



**THE CITY OF WINNIPEG**

# **BID OPPORTUNITY**

**BID OPPORTUNITY NO. 1038-2015**

**BUNN'S CREEK PATHWAY REFURBISHMENT AND BANK STABILIZATION  
WORKS - CENTENNIAL PARK TO RALEIGH STREET**

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## **PART B - BIDDING PROCEDURES**

### **B1. CONTRACT TITLE**

BUNN'S CREEK PATHWAY REFURBISHMENT AND RIVERBANK STABILIZATION WORKS - CENTENNIAL PARK TO RALEIGH STREET

### **B2. SUBMISSION DEADLINE**

- B2.1 The Submission Deadline is 4:00 p.m. Winnipeg time, December 10<sup>th</sup>, 2015.
- 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, a mandatory site meeting will be held for the purpose of assessing access to sites B, C and D. The Contract Administrator or an authorized representative will be available at Site D on December 1<sup>st</sup>, 2015 at 9:00 a.m. to provide Bidders access to the Sites.
- B3.2 The Bidder shall not be entitled to rely on any information or interpretation received at the Site Investigation unless that information or interpretation is the Bidder's direct observation, or is provided by the Contract Administrator in writing.

### **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. CONFIDENTIALITY**

- B5.1 Information provided to a Bidder by the City or acquired by a Bidder by way of further enquiries or through investigation is confidential. Such information shall not be used or disclosed in any way without the prior written authorization of the Contract Administrator. The use and disclosure of the confidential information shall not apply to information which:
- (a) was known to the Bidder before receipt hereof; or
  - (b) becomes publicly known other than through the Bidder; or
  - (c) is disclosed pursuant to the requirements of a governmental authority or judicial order.

B5.2 The Bidder shall not make any statement of fact or opinion regarding any aspect of the Bid Opportunity to the media or any member of the public without the prior written authorization of the Contract Administrator.

## **B6. ADDENDA**

B6.1 The Contract Administrator may, at any time prior to the Submission Deadline, issue addenda correcting errors, discrepancies or omissions in the Bid Opportunity, or clarifying the meaning or intent of any provision therein.

B6.2 The Contract Administrator will issue each addendum at least two (2) Business Days prior to the Submission Deadline, or provide at least two (2) Business Days by extending the Submission Deadline.

B6.2.1 Addenda will be available on the Bid Opportunities page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/>

B6.2.2 The Bidder is responsible for ensuring that he/she has received all addenda and is advised to check the Materials Management Division website for addenda regularly and shortly before the Submission Deadline, as may be amended by addendum.

B6.2.3 The Bidder shall acknowledge receipt of each addendum in Paragraph 8 of Form A: Bid. Failure to acknowledge receipt of an addendum may render a Bid non-responsive.

## **B7. SUBSTITUTES**

B7.1 The Work is based on the Plant, Materials and methods specified in the Bid Opportunity.

B7.2 Substitutions shall not be allowed unless application has been made to and prior approval has been granted by the Contract Administrator in writing.

B7.3 Requests for approval of a substitute will not be considered unless received in writing by the Contract Administrator at least five (5) Business Days prior to the Submission Deadline.

B7.4 The Bidder shall ensure that any and all requests for approval of a substitute:

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

B7.5 The Contract Administrator, after assessing the request for approval of a substitute, may in his/her sole discretion grant approval for the use of a substitute as an "approved equal" or as an "approved alternative", or may refuse to grant approval of the substitute.

- B7.6 The Contract Administrator will provide a response in writing, at least two (2) Business Days prior to the Submission Deadline, to the Bidder who requested approval of the substitute.
- B7.6.1 The Contract Administrator will issue an Addendum, disclosing the approved materials, equipment, methods and products to all potential Bidders. The Bidder requesting and obtaining the approval of a substitute shall be responsible for disseminating information regarding the approval to any person or persons he/she wishes to inform.
- B7.7 If the Contract Administrator approves a substitute as an "approved equal", any Bidder may use the approved equal in place of the specified item.
- B7.8 If the Contract Administrator approves a substitute as an "approved alternative", any Bidder bidding that approved alternative may base his/her Total Bid Price upon the specified item but may also indicate an alternative price based upon the approved alternative. Such alternatives will be evaluated in accordance with B16.
- B7.9 No later claim by the Contractor for an addition to the Total Bid Price because of any other changes in the Work necessitated by the use of an approved equal or an approved alternative will be considered.

## **B8. BID COMPONENTS**

- B8.1 The Bid shall consist of the following components:
- (a) Form A: Bid;
  - (b) Form B: Prices;
- B8.2 Further to B8.1, the Bidder should include the written correspondence from the Contract Administrator approving a substitute in accordance with B7.
- B8.3 All components of the Bid shall be fully completed or provided, and submitted by the Bidder no later than the Submission Deadline, with all required entries made clearly and completely, to constitute a responsive Bid.
- B8.4 The Bid Submission may be submitted by mail, courier or personal delivery, or by facsimile transmission.
- B8.5 If the Bid Submission is submitted by mail, courier or personal delivery, it shall be enclosed and sealed in an envelope clearly marked with the Bid Opportunity number and the Bidder's name and address, and shall be submitted to:
- The City of Winnipeg  
Corporate Finance Department  
Materials Management Division  
185 King Street, Main Floor  
Winnipeg, MB R3B 1J1
- B8.5.1 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.
- B8.6 Bidders are advised not to include any information/literature except as requested in accordance with B8.1.
- B8.7 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 B16.1.
- B8.8 If the Bid Submission is submitted by facsimile transmission, it shall be submitted to 204 949-1178.

B8.8.1 The Bidder is advised that the City cannot take responsibility for the availability of the facsimile machine at any time.

B8.8.2 Bids submitted by internet electronic mail (e-mail) will not be accepted.

## **B9. BID**

B9.1 The Bidder shall complete Form A: Bid, making all required entries.

B9.2 Paragraph 2 of Form A: Bid shall be completed in accordance with the following requirements:

- (a) if the Bidder is a sole proprietor carrying on business in his/her own name, his/her name shall be inserted;
- (b) if the Bidder is a partnership, the full name of the partnership shall be inserted;
- (c) if the Bidder is a corporation, the full name of the corporation shall be inserted;
- (d) if the Bidder is carrying on business under a name other than his/her own, the business name and the name of every partner or corporation who is the owner of such business name shall be inserted.

B9.2.1 If a Bid is submitted jointly by two or more persons, each and all such persons shall identify themselves in accordance with B9.2.

B9.3 In Paragraph 3 of Form A: Bid, the Bidder shall identify a contact person who is authorized to represent the Bidder for purposes of the Bid.

B9.4 Paragraph 10 of Form A: Bid shall be signed in accordance with the following requirements:

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

B9.4.1 The name and official capacity of all individuals signing Form A: Bid should be printed below such signatures.

B9.4.2 All signatures shall be original.

B9.5 If a Bid is submitted jointly by two or more persons, the word "Bidder" shall mean each and all such persons, and the undertakings, covenants and obligations of such joint Bidders in the Bid and the Contract, when awarded, shall be both joint and several.

## **B10. PRICES**

B10.1 The Bidder shall state a price in Canadian funds for each item of the Work identified on Form B: Prices.

B10.2 The quantities listed on Form B: Prices are to be considered approximate only. The City will use said quantities for the purpose of comparing Bids.

B10.3 The quantities for which payment will be made to the Contractor are to be determined by the Work actually performed and completed by the Contractor, to be measured as specified in the applicable Specifications.

B10.4 Payments to Non-Resident Contractors are subject to Non-Resident Withholding Tax pursuant to the Income Tax Act (Canada).

## **B11. DISCLOSURE**

B11.1 Various Persons provided information or services with respect to this Work. In the City's opinion, this relationship or association does not create a conflict of interest because of this full disclosure. Where applicable, additional material available as a result of contact with these Persons is listed below.

B11.2 The Persons are:

- (a) N/A

## **B12. QUALIFICATION**

B12.1 The Bidder shall:

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

B12.2 The Bidder and any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:

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

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

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

B12.4 Further to B12.3(c), the Bidder shall, within five (5) Business Days of a request by the Contract Administrator, provide proof satisfactory to the Contract Administrator that the Bidder/Subcontractors has a workplace safety and health program meeting the requirements of The Workplace Safety and Health Act (Manitoba), by providing:

- (a) a copy of their valid Manitoba COR certificate and Letter of Good Standing (or Manitoba equivalency) as issued under the Certificate of Recognition (COR) Program administered by the Construction Safety Association of Manitoba or by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ Program; or
- (b) a copy of their valid Manitoba SECOR™ certificate and Letter of Good Standing (or Manitoba equivalency) as issued under the Small Employer Certificate of Recognition Program (SECOR™) administered by the Construction Safety Association of Manitoba or by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ Program; or
- (c) a report or letter to that effect from an independent reviewer acceptable to the City. (A list of acceptable reviewers and the review template are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/>).

B12.5 The Bidder shall submit, within three (3) Business Days of a request by the Contract Administrator, proof satisfactory to the Contract Administrator of the qualifications of the Bidder and of any proposed Subcontractor.

B12.6 The Bidder shall provide, on the request of the Contract Administrator, full access to any of the Bidder's equipment and facilities to confirm, to the Contract Administrator's satisfaction, that the Bidder's equipment and facilities are adequate to perform the Work.

### **B13. OPENING OF BIDS AND RELEASE OF INFORMATION**

B13.1 Bids will not be opened publicly.

B13.2 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/bidopp.asp>

B13.3 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/>

B13.4 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.

### **B14. IRREVOCABLE BID**

B14.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 9 of Form A: Bid.

B14.2 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 for the time period specified in Paragraph 9 of Form A: Bid.

### **B15. WITHDRAWAL OF BIDS**

B15.1 A Bidder may withdraw his/her Bid without penalty by giving written notice to the Manager of Materials at any time prior to the Submission Deadline.

