



**THE CITY OF WINNIPEG**

# **BID OPPORTUNITY**

**BID OPPORTUNITY NO. 690-2013**

**REMEDICATION OF THE FORMER DOMINION BRIDGE OPERATIONS YARD, 1460  
DUBLIN AVENUE**

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## **PART B - BIDDING PROCEDURES**

### **B1. CONTRACT TITLE**

B1.1 REMEDIATION OF THE FORMER DOMINION BRIDGE OPERATIONS YARD, 1460 DUBLIN AVENUE

### **B2. SUBMISSION DEADLINE**

B2.1 The Submission Deadline is 4:00 pm Winnipeg time, October 8, 2013.

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 The Contract Administrator or an authorized representative will be hosting a Site Investigation at 1:00 pm Winnipeg Time on September 26, 2013 to provide Bidders access to the Site.

(a) Bidders are requested to register for the Site Investigation by contacting the Contract Administrator identified in D4.

(b) The meeting location shall be inside the south entrance of the Site at the Saskatchewan Avenue gatehouse located east of Empress Street.

B3.2 The Site Investigation is not mandatory, but Bidders are strongly advised to attend.

B3.3 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 D4.

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/bidopp.asp>

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, only to the Bidder who requested approval of the substitute.
- B7.6.1 The Bidder requesting and obtaining the approval of a substitute shall be entirely responsible for disseminating information regarding the approval to any person or persons he/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 B15.
- 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.
- B7.10 Notwithstanding B7.2 to B7.9, and in accordance with B15.1(a), deviations inconsistent with the Bid Opportunity document shall be evaluated in accordance with B15.1(a).

## **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 B15.1(a).
- 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 and the corporate seal, if the corporation has one, should be affixed;
  - (d) if the Bidder is carrying on business under a name other than his/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. QUALIFICATION**

B11.1 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.

B11.2 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>

B11.3 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);
- (d) upon request of the Contract Administrator, obtain Security Clearances in accordance with PART F - SECURITY CLEARANCE;

B11.4 Further to B11.3(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 valid COR certification number 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 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/> .

B11.5 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.

B11.6 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.

## **B12. OPENING OF BIDS AND RELEASE OF INFORMATION**

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

B12.1.1 Bidders or their representatives may attend.

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

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

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

## **B13. IRREVOCABLE BID**

B13.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 9 of Form A: Bid.

B13.2 The acceptance by the City of any Bid shall not release the Bids of the next two lowest evaluated responsive Bidders and these Bidders shall be bound by their Bids on such Work until a Contract for the Work has been duly executed, but any Bid shall be deemed to have lapsed unless accepted within the time period specified in Paragraph 9 of Form A: Bid.

## **B14. WITHDRAWAL OF BIDS**

B14.1 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.

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

B14.1.2 The City will assume that any one of the contact persons named in Paragraph 3 of Form A: Bid or the Bidder's authorized representatives named in Paragraph 10 of Form A: Bid, and only such person, has authority to give notice of withdrawal.

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

- (a) retain the Bid until after the Submission Deadline has elapsed;
- (b) open the Bid to identify the contact person named in Paragraph 3 of Form A: Bid and the Bidder's authorized representatives named in Paragraph 10 of Form A: Bid; and
- (c) if the notice has been given by any one of the persons specified in B14.1.3(b), declare the Bid withdrawn.

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

## **B15. EVALUATION OF BIDS**

- B15.1 Award of the Contract shall be based on the following bid evaluation criteria:
- (a) compliance by the Bidder with the requirements of the Bid Opportunity or acceptable deviation there from (pass/fail);
  - (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B11 (pass/fail);
  - (c) Total Bid Price;
  - (d) economic analysis of any approved alternative pursuant to B7.
- B15.2 Further to B15.1(a), the Award Authority may reject a Bid as being non-responsive if the Bid is incomplete, obscure or conditional, or contains additions, deletions, alterations or other irregularities. The Award Authority may reject all or any part of any Bid, or waive technical requirements or minor informalities or irregularities, if the interests of the City so require.
- B15.3 Further to B15.1(b), the Award Authority shall reject any Bid submitted by a Bidder who does not demonstrate, in his/her Bid or in other information required to be submitted, that he/she is responsible and qualified.
- B15.4 Further to B15.1(c), the Total Bid Price shall be the sum of the quantities multiplied by the unit prices for each item shown on Form B: Prices.
- B15.4.1 Further to B15.1(a), in the event that a unit price is not provided on Form B: Prices, the City will determine the unit price by dividing the Amount (extended price) by the approximate quantity, for the purposes of evaluation and payment.

## **B16. AWARD OF CONTRACT**

- B16.1 The City will give notice of the award of the Contract or will give notice that no award will be made.
- B16.2 The City will have no obligation to award a Contract to a Bidder, even though one or all of the Bidders are determined to be responsible and qualified, and the Bids are determined to be responsive.
- B16.2.1 Without limiting the generality of B16.2, the City will have no obligation to award a Contract where:
- (a) the prices exceed the available City funds for the Work;
  - (b) the prices are materially in excess of the prices received for similar work in the past;
  - (c) the prices are materially in excess of the City's cost to perform the Work, or a significant portion thereof, with its own forces;
  - (d) only one Bid is received; or
  - (e) in the judgment of the Award Authority, the interests of the City would best be served by not awarding a Contract.
- B16.3 Where an award of Contract is made by the City, the award shall be made to the responsible and qualified Bidder submitting the lowest evaluated responsive Bid, in accordance with B15.
- B16.3.1 Following the award of contract, a Bidder will be provided with information related to the evaluation of his/her Bid upon written request to the Contract Administrator.
- B16.4 Notwithstanding C4, the City will issue a Purchase Order to the successful Bidder in lieu of the execution of a Contract.
- B16.5 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:

D2.1.1 Removal and disposal of a nominal 300 mm depth of metals, PAH and hydrocarbon contaminated surface soils and pavements from four (4) areas within the former Dominion Bridge Operations Yard at 1460 Dublin Avenue. Restoration of the excavated areas with clean soil, granular pavements material and asphalt pavements matching the original surface. Note that this is not a full remediation, but only a partial remediation of the surface soils.

D2.1.2 Minor surface drainage improvements are planned.

D2.1.3 Removal and disposal of a nominal 1.0 m depth of contaminated sediment below the normal water level from the channel bottom and banks of Omand's Creek, installation of rock structures for erosion protection and aquatic habitat enhancement, and revegetation of the banks.

D2.1.4 The remediation work is to be carried out in conformance with the Remedial Action Plan develop for this Site as will be approved by Manitoba Conservation and Water Stewardship, and in accordance with The Contaminated Sites Remediation Act (Manitoba).

#### **D3. DEFINITIONS**

D3.1 When used in this Bid Opportunity:

- (a) "CSA" means Canadian Standards Association;
- (b) "ASTM" means American Society for Testing and Materials;
- (c) "DFO" means Fisheries and Oceans Canada;
- (d) "Nav. Waters" means Transport Canada, Navigable Waters Protection Division.

#### **D4. CONTRACT ADMINISTRATOR**

D4.1 The Contract Administrator is Tetra Tech WEI Inc., represented by:

Mr. Ryan Wizbicki, P.Eng.  
Project Manager, Environment and Infrastructure

Telephone No. 204-954-6800

[ryan.wizbicki@tetrattech.com](mailto:ryan.wizbicki@tetrattech.com)

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

D4.3 Bids Submissions must be submitted to the address in B8.5.

#### **D5. CONTRACTOR'S SUPERVISOR**

D5.1 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.

**D6. OWNERSHIP OF INFORMATION, CONFIDENTIALITY AND NON DISCLOSURE**

- D6.1 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.
- D6.2 The Contractor shall not make any public announcements or press releases regarding the Contract, without the prior written authorization of the Contract Administrator.
- D6.3 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.
- D6.4 A Contractor who violates any provision of D6 may be determined to be in breach of Contract.

**D7. NOTICES**

- D7.1 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.
- D7.2 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the City, except as expressly otherwise required in D7.3, D7.4 or elsewhere in the Contract, shall be sent to the attention of the Contract Administrator at the email address identified in D4.
- D7.3 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
- D7.4 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
- D7.5 Facsimile No.: 204 947-9155

**D8. FURNISHING OF DOCUMENTS**

- D8.1 Upon award of the Contract, the Contractor will be provided with five (5) complete sets of the Bid Opportunity. If the Contractor requires additional sets of the Bid Opportunity, they will be supplied to him/her at cost.

**SUBMISSIONS**

**D9. AUTHORITY TO CARRY ON BUSINESS**

- D9.1 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.

#### **D10. SAFE WORK PLAN**

D10.1 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.

D10.2 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>

#### **D11. INSURANCE**

D11.1 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) Contractors Pollution Liability (CPL) insurance in the amount of at least five million dollars (\$5,000,000) per occurrence and five million dollars (\$5,000,000) aggregate insuring against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work hereunder performed by the Contractor, its agents, representatives, employees or subcontractors. Coverage to include:
  - (i) bodily injury, sickness, disease, mental anguish or shock sustained by any person, including death;
  - (ii) property damage including physical injury to or destruction of tangible property and the resulting loss of use thereof; loss of use of tangible property that has not been physically injured or destroyed; diminution in value; and Natural Resource Damages;
  - (iii) clean-up costs (including restoration/replacement costs);
  - (iv) defense including costs, charges and expenses incurred in the investigation, adjustment or defense of claims for such compensatory damages;
  - (v) transported cargo and Non-Owned Disposal Sites (blanket basis);
  - (vi) the City of Winnipeg is to be covered as an additional insured and shall contain no special limitation on the scope of protection afforded to the City, its official and employees;

Coverage shall apply to both sudden and gradual pollution conditions, including the further disruption of pre-existing conditions, arising from the services rendered by the Contractor or others on their behalf. Further, coverage shall apply to conditions on, at, under and emanating from the job site including the discharge, dispersal, release or escape of smoke, vapors, soot, fumes, acids, alkalis, toxic chemicals, liquids or gases, waste materials or other irritants, contaminants or pollutants into or upon land, structures thereupon, the atmosphere or any watercourse or body of water, which results in any loss or damages defined above. Coverage shall not contain any "Insured vs Insured" exclusions preventing

the City from bringing a claim against the Contractor, nor any restrictions for property of others in the care, custody or control of the Contractor.

