



THE CITY OF WINNIPEG

BID OPPORTUNITY

BID OPPORTUNITY NO. 83-2006

CULVERT AND DRAINAGE INLET PROTECTION

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PART B - BIDDING PROCEDURES

B1. PROJECT TITLE

B1.1 CULVERT AND DRAINAGE INLET PROTECTION

B2. SUBMISSION DEADLINE

B2.1 The Submission Deadline is 12:00 noon Winnipeg time, April 6, 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 providing inlet protection at seven (7) locations known to have inlet conditions that are not in compliance with the City of Winnipeg's Culvert and Drainage Inlet Safety Guidelines.
- D2.2 The major components of Work are as follows:
- (a) Beaverdam Creek – West of Charleswood Rd. - Install a 1200x2400 box culvert inlet structure with safety grate on existing 1650x1015mm arch pipe.
 - (b) Beaverdam Creek – Southwest of Roblin Blvd. and Berkley - Remove existing vertical inlet grate from 1500mm inlet and install a 1200x2400mm box culvert inlet structure with safety grate.
 - (c) Roblin Blvd. at Assiniboine Zoo – Bus Loop - Install a Type III inlet with safety grate on the existing 450mm circular pipe.
 - (d) 1135 Plessis Rd. – Remove existing vertical inlet grate and approximately 7.5 m 600mm CSP, and install 9m 600 CSP and Type III inlet with safety grate.
 - (e) John Black Avenue – South Side – Remove existing ditch inlet device and install a Type I ditch inlet grate.
 - (f) Fernbank Avenue at CNR track – Southeast Corner - Remove existing inlet protection device and install a Type I inlet grate.

D3. CONTRACT ADMINISTRATOR

- D3.1 The Contract Administrator is UMA Engineering Ltd., represented by:
- Wally Jackson, P. Eng., CIM
Project Engineer
1479 Buffalo Place
Winnipeg, MB R3T 1L7
- Telephone No. (204) 284-0580
Facsimile No. (204) 475-3646

D3.2 At the pre-construction meeting, Mr. Jackson 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.

D8.4 The Contractor shall not cancel, materially alter, or cause each policy to lapse without providing at least fifteen (15) Calendar Days prior written notice to the Contract Administrator.

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. DETAILED WORK SCHEDULE

D11.1 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. SECURITY CLEARANCE

D12.1 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.

D12.2 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.

D12.3 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.

D12.4 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.

D12.5 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

D13. COMMENCEMENT

D13.1 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.

D13.2 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 detailed work schedule specified in D11; and
 - (viii) the security clearances specified in D12.
- (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. SUBSTANTIAL PERFORMANCE

- D14.1 The Contractor shall achieve Substantial Performance by February 18, 2007.
- D14.2 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.
- D14.3 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.

D15. TOTAL PERFORMANCE

- D15.1 The Contractor shall achieve Total Performance by February 28, 2007.
- D15.2 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.
- D15.3 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.

D16. LIQUIDATED DAMAGES

- D16.1 If the Contractor fails to achieve Substantial Performance or Total Performance in accordance with the Contract by the days fixed herein for same, the Contractor shall pay the City the following amounts per Working Day for each and every Working Day following the days fixed herein for same during which such failure continues:
- (a) Substantial Performance – one thousand five hundred dollars (\$1,500.00);
 - (b) Total Performance – five hundred dollars (\$500.00).

- D16.2 The amounts specified for liquidated damages in D16.1 are based on a genuine pre-estimate of the City's losses in the event that the Contractor does not achieve Substantial Performance or Total Performance by the days fixed herein for same.
- D16.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

CONTROL OF WORK

D17. JOB MEETINGS

- D17.1 Regular bi-weekly job meetings will be held at the Site. These meetings shall be attended by a minimum of one representative of the Contract Administrator, one representative of the City and one representative of the Contractor. Each representative shall be a responsible person capable of expressing the position of the Contract Administrator, the City and the Contractor respectively on any matter discussed at the meeting including the Work schedule and the need to make any revisions to the Work schedule. The progress of the Work will be reviewed at each of these meetings.
- D17.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever he deems it necessary.

D18. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)

- D18.1 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).