B15.1.1 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.

B15.1.2 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 10 of Form A: Bid, and only such person, has authority to give notice of withdrawal.

B15.1.3 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 10 of Form A: Bid; and
- (c) if the notice has been given by any one of the persons specified in B15.1.3(b), declare the Bid withdrawn.

B15.2 A Bidder who withdraws his/her Bid after the Submission Deadline but before his/her Bid has been released or has lapsed as provided for in B14.2 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.

## **B16. EVALUATION OF BIDS**

- B16.1 Award of the Contract shall be based on the following bid evaluation criteria:
- (a) compliance by the Bidder with the requirements of the Bid Opportunity or acceptable deviation there from (pass/fail);
  - (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B12 (pass/fail);
  - (c) Total Bid Price;
  - (d) economic analysis of any approved alternative pursuant to B7.
- B16.2 Further to B16.1(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.
- B16.3 Further to B16.1(b), the Award Authority shall reject any Bid submitted by a Bidder who does not demonstrate, in his/her Bid or in other information required to be submitted, that he/she is responsible and qualified.
- B16.4 Further to B16.1(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.
- B16.4.1 Further to B16.1(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.

## **B17. AWARD OF CONTRACT**

- B17.1 The City will give notice of the award of the Contract or will give notice that no award will be made.
- B17.2 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.
- B17.2.1 Without limiting the generality of B17.2, 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.
- B17.3 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 B16.
- B17.3.1 Following the award of contract, a Bidder will be provided with information related to the evaluation of his/her Bid upon written request to the Contract Administrator.
- B17.4 Notwithstanding C4, the City may issue a Purchase Order to the successful Bidder in lieu of the execution of a Contract.
- B17.5 The Contract, as defined in C1.1, in its entirety shall be deemed to be incorporated in and to form a part of the Purchase Order notwithstanding that it is not necessarily attached to or accompany said Purchase Order.

## 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](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 bank stabilization works for site B, C and D, pathway refurbishment and installation of site amenities.

D2.2 The major components of the Work are as follows:  
The Work is defined by the Contract Documents and consists of, but not limited, the following:

- (a) Construction management and coordination of the Contract.
- (b) Excavation, supply, place and compact of crushed limestone for site B and D.
- (c) Supplying and driving steel sheet piles wall with concrete caps for site C.
- (d) Supply and install perforated subdrain pipes for site B and D.
- (e) Supply and Install 75mm of Topsoil and sodding.
- (f) Site regrading, excavation and backfill.
- (g) Excavation of existing path.
- (h) Supply and installation of crushed limestone path with geotextile.
- (i) Supply and installation of asphalt path.
- (j) Supply and installation of crushed limestone for pathway and site amenities base.
- (k) Supply and installation of metal hand rail.
- (l) Supply and installation of metal guard rail.
- (m) Supply and installation of site furniture.
- (n) Supply and installation of imported topsoil, seed, and hydro mulch.
- (o) Supply and installation of imported topsoil and sod.

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

D3.1 The Contract Administrator is AECOM Canada Ltd., represented by:  
Zeyad Shukri Al-Hayazai, P.Eng.

Senior Geotechnical Engineer  
*E-mail: zeyad.shukri@aecom.com*  
Telephone No. 204.928.9221

D3.2 At the pre-construction meeting, Mr. Zeyad Shukri Al-Hayazai will identify additional personnel representing the Contract Administrator and their respective roles and responsibilities for the Work.

D3.3 Bids Submissions must be submitted to the address in B8.5.

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

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

## **D5. OWNERSHIP OF INFORMATION, CONFIDENTIALITY AND NON DISCLOSURE**

- D5.1 The Contract, all deliverables produced or developed, and information provided to or acquired by the Contractor are the property of the City and shall not be appropriated for the Contractors own use, or for the use of any third party.
- D5.2 The Contractor shall not make any public announcements or press releases regarding the Contract, without the prior written authorization of the Contract Administrator.
- D5.3 The following shall be confidential and shall not be disclosed by the Contractor to the media or any member of the public without the prior written authorization of the Contract Administrator;
- (a) information provided to the Contractor by the City or acquired by the Contractor during the course of the Work;
  - (b) the Contract, all deliverables produced or developed; and
  - (c) any statement of fact or opinion regarding any aspect of the Contract.
- D5.4 A Contractor who violates any provision of D5 may be determined to be in breach of Contract.

## **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 identified in D3.1.
- 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 facsimile number:
- The City of Winnipeg  
Legal Services Department  
Attn: Director of Legal Services  
Facsimile No.: 204 947-9155

## **SUBMISSIONS**

### **D7. AUTHORITY TO CARRY ON BUSINESS**

- D7.1 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.

## **D8. SAFE WORK PLAN**

- D8.1 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.
- D8.2 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/matmgmt/Safety/default.stm>

## **D9. INSURANCE**

- D9.1 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) if applicable, Automobile Liability Insurance covering all motor vehicles, owned and operated and used or to be used by the Contractor directly or indirectly in the performance of the Work. The Limit of Liability shall not be less than \$2,000,000 inclusive for loss or damage including personal injuries and death resulting from any one accident or occurrence;
  - (c) all risks installation floater, carrying adequate limits to cover all machinery, equipment, supplies and/or materials intended to enter into and form part of any installation.
- D9.2 Deductibles shall be borne by the Contractor.
- D9.3 The Contractor shall provide the Contract Administrator 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 seven (7) Calendar Days from notification of the award of Contract by Purchase Order.
- D9.4 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.

## **D10. PERFORMANCE SECURITY**

- D10.1 If the Contract Price exceeds twenty-five thousand dollars (\$25,000.00), 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.
- D10.1.1 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.

D10.2 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 Purchase Order and prior to the commencement of any Work on the Site.

#### **D11. SUBCONTRACTOR LIST**

D11.1 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 seven (7) Calendar Days from notification of the award of Contract.

### **SCHEDULE OF WORK**

#### **D12. COMMENCEMENT**

D12.1 The Contractor shall not commence any Work until he/she is in receipt of a Purchase Order from the Award Authority authorizing the commencement of the Work.

D12.2 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 D7;
- (ii) evidence of the workers compensation coverage specified in C6.15;
- (iii) the Safe Work Plan specified in D8;
- (iv) evidence of the insurance specified in D9;
- (v) the performance security specified in D10; and
- (vi) the Subcontractor list specified in D11.

(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.

D12.3 The Contractor shall commence the Work on the Site within seven (7) Working Days of receipt of the Purchase Order.

D12.4 The City intends to award this Contract within 60 calendar days.

D12.4.1 If the actual date of award is later than the intended date, the dates specified for Critical Stages, Substantial Performance, and Total Performance will be adjusted by the difference between the aforementioned intended and actual dates.

#### **D13. SUBSTANTIAL PERFORMANCE**

D13.1 The Contractor shall achieve Substantial Performance by June 06, 2016.

D13.2 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.

D13.3 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.

#### **D14. TOTAL PERFORMANCE**

D14.1 The Contractor shall achieve Total Performance by June 13, 2016.

D14.2 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.

D14.3 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.

#### **D15. LIQUIDATED DAMAGES**

D15.1 If the Contractor fails to achieve Substantial Performance in accordance with the Contract by the day fixed herein for Substantial Performance, the Contractor shall pay the City one thousand dollar (\$1000) per Working Day for each and every Working Day following the day fixed herein for Substantial Performance during which such failure continues.

D15.2 The amount specified for liquidated damages in D15.1 is based on a genuine pre-estimate of the City's damages in the event that the Contractor does not achieve Substantial Performance by the day fixed herein for same.

D15.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

#### **D16. SCHEDULED MAINTENANCE**

D16.1 The Contractor shall perform the following scheduled maintenance in the manner and within the time periods required by the Specifications:

- (a) Topsoil and Sod as specified in E18 and CW 3510;
- (b) Topsoil and Seed as specified in E19 and CW 3520;

D16.2 Determination of Substantial Performance and Total Performance shall be exclusive of scheduled maintenance identified herein. All scheduled maintenance shall be completed prior to the expiration of the warranty period. Where the scheduled maintenance cannot be completed during the warranty period, the warranty period shall be extended for such period of time as it takes the Contractor to complete the scheduled maintenance.

#### **CONTROL OF WORK**

##### **D17. JOB MEETINGS**

D17.1 Job meetings as determined by the Contract Administrator 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/she deems it necessary.

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

D18.1 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).

## **D19. THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA) – QUALIFICATIONS**

D19.1 Further to B12.4, the Contractor/Subcontractor must, throughout the term of the Contract, have a Workplace Safety and Health Program meeting the requirements of The Workplace Safety and Health Act (Manitoba). At any time during the term of the Contract, the City may, at its sole discretion and acting reasonably, require updated proof of compliance, as set out in B12.4.

## **MEASUREMENT AND PAYMENT**

### **D20. MEASUREMENT**

D20.1 Measurement of the Works will be as specified in the specifications.

### **D21. INVOICES**

D21.1 Further to C12, the Contractor shall submit an invoice for each portion of Work performed. to:

The City of Winnipeg  
Corporate Finance - Accounts Payable  
4th Floor, Administration Building, 510 Main Street  
Winnipeg MB R3B 1B9

Facsimile No.: 204-949-0864

Email: [CityWpgAP@winnipeg.ca](mailto:CityWpgAP@winnipeg.ca)

D21.2 Invoices must clearly indicate, as a minimum:

- (a) the City's purchase order number;
- (b) date of delivery;
- (c) delivery address;
- (d) type and quantity of work performed;
- (e) the amount payable with GST and MRST shown as separate amounts; and
- (f) the Contractor's GST registration number.

D21.3 The City will bear no responsibility for delays in approval of invoices which are improperly submitted.