Should coverage be written on a Claims-Made basis, the Contractor will maintain insurance (as described above) on a continuous basis for not less than twenty-four (24) months beyond the project completion and/or termination of the agreement.

- (d) an 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.
- (e) Insurance certificate to state that "operations to include hazardous material handling and transportation".

D11.2 Deductibles shall be borne by the Contractor.

D11.3 The Contractor shall provide the City Solicitor with a certificate(s) of insurance, in a form satisfactory to the City Solicitor, at least two (2) Business Days prior to the commencement of any Work but in no event later than the date specified in C4.1 for the return of the executed Contract.

D11.4 The Contractor shall not cancel, materially alter, or cause each policy to lapse without providing at least thirty (30) Calendar Days prior written notice to the Contract Administrator.

D11.5 All policies must be taken out with insurers licensed to carry on business in the Province of Manitoba.

D11.6 Contractor to clearly identify within the bid response all charges passed along to the City for such insurance as described above.

## **D12. PERFORMANCE SECURITY**

D12.1 The Contractor shall provide and maintain performance security until the expiration of the warranty period in the form of:

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

D12.1.1 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.

D12.2 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.

## **D13. SUBCONTRACTOR LIST**

D13.1 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.

#### **D14. DETAILED WORK SCHEDULE**

- D14.1 The Contractor shall provide the Contract Administrator with a detailed work schedule at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract.
- D14.2 The detailed work schedule shall consist of the following:
- (a) a critical path method (C.P.M.) schedule for the Work;
  - (b) a Gantt chart for the Work based on the C.P.M. schedule;
- all acceptable to the Contract Administrator.
- D14.3 The critical path schedule shall clearly identify the start and completion dates of all of the following activities/tasks making up the Work as well as showing those activities/tasks on the critical path;
- (a) Commencement
  - (b) Site 1 Remediation
  - (c) Site 1 Asphalt Paving
  - (d) Site 2 Remediation
  - (e) Site 3 Remediation
  - (f) Site 4 Remediation
  - (g) Omand's Creek Dewatering
  - (h) Omand's Creek Remediation
  - (i) Omand's Creek Revegetation
  - (j) Substantial Performance
  - (k) Total Performance
- D14.4 The Gantt chart shall show the time on a weekly basis, required to carry out the Work of each trade, or specification division. The time shall be on the horizontal axis, and the type of trade shall be on the vertical axis.
- D14.5 The Gantt chart shall show Critical Stages as listed in D16.

#### **D15. COMMENCEMENT**

- D15.1 The Contractor shall not commence any Work until he/she is in receipt of a letter of intent from the Award Authority authorizing the commencement of the Work.
- D15.2 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 D9;
    - (ii) evidence of the workers compensation coverage specified in C6.15;
    - (iii) the Safe Work Plan specified in D10;
    - (iv) evidence of the insurance specified in D11;
    - (v) the performance security specified in D12; and
    - (vi) the Subcontractor list specified in D13.
  - (vii) The Detailed Work Schedule specified in D14
  - (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.
  - (c) the Contract Administrator has received the City of Winnipeg Waterways Permit, limiting any works within 76 m of the water's edge of Omand's Creek.

- (d) the Contract Administrator has received the Fisheries and Oceans Canada and Navigable Waters permits, limiting works near the banks and in the channel bottom of Omand's Creek.
- (e) The Contract Administrator has received the Environmental Act License limiting works within Omand's Creek.

D15.3 The Contractor shall undertake the works as follows:

- (a) Commence the surface remediation works within four (4) Working Days of receipt of the letter of intent.
- (b) Not commence the sediment removal works in Omand's Creek before the Contract Administrator has received an Environment Act License limiting works within Omand's Creek.

D15.4 The City intends to award this Contract by October 22, 2013.

D15.4.1 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.

## **D16. CRITICAL STAGES**

D16.1 The Contractor shall achieve critical stages of the Work in accordance with the following requirements:

- (a) Installation of Site Remediation works at Site 1 including asphalt pavement replacement before November 15, 2013, based on the latest date where asphalt is typically available.
- (b) Completion of the surface remediation and reinstatement of gravel or soil surfaces by December 20, 2013.
- (c) Completion of creek bank grading and placement of rip-rap structures in Omand's Creek by February 28, 2014.
- (d) Completion of soil amendment and hydroseeding of Omand's Creek banks by the Date of Substantial Performance.

D16.2 The critical stage is based on Department of Fisheries and Oceans requirement to not permit any in-channel construction activity from April 1 – June 15.

## **D17. SUBSTANTIAL PERFORMANCE**

D17.1 The Contractor shall achieve Substantial Performance by February 28, 2014.

D17.2 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.

D17.3 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.

## **D18. TOTAL PERFORMANCE**

D18.1 The Contractor shall achieve Total Performance by July 11, 2014.

D18.2 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.

D18.3 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.

## **D19. LIQUIDATED DAMAGES**

D19.1 If the Contractor fails to achieve Critical Stages, Substantial Performance or Total Performance in accordance with the Contract by the days fixed herein for same, the Contractor shall pay the City the following amounts per Working Day for each and every Working Day following the days fixed herein for same during which such failure continues:

- (a) Completion of the surface remediation and reinstatement of gravel or soil surfaces by December 20, 2013 - one thousand five hundred dollars (\$1,500.00);
- (b) Completion of creek bank grading and placement of rip-rap structures in Omand's Creek by February 28, 2014 - one thousand five hundred dollars (\$1,500.00);
- (c) Substantial Performance - one thousand five hundred dollars (\$1,500.00).
- (d) Total Performance - five hundred dollars (\$500.00).

D19.2 The amounts specified for liquidated damages in D19.1 are based on a genuine pre-estimate of the City's losses in the event that the Contractor does not achieve critical stages, Substantial Performance or Total Performance by the days fixed herein for same.

D19.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

## **D20. SCHEDULED MAINTENANCE**

D20.1 The Contractor shall perform the following scheduled maintenance in the manner and within the time periods required by the Specifications:

- (a) Periodic Mowing, watering and weed control of native grass planting as specified in E23.

D20.2 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**

### **D21. JOB MEETINGS**

D21.1 Regular bi-weekly job meetings will be held at the Site. These meetings shall be attended by a minimum of one representative of the Contract Administrator, one representative of the City and one representative of the Contractor. Each representative shall be a responsible person capable of expressing the position of the Contract Administrator, the City and the Contractor respectively on any matter discussed at the meeting including the Work schedule and the need to make any revisions to the Work schedule. The progress of the Work will be reviewed at each of these meetings.

D21.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever he/she deems it necessary.

**D22. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)**

D22.1 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).

**D23. THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA) – QUALIFICATIONS**

D23.1 Further to B11.4, 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 B11.4.

**MEASUREMENT AND PAYMENT**

**D24. PAYMENT**

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

**D25. WARRANTY**

D25.1 Notwithstanding C13.2, the warranty period shall begin on the date of Total Performance and shall expire one (1) year thereafter unless extended pursuant to C13.2.1 or C13.2.2, in which case it shall expire when provided for thereunder.

D25.1.1 For the purpose of Performance Security, the warranty period shall be one (1) year.

D25.1.2 The warranty period for maintenance and establishment of Omand's Creek vegetation shall be two (2) years.

D25.2 Notwithstanding C13.2, the Contract Administrator may permit the warranty period for a portion or portions of the Work to begin prior to the date of Total Performance if a portion of the Work cannot be completed because of unseasonable weather or other conditions reasonably beyond the control of the Contractor but that portion does not prevent the balance of the Work from being put to its intended use.

D25.2.1 In such case, the date specified by the Contract Administrator for the warranty period to begin shall be substituted for the date specified in C13.2 for the warranty period to begin.

**D26. ENVIRONMENTAL PROTECTION**

D26.1 The Contractor shall plan and implement the Work of this Contract strictly in accordance with the requirements of the environmental protection measures proscribed by law and as specified herein.

D26.2 The Contractor is advised that at least the following Acts, Regulations, and By-laws apply to the Work.

- (a) Canadian Environmental Protection Act (CEPA) c.16
- (b) Canadian Transportation of Dangerous Goods Act (CTDG) c.34
- (c) The Contaminated Sites Remediation Act (Manitoba) C205
- (d) The Dangerous Goods Handling and Transportation Act (Manitoba) D12
- (e) The Endangered Species Act (Manitoba) E111
- (f) The Environment Act (Manitoba) E125
- (g) The Fire Prevention Act (Manitoba) F80
- (h) The Manitoba Nuisance Act (Manitoba) N120

- (i) The Public Health Act (Manitoba) P210
- (j) The Workplace Safety and Health Act (Manitoba) W120
- (k) And current applicable associated regulations.

D26.3 The Contractor shall have a copy of the Letter of Authorization or Advice from Fisheries and Oceans Canada (DFO) and be familiar with the conditions in the letter for which he is responsible.

D26.4 The Contractor shall have a sufficient supply of containment and clean-up materials such as absorbents, plastic oil booms, and oversized recovery drums (eg. Spill Kit) available on Site.

D26.5 Fuel Handling and Storage

- (a) All fuel handling and storage facilities shall comply with The Dangerous Goods and Transportation Act, Storage and Handling of Petroleum Products Regulation and any local land use permits.
- (b) Fuels, lubricants, and other potentially hazardous materials as defined in The Dangerous Goods and Transportation Act shall be stored and handled within the approved storage areas.
- (c) The Contractor shall ensure that all fuel storage containers are inspected daily for leaks and spillage.
- (d) Products transferred from the fuel storage area(s) to specific Work sites shall not exceed the daily usage requirement.
- (e) When servicing requires the drainage or pumping of fuels, lubricating oils or other fluids from equipment, a groundsheet of suitable material (such as HDPE) and size shall be spread on the ground to catch the fluid in the event of a leak or spill.
- (f) Refuelling of mobile equipment (i.e. equipment which can be moved to the top of bank) and vehicles shall take place at least 100 metres from a watercourse.
- (g) The area around storage sites and fuel lines shall be distinctly marked and kept clear of snow and debris to allow for routine inspection and leak detection.
- (h) A sufficient supply of materials, such as absorbent material and plastic oil booms, to clean up minor spills shall be stored nearby on Site. The Contractor shall ensure that additional material can be made available on short notice.