D19. TRAFFIC CONTROL AND MANAGEMENT

- D19.1 Further to Section 3.7 of CW 1130 of the General Requirements the Contractor shall be responsible to redirect and maintain traffic as required 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.
- D19.2 Further to Section 3.6 of CW 1130 of the General Requirements, the Contractor shall maintain safe pedestrian crossing at intersections at all times. If possible, only one pedestrian crossing at an intersection is to be blocked by construction at any one time. If more than one pedestrian crossing is blocked by construction at an intersection at the same time the Contractor shall provide flag persons to safely escort pedestrians across the intersection. The Contractor shall leave pedestrian crossing locations safe and free of equipment that may hamper pedestrians when no construction activities are being performed at a particular crossing location.
- D19.3 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.

D20. WATER USED ON CITY OF WINNIPEG PROJECTS

- D20.1 Further to Section 3.7 of CW 1120, charges incurred for the permits and water meters shall be paid for by the Contractor when taken out. The Contractor shall forward the invoice to the Contract Administrator for reimbursement. The billing for water usage sent to the Contractor shall be forwarded to the Contract Administrator for payment. The Bid Opportunity number shall be noted on each permit.

D21. CONFINED SPACE ENTRY

- D21.1 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).
- D21.2 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

D22. WARRANTY

- D22.1 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.
- D22.1.1 In such case, the date specified by the Contract Administrator for the warranty period to begin shall be substituted for the date specified in 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. 83-2006

CULVERT AND DRAINAGE INLET PROTECTION

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. 83-2006

CULVERT AND DRAINAGE INLET PROTECTION

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, 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>
LD-3317	Cover Sheet Beaverdam Creek at Charleswood Road – Type IV Retrofit between Betsworth Avenue and Roblin Boulevard
LD-3318	Beaverdam Creek at Berkley Street – Type IV Retrofit at Roblin Boulevard
LD-3319	Roblin Boulevard – Type III Retrofit between Chalfont Road and Shaftsbury Boulevard
LD-3320	Plessis Road – Type III Retrofit between CNR Redditt Subdivision and Kernaghan Avenue
LD-3321	John Black Avenue – Type I Retrofit between Main Street and Scotia Street
LD-3322	Fernbank Avenue – Type I Retrofit at CPR PL Winnipeg Beach Subdivision

E2. TYPE IV PRECAST DITCH INLET STRUCTURE

- E2.1 Description
- E2.1.1 General
- (a) This specification shall cover the installation of the new Type IV precast ditch inlet structures on Beaverdam Creek, west of Charleswood Road, and on Beaverdam Creek at Roblin Boulevard and Berkley Street.
 - (b) Referenced Standard Construction Specifications
 - (i) CW 1130- Site Requirements
 - (ii) CW 2030- Excavation Bedding and Backfill
- E2.2 Materials
- E2.2.1 Precast Ditch Inlet Structure
- (a) Supply precast ditch inlet structure as shown on the Drawings.
- E2.2.2 Miscellaneous Metals
- (a) Steel
 - (i) Structural steel shapes and accessories shall conform to CSA Standard G40.21-92, 300 MPa, except 350 MPa Class C for H.S.S. steel shapes, Grade W Structural Quality Steels (2C).
 - (ii) All metal shall be free from scale, buckles, pits and other defects. All structural steel shall be hot dip galvanized upon completion of component fabrication.

- (b) Fasteners
 - (i) Anchor bolts and other fasteners shall be stainless steel and shall conform to ASTM A276 Type 316 unless otherwise shown on the Drawings.
- (c) Galvalloy
 - (i) Galvalloy shall be supplied by Metalloy Products Company, P.O. Box#3093, Terminal Annex, Los Angeles, California. Locally, this is available from Welders Supplies Ltd., 25 McPhillips Street.

E2.2.3 Miscellaneous Materials

- (a) Supply all miscellaneous materials as noted on the Drawings.

E2.2.4 Backfill

- (a) Backfill shall be in accordance with CW 2030, Class 2 backfill except compaction shall be to a density of 95% of the maximum dry density as determined by the Standard Proctor Compaction Test.

E2.3 Construction Methods

E2.3.1 Disposal of Excavated Material

- (a) Disposal of excavated material shall be in accordance with CW 1130.