### **D22. PAYMENT**

D22.1 Further to C12, the City may at its option pay the Contractor by direct deposit to the Contractor's banking institution.

## **WARRANTY**

### **D23. WARRANTY**

D23.1 Warranty is as stated in C13.

**FORM H1: PERFORMANCE BOND**  
(See D10)

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. 1038-2015

BUNN'S CREEK PATHWAY REFURBISHMENT AND RIVERBANK STABILIZATION WORKS -  
CENTENNIAL PARK TO RALEIGH STREET

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 D10)

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

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

RE: PERFORMANCE SECURITY - BID OPPORTUNITY NO. 1038-2015

BUNN'S CREEK PATHWAY REFURBISHMENT AND BANK STABILIZATION WORKS - CENTENNIAL  
PARK TO RALEIGH STREET

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

\_\_\_\_\_  
(Name of Contractor)

\_\_\_\_\_  
(Address of Contractor)

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

\_\_\_\_\_ Canadian dollars.

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

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

Partial drawings are permitted.

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

\_\_\_\_\_  
(Address)

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

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

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

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

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

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

This credit is subject to the Uniform Customs and Practice for Documentary Credit (2007 Revision), International Chamber of Commerce Publication Number 600.

\_\_\_\_\_  
(Name of bank or financial institution)

Per: \_\_\_\_\_  
(Authorized Signing Officer)

Per: \_\_\_\_\_  
(Authorized Signing Officer)



## PART E - SPECIFICATIONS

### GENERAL

#### E1. APPLICABLE SPECIFICATIONS AND DRAWINGS

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

<u>Drawing No.</u>	<u>Drawing Name/Title</u>
B-0001	Site B and Site Plan and Sections
B-0002	Site D Plan and Sections
L-0001	Landscaping, Radium Cove to Mclvor Ave
L-0002	Landscaping, Mclvor Ave to Raleigh St
L-0003	Landscaping Details
L-0004	Landscaping Details

#### E2. GEOTECHNICAL REPORT

- E2.1 Further to C3.1, project geotechnical report dated November 2014 is contained in Appendix 'A', to aid the Contractor's evaluation of the existing soil conditions. The information presented is considered accurate at the locations and time of drilling as outlined in the Appendix. However, variations in soil conditions may exist between test holes and fluctuations in groundwater levels can be expected seasonally and may occur as a result of construction activities. The nature and extent of variations may not become evident until construction commences.

#### E3. SUBMITTALS AND SHOP DRAWINGS

- E3.1 Submittals
- E3.1.1 Further to CW 1110-R19, all submissions must be in metric units. Where data is in imperial units, the correct metric values shall also be shown on the submissions for Contract Administrator review.
- E3.2 Shop Drawings
- E3.2.1 The term 'shop drawings' means drawings, diagrams, illustrations, schedules, performance charts, brochures, and other data, including Site erection drawings which are to be provided by the Contractor to illustrate details of a portion of the Work.
- E3.2.2 Original drawings shall be prepared by Contractor, Subcontractor, supplier, distributor or manufacturer to illustrate appropriate portion of Work including fabrication, layout, setting or erection details as specified in appropriate sections.
- E3.2.3 Shop Drawings for the following components shall bear the seal of a Professional Engineer registered in the province of Manitoba:
- (a) Handrail

(b) Guardrail and Miscellaneous Metals

- E3.2.4 Review Shop Drawings, product data and samples prior to submission and stamp and sign Shop Drawings indicating conformance to the Contract requirements.
- E3.2.5 Schedule submittals at least ten (10) Calendar Days before dates reviewed submittals will be needed, and allow for a seven (7) Calendar Day period for review by the Contract Administrator of each individual submission and re-submission, unless noted otherwise in the Contract.
- E3.2.6 No delay or cost claims will be allowed that arise because of delays in submissions, resubmissions and review of Shop Drawings.

**E4. MOBILIZATION AND DEMOBILIZATION**

DESCRIPTION

E4.1 General

- E4.1.1 This Specification covers all operations relating to the mobilization and demobilization of the Contractor to the Site, as specified herein.
- E4.1.2 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.

E4.2 Scope of Work

- E4.2.1 The Work under this Specification shall include but not be limited to:
- (a) Mobilizing and demobilizing on-site Work facilities;
  - (b) Supplying, setting up and removing of site facilities.
  - (c) Supplying and installing of silt fence as per E11.
  - (d) Establishment, maintaining and removing any access roadway/working platform, stockpile areas and equipment parking areas;
  - (e) Traffic control as per E6 and pedestrian safety as per E5
  - (f) Establishment of health and safety program including training of staff.
  - (g) Protection of existing trees as per E7.
  - (h) General cleanup and site restoration as per E20.

MATERIAL

- E4.3 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.
- E4.4 The Contractor shall be responsible for the supply, safe storage and handling of all materials as set forth in this Specification. All materials shall be handled in a careful and workmanlike manner, to the satisfaction of the Contract Administrator.

E4.5 Equipment

- E4.5.1 All equipment shall be of a type acceptable to the Contract Administrator and shall be kept in good working order.

E4.6 CONSTRUCTION

- E4.6.1 Access roads and working platform
- (a) The Contractor shall be responsible for supplying fill, if required, for construction of the working platforms and access roads.

- (b) Methods and procedure that protect against damage to private properties, existing trees, infrastructure and existing facilities on site, shall be employed during construction and maintenance of the access roads/platform.
- (c) Working platform placed during construction shall be removed to restore the existing grades below the platform, fill shall not be placed in the creek channel.
- (d) Access roads fill or surfacing materials placed during construction, if required, shall be removed and the Site restored.

E4.6.2 The Contractor shall exercise care during mobilization and demobilization to preserve the natural landscape and shall conduct his operations to prevent any unnecessary destruction, scarring or defacing of the natural surroundings in the vicinity of the Work.

#### E4.7 MEASUREMENT AND PAYMENT

E4.7.1 Mobilization and demobilization will be paid for at the Contract Lump Sum Prices for "Mobilization and Demobilization".

E4.7.2 No separate measurement will be made for placing/ removal of access ramps, platform, other facilities, pedestrian safety, traffic control, silt fence, protection of existing trees, site restoration and health and safety requirements. It shall be considered incidental to the cost of "Mobilization and Demobilization" item.

E4.7.3 Mobilization and demobilization will be paid for at a percentage of the Contract Lump Sum Price, as specified herein. These percentages shall be as follows:

- (a) When Contract Administrator is satisfied that construction has commenced 60%
- (b) Upon Total Performance 40%

#### E5. PEDESTRIAN SAFETY

E5.1 Pedestrian access to the park and the pathway will not be permitted during the construction between Raleigh St. to McIvor Ave. for site B and site C and between McIvor Ave. to Uxbridge Rd S for site D. The Contractor is responsible for all signage and restrictions of this operation.

E5.2 No measurement for payment shall be made for this work and will be considered incidental to "Mobilization and Demobilization".

#### E6. TRAFFIC CONTROL

##### E6.1 DESCRIPTION

E6.1.1 The Work covered under this item shall include all items relating to traffic control at the site(s).

E6.1.2 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.

##### E6.2 NOTIFICATION

E6.2.1 The Contractor shall notify the City of Winnipeg Customer Services forty-eight hours in advance of Work taking place at the site. The Contractor shall also keep Customer Services informed of which lanes are closed. This call is necessary so that the public can be notified of impending any temporary lane closures.

##### E6.3 CONSTRUCTION METHOD

###### E6.3.1 General

- (a) The Contractor will be responsible for traffic control at the site.

- (b) For traffic control in the immediate Work area, the Contractor shall erect and maintain all applicable traffic control devices in accordance with the provision contained in the latest edition of the "Manual of Temporary Traffic Control in Work Areas on City Streets," issued by the City of Winnipeg.
- (c) The Contractor shall provide and maintain flagmen in accordance with the above mentioned manual
- (d) The Contractor shall take all other safety measures necessary to cope with any peculiar or unusual circumstances that have not been set out in the above-mentioned manual and shall, at all times, ensure that maximum protection is afforded to the road user and that this operations in no way interfere with the safe operation of traffic.
- (e) Improper signing will be sufficient reason for the Contract Administrator or Inspector to immediately shut down the entire job.
- (f) Barricades supplied and installed by the Contractor in the performance of the Work must clearly show the name of the Contractor and the telephone number(s) at which he can be reached twenty-four (24) hours per day, seven (7) days per week.
- (g) During the hours when the Contractor is not working, equipment and stockpiled materials shall be left in such a location so as not to interfere with or present a hazard to motorists or pedestrians.

#### E6.4 MEASUREMENT AND PAYMENT

- E6.4.1 No separate measurement or payment will be made for the provision of traffic control and will be considered incidental "Mobilization and Demobilization".

#### E7. PROTECTION OF EXISTING TREES

- E7.1 The Contractor shall take the following precautionary steps to prevent damage from construction activities:
  - E7.1.1 All trees will have a 3m radius protective zone calculated from the circumference at the base of the trunk which will remain free of digging, trenching, grade changes, stock piling of materials and soil compaction, unless otherwise agreed to by the City and Contract Administrator throughout the duration of the Contract. Protective fencing around these areas is required.
  - E7.1.2 Trees within and immediately adjacent to proposed construction and those identified to be at risk by the Contract Administrator are to be strapped with 25 x 100 x 2400 mm wood planks, or suitably protected as approved by the Contract Administrator. Do not use nails or other fasteners that penetrate the tree trunk. The width and length of strapping may be reduced to suit the tree being protected as approved by the Contract Administrator.
  - E7.1.3 Excavation shall be performed in a manner that minimizes damage to the existing root systems. Where possible, excavation shall be carried out such that the edge of the excavation shall be a minimum of 1.5 times the diameter (measured in inches), with the outcome read in feet, from the outside edge of the trunk of the tree at 150mm above grade. Where roots must be cut to facilitate excavation, they shall be pruned neatly at the face of excavation. They must be properly trimmed with sharp tools to prevent crushing or being pulled by construction equipment. No paint is required. All exposed roots must be mulched until the excavated area is filled with clean earth to avoid exposure to sunlight and desiccation.
  - E7.1.4 Operation of equipment within the dripline of the trees shall be kept to the minimum required to perform the Work required. Equipment shall not be parked, repaired, refuelled; construction materials shall not be stored, and earth materials shall not be stockpiled within the driplines of trees. The dripline of a tree shall be considered to be the ground surface directly beneath the tips of its outermost branches. The Contractor shall ensure that the operations do not cause flooding or sediment deposition on areas where trees are located.

