee against and from all loss, costs, damages, claims, and demands of every description as set forth in the Contract, and from all penalties, assessments, claims, actions for loss, damages or compensation whether arising under "The Workers Compensation Act", or any other Act or otherwise arising out of or in any way connected with the performance or non-performance of the Contract or any part thereof during the term of the Contract and the warranty period provided for therein;

THEN THIS OBLIGATION SHALL BE VOID, but otherwise shall remain in full force and effect. The Surety shall not, however, be liable for a greater sum than the sum specified above.

AND IT IS HEREBY DECLARED AND AGREED that the Surety shall be liable as Principal, and that nothing of any kind or matter whatsoever that will not discharge the Principal shall operate as a discharge or release of liability of the Surety, any law or usage relating to the liability of Sureties to the contrary notwithstanding.

IN WITNESS WHEREOF the Principal and Surety have signed and sealed this bond the

_____ day of _____, 20____.

SIGNED AND SEALED
in the presence of:

(Witness as to Principal if no seal)

(Name of Principal)

Per: _____ (Seal)

Per: _____

(Name of Surety)

By: _____ (Seal)
(Attorney-in-Fact)

**FORM H2: IRREVOCABLE STANDBY LETTER OF CREDIT
(PERFORMANCE SECURITY)**
(See D11)

(Date)

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

RE: PERFORMANCE SECURITY - BID OPPORTUNITY NO. 980-2011

INSTALLATION OF CONCRETE CULVERT AT PEMBINA HIGHWAY AND BEAUJOLAIS
COULEE

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

(Name of Contractor)

(Address of Contractor)

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

_____ Canadian dollars.

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

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

Partial drawings are permitted.

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

(Address)

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

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

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

(Date)

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

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

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

(Name of bank or financial institution)

Per: _____
(Authorized Signing Officer)

Per: _____
(Authorized Signing Officer)

PART E - SPECIFICATIONS

GENERAL

E1. APPLICABLE SPECIFICATIONS AND DRAWINGS

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

<u>Drawing No.</u>	<u>Drawing Name/Title</u>
C311-12-01	Cover Sheet
C311-12-02	Civil – Plan/Profile of Culvert
C311-12-03	Civil – Plan/Profile of Inlet and Outlet Structures and Details
C311-12-04	Civil – Construction & Access Easements Plan

E2. SOILS INVESTIGATION REPORT

- E2.1 Further to C3.1, a geotechnical soils investigation has been completed in the vicinity of the proposed Works at Pembina Highway and Ducharme Avenue to determine the character of the subsurface soil to facilitate the design of the Work. The geotechnical report and soil test logs from 2011 are included in Appendix A. The soil test logs from 2009 are included in Appendix B.
- E2.2 Bidders are responsible for any interpretation they place on the supplied information and are expected to make such additional investigation of the soil as they feel necessary to satisfy themselves.
- E2.3 Any test holes or test pits made by the bidder shall be done in accordance with the requirements of the Water and Waste Department. Bidders shall notify the Contract Administrator prior to proceeding with any subsurface investigations.

GENERAL REQUIREMENTS

E3. OFFICE FACILITIES

- E3.1 The Contractor shall supply office facilities meeting the following requirements:
- The field office shall be conveniently located near the Site of the Work.
 - The building shall have a minimum floor area of 20 square metres, with window area of 3 square metres and a door entrance with suitable lock satisfactory to the Contract Administrator.
 - The building shall be suitable for all-weather use. It shall be capable of maintaining a temperature range between 16°C and 25°C.
 - The building shall be supplied with adequate lighting and 120 Volt power supply.
 - The building shall be furnished with one desk, one meeting table, one drafting table, one filing cabinet and six chairs, all satisfactory to the Contract Administrator.

- (f) A separate toilet with door lock shall be supplied for the Contract Administrator.
- (g) The field office shall be cleaned weekly immediately prior to the Job Site Meetings to the satisfaction of the Contract Administrator.
- (h) The provision of the field office with the aforementioned furnishings and equipment shall also include maintenance and removal of the field office, operating costs and any service installation costs.