E2.3.2 Miscellaneous Metals

- (a) Assembly
 - (i) Material intended for use in the various assemblies shall be straight, clean, sharply defined profiles, assembled in such a way that no disfigurements will show in the finished work, or impair the strength. Upon completion of fabrication and assembly, all exposed steel shapes shall be hot dip galvanized.
- (b) Welding
 - (i) All steel welding shall conform to CSA Standard W.59-M1989. The fabricator shall be fully approved by the Canadian Welding Bureau, in conformance with CSA Standard W.47.1. Welding shall be done by currently licensed welders only. Welding spatter and other fabricator burrs where exposed shall be ground or filed smooth and left ready for subsequent operations.
- (c) Hot Dip Galvanizing
 - (i) All exposed steel, after fabrication, shall be hot dip galvanized in accordance with the requirements of CAN/CSA G164-92 to a minimum net retention of 600 grams per square metre (2 oz./ft²).
- (d) Galvalloy Procedure
 - (i) Areas of galvanizing damaged by field welding or otherwise shall be repaired by coating with Galvalloy material in accordance with the following procedure.
 - (ii) The surface to be coated shall be treated to approximately 157°C (315°F) then rubbed with a bar of Galvalloy allowing a small amount to flow. The Galvalloy shall then be spread by brushing briskly with a wire brush, and brushed sufficiently to obtain a bright finish. The process shall be repeated three times to ensure a proper thickness is achieved.
 - (iii) Temperatures shall be kept below 177°C (350°F) at all times.
 - (iv) All heating of structural steelwork shall be done in the presence of the Contract Administrator.

E2.4 Measurement and Payment

E2.4.1 Precast Ditch Inlet Structure Construction

- (a) Construction of the precast ditch inlet structure will be measured on a lump sum basis and paid for at the Contract Lump Sum Price for the "Items of Work" listed here below. The lump sum price paid shall be for supplying all materials and performing all operations necessary to complete the Works including any items incidental to the Work in accordance with this specification, accepted by the Contract Administrator.
- (b) Items of Work - Construction of Precast Ditch Inlet Structure
 - (i) Type IV Precast Ditch Inlet Structure
 - (ii) Safety Grate
 - (iii) Safety Railing
- (c) There shall be no additional measurement or payment for miscellaneous materials for the ditch inlet structure. It shall be included in payment for precast ditch inlet structure.
- (d) There shall be no measurement or payment for excavation, base or backfill. These items shall be included in payment for the precast ditch inlet structure.

E3. TYPE III PRECAST CONCRETE FLARED END SECTION DRAINAGE INLET

E3.1 Description

E3.1.1 General

- (a) This specification shall cover the installation of the new precast concrete flared end section drainage inlets on Roblin Boulevard and Plessis Road
- (b) Referenced Standard Construction Specifications
 - (i) CW 1130 – Site Requirements
 - (ii) CW 2030 – Excavation Bedding and Backfill

E3.2 Materials

E3.2.1 Precast Concrete Flared End Section Drainage Inlet

- (a) Supply precast concrete flared end section drainage inlet as shown on the drawings.

E3.3 Construction Methods

E3.3.1 Disposal of Excavated Material

- (a) Disposal of excavated material shall be in accordance with CW 1130.

E3.4 Measurement and Payment

E3.4.1 Precast Concrete Flared End Section Drainage Inlet Construction

- (a) Construction of the precast concrete flared end section drainage inlet structure will be measured on a lump sum basis and paid for at the Contract Lump Sum Price. The lump sum price paid shall be for supplying all materials and performing all operations necessary to complete the Works including any items incidental to the Work in accordance with this specification, accepted by the Contract Administrator.
- (b) There shall be no additional measurement or payment for miscellaneous materials for the precast concrete flared end section drainage inlet structure. It shall be included in payment for precast concrete flared end section drainage inlet structure.

- (c) There shall be no measurement or payment for excavation, base or backfill. These items shall be included in payment for the precast concrete flared end section drainage inlet structure.

E4. TYPE I DITCH INLET GRATES ON CATCHBASINS

E4.1 Description

E4.1.1 General

- (a) This Specification covers the supply and installation of ditch inlet grates on catchbasins.

E4.2 Materials

E4.2.1 Ditch Inlet Grate

- (a) All steel shall be supplied in accordance with details on the Drawings. All steel shall be hot dip galvanized and all hardware shall be stainless steel. Ditch Inlet Grates shall be Shopost Iron Works MK-A1 or approved equal.