D26.6 Waste Handling and Disposal

- (a) The construction area shall be kept clean and orderly at all times during and at completion of construction.
- (b) At no time during construction shall personal or construction waste be permitted to accumulate for more than one day at any location on the construction site, other than at a dedicated storage area as may be approved by the Contract Administrator.
- (c) Indiscriminate dumping, littering, or abandonment shall not take place.
- (d) No on-site burning of waste is permitted.
- (e) Equipment shall not be cleaned near watercourses; contaminated water from onshore cleaning operations shall not be permitted to enter watercourses.

D26.7 Dangerous Goods/Hazardous Waste Handling and Disposal

- (a) Dangerous goods/hazardous waste are identified by, and shall be handled according to, The Dangerous Goods Handling and Transportation Act and Regulations.
- (b) The Contractor shall be familiar with The Dangerous Goods Handling and Transportation Act and Regulations.

D26.8 Emergency Spill Response

- (a) The Contractor shall ensure that due care and caution is taken to prevent spills.

- (b) The Contractor shall report all major spills of petroleum products or other hazardous substances with the potential for impacting the environment and threat to human health and safety to the Contract Administrator and Manitoba Conservation, immediately after occurrence of the environmental accident, by calling the 24-hour emergency telephone number (204) 945-4888.
- (c) The Contractor shall designate a qualified supervisor as the on-site emergency response coordinator for the project. The emergency response coordinator shall have the authority to redirect manpower in order to respond in the event of a spill.
- (d) The following actions shall be taken by the person in charge of the spilled material or the first person(s) arriving at the scene of a hazardous material accident or the on-site emergency response coordinator:
  - (i) Notify emergency-response coordinator of the accident
  - (ii) Identify exact location and time of accident
  - (iii) indicate injuries, if any
  - (iv) Request assistance as required by magnitude of accident (Manitoba Conservation 24-hour Spill Response Line (204) 945-4888, Police, Fire Department, Ambulance, company backup)
  - (v) Assess situation and gather information on the status of the situation, noting:
    - personnel on Site
    - cause and effect of spill
    - estimated extent of damage
    - amount and type of material involved
    - proximity to waterways
  - (vi) If safe to do so, try to stop the dispersion or flow of spill material:
    - approach from upwind
    - stop or reduce leak if safe to do so
    - dyke spill material with dry, inert sorbent material or dry clay soil or sand
    - prevent spill material from entering waterways and utilities by diking
    - prevent spill material from entering utilities, utility manholes, and other openings by covering the openings with rubber spill mats or by diking
  - (vii) Resume any effective action to contain, clean up, or stop the flow of the spilled product.
- (e) The emergency response coordinator shall ensure that all environmental accidents involving contaminants shall be documented and reported to the Manitoba Conservation according to The Dangerous Goods Handling and Transportation Act - Environmental Accident Report Regulation 439/87.

**FORM H1: PERFORMANCE BOND**  
(See D12)

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. 690-2013

REMEDICATION OF THE FORMER DOMINION BRIDGE OPERATIONS YARD, 1460 DUBLIN AVENUE

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 D12)

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

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

RE: PERFORMANCE SECURITY - BID OPPORTUNITY NO. 690-2013

REMEDICATION OF THE FORMER DOMINION BRIDGE OPERATIONS YARD, 1460 DUBLIN AVENUE

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/matmgmt/Spec/Default.stm>
- E1.2.2 The version in effect three (3) Business Days before the Submission Deadline shall apply.
- E1.2.3 Further to C2.4(d), Specifications included in the Bid Opportunity shall govern over *The City of Winnipeg Standard Construction Specifications*.
- E1.3 The following are applicable to the Work:

| <u>Drawing No.</u> | <u>Drawing Name/Title</u>   |
|--------------------|---|
|                    | Cover Sheet   |
| C0001              | Site Plan   |
| C0002              | Excavation Site 1 Plan  |
| C0003              | Excavation Site 2 Plan  |
| C0004              | Excavation Site 3 Plan (West)                                     |
| C0005              | Excavation Site 3 Plan (East)                                     |
| C0006              | Excavation Site 4 Plan  |
| C0007              | Omand's Creek Sediment Excavation – Dublin to Sta 1+75            |
| C0008              | Omand's Creek Sediment Excavation – Sta 1+75 to Sta 3+50          |
| C0009              | Omand's Creek Sediment Excavation – Sta 3+50 to Saskatchewan Ave. |
| C0010              | Omand's Creek Remediation Construction Sequence                   |
| C0011              | Omand's Creek RipRap Details                                      |

### GENERAL REQUIREMENTS

#### E2. PROTECTION OF INSTRUMENTATION

- E2.1 The Contractor is advised that any piezometers and monitoring wells encountered within the remedial excavations are to be decommissioned including those not indicated on the drawings as to be abandoned. Piezometers and monitoring wells are to be decommissioned in accordance with E10 Monitoring Well Decommissioning
- E2.2 The Contractor shall take necessary precautions to prevent damage to instrumentation as a result of his/her Work. In addition, the Contractor shall take necessary precautions to prevent damage as a result of his/her Work to any new instrumentation that is installed.
- E2.3 Instrumentation damaged as a result of construction activity shall be repaired or replaced at the Contractor's expense to the satisfaction of the Contract Administrator

#### E3. PROTECTION OF EXISTING UTILITIES AND RAILWAY TRACKS

- E3.1 The Contractor is responsible for arranging to have underground utility locates completed in excavation areas and ensure that utilities are secured and not damaged during excavation activities.

- E3.2 Excavation of impacted soils will not be undertaken beneath any existing railway tracks, whether they are in-use or appear to be out of use. Railway tracks and the edges of railway ties shall be located prior to excavation. No excavation shall take place within 0.5 m of the edge of ties to limit the possibility for damage to ties and tracks.
- E3.3 Any railway ties or track damaged by construction activity shall be repaired at the Contractor's expense to the satisfaction of the Contract Administrator.

#### **E4. PROTECTION OF EXISTING TREES**

##### **E4.1 Description**

- E4.1.1 The Contractor shall not damage or disturb trees and bush that are not specified to be removed as indicated on the Drawings.
- E4.1.2 The locations of existing trees, shrubs and other riverbank vegetation shown on the Drawings to remain are approximate. The Contractor will be expected to work around and protect vegetation which has been identified to remain.

##### **E4.2 Construction Methods**

- E4.2.1 The Contractor shall take the following precautionary steps to prevent damage from construction activities to existing trees within the limits of the construction area:
- (a) The Contractor shall not stockpile materials and soil or park vehicles and equipment within 2 metres of existing trees.
  - (b) Trees 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.
  - (c) 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 the greater of a minimum of 1.5 times the diameter from the closest edge of the trunk or 1.5m from the edge of the trunk. Where roots must be cut to facilitate excavation, they shall be pruned neatly at the face of excavation.
  - (d) Operation of equipment within the drip line 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 drip lines of trees. The drip line of a tree shall be considered to be the ground surface directly beneath the tips of its outermost branches.
  - (e) The Contractor shall ensure that the operations do not cause flooding or sediment deposition on areas where trees are located.
  - (f) 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.
- E4.2.2 All damage to existing trees caused by the Contractor's activities shall be repaired or replaced to the requirements and satisfaction of the Contract Administrator and the City Forester or designate.

##### **E4.3 Measurement and Payment**

- E4.3.1 No separate measurement or payment will be made for the protection of trees.

#### **E5. PROTECTION OF WATERWAYS**

##### **E5.1 Description**

- E5.1.1 All work adjacent to or crossing waterways including creeks and ditches draining in waterways is regulated by Fisheries and Oceans Canada (DFO).

- E5.1.2 Complete works in accordance to DFO guidelines/regulations.
- E5.1.3 Works within 76 metres (250 feet) of the Omand's Creek riverbank are within the jurisdiction of the City of Winnipeg Waterway By-law. The Contract Administrator will apply for the required Waterway Permit for the project, with the City paying all permit application costs. The Contractor shall adhere to restrictions imposed by the permit.
- E5.1.4 Under no circumstances will stockpiling of any material be permitted within 5 metres of the top of Omand's Creek riverbank.
- E5.2 Products
- E5.2.1 Silt Fencing
- (a) Silt fencing to be woven polypropylene synthetic fibre fabric with UV stabilizers and reinforcing mesh as per Armtec Heavy Duty or approved equal, in accordance with B6.
  - (b) The fabric shall be inert to commonly encountered soil chemicals, hydrocarbons, mildew and bacteria.
  - (c) Wood posts shall be minimum 38 mm x 38 mm by 1.5 m in length.
- E5.3 Construction Methods
- E5.3.1 General
- (a) Complete erosion control works to be in accordance with current Fisheries and Oceans Canada and Manitoba Environment guidelines.
  - (b) The following mitigation measures must be adhered to protect fish habitat:
    - (i) No in-channel construction activity shall be permitted during the time period of April 1 – June 15.
    - (ii) Use sediment and erosion control measures to prevent soil laden run off and silt from affecting downstream areas of the watercourse. Halt construction during periods of heavy rain or run off.
    - (iii) Monitor the work site to evaluate the effectiveness of erosion control measures and the physical stability of the creek bed and banks. Any problems are to be rectified immediately.
    - (iv) Conduct the cleaning, fuelling, and servicing of equipment a minimum of 100 m from any watercourse. Equipment operating near any watercourse should be free of external grease, oil, mud, or fluid leaks.
    - (v) Take necessary precautions to ensure deleterious substances, including silt, does not enter any watercourse. The deposit of deleterious substances into water frequented by fish is prohibited under the Fisheries Act.
    - (vi) Remove excess material from the excavation and place where it will not erode into any watercourse. Dispose all spoil materials above the high water mark and located such that they do no re-enter any watercourses.
- E5.3.2 Silt Fence Installation
- (a) Install silt fences at locations shown on the drawings and as described below, as per Manufacturer's recommendations.
    - (i) Install silt fencing across the creek downstream of the most downstream cofferdam.
    - (ii) Install silt fencing at elevation 232.1 m (Nominal 2 year return flood level) on both sides of creek following rough grading of final creek sideslope.
  - (b) Excavate trench to place bottom of fabric a minimum of 150 mm below existing grade and backfill with compacted soil to prevent sediment flow underneath the silt fence.
  - (c) Install all supporting posts on the down slope side of the fencing. Post to extend a minimum of 0.75 m below ground or until fabric reach the bottom of the trench.