E4. VERIFICATION OF WEIGHTS

- E4.1 All Material which is paid for on a weight basis shall be weighed on a scale certified by Consumer & Corporate Affairs, Canada.
- E4.2 All weight tickets shall have the gross weight and the time and date of weighing printed by an approved electro/mechanical printer coupled to the scale.
- E4.3 The tare weight and net weight may either be hand written or machine printed. All weights, scales and procedures shall be subject to inspection and verification by the Contract Administrator. Such inspection and verification may include, but shall not be limited to:
 - (a) Checking the Contractors or suppliers scales for Consumer & Corporate Affairs certification seals;
 - (b) Observing weighing procedures;
 - (c) Random checking of either gross or tare weight by having truck or truck trailer combinations weighed at the nearest available certified scale;
 - (d) Checking tare weights shown on delivery tickets against current tare.

E5. TRUCK WEIGHT LIMITS

- E5.1 The City shall not pay for any portion of Material which results in the vehicle exceeding the maximum gross vehicle weight allowed under The City of Winnipeg Traffic By-Law, unless such vehicle is operating under special permit.

E6. CONSTRUCTION SEQUENCING

- E6.1 Description
 - E6.1.1 This specification shall generally outline construction sequencing.
- E6.2 General Construction Sequencing for Concrete Culvert Construction
 - E6.2.1 Without limiting the Contractor's ability to plan, stage and execute the Works, the following general construction sequences and events shall be planned and incorporated in the project schedule:
 - (a) Site Preparation
 - (i) Develop site access roads and laydown areas
 - (ii) Complete clearing and grubbing along alignment of proposed culvert
 - (iii) Install erosion control devices
 - (b) Trenchless Installations
 - (i) Install shafts required to install concrete culvert
 - (ii) Install concrete culvert using trenchless method
 - (c) Construction of Shear Key
 - (i) Excavate and backfill shear key with crushed limestone, complete with clay cap

- (d) Open Trench-Installation
 - (i) Excavate existing coulee channel to depth at which suitable subgrade material is encountered
 - (ii) Install concrete culvert
- (e) Inlet and Outlet Construction
 - (i) Install bevelled concrete inlet and outlet sections
 - (ii) Construct riprap lined inlet channel
 - (iii) Construct granular riffle structure at outlet
- (f) Tie-Ins and Abandonments
 - (i) Tie-in all required LDS and CB leads to the new culvert as shown on the Drawings
 - (ii) Abandon existing 2440 mm CSP culvert and all required LDS and CB leads as shown on the Drawings using cement-stabilized fill
- (g) Slope Stabilization Work
 - (i) Complete clearing and grubbing of all areas to be filled
 - (ii) Place and compact granular material in lifts to specified slope shown on Drawing
- (h) Site Restoration and Cleanup
 - (i) Complete all final grading of slope prior to spring freshet
 - (ii) Remove all temporary erosion protection devices (silt fences and silt screens) prior to spring freshet
 - (iii) Demobilize from site.

E7. CULVERT INSTALLATION

E7.1 Description

- (a) This specification shall cover the installation of the concrete culvert at Beaujolais Creek crossing Pembina Highway by means of trenchless and open-cut methods.
- (b) The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies, and all things necessary for and incidental to the satisfactory performance and completion of all works as hereinafter specified.

E7.2 Materials

E7.2.1 General

- (a) All Materials supplied under this Specification shall be of a type approved by the Contract Administrator, and shall be subject to inspection and testing by the Contract Administrator.
- (b) The Contractor shall be responsible for the safe removal and disposal of any debris and for the supply, safe storage and handling of all Materials as set forth in the Specification. All Materials shall be handled in a careful and workman like manner, to the satisfaction of the Contract Administrator.

E7.2.2 Concrete Culvert

- (a) Concrete culvert shall be 1650 mm ID reinforced concrete straight wall jacking pipe conforming to CW 2130, CAN/CSA A257.2 and ASTM 76, Class V.
- (b) Bend and bevelled end sections shall be fabricated as shown on drawings.
- (c) Concrete pipe gaskets, flexible rubber to be in accordance with ASTM C443 and shall be supplied with the necessary lubricant.
- (d) Jacking cushions to consist of pressure treated plywood.

- (e) At least five (5) days prior to commencement of construction, the Contractor shall submit to the Contract Administrator for review shop drawings showing the culvert segments and associated materials.