E4.3 Construction Methods

E4.3.1 Ditch Inlet Grates

- (a) The Contractor shall be required to supply and install ditch inlet grates on existing drainage inlets shown on the Drawings.
- (b) The ditch inlet grate shall be understood to include the supply and installation of all anchor steel, grate steel, and hardware. All concrete material shall be included in the unit price bid for the ditch inlet grate.
- (c) The ditch inlet grate shall be securely fastened to the drainage inlets as shown on the Drawings and as approved by the Contract Administrator.
- (d) Any galvanized surfaces that are damaged shall be coated with a galvanizing compound approved by the Contract Administrator.

E4.4 Measurement and Payment

E4.4.1 Ditch Inlet Grates

- (a) The supply and installation of ditch inlet grates will be measured on a unit basis for payment.

E5. PROTECTION OF EXISTING TREES

E5.1 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.

E5.2 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, Parks and Recreation Department, Forestry Branch.

E5.3 No separate measurement or payment will be made for protection of trees. It shall be considered incidental to the Contract Work.

E6. SODDING

E6.1 Description

E6.1.1 General

- (a) This specification shall amend and supplement City of Winnipeg Standard Construction Specification CW 3510 "Sodding", and shall cover all aspects of sod supply and installation, including preparation of finish grade, watering and rolling, and 30 day maintenance.
- (b) Referenced Standard Construction Specifications
 - (i) CW 3510 - Sodding
- (c) Referenced Standard Details
 - (i) SD-243 - Sodding Details

E6.2 Materials

E6.2.1 Turf Grass Sod

- (a) Turf grass sod shall conform to CW 3510.
- (b) Sod shall be a mixture of 95% Kentucky bluegrass, using equal proportions of any three Class 2 cultivars, and 5% Creeping Red fescue.

E6.3 Construction Methods

E6.3.1 Preparation of Finish Grade, Placement of Sod, Watering and Rolling and 30-Day Maintenance

- (a) Finish grading, sod placement, watering and rolling and 30 day maintenance shall conform to CW 3510 and SD-243.
- (b) Install one width of sod, 600 mm, along all pavements following installation of topsoil or completion of soil amendments, and prior to installation of plant material and seed.

E6.4 Method of Measurement

E6.4.1 Turf Grass Sod

- (a) Measure sod greater than 600 mm width (c/w 100 mm imported topsoil) in accordance with CW 3510.
- (b) Measure edge sod < or = 600 mm width with 50 mm imported or conditioned topsoil, or soil amendments, on an area basis for the number of square metres of sod, including 50 mm soil base.

E6.5 Basis of Payment

E6.5.1 Turf Grass Sod

- (a) Payment for supply and installation of sod, including 30 day maintenance will be in accordance with CW 3510.
- (b) Payment shall be in accordance with the following:
 - (i) 75% of quantity following supply and placement of sod, and
 - (ii) 25% of quantity following termination of the 30 day maintenance period.

E7. SURFACE RESTORATIONS

E7.1 Further to clause 3.3 of CW 1130, when Total Performance is not achieved in the year the Contract is commenced, the Contractor shall temporarily repair any Work commenced and not completed to the satisfaction of the Contract Administrator. The Contractor shall maintain the temporary repairs in a safe condition as determined by the Contract Administrator until permanent repairs are completed. The Contractor shall bear all costs associated with temporary repairs and their maintenance.

E8. PAYMENT FOR RESTORATION OF EXISTING WORKS

E8.1 The Contractor shall exercise all necessary precautions so as not to remove, disturb or damage existing pavements (including curb and gutter), boulevards, trees, poles, existing water and sewer pipes, connections and appurtenances, gas pipes, electrical wires, cables, conduits or other existing facilities and equipment in the Work area.

E8.2 Payment for removal and restoration of existing pavement (including approaches and curb and gutter) and sidewalk shall be made only for such areas that are required to be removed to facilitate acceptable installation of any culverts in accordance with these specifications. No payment shall be made for any restoration required outside these areas for any damage caused as a result of the Contractor's operation and/or construction procedures.

E9. CSP CULVERT INSTALLATION, CONNECTION, ABANDONMENT AND RELOCATION

E9.1 Description

E9.1.1 This Specification covers the supply, installation, abandonment, and relocation of all CSP culverts. It shall amend and supplement Specification CW 3610. 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 of all Work as hereinafter specified.