- (d) Maintain silt fences throughout construction. Inspect and repair following the spring thaw and flooding.
- (e) Remove silt fences after installation of all permanent erosion control measures and satisfactory establishment of permanent vegetation.

#### E5.4 Measurement and Payment

- E5.4.1 Silt fencing will be measured on a length basis and paid for at the Contract Unit Price per lineal meter for "Supply, Install and Maintain Silt Fence". The length of silt fencing to be paid for will be the total length of silt fencing installed in accordance with this Specification as computed from measurements verified by the Contract Administrator.

### E6. SITE INFRASTRUCTURE AND CONSTRAINTS

- E6.1 Three existing businesses are currently operating from the Site, with day to day management provided by Shindico. The Contractor shall coordinate activities near these businesses through Shindico's Site representative:

Mr. R.G. (Bob) Downs, CA  
200-1355 Taylor Avenue  
Winnipeg, MB R3M 3Y9  
Telephone 204-474-2000  
Cellular 204-795-8561  
Email bdowns@shindico.com

- E6.2 Construction activities shall not block all means of access to businesses; at least one means of access must be maintained at all times. Fire lanes and access routes shall be reinstated by the construction of gravel ramps following the end of each workday and before weekends.
- E6.3 Staff parking, stockpiled materials and trailers will all conflict with the proposed remediation works. Temporary relocation of these private facilities will be the responsibility of the various businesses, who will require one week's notice prior to the commencement of remediation works to coordinate relocation of these facilities elsewhere on site. It will be necessary to stage the proposed work to accommodate these relocations.
- E6.4 Work on Site 1 must be completed first. This work will require the temporary relocation of office trailers by the businesses and require one week advance notice before the start of construction. The proposed remediation includes the restoration of asphalt paving, which must be completed before the end of the paving season.
- E6.5 The long period of use of the Industrial Site means there is a lot of debris and abandoned infrastructure. Miscellaneous debris encountered during remediation works including dimensional wood, railway ties, miscellaneous metal, broken concrete or other rubble occupying the remediation areas shall be placed in separate stockpiles at an on-site location to be determined at the beginning of construction.
- E6.6 Logs, tree branches, shrubs, and grubbed roots shall not be stockpiled with debris, but are to be handled as specified in E11.
- E6.7 Any debris of volatile or possibly environmentally harmful nature such as containers used to store oils, solvents or chemicals shall be placed in a separate location.
- E6.8 Existing railway tracks on site are to remain in place, including disused railway tracks have been buried by roadway gravel or mud. The Contractor shall locate all railway tracks prior to excavation using a magnetic locator or similar equipment. Soils under railway tracks are not to be remediated as part of this program, and surface excavations shall be no closer than 0.5m from the edge of ties to avoid disturbing the tracks.
- E6.9 One section of railway track in Site 1 has been identified for removal. This track including rails, ties, plates and spikes shall be removed and stockpiles at an on-site location identified by the

Contract Administrator. Rails shall be cut at a location near the limit of excavation. The section of track planned for removal may be disassembled or removed intact, and the track section or disassembled materials stockpiled at a location to be identified on site.

- E6.10 Some of the track subgrades and ties may have failed due to age and lack of maintenance, and equipment crossing tracks shall do so at well-defined roadway crossings only to limit possible damage to the railbeds. These crossing locations will be identified at the beginning of construction.
- E6.11 Two gas services have been identified on the Site. The Contractor must arrange for the location of these mains and the necessary Manitoba Hydro safety watch if deemed required, and for the relocation of the mains as required. The known gas service include:
  - E6.11.1 A 50 mm PE service parallels the East Property Line (adjacent Reliable Tire Recycling, 1450 Dublin Ave.), and may require lowering to complete the Site 1 remediation.
  - E6.11.2 A 100 mm Steel service from McCrossen Street undercrosses Omand's Creek approximately 165 m south of Dublin Avenue. This service will impact the creek remediation and Site 3 remediation, and the Contractor should arrange with Manitoba Hydro to have this main lowered.
- E6.12 Two hydro pole guy wires from the McCrossen Street overhead hydro line cross Omand's Creek and are anchored on the east creek bank. The Contractor must arrange to have these poles temporarily supported during the proposed work and the guy wires and anchors reinstated following construction.

#### **E7. PROVISIONAL WORK ITEMS**

- E7.1 This Specification shall amend and supplement Standard Specifications CW 1130.
- E7.2 Further to CW 1130 the Contractor shall be responsible for the layout of all excavation areas, drainage and surface reinstatement. The Contract Administrator will provide sufficient control points for the Contractor to lay out this Work.
- E7.3 The Contractor, upon entering the Site for the purpose of beginning Work, shall locate all reference points and take all necessary precautions to prevent their destruction. The Contractor shall pay all restoration charges for damaged legal survey bars, stakes, markers, etc.
- E7.4 Before commencing Work, the Contractor shall satisfy himself as to the meaning and correctness of all stakes, markers and grade sheets. The Contractor shall give the Contract Administrator at least 24 hours notice in writing before requiring any levels, lines or stakes on any portion of the Work.

#### **E8. PROVISIONAL WORK ITEMS**

- E8.1 The Provisional items listed in the Schedule of Prices are a part of the Contract.
- E8.2 No Work listed under these provisions will be performed by the Contractor without prior authorization from the Contract Administrator. All Work carried out will be within the construction areas listed in the Specifications.
- E8.3 Notwithstanding C7, The City reserves the right to eliminate all or any portion of the work listed as Provisional Items and no claim shall be made for damages on grounds of loss of anticipated profit.

#### **REMEDIATION WORKS**

#### **E9. MONITORING WELL DECOMMISSIONING**

- E9.1 Description

- E9.1.1 The Contractor will be responsible for piezometer and monitoring well decommissioning within the remediated areas.
- E9.2 Construction Methods
- E9.2.1 Record location of well for records.
- E9.2.2 Road boxes are to be removed from each existing monitoring well to be decommissioned.
- E9.2.3 Monitoring well casing will be cut off at the base of the excavation.
- E9.2.4 The remainder of the monitoring well beneath the base of the excavation is to be filled with bentonite to the top of the well casing.
- E9.2.5 Excavation backfilling is to occur over the decommissioned monitoring wells.
- E9.3 Measurement and Payment
- E9.3.1 Monitoring Well Decommissioning will be measured on a per unit basis, and will be paid for at the Contract Unit Price per unit for "Decommission Monitoring Well" based on the number of monitoring well decommissioned in accordance with this specification and accepted by the Contract Administrator.

## **E10. SEWER CLEANING AND INSPECTION**

- E10.1 Description
- E10.1.1 The condition and extend of on-site combined sewers is not known. Sewers in remediation Site 1 are to be traced from available catch basins and manholes, cleaned and televised. Catch basin sumps are to be cleaned.
- E10.2 Construction Methods
- E10.2.1 Clean sewers, manholes and catch basins in accordance with CW 2140.
- E10.2.2 Inspect sewers generally in accordance with CW 2145. However, full City of Winnipeg standard coding of structural and service defects is not required and only a simplified inspection report describing the general condition and defects along the length of the sewer is required.
- E10.3 Measurement and Payment
- E10.3.1 Sewer cleaning and inspection will be measured on a length basis for all diameters and types of sewers encountered and paid for at the Contract Unit Price per lineal meter for "Sewer Cleaning and Inspection". The length of sewer cleaning and inspection to be paid for will be the total length of sewer cleaned and inspected in accordance with this specification, irrespective of diameter, accepted and measured by the Contract Administrator.
- E10.3.2 Manhole cleaning will not be measured, and shall be included in the Contract Unit Price per lineal meter for "Sewer Cleaning".
- E10.3.3 Catch basin cleaning will be measured on a unit basis and paid for at the Contract Unit Price for "Catch Basin Cleaning". Number of units to be paid for will be the total number of catch basins cleaned in accordance with this specification, accepted and measured by the Contract Administrator.

## **E11. VEGETATION AND TREE REMOVAL**

- E11.1 Description
- E11.1.1 The scope of Work includes the removal of deciduous trees as identified on drawings, removal of smaller brush and mowing of tall vegetation near Omand's Creek prior to construction works.

E11.1.2 This specification shall supplement CW 3010.

## E11.2 Construction Methods

E11.2.1 The Contractor shall remove trees in a manner satisfactory to the Contract Administrator or designate and agrees that the Work may be inspected by City personnel.

E11.2.2 Removal of trees shall be complete to 300 mm below final ground level regardless of existing ground cover (e.g. snow, other plant material, etc.) or other conditions except where prior approval is given by the Contract Administrator or designate.

E11.2.3 Small trees and brush shall be removed and ground level and the roots grubbed to 300 mm below final ground level.

E11.2.4 All depressions resulting from tree removal or grubbing operation shall be filled and levelled.

E11.2.5 Tall vegetation near Omand's Creek within the excavation area shall be mowed to within 100 mm of the ground prior to the beginning of excavation near the creek. Mown vegetation to be collected for removal from Site.

E11.2.6 The Contractor shall load and haul all trees, stumps, roots, logs, brush, mown vegetation, organic rubbish and all other surface litter from the Site and dispose of these materials by one, or more, of the following methods:

- (a) Remove to a designated City of Winnipeg Landfill Site;
- (b) Chip and remove material to an onsite location approved by the Contract Administrator;
- (c) Larger logs suitable for use as firewood may be neatly stacked at an onsite location approved by the Contract Administrator;

E11.2.7 The Contractor shall comply with all Federal and Provincial laws and regulations and all City of Winnipeg by-laws. This shall include, but not be limited to, all aspects of the Manitoba Workplace Health and Safety Act and laws/by-laws affecting streets, safety, hours of work, noise, street blockage, correct use of signage and line clearance regulations of Manitoba Hydro and Manitoba Telephone System.