E7.2.3 Incidental Materials

- (a) All incidental and miscellaneous materials required for the undertaking the works of this Specification shall be as approved by the Contract Administrator.

E7.2.4 Material Storage and Care

- (a) The culvert sections and associated materials shall be stored above ground on platforms, skids or other supports. They shall be kept free from dirt and other foreign matter, and shall be protected, as far as practical, and to prevent injury from deflection.

E7.3 Construction Methods

E7.3.1 Scope of Work

- (a) The scope of Work shall include the following items, as indicated on the Drawings and as specified herein:
 - (i) Supply of Culvert – including the supply of the culvert sections, attachments, and all other related materials.
 - (ii) Installation of Culvert – including supply and construction of any required temporary shafts and hoardings, installation of the new culvert sections, and other related works.
 - (iii) Coulee Bank and Bed Works – including tree removal, excavating, backfilling, grading, supplying and installing geotextile fabric and riprap, restoration, and all other related works.

E7.3.2 Scheduling and Methods

- (a) At least five (5) days prior to the commencement of any scheduled Work on the Site, the Contractor shall submit to the Contract Administrator for review and approval a proposed schedule, including methods and sequence of operations.

E7.3.3 Utility Locates and Protection

- (a) The Contractor shall obtain clearances from utilities in accordance with CW1120.

E7.3.4 Culvert Installation

- (a) The culvert shall be installed in accordance with CW 2030, CW 2130, and as specified herein. The section under Pembina Highway shall be installed by trenchless methods. The culvert on the East and West sides of Pembina Highway may be installed by open cut.
- (b) For installation by trenchless methods:
 - (i) Provide the locations and sizes of shafts to the Contract Administrator for review before excavating.
 - (ii) Excavate shafts and provide shoring in accordance with CW 2030.
 - (iii) Culvert sections to be jacked so bells are upgrade. Jacking cushions to be used.
 - (iv) Install pipe to the line and grade shown on the Drawings.
 - (v) Keep pipe joint deflections within the manufacturer's recommendations.
 - (vi) Repair damage to underground and surface structures due to surface subsidence and soil heaving caused by trenchless installation methods.
 - (vii) Type 3 foundations shall be used in all shafts.
 - (viii) Type 3 bedding and initial backfill shall be used in place of sand in all shafts.
 - (ix) All shafts located within paved areas shall be backfilled with Class 1 backfill as per SD-002.

- (x) Shafts to accommodate a tunnelling or jacking machine shall be constructed with a concrete foundation of sufficient cross section and trueness to adequately support and align the machine during tunnelling operations.
- (xi) Class A Bedding shall be used for coring shafts for 1650mm pipe as per SD-001.
- (c) For installation by open-cut:
 - (i) Place and compact foundation material where required, and bedding material in bottom of trench or excavation in accordance with CW 2030 and SD-001, to grade and elevation shown on the Drawings. Level across full width of trench or excavation and leave ready for pipe installation.
 - (ii) Place pipe on compacted bedding as shown on the Drawings ensuring uniform support under bell and pipe body throughout its full length. Lay pipe with bell upgrade. Install pipe to the line and grade shown on the Drawings. Pipe joint deflections to be within the manufacturer's recommendations.
 - (iii) Work and compact bedding material under sides of pipe to provide proper haunching.
 - (iv) Place and compact initial backfill above the pipe in accordance with CW2030 and SD-001, and as shown on the Drawings.
 - (v) Backfill the remainder of the trench or excavation in accordance with CW 2030 and SD-002, and as shown on the drawings.
 - (vi) Install restraint bars at last three sections of culvert on east and west side as shown on the drawings.
- (d) Temporary CSP
 - (i) Temporary 1200 mm CSP to be installed in between concrete sections.
 - (ii) Seal between CSP and concrete is to be water-tight.

E7.4 Quality Control

E7.4.1 Inspection

- (a) All workmanship and all materials furnished and supplied under this specification are subject to close and systematic inspection and testing by the Contract Administrator including all operations from the selection and production of materials through to final acceptance of the specified Work. The Contractor shall be wholly responsible for the control of all operations incidental thereto notwithstanding any inspection or acceptance that may have been previously given. The Contract Administrator reserves the right to reject any materials or Works, which are not in accordance with the requirements of this Specification.