- E7.1.5 Work on-Site shall be carried out in such a manner so as to minimize damage to existing tree branches. Where damage to branches does occur, they shall be neatly pruned.
- E7.1.6 Repair, replace and maintain tree protection materials during construction until the Project completion.
- E7.1.7 Carefully remove safety fencing and strapping material without harming the tree as soon as the construction and restoration Work is complete.
- E7.2 All damage to existing trees caused by the Contractor's activities shall be repaired to the requirements and satisfaction of the Contract Administrator and the City Forester or his/her designate.
- E7.3 No separate measurement or payment will be made for the protection of trees. It shall be considered incidental to "Mobilization and Demobilization".

## **E8. SUBDRAIN SYSTEMS**

### **E8.1 DESCRIPTION**

#### General

- E8.1.1 This Specification covers all operations relating to the supply and installation of the subdrain pipe and bank drain systems on east side of site B and west side of site D, including leads and connections to Bunn's creek.
- E8.1.2 The Work under this Specification shall include the furnishing of the 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.

### **E8.2 MATERIAL**

#### General

- E8.2.1 The Contractor shall be responsible for the supply, safe storage and handling of all materials set forth in this Specification. All materials supplied under this Specification shall be subject to inspection and acceptance by the Contract Administrator.

### **E8.3 Drain Pipes, Fabric, Fittings, and Accessories**

- E8.3.1 The drain pipe system shall be 150 mm diameter, perforated, High Density Polyethylene (HDPE) Type SP pipe with Class 2 perforations in accordance with CW3120-R4. An approved product is Big "O" tubing as supplied by Armtec Ltd or approved equivalent in accordance with B7. All other fittings, connections, fabric, accessories and appurtenances for the drainage system shall conform to the requirement of Standard Construction Specification CW3120-R4.

### **E8.4 Drainage Trench Backfill**

#### **E8.4.1 Free Draining Granular Backfill**

- (a) Free draining granular backfill shall consist of crushed limestone, free from organic material and meeting the gradation requirements stated in E10.2.2.

#### **E8.4.2 Earth Fill Backfill Material**

- (a) Earth fill backfill material shall be clay material accepted by the Contract Administrator. Earth fill material shall not contain topsoil or other organic material. Earth fill material shall be compacted to a minimum of 95% of Standard Proctor Maximum Dry Density.

### **E8.5 CONSTRUCTION METHOD**

#### **E8.5.1 Installation of Subdrain Piping**

- (a) The installation of subdrain piping shall be done in accordance with Standard Construction Specifications CW 3120-R4.

## E8.6 MEASUREMENT AND PAYMENT

### E8.6.1 Subdrain Systems

- (a) Supply and installation of subdrain system shall be measured on an lineal metre basis and paid for at the Contract Unit Price per lineal metre for "Excavation, Supply and Install Perforated Subdrain Pipes with Connectors, Fittings and Granular Backfill", which price shall be payment in full for excavation and backfilling of trenches, groundwater control, supplying all materials and performing all operations herein specified, and all other items included in the work of this specification.

## E9. STEEL SHEET PILE WALLS AND CAPS

### DESCRIPTION

### E9.1 General

E9.1.1 This Specification covers all operations related to the construction of steel sheet pile wall and preparation of Portland Cement structural concrete for sheet pile caps at site C, as specified herein and as shown on the Drawing.

E9.1.2 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.

### E9.2 SUBMITTALS

#### E9.2.1 Certificates

- (a) The Contractor shall submit to the Contract Administrator for review and approval, at least ten (10) Business Days prior to the commencement of any scheduled Work on the Site, a proposed schedule, including methods, sequence of operations and materials to be used as follows:
- (i) Steel sheet pile: two (2) copies of steel producer mill test data and certification that steel piling, delivered to job site, meets requirements of this Section and is in accordance with CAN/CSA-G40.20-13, General Requirements for Rolled or Welded Structural Quality Steel.
  - (ii) Concrete Mix Design Requirements: The Contractor shall submit a concrete mix design statement to the Contract Administrator for concrete type specified herein that reflects the specified performance properties of the concrete. The mix design statement shall contain all the information as outlines on the concrete mix design statement as shown on the Manitoba Ready Mix Concrete Association website ([www.mrmca.com](http://www.mrmca.com)).

### E9.3 MATERIAL

#### General

E9.3.1 The Contractor shall be responsible for the supply, safe storage and handling of all materials set forth in this Specification. All materials supplied under this Specification shall be subject to inspection and acceptance by the Contract Administrator.

E9.3.2 Steel Sheet Piles: To CAN/CSA-G40.21-13, (including chemical and mechanical requirements), Grade 350W, and following:

- (a) Continuous interlocking, with minimum wall mass of  $69.5 \text{ kg/m}^2$ .
- (b) Continuous interlocking :
  - (i) Minimum effective section modulus of  $772 \text{ cm}^3$  per metre of wall.

- (ii) Minimum thickness of 6.4 mm.

E9.3.3 Concrete materials, reinforcing steel, formwork, curing and all other materials required to perform the work will be in accordance to Standard Construction Specification CW 2160 – R7 and as shown in the drawing.

- (a) Concrete materials susceptible to frost damage shall be protected from freezing.
- (b) Concrete shall have nominal compressive strengths (f'c) and meet the requirements for hardened concrete as specified in the following Table.

Type of Concrete	Minimum Compressive Strength at 28 Days [MPa]	Slump/Flow	Air Content Category	Maximum Water/Cementing Materials Ratio	Maximum Size of Aggregate (mm)	Cement Type
Steel Sheet pile caps	32	80 +/- 20 mm	4 to 7%	0.45	20	HS

E9.3.4 CONSTRUCTION METHODS

RESPONSIBILITIES OF CONTRACTOR

- (a) The Contractor shall take all precautions to prevent damage to structures, adjacent properties and to trees and shrubs during or as a consequence of pile driving operations. In the event of damage, the Contractor will be held liable, and shall be required to provide appropriate restoration at his cost, to the satisfaction of the Contract Administrator.
- (b) The Contractor is advised that the Contract Administrator will undertake vibration monitoring program during the installation of the sheet pile wall. The Contract Administrator will conduct condition survey for the adjacent properties prior to the construction of the sheet pile wall.

E9.3.5 Delivery, Handling, Storage and installation of sheet pile

- (a) Use slings for lifting piling so that mass is evenly distributed and piling is not subjected to excessive bending stresses.
- (b) Store sheet piling on level ground or provide supports so that sheet piling is level when stored. Provide blocking at spacing not exceeding 5m so that there is no excessive sagging in piling. Overhang at ends not to exceed 0.5m. Block between lifts directly above blocking in lower lift.
- (c) For installation of sheet piles, provide installation equipment capable of installing sheet pile to elevations indicated without causing any damages to existing structures and adjacent properties.
- (d) Submit full details of method and sequence of installation of piling to Contract Administrator for review and approval prior to start of pile installation work. Details must include guide frames and bracing if required, setting and driving sequence and number of piles in panels for driving.
- (e) Subject to the Contract Administrator review and approval, the Contractor may excavate a trench of reasonable depth to facilitate the installation of the sheet pile and reduce potential vibration impact.
- (f) Provide sufficient length above cut-off elevation so that part damaged during driving is cut off. Cut off sheet piles neatly and squarely at elevations indicated.
- (g) When installation is complete, face of wall at top of sheet piles to be within 25mm of location as indicated and deviation from batter not to exceed 1 in 100.

E9.3.6 Delivery, placing, finishing surface and all requirements related to the construction of concrete reinforcement shall be done in accordance with Standard Construction Specifications CW 2160-R7.

**E9.3.7 Obstructions**

- (a) If an obstruction is encountered during driving, leave obstructed pile and proceed to drive remaining piles. Return and attempt to complete driving of obstructed pile later.
- (b) Advise the Contract Administrator immediately if impossible to drive pile to full penetration, and obtain direction from Contract Administrator on further steps required to complete work.

**E9.3.8 Backfilling**

- (a) Backfill the area between the sheet pile and the edge of pathway with crushed limestone meeting the gradation requirements stated in E10.2.2 and as indicated on the Drawing.

**E9.4 MEASUREMENT AND PAYMENT**

**E9.4.1** Supply and installation of steel sheet piles will not be measured. This Item of Work will be paid for at the Contract Lump Sum Price for "Supply and Drive Steel Sheet Piles (Minimum effective section modulus of 772 cm<sup>3</sup> per metre, Grade 350W)" which price shall be payment in full for supplying all materials and for completing all operations herein described and all other items incidental to the Work included in this Specification, accepted by the Contract Administrator.

**E9.4.2** Washers, nuts, bolts, shear connectors, if required and other associated hardware supplied and incorporated in work, as specified, shall be incidental to the Works.

**E9.4.3** Supply and placement of reinforced concrete for Steel sheet pile caps will be paid for at the Contract Lump Sum Prices for "Supplying and Placing of Structural Concrete and Reinforcing Steel Bars for Steel Sheet Pile Caps" which price shall be payment in full for supplying all materials and for completing all operations herein described and all other items incidental to the Work included in this Specification and as indicated in CW 2160-R7 and accepted by the Contract Administrator.