- (a) American Elms shall be removed and disposed of in accordance with the Dutch Elm Disease Act and regulations.
- (b) Any materials dropped or spilled on any streets during the hauling operations shall be promptly cleaned up by and at the expense of the Contractor, to the satisfaction of the Contract Administrator.
- (c) Burning will not be permitted on Site.

## E11.3 Measurement and Payment

E11.3.1 Trees to be removed will be measured on a unit basis, based on the number of trunks originating at or near the ground surface. Only trees with trunk diameter 75 mm or larger will be counted for removal. Trees to be removed will be paid for at the Contract Unit Price for "Tree Removal, 75mm and larger". The trees removed to be paid for will be the total number of trees removed in accordance with this specification as accepted and measured by the Contract Administrator.

E11.3.2 Removal of trees smaller than 75 mm trunk diameter and brush will be measured on an area basis and paid for at the Contract Unit Price per square meter for "Clearing and Grubbing". Payment for removal of trees smaller than 75 mm trunk diameter and brush will be the total square meters cleared in accordance to this specification as computed from measurements verified by the Contract Administrator.

E11.4 Mowing or cutting of tall grass and vegetation prior to excavation will be measured on an area basis and paid for at the Contract Unit Price per square meter for "Mowing". Payment for mowing or cutting of tall grass and vegetation prior to excavation will be the total square meters

mowed in accordance to this specification as computed from measurements verified by the Contract Administrator.

## **E12. EXCAVATION OF IMPACTED MATERIAL**

### **E12.1 Description**

E12.1.1 The Contractor will be responsible for the excavation of impacted material, as directed by the Contract Administrator.

### **E12.2 Construction Methods**

E12.2.1 The exact extents of the excavations will be identified by the Contract Administrator as the work progresses in the field, based on soil sampling and laboratory analytical results. The depth of excavation is nominally 300 mm.

E12.2.2 The Contractor shall collect soil samples for field screening for the Contract Administrator as the excavation progresses with Contractor supplied excavation equipment. Samples are to be collected, as directed by the Contract Administrator, from the excavation walls from sampling points located at 5 m spaced intervals around the perimeter of the excavation at each sampling station, or thereabouts. Samples are to be collected from the excavation floor on a 5 m x 5 m sampling grid.

E12.2.3 Groundwater migration into the excavations is not anticipated to be a major problem, however, should groundwater be encountered the Contractor will remove, store, transport, and dispose of any remaining water within the excavation as directed by Contract Administrator in accordance with E17.

E12.2.4 Drainage improvements are being designed into the final surface grading, and are included in the excavation.

E12.2.5 Asphalt and Concrete pavements, slabs or foundation walls are not deemed to be impacted and can be disposed of at a landfill. However, underlying base material to a depth of 0.300 m from top of existing pavement shall be deemed to be potentially impacted and shall be disposed of as impacted material.

### **E12.3 Measurement and Payment**

E12.3.1 Measurement of impacted excavated material will be made on a volume basis, based on topographic surveys and digital terrain models developed from the existing Site condition for the specified areas and specified depth of excavation. Payment for excavating material to the limits shown will be at the Contract Unit Price per cubic meter for "Excavation of surface soil and gravel pavements" in accordance with this specification, accepted and measured by the Contract Administrator.

E12.3.2 Over-excavation beyond the limits or below the required bottom of excavation as computed from design grades will not be paid for unless the over-excavation has been pre-authorized by the Contract Administrator based on contamination encountered during on Site investigation.

E12.3.3 Measurement of removal and disposal of asphalt pavements, concrete pavements and slabs will be made on a square meter basis. Payment will be at the Contract Unit Price per square meter for "Removal and Disposal of Concrete Slabs" or "Removal and Disposal of Asphalt Pavement" in accordance with this specification, accepted and measured by the Contract Administrator.

E12.3.4 Measurement of partial removal and disposal of concrete foundation walls will be made on a lineal meter basis. Payment will be at the Contract Unit Price per lineal meter for "Removal and Disposal of Concrete footing walls to 500mm below finished grade" in accordance with this specification, accepted and measured by the Contract Administrator.

## **E13. DISPOSAL OF IMPACTED MATERIAL**

### **E13.1 Description**

E13.1.1 The Contractor will be responsible for Loading, Transportation and Disposal of impacted material at an approved waste disposal facility. Mid Canada Soil Treatment Facility in Iles des Chenes, Manitoba or other approved facility dependant on concentrations of contaminants in soil.

### **E13.2 Materials and Equipment**

E13.2.1 Trucks transporting petroleum-impacted soil are to be equipped with:

- (a) Tarpaulins to reduce nuisance odour complaints and to reduce likelihood for impacted soil to fall onto roadways.
- (b) Secured end-gate chains to prevent the accidental release of soil onto roadways.
- (c) 20# Type ABC fire extinguisher.
- (d) First Aid Kit.

### **E13.3 Construction Methods**

E13.3.1 Contractor to secure permits for the transport of impacted soil over public and/or private roadways.

E13.3.2 Keep excavated and stockpiled materials a safe distance away from edge of excavation.

E13.3.3 During rain events, take measures to prevent the migration of rain water from soil stockpiles onto adjoining properties. This may best be accomplished by installing a silt fence and constructing a shallow swale around the stockpiles.

E13.3.4 Restrict vehicle operations directly adjacent to open trenches.

E13.3.5 Prevent surface water and run-off from entering open excavations.

E13.3.6 Contractor to provide, if required by the authority having jurisdiction, competent flag persons and traffic signage so as to ensure the safe movement of vehicles between the Site and public and private roadways.

E13.3.7 Transportation of PHC-impacted soil from the former Dominion Bridge Operations yard using a licensed waste hauler to the Mid Canada waste disposal facility in Iles des Chenes, MB.

E13.3.8 Following award of contract, Contractor is required to provide an estimate of the disposal tipping fees and confirm that the landfill can accept the volumes or tonnages indicated in Form B: Prices.

### **E13.4 Measurement and Payment**

E13.4.1 Disposal of Impacted Material will not be measured, and shall be incidental to the excavation of impacted material.

E13.4.2 Transportation of Impacted Material will be measured in kilometers based on the one way travel distance from the site to the disposal facility. The distance to be travelled shall be a standard distance based on a route to be agreed upon at the beginning of construction, multiplied by the number of equivalent semi-trailer loads delivered to the waste disposal facility. The assumed route is North on Route 90 to PTH 101, east and south on PTH 101 to PTH 59, then south on PTH 59 to Ile des Chenes (66 km). The number of loads will be computed from scale tickets. Payment for Transportation of Impacted Material will be at the Contract Unit Price per kilometer for "Transportation of Impacted Material to Disposal Site" in accordance with this specification, based accepted and measured by the Contract Administrator.

E13.4.3 Tipping fees will be paid by the City of Winnipeg. The Contractor shall provide scale tickets to the Contract Administrator on a weekly basis.

E13.4.4 Laboratory testing fees for sampling of impacted soil and groundwater will be paid by the City of Winnipeg.

#### **E14. OMAND'S CREEK FLOW CONTROL**

##### **E14.1 Description**

E14.1.1 This Specification shall cover the diversion of Omand's Creek flow through the project area and dewatering of the creek bed work area for the duration of the construction works.

E14.1.2 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.

##### **E14.2 Materials**

E14.2.1 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.

##### **E14.3 Construction Methods**

E14.3.1 The Work shall include, but not necessarily be limited to:

- (a) Design of the creek flow maintenance methods including the preparation and submission for review and approval by the Contract Administrator of a Creek Flow Maintenance Plan comprised of drawings and/or description of the maintenance methods.
- (b) Maintenance of creek flows for the duration of construction.
- (c) Removal of materials and/or equipment needed to maintain creek flows, at the end of their use.
- (d) Confinement of suspended matter in the creek water generated at the Site through excavation, etc. to the area of the Site. This may require the construction of a downstream cofferdam and floating turbidity barrier through the creek to confine the suspended matter.

E14.3.2 At least five (5) days prior to the commencement of any works in the creek or creek banks, the Contractor shall submit to the Contract Administrator for review and approval a Creek Flow Maintenance Plan showing how the Contractor will undertake dewatering activities and maintain creek flow at the Site during construction.

E14.3.3 A silt fence in accordance with E5 shall be installed across the creek and maintained at the downstream extent of the work area. Additional silt fences shall be installed and maintained parallel to the creek following the completion of earthworks and before cofferdams are removed to prevent debris from entering the waterway.

E14.3.4 It is anticipated that the work of this Contract will take place during late fall and early winter and the flow in the creek will be minimal. It is anticipated that the Contractor will install a cofferdam at the upstream limit of the work area and install and maintain temporary bypass diversion pumps to handle any flows. The Contractor shall be required to supply and operate at least 1 – 100 mm diameter flood pump that may be required.

E14.3.5 Disturbed areas shall be restored with native grass and herbaceous perennials as described elsewhere in this specification. Erosion control blankets, as approved by the Contract Administrator, shall be used to control potential erosion of areas where vegetation has been damaged up to when vegetation can be re-established.

E14.3.6 The Contractor's Creek Flow Maintenance Plan shall be designed to meet the following additional conditions and requirements:

- (a) Cofferdams may be constructed on either or both of the upstream or downstream ends of the Site, and the water pumped from upstream to downstream. Given the

long length of the creek remediation works, it is anticipated that the work may proceed in stages by constructing cofferdams on either side of the work areas.

- (b) Water or ice elevations upstream of any type of upstream cofferdam shall not exceed a level to cause overflowing of the banks at any point upstream.
- (c) The Contractor shall have on-site backup pumps with adequate capacity to maintain 100% of downstream flow at all times and ready to take over pumping if the operating pumps fail. The pumps shall be continually monitored to ensure downstream flow is maintained at all times until normal flows are restored to the creek.
- (d) Cofferdams, if used, shall be constructed of non-erodible material such as sandbags. Earthen berms shall not be used as cofferdams.
- (e) Between the dates of April 1 and June 15 of any given year, fish shall be afforded full access through the Site via a naturally flowing channel. In this time period, no construction activity impacting upon the creek affecting fish mobility or habitat will be permitted.