E7.4.2 Access

- (a) The Contractor shall allow the Contract Administrator free access to all parts of the Work at all times. The Contractor shall supply samples to the Contract Administrator or his inspector for testing purposes as required. There will be no charge to the City for samples taken.

E7.5 Measurement and Payment

- E7.5.1 Culvert will be measured on a length basis. The length to be paid for shall be the total number of metres of concrete culvert installed in accordance with this Specification as computed from measurements verified by the Contract Administrator. Payment shall be at the Contract Unit Price for "Land Drainage Sewers/Drain/Culvert".

E8. TRENCHLESS EXCAVATION OBSTRUCTIONS

- E8.1 Contingency plans for removal of the obstructions encountered in trenchless excavations must be approved by the Contract Administrator and may consist of but not limited to one of the following.

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

E8.2 Where the Contract Administrator deems that the obstruction encountered represents a Change in Work, it shall be valued in accordance with GC: 7.4 (c) and the following supplemental requirements:

- (a) The first four (4) hours of handling obstructions for each occurrence shall be the responsibility of the Contractor.
- (b) Equipment rates for equipment required in support of the obstruction removal shall be compensated at the MHCA rental rates. Equipment not listed in the MHCA rate schedule shall have their rates established by the Contractor prior to the commencement of Work in accordance with the procedure documented in the MHCA rental guide for establishing equipment rental rates and shall be subject to the approval of the Contract Administrator.
- (c) Standby equipment that cannot reasonably be deployed elsewhere during the duration of the obstruction removal shall be compensated at 50% of its established rate as noted in E8.2(b) above.
- (d) Labour rates and material costs associated with obstruction removal shall be compensated as per GC: 7.4 (c) and 7.4.1 with the provision that any removal and replacement of pavements shall be compensated at the Contract Unit Price for such Work.

E9. PROTECTION OF EXISTING DISCHARGE PIPING

E9.1 The Contractor shall ensure the protection of the existing 350 mm HDPE discharge pipes and all appurtenances located north of the proposed alignment of the 1650 mm concrete culvert. It is possible that the piping may need to be utilized during a 2012 spring flooding event, therefore it is imperative that the pipe remain in functional condition throughout the duration of the project.

E9.2 The Contractor may remove the existing plywood access box and expose the existing vertical HDPE pipes in order to allow sufficient access to tie-in to the existing 900 mm concrete LDS. Care shall be taken to protect the discharge piping at all times. The plywood access box shall be replaced upon the completion of the installation of the 900 mm concrete LDS.

E9.3 The Contractor shall ensure that the outlet of the discharge pipes located on the east side of Pembina Highway remain open and undisturbed at all times. Temporary riprap shall be placed at the outlet of the discharge piping as shown on the Drawings.

E10. MAINTAINING EXISTING SEWER FLOWS, FLOW CONTROL, DIVERSIONS AND BYPASS PUMPING

E10.1 Maintaining Existing Sewer Flows, Flow Control, Diversions and Bypass Pumping required to complete the Works in the Contract shall be incidental to the Contract as per Clause 4.16.1 of CW 2130.

E11. SITE EXCAVATION AND GRADING

E11.1 Description

E11.1.1 This Specification covers grading works and shall amend and supplement Standard Specification CW 3170-R3.

E11.1.2 The Work to be done under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all Work hereinafter specified.

E11.2 Materials

E11.2.1 General

- (a) All Materials supplied under this Specification shall be of a type approved by the Contract Administrator, and shall be subject to inspection and testing by the Contract Administrator.
- (b) The Contractor shall be responsible for the safe removal and disposal of any debris and for the supply, safe storage and handling of all Materials as set forth in the Specification. All Materials shall be handled in a careful and workman like manner, to the satisfaction of the Contract Administrator.

E11.2.2 West Side of Pembina Highway

- (a) The shear key and sloped embankment on the West side of Pembina Highway shall be constructed of 150mm down crushed limestone fill.

E11.2.3 East Side of Pembina Highway

- (a) The fill on the east side of Pembina highway shall be composed of 150mm down crushed limestone fill.