**E9.4.4** Granular backfill behind sheet piles shall be considered incidental to this item of work and no separate measurement or payment will be made.

**E10. BANK STABILIZATION WORKS**

**E10.1 DESCRIPTION**

**E10.1.1** The Work covered under this item shall include all items relating to the bank stabilization works at site B and site D in accordance with this Specification and as shown on Drawings B-0001 and B-0002, for site B and site D, respectively.

**E10.1.2** 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.

**E10.2 MATERIAL**

**E10.2.1 General**

- (a) The Contractor shall be responsible for the supply, safe storage, and handling of all materials set forth in this Specification. All materials supplied under this Specification shall be subject to inspection and testing by the Contract Administrator. There shall be no charge to the City for any materials taken by the Contract Administrator for testing purposes.
- (b) The Contractor shall supply all materials incidental to these Works. All materials must be on hand prior to commencement of the work.

**E10.2.2 Crushed Limestone**

- (a) The crushed limestone to be supplied for bank stabilization at site B and D and the backfill behind sheet pile in site C shall be clean 150 mm down crushed limestone meeting the requirements of CW 3110-R19 with the following revisions:
- (i) Maximum size of 150 mm.
  - (ii) Minimum bulk specific gravity of 2.6 (ASTM C127).
  - (iii) Maximum Los Angeles abrasion loss of 35% (ASTM 131).
  - (iv) Maximum soundness loss of 13% (ASTM C88).
  - (v) Gradation requirements.

CANADIAN METRIC SIEVE SIZE	PERCENT OF TOTAL DRY WEIGHT PASSING EACH SIEVE
150 000	90% - 100%
100 000	65% - 85%
50 000	-
25 000	0% - 40%
10 000	-
2 500	-
80	0% - 5%

- (vi) The materials shall be manufactured from sound durable limestone.
- (vii) The Contractor shall provide, at no cost to the City, representative samples and copies of material test results that comply with the properties specified above to the Contract Administrator for approval in accordance with CW 3110-R19, minimum ten (10) working days prior to construction.

E10.2.3 Site regrading using common backfill material

- (a) Backfill material for site grading shall be clay material accepted by the Contract Administrator and shall be in accordance of CW 3170-R3. Earth fill material shall not contain frozen, topsoil or other organic material.

E10.2.4 The Contractor shall develop a groundwater control measures on site to facilitate the construction and excavation activities in case groundwater is encountered.

E10.3 CONSTRUCTION METHOD

E10.3.1 Excavation, placing and compacting of crushed limestone

- (a) Excavation and placing of crushed limestone shall be done in accordance with Standard Construction Specification CW 3170-R3 and as indicated herein. Excavation will be required for the following:
- (i) The material of the lower bank at site B and site D for the purpose of placing the crushed limestone as indicated in the drawings.
  - (ii) Upper bank regrading at site B as indicated in the drawing.
  - (iii) The backfill in all areas shall be compacted and densified by acceptable means to the satisfaction of the Contract Administrator.

E10.3.2 Grading and backfill

- (a) The grading of the banks at site B site D as shown on the Drawings shall be done in accordance with CW 3110-R19 and CW 3170-R3.
- (b) Place and compact backfill to the grades and lines shown on the Drawing to a minimum of 95% of Standard Proctor Maximum Dry Density.

E10.3.3 Disposal of Unsuitable or Surplus Excavated Material

- (a) All unsuitable and surplus materials shall be displaced off site to location determined by the Contractor and acceptable to the Contract Administrator.

#### E10.4 MEASUREMENT AND PAYMENT

- E10.4.1 The construction of the bank stabilization works, including, excavation, supplying, placing and compacting of crushed limestone will be measured on a cubic metre basis, , and paid for at the Contract Unit Price per cubic metre "Excavation, Supply, Place and Compact Crushed limestone (6 inches down)" which price shall be payment in full for supplying all materials and for completing all operations herein described and all other items incidental to the Work included in this Specification and as indicated in CW 3110-R19 and CW 3170-R3, accepted and measured by the Contract Administrator.
- E10.4.2 The volume will be measured at the final location (i.e. at the bank) by the method of average end areas. Cross sections will be taken when the excavation is completed and later when the backfill is completed to the grades and lines shown in the drawings or as directed by the Contract Administrator.
- E10.4.3 Regrading and backfill will not be measured. This item of work will be paid for at the Contract Lump Sum Price for the "Regrading Site B using Common Fill Materials" and "Regrading Site D using Common Fill Materials" performed in accordance with this Specification and accepted by the Contract Administrator.
- E10.4.4 No additional payment will be made for disposal of unsuitable or surplus materials. It shall be considered incidental to the cost of the Work.

#### E11. SUPPLY AND PLACE SILT FENCE BARRIER

##### E11.1 DESCRIPTION

- E11.1.1 The Work covered under this item shall include all items relating to the installation and maintaining of silt fence barriers in accordance with the guidelines outlined below for site B, C and D prior to commencing excavation operations in those areas.
- E11.1.2 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.

##### E11.2 MATERIAL

- E11.2.1 The silt fence shall consist of a geotextile fabric supported by stakes. Suitable products shall be Mirafi Silt Fence, Nilex 2130, Layfield SF 124, or approved equivalent in accordance with B7.
- E11.2.2 The stakes shall be of sufficient strength to satisfy silt fence barrier performance and maintenance requirements. The stakes shall be a minimum of 1.2 metres in length with a maximum spacing of 2.5 metres between stakes.

##### E11.3 CONSTRUCTION METHOD

- E11.3.1 The Contractor shall install silt fences as directed by contract administrator prior to commencing construction operations. The silt fence shall be installed to prevent sediment from passing from one side of the barrier to the other.
- E11.3.2 Posts shall be spaced a maximum of 2.5 m apart, and shall be driven vertically into the ground to a minimum depth of 600 mm.
- E11.3.3 A trench measuring approximately 200 mm wide by 200 mm deep shall be excavated along the entire line of the silt fence. The trench shall be on the side of the stakes where grading work is to be conducted.
- E11.3.4 The geotextile from the silt fence shall extend into the trench a minimum of 300 mm. The prefabricated silt fence shall be installed without sags and have an overlap of 450mm wherever its length is extended.

- E11.3.5 The trench shall be backfilled and tamped to existing grade so as to hold the base of the geotextile firmly in place. The completed silt fence barrier shall have a minimum height of 600 mm above the ground surface.
- E11.3.6 Silt fence barriers shall be removed when, in the opinion of the Contract Administrator, the measure is no longer required. Silt fence barriers shall be removed in a manner that:
- (a) avoids entry of equipment, other than hand held equipment, to any water course; and
  - (b) prevents release of sediment and debris to any water course.
  - (c) areas disturbed by the installation and removal shall be restored to the original grade or to the satisfaction of the contract administrator.
- E11.4 MEASUREMENT AND PAYMENT
- E11.4.1 No separate measurement or payment will be made for the supply and installation of silt fence and will be considered incidental "Mobilization and Demobilization".

## **E12. SUPPLY AND PLACEMENT OF CLAY FILL**

### **E12.1 DESCRIPTION**

- E12.1.1 This Specification covers the supply and placement of clay fill for the new crushed limestone path and shall amend and supplement Standard Specification CW 3170-R3.
- E12.1.2 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

### **E12.2 MATERIAL**

- E12.2.1 Clay fill 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.

### **E12.3 CONSTRUCTION METHOD**

- E12.3.1 Where fill is required to bring the subgrade up to the proper subgrade elevation use compacted clay fill, sloped to match the finish grade elevations. Fill below newly sodded areas shall be installed to a 100 mm depth below finish grade elevations
- E12.3.2 Clay fill is not to be placed on existing turf grass. Strip existing turf grass areas prior to placement of clay fill.
- E12.3.3 Clay shall be placed and compacted as shown on the Construction Drawings in uniform layers not exceeding 300 mm.
- E12.3.4 Clay shall be compacted to 95% SPMDD as determined by ASTM D698.

### **E12.4 MEASUREMENT AND PAYMENT**

- E12.4.1 No separate measurement or payment will be made for the supply and placement of clay fill and will be considered incidental to "Supply and Install Asphalt Path (2m wide)" or incidental to "Supply and Install Crushed Limestone Path with Geotextile (2m wide New Path)".

## **E13. INSTALLATION OF GRAVEL PATHWAY**

### **E13.1 DESCRIPTION**

- E13.1.1 General
- (a) This specification supplements City of Winnipeg Standard Construction Specification CW 3150-R4 "Gravel Surfacing".
  - (b) Referenced Standard Construction Specifications:

- (i) CW 3110-R19 "Sub-grade, Sub-base and Base Course Construction"
- (ii) CW 3130-R4 "Supply and Installation of Geotextile Fabrics"

#### E13.2 MATERIALS

- (a) Geotextile shall be non-woven, Armtec 200, or approved equal as per section B7.
- (b) Base course shall be 20mm down crushed limestone.
- (c) Surfacing shall be 6mm down crushed limestone.

#### E13.3 CONSTRUCTION METHODS

##### E13.3.1 Subgrade preparation

- (a) Excavate as required and ensure that the subgrade is at the proper level for the pathway construction. Work includes the satisfactory disposal of unsuitable material such as silts, rock, rubble, rubbish and surplus suitable material. Subgrade compaction shall be accordance with CW 3110-R19.
- (b) Do not disturb existing surrounding trees.
- (c) Disposal of material shall be understood to mean the hauling of all unsuitable and surplus material off site and the unloading in a legal manner acceptable to the Contract Administrator.
- (d) The Contractor is responsible for determining and setting all new finish grade elevations as noted on the construction drawings.
- (e) Where fill is required to bring the subgrade up to the proper subgrade elevation use compacted clay fill.