#### E14.4 Measurement and Payment

- E14.4.1 Creek flow maintenance and dewatering of the creek will be paid for on a cost plus markup basis. An allowance of \$50,000 has been included in the Contract Unit Prices to cover costs associated with dewatering. Further to CW2030, dewatering costs shall be paid at actual cost, plus 15% markup for all costs associated with the groundwater dewatering. Cost records shall be submitted for approval in accordance with Section 7 of the General Conditions.

### **E15. REMEDIATION OF OMAND'S CREEK**

#### E15.1 Description

- E15.1.1 This Specification shall cover the removal of impacted soil from the creek bed, replacement of the creekbed with clean granular and fine grained soil material, and reshaping of the creek channel into a Trapezoidal cross-section with flattened sideslopes for increased slope stability.

#### E15.2 Equipment and Materials

- E15.2.1 Geotextile shall be woven separation/reinforcement fabric in accordance with CW 3130, Section 2.6.
- E15.2.2 Crushed rock material shall be 150 mm down Crushed Sub Base material in accordance with CW 3110, Section 2.1. The material must be unfrozen crushed rock, crushed concrete or asphalt will not be acceptable because of the potential for contamination.
- E15.2.3 Silty-clay fill material shall be high plasticity, clean, unfrozen material free of rock, concrete rubble and organic materials, compacted to 95% of Standard Proctor Maximum Dry Density. Silty-clay material is acceptable only if the fraction of silt does not exceed 30% and the silt particles are well integrated with the clay. Pure silts or sands are too easily erodible and are not acceptable. The material may not be from a borrow pit located on-site due to potential contamination. Material is to be approved by the Contract Administrator before placement in excavations.
- E15.2.4 Equipment
  - (a) All equipment, implements, tools, and facilities used shall be of a size and type as required to complete the work in a reasonable time. The Contractor shall keep all equipment in good working order, and have sufficient standby equipment available at all times, as required.
  - (b) The Contractor shall use vibratory compaction equipment to compact the rockfill material to the level required herein.
  - (c) Compaction equipment shall have a minimum vehicle weight of 10 tons (9.07 metric tonnes).

### E15.3 Construction Methods

#### E15.3.1 Submittals

- (a) The Contractor shall submit the proposed supplier(s) and location of quarry sites for supply of crushed rock fill no later than 2 days after award and prior to delivery to site.
- (b) The Contractor shall submit the proposed testing laboratory for specific tests no later than 2 days after award and prior to conducting the tests.

#### E15.3.2 Testing and Approval

- (a) Contractors supplying rock fill material shall be responsible for demonstrating that the material meets the requirements of the specifications contained herein.
- (b) All materials set forth in this Specification shall be subject to inspection and testing by a testing laboratory designated by the Contract Administrator. The Contractor shall supply at his own expense a representative sample of crushed rock fill no later than 2 days after award.
- (c) No supply and placement of crushed rock fill will be permitted prior to the Contract Administrator approving the source(s).
- (d) The procedure for preparation of all samples shall be in accordance with ASTM D75.
- (e) The Contractor shall be responsible for completing a minimum of one gradation test on the crushed rock fill, in accordance with ASTM D 5519, at his own expense.
- (f) Changes in material properties of the crushed rock fill supplied to Site will require additional testing and shall be conducted by the Contractor at his own expense.

E15.3.3 Prior to excavation, the creek must be dewatered in accordance with the procedure described in E14.

E15.3.4 The extents of the excavations will be identified by the Contract Administrator as the work progresses in the field, based on soil sampling and laboratory analytical results. The depth of excavation is nominally 1.0 m.

E15.3.5 The Contractor shall collect soil samples for field screening for the Contract Administrator as the excavation progresses with Contractor supplied excavation equipment. Samples are to be collected, as directed by the Contract Administrator, from the excavation walls from sampling points located at 5 m spaced intervals around the perimeter of the excavation at each sampling station, or thereabouts. Samples are to be collected from the excavation floor on a 5 m x 5 m sampling grid, or approximately 2 sample across the width of the creek bed taken at 5 m intervals down the length of the creek.

E15.3.6 Remove existing chain link fencing fabric, barbed wire, wire holders and poles from the west limit of Omand's Creek as required to perform the work. Neatly roll the mesh and wire and stockpile the fencing materials at a location to be identified on site.

E15.3.7 Remove existing metal and wood retaining walls along the eastern limit of Omand's Creek. Stockpile metal posts, metal sheeting and railway ties at a location to be identified on Site.

E15.3.8 To maintain slope stability prior to excavating the channel bottom, the upper creek banks shall be cut down to a bench as shown on the drawings. Care should be taken in areas of known slip failure indicated on the drawings. Material from bench cutting shall be stockpiled a minimum of 5 m away from the top of bank. Material from the east bank shall be stockpiled on the east side of the creek and material from the west bank shall be stockpiled on the west side of the creek. Materials from the east bank shall not be transported to the west bank for fear of contamination.

E15.3.9 Any unfrozen subgrade soil exposed during excavation shall be kept from freezing until backfilling commences.

E15.3.10 Strip and stockpile topsoil from the site in a manner which will prevent contamination of topsoil with underlying soil materials. Stockpile the stripped topsoil at approved locations on site for later use in as directed by Engineer.

- E15.3.11 Excavate impacted sediment from the channel bottom to a depth of approximately 1.0 m below the channel bottom for the entire width of the creek below normal water level. The normal water level for purposes of sediment removal has been defined as the high summer level, approximately equal to the 2 year return flood to elevation 232.1 m.
- E15.3.12 The Contractor shall maintain a dry excavation at all times and will be required to take the necessary corrective actions to prevent water from entering or accumulating in the excavation. Water encountered shall be removed in accordance with E17.
- E15.3.13 Where the surface excavation Sites 2 and 3 are adjacent to the creek, surface soil removal shall extend down to the normal water level. The creek is being restored to a trapezoidal cross-section with 4:1 sideslopes to improve overall slope stability.
- E15.3.14 The excavation of impacted sediment and replacement with clean granular and fine grained soil shall be done in short sections to minimize the potential for slope failure. The extent of these sections will be determined on site based on constructability. Sections of creek bed must be excavated and refilled with rockfill on the same day to minimize the potential for slope failure.
- E15.3.15 Compact the sub-grade after the bottom of the bench cut excavation has been approved by the Contract Administrator. Compaction of frozen sub-grade soils shall be sufficient to break down any lumps and compact any loosened soil. Any unfrozen subgrade soils exposed during excavation shall be compacted to a minimum of 95% Standard Proctor Dry Density. All bench cuts must be clear of any existing granular road base material.
- E15.3.16 Following excavation of the creek bottom, a geotextile blanket shall be placed at the bottom of the excavation to help bridge soft underlying soils. Geotextile layers shall overlap a minimum of 600 mm, and the layers 'shingled' so that the upstream layer is laid overtop of the downstream layer in the normal direction of creek flow.
- E15.3.17 The geotextile material shall be covered with a nominal 600 mm thick layer of 150 mm down crushed rock. The rock must be unfrozen and free from lumps and ice. The rockfill shall be placed, levelled and compacted by machine track in layers not exceeding 300 mm thick. Rock shall be placed in a manner that prevents damage to geotextile underlay. It may be necessary to place a thicker layer of rockfill to permit equipment to travel on the rockfill for levelling and compaction. The purpose for the rock is to permit the open excavation to be refilled as quickly as possible to maintain slope stability, and to provide long term stability to the channel sideslopes.
- E15.3.18 Silty-clay fill material shall be placed overtop of the crushed rock base. This shall be clean, unfrozen material free of rock, concrete rubble and organic materials. The material may not be from a borrow pit located on site due to the potential for recontamination. Material is to be approved by the Contract Administrator before placement in excavations.
- E15.3.19 Silty-clay material shall be placed in accordance with CW 3170, Section 9.6. Materials shall be deposited and spread in uniform, horizontal layers of maximum 300 mm thickness, for the full width of the embankment and compacted to 95% of Standard Proctor Maximum Dry Density. Each layer shall be shaped to line and cross-section and thoroughly compacted before the succeeding layer is placed. Where the fill is being placed on side fill or sloping sections, the fill must be placed and compacted in horizontal layers to achieve the desired creek cross-section.
- E15.3.20 The compaction effort required for granular and silty-clay material shall be determined using a Compaction Testing Program described in E16.
- E15.3.21 The channel bottom, sideslopes and adjoining lands damaged by construction activities shall be rough graded following construction. The finished rough graded surface shall not vary more than 100 mm from a straight grade between the design grades.
- E15.3.22 Random stone riprap wing deflectors, revetment and silt traps will be installed in the creek for erosion mitigation and protection and to enhance wildlife habitat following the replacement of the creek bed. Some of these features have the bottom of riprap inset into the channel bottom or sideslope. Riprap features are described in a separate specification.

E15.3.23 The channel sideslopes above the normal water level will be amended with peat and sand and revegetated with native grass and perennial seed in the springtime following the completion of earthworks, as described in E21 and E23.

#### E15.4 Measurement and Payment

E15.4.1 Removal of the retaining wall including posts, panels or lagging, and tiebacks, and stockpiling of material on site shall be measured and paid for on a length basis at the Contract Unit Price for "Remove Retaining Wall". The length to be measured and paid for shall be the horizontal length of the wall acceptably removed in accordance with this specification, accepted and verified by the Contract Administrator.

E15.4.2 Removal of chain link fencing, rolling of fabric, rollking of barbed wire, and stockpiling of posts, rails, tension bars, barbed wire and other materials on site shall be measured and paid for on a length basis at the Contract Unit Price for "Remove Chain Link Fence". The length to be measured and paid for shall be the horizontal length of fence acceptably removed in accordance with this specification, accepted and verified by the Contract Administrator.

E15.4.3 Excavation and Disposal of impacted channel bottom sediment shall be measured and paid for on a volume basis at the Contract Unit Price for "Excavation of Creek Bottom Sediment". The volume shall be measured by cross-sections taken before and after excavation. Payment for excavation and disposal of impacted channel bottom sediment will be the total volume for excavation and disposal of impacted channel bottom sediment in accordance with this specification, accepted and verified by the Contract Administrator.