E11.3 Construction Methods

E11.3.1 The construction of the shear key shall conform to the following:

- (a) The shear key shall be excavated to an elevation of 224 m (depth of 4 m).
- (b) The shear key shall be backfilled with 150 mm down crushed limestone.
- (c) Excavation and backfill operations may need to be completed in a staged sequence to maintain stability of the trench and facilitate construction.
- (d) The top of the shear key shall be sealed by a 600 mm later of compacted clay, placed in layers not exceeding 200 mm and compacted to at least 95% of maximum standard proctor density before placing subsequent layers.
- (e) Refer to the geotechnical report in Appendix A for additional information.

E11.3.2 The placement and grading of crushed limestone on the West embankment of Pembina Highway shall conform to the following:

- (a) The existing embankment shall be properly benched and compacted prior to placing material.
- (b) Granular material shall be placed in lifts not greater than 150 mm and compacted to a minimum of ninety-five (95%) percent of Standard Proctor Density.
- (c) The embankment shall be graded to a slope of 6H:1V.
- (d) Silt fencing shall be placed along the length of the toe of the slope upon completion.
- (e) Refer to the geotechnical report in Appendix A for additional information.

E11.3.3 Excavation and grading shall be to the elevations and grades as shown on the Drawings.

E11.3.4 Excavation and grading shall include the removal and disposal of snow, deleterious materials and debris from work area.

E11.3.5 The Contractor shall remove and dispose of any existing rip rap or other erosion protection at the discretion of the Contract Administrator.

E11.3.6 Excavated material, as approved by the Contract Administrator, may be used for grading purposes excluding deleterious material such as snow, frozen soil, roots, tree trunks, and rubble. Fills shall be compacted to a minimum of 95 percent of the Standard Proctor Maximum Dry Density as determined by ASTM D698.

E11.4 Measurement and Payment

- E11.4.1 Excavation of the shear key will be paid for at the Contract Unit Price per cubic metre for the "Excavation of Shear Key", measured as specified herein, which price shall be payment in full for performing all operations herein described and all other items incidental to the work included in this Specification.
- E11.4.2 The supplying, placing and compaction of 150mm down crushed limestone will be paid for at the Contract Unit Price per cubic metre for "Supply, Placement and Compaction of 150mm Down Crushed Limestone", measured as specified herein, which price shall be payment in full for performing all operations herein described and all other items incidental to the work included in this Specification.

E12. DANGEROUS WORK CONDITIONS

- E12.1 Further to clause GC 6.26 of the General Conditions, the Contractor shall be aware that underground chambers, manholes, sewers and pumping stations are considered a confined space and shall follow the "Guidelines for confined Entry Work" as published by the Manitoba Workplace Safety and Health Division.
- E12.2 The Contractor shall be aware of the potential hazards that can be encountered in manholes, sewers and pumping stations such as explosive gases, toxic gases and oxygen deficiency.
- E12.3 The air in a confined space must be tested before entry and continuously during the time that personnel are inside the space. Equipment for continuous monitoring of gases must be explosion-proof and equipped with a visible and audible alarm. The principal tests are for oxygen deficiency, explosion range and toxic gases. Testing equipment must be calibrated in accordance with manufacturer's specifications.
- E12.4 Ventilate all confined spaces including underground chambers, tunnels, pipes and shafts as required and approved by the Manitoba Workplace Safety and Health Act (the "Act"). If no ventilation is supplied, a worker must wear a respirator or supplied air to enter the confined space.
- E12.5 Workers must wear a respirator or supplied air at all times when entering a chamber, manhole or sewer where live sewage is present.
- E12.6 Provide a photo ionization detector (PID) on Site at all times to monitor potential hydrocarbon vapours in the confined spaces. The gas detector and safety equipment conforming to the Act shall be made available to the Contract Administrator for his use during inspections.
- E12.7 The Contract Administrator may issue a stop work order to the Contractor if the above guidelines are not being followed. The Contractor shall not resume his operations until the Contract Administrator is satisfied the Contractor is following the appropriate procedures. The Contractor shall have no claim for extra time or costs due to the stop work order for not following these safety guidelines.
- E12.8 The Contractor's attention is drawn to the Province of Manitoba Workplace Safety and Health Act ("the Act"), and the Regulations and Guidelines thereunder pertaining to confined entry work, and in particular the requirements for conducting hazard/risk assessments and providing personal protective equipment (PPE).
- E12.9 Provide supplied air breathing apparatus conforming to the requirements of the Act, Regulation and Guidelines for the use of the Contract Administrator where confined entry is required to allow for inspection of the Work.