##### E13.3.2 Installation of Geotextile Liner

- (a) Geotextile liner to be constructed in accordance with CW 3130-R4.

##### E13.3.3 Installation of Gravel Pathway

- (a) Gravel pathway to be constructed as follows: 150 mm thick base course in accordance with sections 3.3 and 3.4 of CW 3110-R19 and 25 mm thick surface in accordance with section 3.2 of CW 3150-R4.
- (b) Install material to the depth and design indicated on the Construction Drawings. Install only on clean unfrozen surface, properly shaped and compacted.
- (c) Pathways shall have a minimum 1% and maximum 2% constructed cross slope, so no ponding of water occurs over the full width of walkway. Cross slope to drain in positive direction of existing slopes.

#### E13.4 MEASUREMENT AND PAYMENT

##### E13.4.1 Supply and Installation of Gravel Path

- (a) Supply and installation of gravel path shall be measured on an area basis and paid for at the Contract Unit Price per square metre for the "Supply and Install Crushed Limestone Path with Geotextile (New Path)", which price shall be payment in full for supplying all materials and performing all operations herein specified, and all other items included in the work of this specification.

### E14. REFURBISHMENT OF EXISTING GRAVEL PATHWAY

#### E14.1 DESCRIPTION

##### E14.1.1 General

- (a) This specification supplements City of Winnipeg Standard Construction Specification CW 3150-R4 "Gravel Surfacing".
- (b) Referenced Standard Construction Specifications:

(i) CW 3110-R19 "Sub-grade, Sub-base and Base Course Construction"

E14.2 MATERIALS

E14.2.1 Surfacing material shall be 6mm down crushed limestone.

E14.3 CONSTRUCTION METHODS

E14.3.1 Excavate 50 mm depth of surface material from existing pathway in locations determined by the Contract Administrator. Work includes the satisfactory disposal of excavated material.

E14.3.2 Install 50 mm of surface material to surface of existing path in accordance with section 3.2 of CW 3150-R4.

E14.4 MEASUREMENT AND PAYMENT

E14.4.1 Removal of surface material from existing path shall be measured on an area basis and paid for at the Contract Unit Price per square metre for the "Remove 50mm depth of Gravel (Path to be Refurbished)", which price shall be payment in full for supplying all materials and performing all operations herein specified, and all other items included in the work of this specification

E14.4.2 Supply and install surfacing material to existing path shall be measured on an area basis and paid for at the Contract Unit Price per square metre for the "Supply and Install 50mm Crushed Limestone (Path to be Refurbished)", which price shall be payment in full for supplying all materials and performing all operations herein specified, and all other items included in the work of this specification.

**E15. SUPPLY AND INSTALL DETECTABLE WARNING SURFACE TILES**

E15.1 DESCRIPTION

E15.1.1 This specification covers the supply and installation of detectable warning surface tiles in sidewalk ramps and multi-use path ramps.

E15.2 SPECIFICATIONS AND DRAWINGS

E15.2.1 Referenced Standard Construction Specifications and Standard Details

- (a) CW 3235-R9 - Renewal of Existing Miscellaneous Concrete Slabs
- (b) CW 3240-R10 - Renewal of Existing Curbs
- (c) CW 3310-R16 - Portland Cement Concrete Pavement Works
- (d) CW 3325-R5 - Portland Cement Concrete Sidewalk
- (e) SD-229C - Curb Ramp for Concrete Pavement

E15.2.2 Attached; SDE Drawings and Installation Manual

- (a) SDE-229AE – Curb Ramp for Pedestrian Corridor with a Traffic Control Device
- (b) SDE-229E - Curb Ramp Depressed Curb
- (c) Manufacturer's Installation Manual – Armor-Tile Cast in Place Inline Dome Detectable/Tactile Warning Surface Tile.

E15.3 MATERIALS

E15.3.1 Acceptable Detectable Warning Surface Tile product is: 610 x 1524mm (2'x 5') Armor-Tile Cast in Place (yellow), available from:

- (a) Engineered Plastics Inc.  
1400 Cornwall Road Unit 6  
Oakville, Ontario L6J 7W5

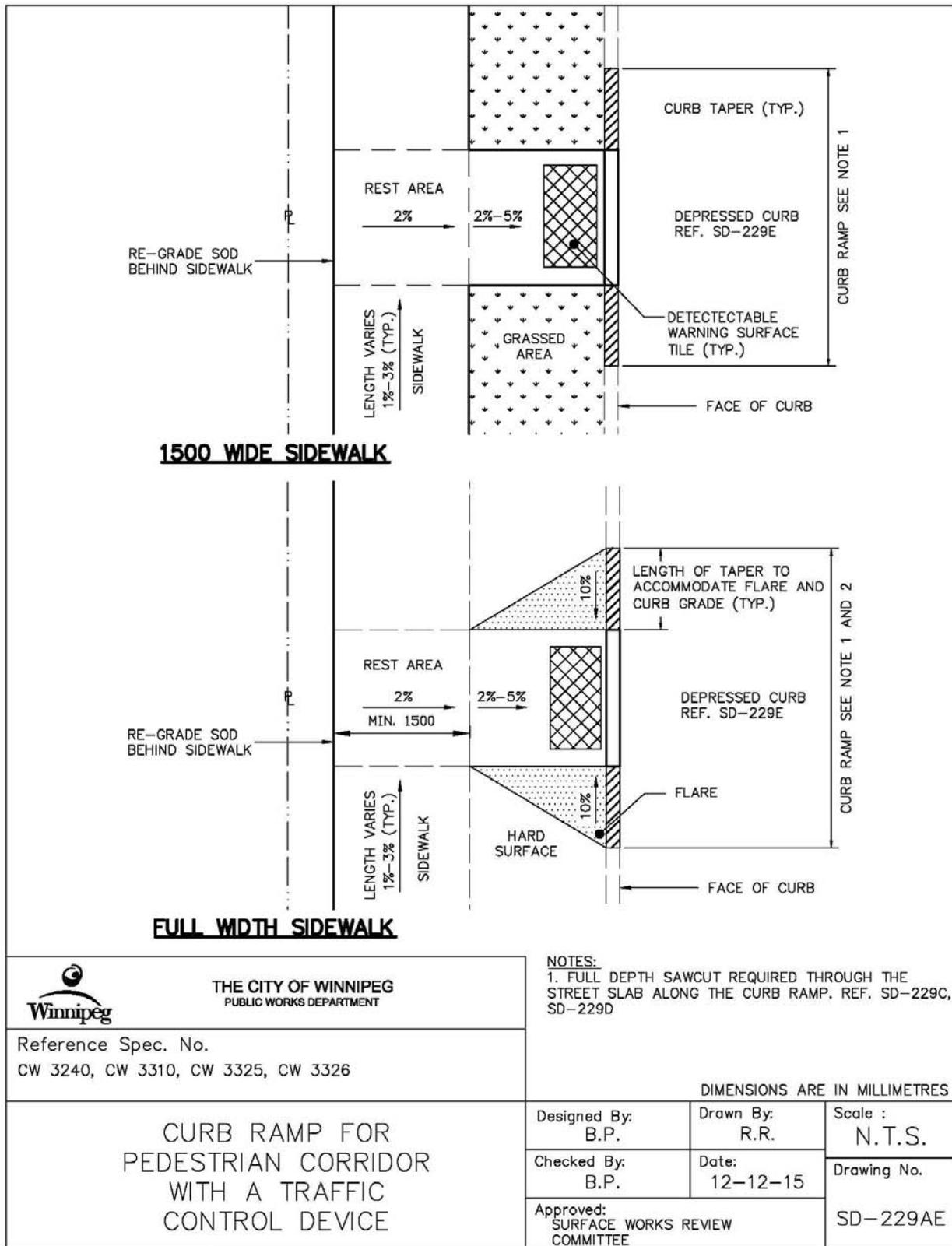
Attention: Manny Burgio  
Ph: 800-682-2525  
Fax: 800-769-4463 or

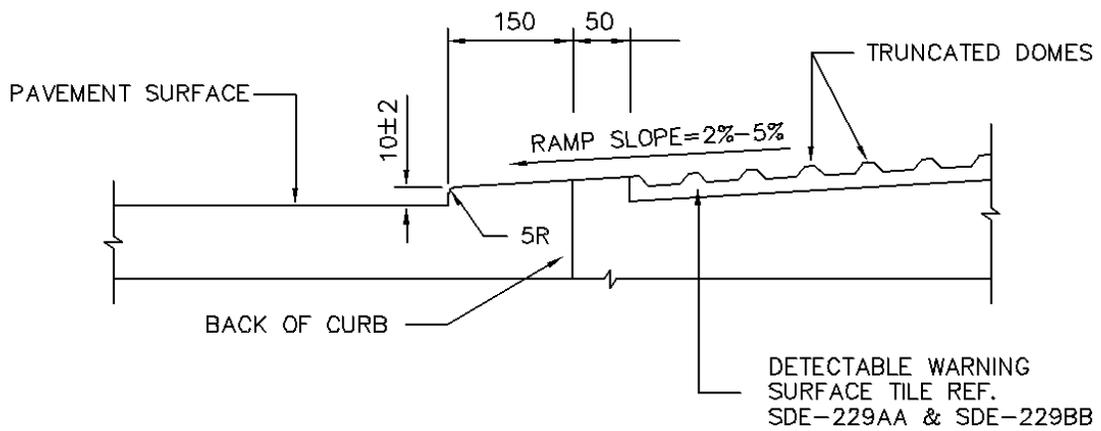
(b) Alsip's Building Products  
1 Cole Avenue  
Winnipeg, Manitoba