E15.4.4 Excavation of benches from existing upper bank areas and stockpiling of material onsite shall be measured and paid for on a volume basis at the Contract Unit Price for "Bench Excavation of Upper Banks". The volume shall be measured by cross-sections taken before and after excavation in accordance with this specification, accepted and verified by the Contract Administrator.

E15.4.5 Supply and installation of geotextile material at the bottom of creek excavation shall be measured and paid for on an area basis in accordance with this specification, accepted and verified by the Contract Administrator.

E15.4.6 Supply and installation of crushed rock shall be measured and paid for on a volume basis, based on cross-sections. The volume shall be measured by cross-sections taken before and after excavation in accordance with this specification, accepted and verified by the Contract Administrator.

E15.4.7 Replacement of soil on channel bottom and sideslopes with clean, imported Silty clay material including compaction and shaping shall be measured and paid for on a volume basis at the Contract Unit Price for "Replacement of Excavated Material – Imported Silty-Clay Fill". The volume shall be measured by cross-sections taken before and after excavation in accordance with this specification, accepted and verified by the Contract Administrator.

E15.4.8 Replacement of soil on channel sideslopes with stockpiled onsite material including compaction and shaping shall be measured and paid for on a volume basis at the Contract Unit Price for "Replacement of Excavated Material – Reuse Soil from onsite stockpile". The volume shall be measured by cross-sections taken before and after excavation in accordance with this specification, accepted and verified by the Contract Administrator.

### E16. **COMPACTION TESTING PROGRAM**

#### E16.1 Description

- (a) To facilitate quality control during construction, the Contractor shall carry out a Compaction Testing Program at the commencement of construction to demonstrate that the means and methods proposed by the Contractor are consistent with achieving the degree of compaction specified. The Compaction Testing Program shall consist of control strips to

determine the minimum number of passes needed to obtain an apparent maximum density using a nuclear moisture-density gauge in the backscatter mode for density determination.

- (b) No embankment construction, beyond the control strip, shall commence until the Contractor has demonstrated through the Compaction Testing Program that the proposed methods of compaction will meet the specified requirements

## E16.2 Construction Methods

E16.2.1 Prepare subgrade as identified in other sections of this specification.

E16.2.2 A Control Strip is a lift of crushed rock fill used for embankment construction where the Contractor's compaction equipment is used to establish the minimum number of passes necessary to obtain an apparent maximum density under the ambient temperature conditions during placement.

E16.2.3 A pass is defined as the complete coverage of a Control Strip with the compaction equipment. The minimum number of passes established for the control strip will be used to compact subsequent lifts.

E16.2.4 Control strips shall be conducted as follows:

- (a) Place a lift of crushed rock fill in accordance with Placement and Compaction of Crushed Rock Fill Material of this Special Provision.
- (b) Compact the crushed rock fill with two complete passes.
- (c) Field density measurements will be conducted by the Contract Administrator following every second pass.
- (d) Steps b and c will be repeated until an apparent maximum density is achieved, as determined by the Contract Administrator.

E16.2.5 The approved minimum number of passes shall be subject to modification based on the results of any additional control strips.

E16.2.6 Additional control strips may be required if circumstances arise that are deemed by the Contract Administrator to affect the minimum number of passes required to achieve the apparent maximum density, which may be associated with, but not limited to the following situations:

- (a) The Contractor proposes a change in compaction equipment,
- (b) The gradation of crushed rock fill material appears to change significantly from the material used in previous control strips, as determined by the Contract Administrator, or
- (c) The ambient air temperature during placement and compaction changes significantly from that observed during previous control strips, as determined by the Contract Administrator.

## E17. GROUNDWATER MANAGEMENT

E17.1 Description

E17.1.1 The scope of Work includes management of potentially impacted groundwater entering excavations. The potential volume of groundwater seeping into the shallow excavation or deeper Omand's Creek excavation is not known.

E17.2 Construction Methods

E17.2.1 As directed by the Contract Administrator, the Contractor shall remove, store, transport, and dispose of groundwater in the excavation areas.

E17.2.2 If suspected impacted groundwater is encountered, the Contractor may be directed to pump and store the water on the Site until analytical testing indicates whether the water can be discharged at the Site or if disposal at an appropriately licensed facility is required.

E17.2.3 Should disposal be required, the Contractor will transport the water (using appropriately licensed waste haulers) to an appropriately licensed facility (e.g. A-1 Environmental Services in Winnipeg, MB), as directed by the Contract Administrator.

### E17.3 Measurement and Payment

E17.3.1 Groundwater management will be paid for on a cost plus markup basis. An allowance of \$20,000 has been included in the Contract Unit Prices to cover costs associated with contaminated groundwater collection and disposal. Further to CW2030, dewatering costs shall be paid at actual cost, plus 15% markup for all costs associated with the groundwater dewatering. Cost records shall be submitted for approval in accordance with Section 7 of the General Conditions, and are subject to prior approval by the Contract Administrator.

## RESTORATION WORKS

### E18. RESTORATION OF GRAVEL AND ASPHALT PAVEMENTS

#### E18.1 Description

E18.1.1 Surface remediation areas that previously were covered by gravel pavements including roadways and material laydown areas shall be restored with granular pavement following removal of impacted material.

E18.1.2 Surface remediation areas that previously were covered by asphalt pavements including roadways and material laydown areas shall be restored with asphalt pavement following removal of impacted material.

E18.1.3 The Contractor will not be permitted to backfill any portion of the excavation until the analytical results are received and the Contract Administrator advises that backfilling may commence.

#### E18.2 Materials

E18.2.1 Granular pavement sub-base material shall be 50 mm down Crushed Glacial Till or Crushed Limestone to CW 3110, Section 2.1.

E18.2.2 Granular pavement surfacing material shall be 20 mm down Crushed Limestone to CW 3110, Section 2.2.

E18.2.3 Asphalt for pavements shall be Type 1 to CW 3410, Table 1.

#### E18.3 Construction Methods

E18.3.1 Compact areas of suitable existing sub-grade material, the full width of the excavation, to a minimum of 95% Standard Proctor Maximum Dry Density.

E18.3.2 Geotextile underlay is not being used on this project.

E18.3.3 Place and compact sub-base material to CW 3110.

E18.3.4 Place and compact base-course or surface course to CW 3110. The typical compaction effort required for granular material shall be determined using a Compaction Testing Program described in E16.

E18.3.5 Install asphalt pavements in equal lifts to CW 3410.

E18.3.6 Pavement damaged as a result of construction activities will be restored in accordance with CW 3230 and CW 3410. Restoration of the pavement will not be measured for payment and shall be included as part of the Work being done.

E18.3.7 Gravel surfacing damaged as a result of construction activities will be restored in accordance with CW 3150. Restoration of the gravel surfacing will not be measured for payment and shall be included as part of the Work being done.

#### E18.4 Measurement and Payment

- E18.4.1 Sub-grade compaction will be measured on an area basis and paid for at the Contract Unit Price per square metre for "Sub-Grade Compaction". The area to be paid for will be the total number of square metres of sub-grade compacted in accordance with this specification, accepted and measured by the Contract Administrator.
- E18.4.2 The supplying, placing and compaction of crushed sub-base material will be measured on a volume basis and paid for at the Contract Unit Price per cubic meter for the "50mm down Crushed Limestone Sub-Base". The weight to be paid for will be the total number of cubic meters of crushed sub-base material supplied and placed in accordance with this specification, accepted and measured by the Contract Administrator.
- E18.4.3 The supplying, placing and compaction of base course material will be measured on a volume basis and paid for at the Contract Unit Price per cubic metre for the "20mm down Crushed Limestone Base Course". The volume to be paid for will be the total number of cubic metres of base course material supplied and placed in accordance with this specification, accepted and measured by the Contract Administrator.
- E18.4.4 Construction of asphaltic concrete pavement will be paid for at the Contract Unit Price per square meter for the "Construct Type 1A Asphalt Pavement" for each specified pavement thickness, which price shall be payment in full for supplying all materials and performing all operations in accordance with CW 3410, accepted and measured by the Contract Administrator.

## **E19. RESTORATION OF SURFACE SOIL AREAS**

### **E19.1 Description**

- E19.1.1 Surface remediation areas that previously were covered by native soils shall be restored with clean soil following removal of impacted material.

### **E19.2 Materials**

- E19.2.1 Silty-clay fill material shall be clean, unfrozen material free of rock, concrete rubble, debris and organic materials. The material may not be from a borrow pit located on site due to potential contamination. Material is to be approved by the Contract Administrator before placement in excavations.

### **E19.3 Construction Methods**

- E19.3.1 Place and level soil material in 150 mm lifts.
- E19.3.2 Level and compact to 85% of Standard Proctor Maximum Dry Density.
- E19.3.3 Blade finished surface free from ruts, depressions, rocks in excess of 50 mm and debris. Slope away from buildings and existing or proposed pavement areas.
- E19.3.4 Finish graded area within 25 mm of design elevations, but not uniformly high or low.
- E19.3.5 Surface soil areas will not be revegetated as part of this project.

### **E19.4 Measurement and Payment**

- E19.4.1 The supplying, placing, compacting, and fine grading of clean imported soil material will be measured on a volume basis and paid for at the Contract Unit Price per cubic metre for the "Backfilling, Compaction and Grading of Soil areas with clean fill material". The volume to be paid for will be the total number of cubic metres of soil supplied and placed in accordance with this specification, accepted and measured by the Contract Administrator.

## **E20. CONSTRUCTION OF IN-STREAM STRUCTURES**

### **E20.1 Description**

- E20.1.1 This Specification covers all operations necessary for placing riprap, as erosion protection or wildlife enhancement along the Omand's Creek, as shown on the drawings or

determined by the Contract Administrator. This Specification amends and supplements Standard Specification CW 3615.