E13. TEMPORARY SURFACE RESTORATIONS

- E13.1 Further to Clause 3.3 of CW 1130, the Contractor shall temporarily restore surfaces to a safe condition to the satisfaction of the Contract Administrator until permanent restoration can be completed.

- E13.1.1 Temporarily restore disturbed surfaces as follows:
- (a) Boulevards and grassed areas: backfill and level excavation to match existing surface elevation and level area.
 - (b) Concrete pavement: 150mm concrete pavement.
- E13.1.2 Maintain temporary surface restorations until permanent surface restoration is completed.
- E13.1.3 If temporarily restored surfaces are not maintained within 24 hours of being notified to do so by the Contract Administrator, the Work may be directed to be done by City forces and the cost deducted from future payments to the Contractor.
- E13.1.4 Complete permanent surface restorations within 10 working days of being directed to do so by the Contract administrator.
- E13.1.5 If permanent surface restoration is not started within 2 working days of being notified to do so by the Contract Administrator, the Work may be directed to be done by City forces and the cost deducted from future payments to the Contractor.
- E13.2 Measurement and Payment
- E13.2.1 Temporary pavement will be measured on an area basis. The area to be paid for shall be the total number of square metres of concrete installed in accordance with this Specification as computed from measurements verified by the Contract Administrator. Payment shall be at the Contract Unit Price for "Reinforced Concrete Pavement".

E14. TRAFFIC AND PEDESTRIAN CONTROL

- E14.1 Description
- (a) The Work covered under this item shall include all items relating to traffic and pedestrian control at the Site.
 - (b) The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all things necessary for and incidental to the satisfactory performance and completion of all Work as hereinafter specified.
- E14.2 Notification
- (a) The Contractor shall notify the City of Winnipeg Customer Service at 986-5640, one day in advance of traffic lane closures.
- E14.3 Construction Methods
- E14.3.1 General
- (a) Traffic control shall be carried out in accordance with the latest edition of the "Manual of Temporary Traffic Control in Work Areas on City Streets," issued by the City of Winnipeg and as specified herein.
 - (b) At no point shall more than one (1) lane closure be permitted in either direction at any point in time.
 - (c) Traffic lane and sidewalk closures shall only be undertaken if necessary and as approved by the Contract Administrator.
 - (d) Barricades shall be supplied, installed, and maintained by the Contractor and include the telephone number(s) at which the Contractor can be reached twenty-four (24) hours per day, seven (7) days per week.
 - (e) Improper signing will be sufficient reason to immediately shutdown the entire job.
- E14.4 Costs for traffic and pedestrian control will not be measured for payment and will be incidental to the Work being done.

E15. RED RIVER WATER LEVELS

E15.1 Normal Red River water levels are as follows.

- (a) Normal Summer Water Level (NSWL) (normally early June to late October) – 223.70 geodetic (approximate)
- (b) Winter Water Level (NWWL) (normally late November to late March) – 221.77 geodetic (approximate)

E15.2 Red River water levels rise considerably in the spring (typically late March) due to ice break-up and snow melt. River crest elevations of 228.00 geodetic or higher are not unusual.

E15.3 River elevation may also increase in the summer due to heavy rainfall in the areas south of Winnipeg. Summer river crests are usually lower and of shorter duration than spring crests.

E15.4 The following web site link <http://winnipeg.ca/waterandwaste/sewage/riverlevels/pastYears.stm> lists historic Red River levels month by month back to 1999. The elevations shown are in imperial measurement and are referenced to “James Avenue Datum” which is elevation 221.76 geodetic. Red River levels at the location of this river crossing will be approximately 300 millimetres higher than the elevations listed at James Avenue Datum outside of NSWL and NWWL.

E16. WATERWAYS PROTECTION

E16.1 Description

E16.1.1 All work adjacent to or crossing waterways including creeks and ditches draining in waterways is regulated by the Federal Department of Fisheries and Oceans (DFO).

E16.1.2 Complete works in accordance to DFO guidelines/regulations.