Attention: Jason Alsip  
Ph. 204-667-3330

- E15.3.2 Detectable warning surface tiles shall be Highway Yellow (USA) or Safety Yellow (Canada).
- E15.3.3 Detectable warning surface tiles shall be cast in place type.
- E15.3.4 Truncated domes on detectable warning surface tiles shall be in accordance with ADA Accessibility Guidelines (ADAAG).
- E15.4 Construction Methods
- General
- E15.4.1 Construct curb ramps / sidewalk ramps in accordance with referenced Standard Construction Specifications, Standard Details, and SDE drawings (attached).
- E15.4.2 Construct the lip of the depressed curb in accordance with SDE-229E.
- E15.4.3 Construct sidewalk ramp grades in accordance with SD-229C and SD-229D.
- E15.4.4 Install the detectable warning surface tile in accordance with the amended Manufacturer's Installation Manual (attached). Drill additional 6mm air vent holes in ribs under the tile as required and use vibration to help seat the tile, to facilitate the installation process.
- E15.4.5 Trim the corner of the tile at radii in accordance with SDE-229A, SDE-229AA and SDE-228AB.
- E15.4.6 Install and orient the detectable warning surface tiles as shown on the referenced drawings or as directed by the Contract Administrator.
- E15.4.7 Saw cut the middle of the concrete slab as directed by the Contract Administrator.
- E15.5 MEASUREMENT AND PAYMENT
- E15.5.1 Supply and installation of detectable warning surface tiles will be measured on a unit basis and paid for at the Contract Unit Price for "Detectable Warning Surface Tiles". The number of units to be paid for will be the total number of full or trimmed tiles supplied and installed in accordance with this specification, accepted and measured by the Contract Administrator.
- E15.5.2 The concrete sidewalk ramp and the concrete ramp for the paths will be measured and paid as 100mm sidewalk in accordance with CW 3235-R9 or CW 3325-R5.
- E15.5.3 Curb ramp will be measured and paid in accordance with CW 3240-R10 or CW 3310-R19.

Drawings and Installation Manual





DEPRESSED CURB

NOTES:

- 1) SIDEWALK RAMP SURFACE SHALL BE GIVEN A PARALLEL TEXTURED BROOM FINISH.
- 2) INSTALL DETECTABLE WARNING SURFACE SO THAT THE TOP OF THE TRUNCATED DOMES ARE FLUSH WITH THE SURFACE FO THE ADJACENT SIDEWALK.

 <b>THE CITY OF WINNIPEG</b> PUBLIC WORKS DEPARTMENT		DIMENSIONS ARE IN MILLIMETRES		
Reference Spec. No. CW 3235, CW 3310, CW 3325 E-SUPPLY & INSTALL DETECTABLE WARNING SURFACE				
CURB RAMP DEPRESSED CURB		Designed By: B.P.	Drawn By: T.G.A.	Scale : N.T.S.
		Checked By: F.W.C.	Date: 10-02-18	Drawing No.
		Approved:		SDE-229E

## Manufacturer's Installation Manual Armor-Tile Cast In Place

### Inline Dome Detectable/Tactile Warning Surface Tile

- A. During Cast In Place Detectable/Tactile Warning Surface Tile installation procedures, ensure adequate safety guidelines are in place and that they are in accordance with the applicable industry and government standards.
- B. The specifications of the structural embedment flange system and related materials shall be in strict accordance with the contract documents and the guidelines set by their respective manufacturers. Not recommended for asphalt applications.
- C. The physical characteristics of the concrete shall be consistent with the contract specifications while maintaining a slump range of 4 – 7 to permit solid placement of the Cast In Place Detectable/Tactile Warning Surface Tile system. An overly wet mix will cause the tile to float. Under these conditions, suitable weights such as 2 concrete blocks or sandbags (25 lb) shall be placed on each tile.
- D. Prior to placement of the Cast In Place Detectable/Tactile Warning Surface Tile system, the contract drawings shall be reviewed.
- E. The concrete pouring and finishing operations require typical mason's tools, however, a 4' long level with electronic slope readout, 25 lb. weights, and a large non-marring rubber mallet are specific to the installation of the Cast In Place Detectable/Tactile Warning Surface Tile system. A vibrating mechanism such as that manufactured by Vibco can be employed, if desired. The vibrating unit should be fixed to a soft base such as wood, at least 1 foot square.
- F. The factory-installed plastic sheeting must remain in place during the entire installation process to prevent the splashing of concrete onto the finished surface of the tile.
- G. When preparing to set the tile, it is important that NO concrete be removed in the area to accept the tile. It is imperative that the installation technique eliminates any air voids under the tile. Holes in the tile perimeter allow air to escape during the installation process. Concrete will flow through the large holes in each embedment flange on the underside of the tile. This will lock the tile solidly into the cured concrete.
- H. The concrete shall be poured and finished true and smooth to the required dimensions and slope prior to the tile placement. Immediately after finishing concrete, the electronic level should be used to check that the required slope is achieved. The tile shall be placed in accordance with the contract drawings. The Cast In Place Detectable/Tactile Warning Surface Tiles shall be tamped (or vibrated) into the fresh concrete to ensure that the field level of the tile is flush to the adjacent concrete surface. The embedment process should not be accomplished by stepping on the tile as this may cause uneven setting which can result in air voids under the tile surface. ~~The contract drawings indicate that the tile field level (base of truncated dome) is flush to adjacent surfaces to permit proper water drainage and eliminate tripping hazards between adjacent finishes.~~
- I. In cold weather climates it is recommended that the Cast In Place Detectable/Tactile Warning Surface Tiles be set deeper such that the top of domes are level to the adjacent concrete on the top and sides of ramp and that the base of domes to allow water drainage. This installation will reduce the possibility of damage due to snow clearing operations.
- J. Immediately after placement, the tile elevation is to be checked to adjacent concrete. The elevation and slope should be set consistent with contract drawings to permit water drainage to curb as the design dictates.
- K. While concrete is workable, a 3/8" radius edging tool shall be used to create a finished edge of concrete, then a steel trowel shall be used to finish the concrete around the tile's perimeter, flush to the field level of the tile.
- L. During and after the tile installation and the concrete curing stage, it is imperative that there is no walking, leaning or external force placed on the tile that may rock the tile causing a void between the underside of tile and concrete.
- M. Following tile placement, review installation tolerances to contract drawings and adjust tile before the concrete sets. Two suitable weights of 25 lb each shall be placed on each tile as necessary to ensure solid contact of the underside of tile to concrete.
- N. Following the concrete curing stage, protective plastic wrap is to be removed from the tile surface by cutting the plastic with a sharp knife, tight to the concrete/tile interface. If concrete bled under the plastic, a soft brass wire brush will clean the residue without damage to the tile surface.
- O. If desired, individual tiles can be bolted together using ¼ inch or equivalent hardware. This can help to ensure that adjacent tiles are flush to each other during the installation process. Tape or caulking can be placed on the underside of the bolted butt joint to ensure that concrete does not rise up between the tiles during installation. Any protective plastic wrap which was peeled back to facilitate bolting or cutting, should be replaced and taped to ensure that the tile surface remains free of concrete during the installation process.
- P. Tiles can be cut to custom sizes, or to make a radius, using a continuous rim diamond blade in a circular saw or mini-grinder. Use of a straightedge to guide the cut is advisable where appropriate.
- Q. ~~Any sound-amplifying plates on the underside of the tile, which are dislodged during handling or cutting, should be replaced and secured with construction adhesive. The air gap created between these plates and the bottom of the tile is important in preserving the detectability properties of the Armor-Tile system as required in various jurisdictions.~~

## E16. SITE FURNISHINGS

### E16.1 DESCRIPTION

- E16.1.1 This Specification covers all operations relating to the supply and installation of benches, waste receptacles and wood bollard along the gravel pathway.
- E16.1.2 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.

### E16.2 PRODUCTS

#### E16.2.1 General

- (a) The Contractor shall be responsible for the supply, safe storage and handling of all materials set forth in this Specification. All materials supplied under this Specification shall be subject to inspection and acceptance by the Contract Administrator.

#### E16.2.2 Gravel Pads

- (a) Gravel pads shall be constructed with geotextile liner, 20mm down, crushed limestone base, and capped with 6mm down, crushed limestone.

#### E16.2.3 Site Furniture:

- (a) Bench: Tache Style Composite Bench with Arm Rests, as per SCD-121A, Product #52501085, or substitute approved in accordance with Substitution procedures.
- (b) Waste Receptacle: Metal Slat Type, as per SCD-119, Product #52501063BLK with Wire Basket, Product #52501058, or substitute approved in accordance with B7.
- (i) Contact for Bench and Trash Receptacle:

Aaron Lennon, 204-986-5505  
Supervisor of Central Repair/Manufacturing Facility  
City of Winnipeg  
Fleet Management Agency Division  
Public Works Department  
215 Tecumseh St.  
Winnipeg, MB R3E 3S4  
Email: [ALennon@winnipeg.ca](mailto:ALennon@winnipeg.ca)

- E16.2.4 Wood bollard to be 300mm diameter pressure treated bollard as per the Drawings:

### E16.3 CONSTRUCTION METHODS

#### E16.3.1 Benches and Trash Receptacles

- (a) Install benches and slatted trash receptacles with in-ground mountings as indicated on the Construction Drawings.
- (i) All Work is to be located and installed in accordance with the Drawings, SCD-121A, SCD-119, and following manufacturer's instructions, using approved non-rusting, vandal resistant fasteners to ensure solid, durable, finished work suitable for the purpose intended. Fasteners and assembly hardware shall be incidental to the Work.
- (b) All furnishings and fixtures to be installed plumb and true to correct elevations and location, as directed by the Contract Administrator. The Contractor shall confirm proposed locations of all site furnishings with Contract Administrator prior to installation;

- (c) All furnishings and fixtures to be carefully handled so that no parts will be bent, broken or otherwise damaged. Hammering is prohibited;
- (d) Install as per manufacturer's instructions and the attached drawings.
- (e) The bench and waste receptacle shall be installed on top of gravel pads to the dimensions and shape shown and listed on drawings. The gravel base shall consist of a 150 mm depth of compacted 20mm down crushed limestone and be capped with a 25mm thickness of 6mm down crushed limestone. Limestone cap shall be raked smooth and compacted flat.