E9.2 Construction Methods

E9.2.1 CSP Culvert Installation

- (a) New CSP Culverts shall be installed at the locations noted on the construction drawings. Corrugation profile and wall thickness shall be as noted on Form B: Prices.

E9.2.2 Connections to Existing Culverts

- (a) Where the drawings indicate connection to an existing CSP culvert, the Contractor shall carefully expose the end of the existing culvert. Where the culvert has a sloped or damaged end, sufficient length of sloped or damaged culvert shall be removed to provide a straight end in acceptable condition. The cut end of the culvert shall be coated with a galvanized compound approved by the Contract Administrator.

E9.2.3 Removal, Salvage, and Disposal of Existing Culverts and Couplers

- (a) Where indicated on the drawings, or otherwise directed by the Contract Administrator, the Contractor shall remove existing culverts and couplers. The culverts shall be excavated, carefully removed and stockpiled. Damaged culverts, and culverts in poor physical condition shall be disposed of off-site. Where directed, salvageable culverts shall become property of the City and delivered to the City of Winnipeg yard located at 2317 Grant Avenue.

E9.2.4 CSP Pipe Fittings

- (a) All fittings shall conform to the requirements of this Specification and the requirements of CSA Specification CAN3-G401 for Corrugated Steel Pipe (CSP) or one of ASTM Specifications C14, or C76.

E9.3 Method of Measurement and Basis of Payment

E9.3.1 CSP Culvert Installation

- (a) New CSP Culvert Installation shall be measured and paid for as per Clauses 12.1 and 13.1 of CW 3610.

E9.3.2 Connections to Existing Culverts

- (a) Connections to existing culverts will be paid for at the Contract Unit Price for "Connect to Existing Culverts", which price shall be payment in full for supplying all materials and for performing all operations herein described and all other items incidental to the Work included in the Specification.

E9.3.3 Removal, Salvage, and Disposal of Existing Culverts/Inlets and Couplers

- (a) Removal, Salvage, and Disposal of Existing Culverts/Inlets and Couplers will be measured on a unit basis. The number of units shall be the total number of culverts acceptably excavated, removed, disposed of or stockpiled in accordance to this specification, as determined by measurements made by the Contract Administrator.
- (b) Payment for Removal, Salvage, and Disposal of Existing Culverts/Inlets and Couplers shall be made at the Contract Unit Price for "Removal of Culverts/Inlets" "Removal of Couplers" and shall be compensation in full for performing all necessary operations including materials, equipment, labour and incidental items required to acceptably complete the Work as specified.

E10. RIPRAP

E10.1 Description

E10.1.1 This Specification shall amend and supplement Standard Specification CW 3615.

E10.2 Materials

E10.2.1 Riprap

- (a) Rock for riprap shall consist of hard, dense, durable rock. The rock shall be angular crushed limestone, resistant to the action of air and water and suitable in all other respects for the purpose intended.
- (b) The stones shall range in size from 100mm to 300mm in diameter with 75% by count between 200mm and 300mm and 25% by count between 100mm and 200mm.
- (c) Crushed limestone when subjected to the Los Angeles abrasion test shall have a loss of not more than thirty-two percent (32%).
- (d) Crushed limestone when subjected to the Magnesium Sulphate Soundness test shall have a loss of not more than eighteen percent (13%).

- (e) The sample material shall be crushed to 37.5 mm maximum aggregate size and tested in accordance with ASTM C131 – Resistance to Degradation of Small size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine and ASTM C88 – Soundness of Aggregates by Use of Magnesium Sulphate.
- (f) The rock for riprap shall be approved by the Contract Administrator prior to ripraping.