E16.2 Products

E16.2.1 Silt Fencing

- (a) Silt fencing to be woven polypropylene synthetic fibre fabric with UV stabilizers and reinforcing mesh as per Armtec Heavy Duty or approved equal, in accordance with B6.
- (b) The fabric shall be inert to commonly encountered soil chemicals, hydrocarbons, mildew and bacteria.
- (c) Wood posts shall be minimum 50 mm x 50 mm (2” x 2”) by 1.5 m in length.

E16.3 Construction Methods

E16.3.1 General

- (a) Complete erosion control works to be in accordance with current DFO and Manitoba Environment guidelines.
- (b) The following mitigation measures must be adhered to protect fish habitat:
 - (i) No in-channel construction activity shall be permitted during the time period of April 1 – June 15, as per the following Department of Fisheries and Oceans Operational Statement:
 - ◆ Os_eo21_e – Timing Windows
 - (ii) Use sediment and erosion control measures to prevent soil laden run off and silt from affecting downstream areas of the watercourse. Halt construction during periods of heavy rain or run off.
 - (iii) Monitor the work site to evaluate the effectiveness of erosion control measures and the physical stability of the creek bed and banks. Any problems are to be rectified immediately.

- (iv) Conduct the cleaning, fuelling, and servicing of equipment a minimum of 100 m from any watercourse. Equipment operating near any watercourse should be free of external grease, oil, mud, or fluid leaks.
- (v) Take necessary precautions to ensure deleterious substances, including silt, does not enter any watercourse. The deposit of deleterious substances into water frequented by fish is prohibited under the Fisheries Act.
- (vi) Remove excess material from the excavation and place where it will not erode into any watercourse. Dispose all spoil materials above the high water mark and located such that they do not re-enter any watercourses.

E16.3.2 Silt Fence Installation

- (a) Install silt fences as per Manufacturer's recommendations.
- (b) Excavate trench to place bottom of fabric a minimum of 150 mm below existing grade and backfill with compacted soil to prevent sediment flow underneath the silt fence.
- (c) Install all supporting posts on the down slope side of the fencing. Post to extend a minimum of 0.75 m below ground or until fabric reach the bottom of the trench.
- (d) Maintain silt fences throughout construction and until placement of erosion control blanket. Complete reseeding of embankment as soon as weather conditions permit upon completion of construction.

E16.4 Measurement and Payment

- E16.4.1 Silt fencing will be measured in lineal meters. The length to be paid for shall be the total number of metres of silt fence installed in accordance with this Specification as computed from measurements verified by the Contract Administrator. Payment shall be at the Contract Unit Price for "Supply and Placement of Silt Fence".

E17. GEOTEXTILE

E17.1 Description

- E17.1.1 This Specification covers the supply and installation of the geotextile fabric and shall amend and supplement Standard Specification CW 3130-R2. Sub clauses 2.1 to 2.4, 3.5 to 3.10 and 4.3 apply
- E17.1.2 The Work to be done under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all Work hereinafter specified.

E17.2 Materials

- E17.2.1 The geotextile shall be a non-woven geotextile fabric, meeting or exceeding the following properties:

NON-WOVEN GEOTEXTILE PROPERTIES			
	ASTM Test Method	Units	Minimum Average Roll Values
PHYSICAL			
Grab Tensile Strength	D-4632	N	890
Grab Tensile Elongation	D-4632	%	50
Mullen Burst	D-3786	kPa	2750
Puncture	D-4833	N	575
Trapezoidal Tear	D-4533	N	355
UV Resistance	D-4355	% @ hrs ¹	70/500
HYDRAULIC			
Apparent Opening Size	D-4751	mm	0.150
Permittivity	D-4491	sec ⁻¹	1.4
Flow Rate	D-4491	L/sec/m ²	54

¹ Percent grab tensile strength retained per hours of UV exposure following conditioning in accordance with ASTM D-4355.

E17.3 Construction Methods

E17.3.1 Geotextile shall be placed under all riprap, on a smooth graded surface. The geotextile shall be placed in such a manner that it will not excessively stretch or tear upon placement of the overlying materials. Care shall be taken to ensure that the geotextile is in intimate contact with the subgrade and that there are no void spaces between the subgrade and the geotextile.

E17.3.2 Installation, handling and storage of geotextile fabric shall conform to the manufacturer's recommendations.