E16.3.2 Wood bollard to be installed as per the Drawings.

#### E16.4 MEASUREMENT AND PAYMENT

##### E16.4.1 Gravel Pads

- (a) Gravel Pads for benches and waste receptacles will be measured on an area basis and paid for at the Contract Unit Prices per square metre for the following items:

- (i) "Supply and install Gravel Pads for Site Furnishings"

which prices shall be payment in full for supplying all materials and for completing all operations herein described and all other items incidental to the work included in this Specification, accepted and measured by the Contract Administrator.

##### E16.4.2 Bench, Waste Receptacle and Wood Bollard

- (a) Bench, waste receptacle and wood bollard will be measured on a unit basis and paid for at the Contract Unit Prices per each for the following items:

- (i) "Supply and install Bench, in-ground mount",

- (ii) "Supply and install Slated Waste Receptacle, in-ground mount"

- (iii) "Supply and install Wood Bollard"

which prices shall be payment in full for supplying all materials and for completing all operations herein described and all other items incidental to the work included in this Specification, accepted and measured by the Contract Administrator.

### E17. HANDRAIL AND GUARDRAIL

#### E17.1 DESCRIPTION

E17.1.1 This Specification covers all operations relating to the supply and installation of metal handrails and guardrail.

E17.1.2 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.

#### E17.2 REFERENCES

E17.2.1 ASTM A 36/A 36M, Standard Specification for Carbon Structural Steel.

E17.2.2 ASTM A 307, Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.

E17.2.3 ASTM A 325M, Standard Specification for Structural Bolts, Steel, Heat Treated 830 MPa Minimum Tensile Strength.

E17.2.4 CSA G40.20/G40.21, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.

E17.2.5 CAN/CSA-G164, Hot Dip Galvanizing of Irregularly Shaped Articles.

E17.2.6 CAN/CSA-S16, Limit States Design of Steel Structures

E17.2.7 CSA W48, Filler Metals and Allied Materials for Metal Arc Welding

E17.2.8 CSA W59, Welded Steel Construction (Metal Arc Welding)

E17.2.9 NACE No. 3/SSPC SP-6, Commercial Blast Cleaning

### E17.3 SUBMITTALS

E17.4 Provide shop drawings for handrails and guardrail in accordance with CW 1110-R1 and E3

E17.4.1 Shop drawings to address project specific geometry (line and grade), dimensions, details of construction, fasteners, materials and finishes.

### E17.5 MATERIALS

E17.5.1 Railings and posts shall be SCH 40 steel pipe.

### E17.6 COATINGS

E17.6.1 The railings shall be hot-dip galvanized after fabrication.

E17.6.2 All nuts, bolts and washers shall be hot-dip galvanized.

### E17.7 MEASUREMENT AND PAYMENT

E17.7.1 Supply and installation of metal handrail will be measured on a length basis and paid for at the Contract Unit Price per metre for "Supply and Install Metal Handrail". The number of units to be paid for will be the total number of lineal metres supplied and installed in accordance with this specification, accepted and measured by the Contract Administrator.

E17.7.2 Supply and installation of metal guardrail will be measured on a length basis and paid for at the Contract Unit Price per Metre for "Supply and Install Metal Guardrail". The payment will be the total number of lineal metres supplied and installed in accordance with this specification, accepted and measured by the Contract Administrator.

E17.7.3 Paint, protective coatings, and all deposited weld metal used for either shop or field welding will be considered incidental to the Items of Work referencing this specification.

## E18. SODDING

### E18.1 DESCRIPTION

#### E18.1.1 General

(a) This specification shall amend and supplement City of Winnipeg Standard Construction Specification CW 3510-R9 "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-R9 Sodding

(ii) CW 3540-R5 Topsoil and Finish Grading

(c) Referenced Standard Details

(i) SD-243- Sodding Details

### E18.2 MATERIALS

#### E18.2.1 Turf Grass Sod

(a) Turf grass sod shall conform to CW 3510-R9.

(b) Sod shall be a mixture of 95% Kentucky bluegrass, using equal proportions of any three Class 2 cultivars, and 5% Creeping Red fescue.

(c) Topsoil and fine grading shall conform to CW 3540-R5.

### E18.3 CONSTRUCTION METHODS

#### E18.3.1 Installation of Topsoil and Finish Grading, Preparation of Finish Grade, Placement of Sod, Watering and Rolling and 30-Day Maintenance

- (a) Install 75 mm topsoil in accordance CW 3510-R9.
- (b) Finish grading, sod placement, watering and rolling and 30-day maintenance shall conform to CW 3510-R9 and SD-243

### E18.4 MEASUREMENT AND PAYMENT

#### E18.4.1 Measure sod (c/w 75 mm imported topsoil) in accordance with CW 3510-R9.

#### E18.4.2 Payment for supply and installation of sod with topsoil and finish grading, including 30-day maintenance before acceptance will be in accordance with CW 3510-R9.

#### E18.4.3 Payment shall be in accordance with the following:

- (a) 75% of quantity following supply and placement of sod including topsoil depth as specified in Form B, and
- (b) 25% of quantity following termination of the 30 day maintenance period before acceptance.

## E19. ESTABLISHMENT OF SEEDED AREAS

### E19.1 DESCRIPTION

#### E19.1.1 This specification shall amend and supplement City of Winnipeg Standard Construction Specification CW 3520-R7 "Seeding", and shall cover all aspects of supply and installation of seed, including preparation of finish grade, hydro mulching, and maintenance.

#### E19.1.2 Referenced Standard Construction Specifications

- (a) CW 3520-R7 – Seeding
- (b) CW 3540-R5 – Topsoil and Finish Grading for Establishment of Turf Areas

### E19.2 MATERIALS

#### E19.2.1 All seed supplied by the Contractor shall be Canada Certified No. 1 or Canada Certified No. 2 and come complete with a Certificate of Analysis verifying that quality standards for Canada Certified No. 1 or Canada Certified No. 2 seed are met. The Contractor shall submit the Certificates of Analysis to the Contract Administrator.

#### E19.2.2 Grass Seed

- (a) The Grass seed will be the mixture for general park areas, boulevards, medians and interchange areas as stated in CW 3520-R7 Section 5.3.2

#### E19.2.3 Any variations to the above referenced seed blends or mixtures shall be approved by the Contract Administrator prior to sowing.

#### E19.2.4 Herbicides shall be standard commercial products registered for sale and use in Canada under the Pest Control Products Act.

#### E19.2.5 Insecticides shall be standard commercial products registered for sale and use in Canada under the Pest Control Products Act.

#### E19.2.6 Topsoil will be at 75mm depth as per CW3540-R5 or as noted on the drawings.

### E19.3 CONSTRUCTION METHODS

#### E19.3.1 To prevent the formation of depressions or water pockets, the Contractor shall smooth out any undulations or irregularities in the topsoil surface resulting from fertilizing, seeding, rolling or other operations.

#### E19.3.2 Hydro-mulch

- (a) All seeded areas are to be hydro-mulched as per CW 3520-R7.

E19.3.3 Seeding

- (a) Grass Seed Mix
  - (i) Seed at a rate of 1.0 kg/100 square metres.
- (b) The contractor is to maintain the seeded area with all required watering, mowing, weed removal etc. to establish a healthy plant community for the duration of the growing season.

E19.3.4 Commencement of Maintenance Period

- (a) Immediately after the completion of the final seeding operation, to the satisfaction of the Contract Administrator, the Contractor shall commence and pay for continuous maintenance of the seeded area until the criteria specified for Termination of the Maintenance Period has been met.
- (b) Any deficient, damaged or vandalized areas shall be reseeded by the Contractor within three working days after receiving notification from the Contract Administrator and the area so reseeded, shall be further maintained until it meets the criteria specified in Maintenance of Seeded Area.

E19.3.5 Maintenance of Seeded Area

- (a) The Contractor shall water all seeded areas in sufficient quantities and at frequency required to maintain soil under seeded area continuously moist to a minimum depth of 100 mm. Any damage, which may occur through washout of the soil during the maintenance period shall be repaired and maintained until it meets the criteria specified in Clause 9.10 of CW 3520-R7. All costs to provide water for seeded areas shall be borne by the Contractor. These costs may include hydrant permit and meter rental fees.

E19.4 MEASUREMENT AND PAYMENT

E19.4.1 Seeded areas will be measured on an area basis. The area to be paid for shall be the total number of square metres installed in accordance with this Specification and accepted by the Contract Administrator, as computed from measurements made by the Contract Administrator.

E19.4.2 Supply, placement, hydro mulch and maintenance of seed mix with topsoil and finish grading, will be paid for at the Contract Unit Prices for the "Supply and Install 75mm Topsoil and Hydro-mulch". Prices shall be payment in full for supplying all materials and performing all operations herein specified, and all other items incidental to the work in accordance with this specification, CW3520-R7.

E19.4.3 Payment shall be in accordance with the following:

- (a) 65% of quantity following supply and placement of seed including topsoil depth as specified in Form B, and
- (b) 35% of quantity following termination of the 30 day maintenance period before acceptance.

**E20. SITE RESTORATION**

E20.1 Total Performance of the Work shall not be attained unless the Contractor has cleaned up the Site and has removed all the tools, materials, equipment, supplies, facilities, debris and surplus materials to the satisfaction of the Contract Administrator. The Contractor shall restore all areas of the Site beyond the limit of Work, which have been disturbed by the Contractor's operations to same or better condition than the original and to the satisfaction of the Contract Administrator.

E20.2 No separate measurement or payment will be made for the supply and installation of silt fence and will be considered incidental "Mobilization and Demobilization".