E10.2.2 Geotextile

- (a) Geotextile shall be a non-woven geotextile fabric, meeting or exceeding the following properties:

PROPERTY	TEST METHOD	MINIMUM AVERAGE ROLL VALUE
Grab Tensile	ASTM-D-4632	0.900 kN
Grab Elongation	ASTM-D-4632	50%
Mullen Burst	ASTM-D-3786	2619 kPa
Puncture	ASTM-D-4833	0.575 kN
Trapezoidal	ASTM-D-4533	0.355 kN
UV Resistance	ASTM-D-4355	70% at 500 hrs
Apparent Opening Size ⁽¹⁾	ASTM-D-4751	0.15 mm
Permeability	ASTM-D-4491	1.5 sec ⁻¹
Flow Rate	ASTM-D-4491	4470 L/min/m ²

Note (1) – Maximum Average Roll Value

E10.3 Construction Methods

E10.3.1 Geotextile

- (a) 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.
- (b) Joints in the geotextile shall be minimized. Geotextile sheets shall be joined by overlapping a minimum of 600mm. Overlaps shall be constructed with the upstream sheet placed over the downstream sheet or the upslope sheet placed over the downslope sheet. All overlaps shall be pinned on 1000mm centres to hold the overlap in place during stone placement. Pins shall be 5mm diameter, 450mm long steel pins pointed at one end and fitted with a 38mm diameter washer at the other.

E10.3.2 Riprap

- (a) Installation of random riprap shall be as per Clause 9.2 of CW 3615.
- (b) Installation of grouted riprap shall be as per Clause 9.3 of CW 3615.
- (c) Riprap shall not be dropped onto the geotextile from a height greater than 300mm. Any geotextile damaged during placement of the riprap shall be replaced as directed by the Contract Administrator at the Contractors expense.

E10.4 Method of Measurement and Basis of Payment

E10.4.1 Geotextile

- (a) No measurement shall be made for the supply and installation of geotextile. It shall be considered incidental to the price of grouted or random riprap.

E10.4.2 Random Riprap
(a) As per Clauses 12.1 and 13.1, CW 3615.

E10.4.3 Grouted Riprap
(a) As per Clauses 12.2 and 13.21, CW 3615.

E11. POST AND CHAIN FENCING

E11.1 Description

E11.1.1 This Specification shall amend and supplement Standard Specification CW 3550.

E11.2 Materials

E11.2.1 Post and Chain Fencing
(a) As per Drawing No. 5.

E11.3 Construction Procedures

E11.3.1 Post and Chain Fencing
(a) As shown on the drawings. Fencing shall be constructed complete with 6mm galvanized chain.

E11.4 Method of Measurement and Basis of Payment

E11.4.1 Post and Chain Fencing
(a) Post and chain fencing shall be measured and paid on a lump sum basis for removal and renewal.

E12. WORK ON CANADIAN PACIFIC RAILWAY (CP) RIGHT-OF-WAY

E12.1 The Contractor shall be responsible to meet all CP requirements. The Contractor is advised that the requirements are applicable to all the Contractor's personnel and equipment crossing CP tracks and property. Two (2) weeks prior to construction, the Contractor should contact Mr. Matt Foot, P. Eng. at CP in Winnipeg at 204-946-3401.

E13. EROSION PROTECTION AND SEDIMENT CONTROL

E13.1 Description

E13.1.1 The Contractor shall conduct his operations to comply with federal and provincial fisheries and environmental protection legislation, including preventing the loss or destruction of fish habitat, and minimizing the impact of sedimentation, silting or otherwise causing a degradation in water quality.

E13.2 Construction Methods

E13.2.1 Stream Crossings
(a) Temporary stream crossings, where required, shall be constructed in accordance to "Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat" (1996)

E13.2.2 Limits of Work Area

(a) The Contractor shall keep his work area to an absolute minimum area, to avoid disturbance of ground and vegetation that would increase the risk or severity of erosion.

- (b) Areas disturbed by the Contractors operations, including temporary access roads, shall be restored and re-vegetated to a condition equal to those existing prior to construction
- (c) Areas immediately adjacent to water courses, and sloped areas susceptible to erosion shall be protected from erosion upon the completion of construction until the Site is adequately re-vegetated, by applying a temporary ground cover, such as: straw mulch; slash from clearing and grubbing; or erosion control blankets.

E13.2.3 Site Cleanup

- (a) Upon completion of Site restoration and re-establishment of vegetation, remove all temporary devices including synthetic silt fences, geotextile fabrics, ditch berms and temporary riprap. Biodegradable products such as straw bales may be broken up and left on Site. Synthetic materials shall be removed from Site and properly disposed of.

E13.3 Method of Measurement and Basis of Payment

- E13.3.1 No measurement or payment will be made for Erosion Protection and Sediment Control. It will be considered incidental to construction Works.