E17.3.3 If more than one piece of fabric is used to cover the ground surface the joints shall be overlapped by 0.6 m, in a shingle pattern, with the up-slope pieces overlapping the down-slope pieces and the up-stream pieces overlapping the down-stream pieces.

E17.3.4 Tears or other damage in the geotextile fabric shall be repaired with a piece of geotextile fabric placed over the damaged area and extending 1.0 m in all directions beyond the damaged area. Damaged or torn geotextile shall be replaced or repaired at the Contractors expense.

E17.4 Measurement and Payment

E17.4.1 Geotextile fabric will be measured on an area basis. The area to be paid for shall be the total number of square metres of geotextile fabric installed in accordance with this Specification as computed from measurements verified by the Contract Administrator. Payment shall be at the Contract Unit Price for "Supply and Placement of Geotextile".

E18. RIP-RAP

E18.1 Description

E18.1.1 This Specification covers all operations necessary for placing rip-rap, as erosion protection or for velocity control along the coulee, as shown on the drawings or determined by the Contract Administrator. This Specification amends and supplements Standard Specification CW 3615.

E18.1.2 The Work to be done under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all Work hereinafter specified.

E18.2 Materials

E18.2.1 Rip-rap shall be manufactured from hard, durable limestone that is resistant to the action of water and frost and suitable in all respects for the purpose intended. The rip-rap shall be in accordance with CW 3615.

E18.2.2 Acceptance of Material

- (a) The Contractor shall submit the proposed supplier and location of the rock and confirm that sufficient quantity of specified rock is available at least (10) Business Days prior to the commencement of the Construction
- (b) The Contract Administrator shall perform the necessary tests to determine compliance with the specified properties.

E18.3 Construction Methods

E18.3.1 Rip-rap shall be installed to the elevations, grades, thickness and dimensions as shown on the Drawings, or as directed by the Contract Administrator.

E18.3.2 Rip-rap shall be placed in a manner that prevents damage to the geotextile.

E18.3.3 Rip-rap shall be placed in a manner such that larger pieces are uniformly distributed, smaller rocks fill the spaces between the larger rocks, and that excessive segregation of the various rock sizes does not occur.

E18.3.4 The placement and grading of rip-rap for construction of the outlet structure shall conform to the following:

- (a) The outlet structure is to be constructed as a riffle structure, meant to create a pooling effect upstream of the structure. Rip-rap shall be placed and compacted at a slope of 4H:1V on the upstream side of the riffle and a 20H:1V slope on the downstream side of the riffle. The crest of the riffle shall be v-shaped to allow low flows to be concentrated at the center of the crest, as shown in the Drawings.
- (b) A 200 mm PVC drain shall be constructed alongside of the outlet structure to allow the upstream pool to be drained prior to winter freeze up. The purpose of this it to prevent any standing water from freezing in the proposed gate chamber, which is to be constructed in the future.

E18.4 Measurement and Payment

E18.4.1 Supply and installation of rip-rap will be measured and paid for on a weight basis. The weight to be paid for shall be the total number of Tonnes of riprap delivered and placed in accordance with this Specification and as accepted by the Contract Administrator. Payment shall be at the Contract Unit Price "Supply and Placement of Rip-rap".

E19. PROTECTION OF EXISTING TREES

E19.1 The Contractor shall take the following precautionary steps to avoid damage from his construction activities to existing boulevard trees within and adjacent to the limits of construction:

- (a) The Contractor shall not stockpile materials and soil or park vehicles and equipment on boulevards within 2 metres of any tree.
- (b) Mature tree trunks shall be strapped with 25 x 150 x 2400 (1" x 6" x 8') wood planks. Smaller trees shall be similarly protected using appropriately sized wood planks.
 - (i) Excavations shall be carried out in such a manner so as to minimize damage to existing root systems. Roots over 50mm in diameter which must be cut to facilitate an excavation shall be neatly pruned with a saw prior to excavation and coated with an appropriate wound dressing to prevent infection.
 - (ii) 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.

- (c) American elm trees are not to be pruned between April 1st and August 1st and Siberian elm trees between April 1st and July 1st of any year under provisions of The Dutch Elm Disease Act.
- E19.2 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, Public Works Department, Urban Forestry Branch.
- E19.3 No separate measurement or payment will be made for protection of trees. It shall be considered incidental to the Contract Work.