## E20.2 Materials

- E20.2.1 Riprap shall be manufactured from hard, durable stone that is resistant to the action of water and frost and suitable in all respects for the purpose intended. The riprap shall be in accordance with CW 3615.
- E20.2.2 Riprap shall be fieldstone or quarried limestone. The rockfill shall be durable, comprised of limestone, granite, or other quality dense rock. Should the Contractor choose to use limestone, it shall be durable white crystalline limestone. Softer buff to yellow dolomite or dolostone will not be acceptable. Rock samples shall either be submitted to the Contract Administrator for approval ten (10) days prior to their use, or the Contract Administrator shall visit the quarry for inspection a minimum of ten (10) days prior to use. No rockfill will be permitted without providing the source and supplier.
- E20.2.3 Limestone supplied as an equal to fieldstone for use as riprap must conform to the following physical requirements:
- (a) minimum bulk specific gravity of 2.6 (ASTM C127)
  - (b) maximum Los Angeles abrasion loss of 35% (ASTM C131)
  - (c) maximum soundness loss of 13% (ASTM C88)
- E20.2.4 The Contract Administrator shall perform the necessary tests to determine compliance with the specified properties.

## E20.3 Construction Methods

- E20.3.1 Riprap shall be installed to the elevations, grades, thickness and dimensions as shown on the Drawings, or as directed by the Contract Administrator.
- E20.3.2 Install geotextile underlay where shown on the drawings. Overlap layers a minimum of 600 mm.
- E20.3.3 Riprap shall be placed in a manner that prevents damage to geotextile underlay.
- E20.3.4 Riprap shall be placed in a manner such that larger pieces are uniformly distributed, smaller rocks fill the spaces between the larger rocks, and that excessive segregation of the various rock sizes does not occur.
- E20.3.5 Locations requiring segregated riprap or the placement of select large stones for fish passage, sediment passage or energy dissipation are indicated on the drawings.

## E20.4 Measurement and Payment

- E20.4.1 Supply and installation of rip-rap will be measured and paid for on a weight basis. The weight to be paid for shall be the total number of cubic metres of riprap delivered and placed in accordance with this Specification and as accepted by the Contract Administrator. Payment shall be at the Contract Unit Price "Riprap Structures".
- E20.4.2 Geotextile underlay, where specified, will be measured and paid for on an area basis. The area to be paid for will be the total number of square metres of geotextile coverage area supplied and placed in accordance with this specification, accepted and measured by the Contract Administrator.

## E21. SOIL AMENDMENTS AND FINISH GRADING

### E21.1 Description

- E21.1.1 Surface soils on the banks of Omand's Creek will be amended with peat moss and sand prior to seeding, rather than import topsoil containing weed seeds.

E21.1.2 This specification shall amend and supplement City of Winnipeg Standard Construction Specification CW 3540 "Topsoil and Finish Grading for Establishment of Turf Areas", and shall cover supply and installation of soil amendments including preparation of existing grade and finish grading.

## E21.2 Materials

E21.2.1 Peat moss shall be decomposed plant material, fairly elastic and homogenous, free of colloidal residue, wood, sulphur and iron; containing a minimum of 60% organic material by weight, with moisture content not exceeding 15%. Shredded particles shall not exceed 6 mm in size. Minimum pH value of peat shall be 4.5; maximum 6.0.

E21.2.2 Sand shall be hard, granular, sharp sand to CSA A82.56-M1976, well-washed and free of impurities, chemicals and organic matter.

E21.2.3 Chemical Application of Roundup or similar chemical herbicides approved by Agriculture Canada shall be used only with the approval of the Contract Administrator.

## E21.3 Construction Methods

E21.3.1 Soil amendment for native grass and wildflower seeding shall consist of a mix of 60% peat moss and 40% sand, loose by volume.

E21.3.2 Preparation of Existing Grade to CW 3540, Section 9.2.

E21.3.3 Cross-cultivate the entire area of soil base that is to receive soil amendments to a depth of 100 mm. Redo areas where equipment used for hauling and spreading has re-compacted sub-grade.

E21.3.4 Spread 30 mm of peat moss and 20 mm sand over the area of soil amendments.

E21.3.5 Roto-till or disc the peat moss and sand into the top 100 mm of base material and mechanically roll to obtain a level surface.

E21.3.6 Grade to eliminate rough spots and low spots and to maintain positive drainage.

E21.3.7 Consolidate seedbed to required bulk density using equipment approved by the Contract Administrator. Leave surfaces smooth, uniform and firm against deep foot-printing.

## E21.4 Measurement and Payment

E21.4.1 Soil Amendments and Finish Grading for Native Grass and Flower Seeding shall be measured on an area basis for the number of square metres of soil base incorporating peat moss and sand in accordance with the Drawings and this specification, and accepted by the Contract Administrator, as computed by the Contract Administrator. The area paid for shall be the total number of square metres in accordance with this specification and accepted by the Contract Administrator, as computed by the Contract Administrator.

## E22. CHEMICAL CONTROL OF VEGETATION

### E22.1 Description

E22.1.1 This specification covers the requirements for the application of herbicides for broad area weed control prior to seeding operations, or spot control of herbaceous weed species from Native Grass seeded areas.

E22.1.2 The need for broad area weed control will be assessed following soil amendment and prior to seeding, and may be omitted at the Contract Administrator's discretion.

### E22.2 Safety Requirements

E22.2.1 Comply with Federal, Provincial, pesticide control regulations. Provide Material Safety Data sheets (MSDS) for all chemicals to be used.

E22.2.2 Obtain Provincial Pesticide Applications License and any other permits and licenses necessary to complete work.

E22.2.3 Comply with label directions on the use of herbicide products.

E22.2.4 Comply with label directions as to ambient temperature ranges for application.

### E22.3 Materials

#### E22.3.1 Delivery and Storage

- (a) Deliver, store and maintain packaged materials with manufacturer's seals and labels intact.
- (b) Prevent damage, adulteration and soiling of material during delivery, handling and storage.
- (c) Store material in accordance with label directions, including those on maximum and minimum storage temperatures.
- (d) Store herbicide products in original containers as supplied by manufacturer and keep sealed until used.
- (e) Store herbicide products in sheltered, well ventilated, controlled access location.
- (f) Do not store herbicides near feeds and food stuffs, agricultural plants, seeds, fungicides, insecticides, fertilizers or other agricultural chemicals.
- (g) Identify storage area as pesticide storage facility for fire protection purposes.
- (h) Post in a prominent place a list of medical and fire department telephone numbers.
- (i) Post in a prominent location on the outside of the storage area a list of products stored. Provide a copy of this list to fire department. Keep list up to date.

#### E22.3.2 Herbicides

- (a) Select appropriate herbicides to achieve specified control requirement. Refer to Manitoba Guide to Chemical Weed Control.
- (b) Herbicide products used must be registered for such use by Agriculture Canada under Pest Control Products Act.
- (c) Do not use herbicides containing sodium chlorate.

#### E22.3.3 Adjuvants

- (a) Adjuvants shall be compatible with herbicide product used.

#### E22.3.4 Spray Equipment

- (a) Tank Spray: Do not use air-blast, mist or fog sprayer. Sprayer unit to meet the following requirements:
  - (i) Sprayer shall have adjustable height boom, hose and handgun for spot treatments, strainers and nozzles to produce spray pattern compatible with job.
  - (ii) Tank shall be equipped with continuous agitation device.
  - (iii) Pressure gauge and regulator shall be capable of maintaining uniform pressure between 100 and 450 kPa (15 and 65 psi)..
- (b) Backpack Sprayer: Sprayer shall have hose and handgun for spot treatment.
- (c) Equip spray tank loading pipe with check valve located within one metre of pump or hydrant to prevent siphoning from spray tank resulting in contamination of water source.

### E22.4 Construction Methods

#### E22.4.1 Notice of Spray Operation

- (a) Post areas to be treated with signs placed at each road access and 100 m intervals around perimeter.

- (b) Indicate on signs that spray program is being implemented.
- (c) Put signs in place prior to commencement of spray operation and retain in place for 24 hours after spray operation is completed for each particular area.

E22.4.2 Environmental Protection

- (a) Application may continue only when wind velocities range between 2 and 10 km/h.
- (b) Do not spray when air turbulence will prevent uniform application.
- (c) In case of herbicide spill, notify Contract Administrator and Provincial Ministry of Environment verbally immediately and subsequently in writing.
- (d) Do not allow drifting beyond target area. Use mechanical method to minimize herbicide drift.
- (e) When spraying adjacent to desirable vegetation, use sprayer fitted with protective hood suitable to prevent contamination or provide protective covering for such vegetation while spray is in progress.
- (f) Do not apply sterilants to slopes greater than 3 to 1 where killing vegetation would lead to erosion problems.

E22.4.3 Application of Herbicides

- (a) Treat areas as indicated with appropriate herbicides.
- (b) Calibrate equipment to achieve manufacturer's recommended application rates.
- (c) Confine herbicide application to areas as indicated to achieve specified control requirements.
- (d) Space successive passes to provide uniform coverage of treated area.
- (e) Use flagmen or other aids as necessary to indicate successive passes.
- (f) Where roots of desirable vegetation run under treatment area, use contact herbicides.
- (g) Ensure formulation and rate of sterilant will not lead to leaching outside treatment area.
- (h) Retreat areas in accordance with label directions until specified control requirements are achieved.
- (i) Use flags or other aids as necessary to indicate successive passes.

E22.4.4 Given the need for weed control, the Contractor shall have in his possession a Pesticide Applicator's License and a Pesticide Use Permit for pesticide applications related to this Specification.

E22.4.5 The Contractor shall apply herbicide with spot spraying when broadleaf weeds start developing in competition with grasses. Apply herbicide in accordance with the City of Winnipeg Weed Control Standards and Procedures, manufacturer's instructions and the Manitoba Agriculture Guide to Crop Protection and Herbicide Recommendations for Landscape Applicators, latest editions and the following criteria:

- (a) Use 2,4-D Amine or MCPA Amine herbicide for susceptible broadleaf weeds.
- (b) Use a mixture containing 2,4-D Amine or MCPA Amine, Mecoprop and Dicamba for 2,4-D resistant plants.
- (c) Do not apply to newly seeded areas.
- (d) Do not water within one working day after application.
- (e) Apply when winds are less than 20 km/h and air temperature is above 10° (degrees) Celsius.
- (f) Avoid use of pure Dicamba solutions near trees and shrubs.

E22.4.6 The Contractor shall inform the Contract Administrator immediately of any dangerous occurrence.

**E22.4.7 Control Requirements**

- (a) For weed control, achieve within 30 days of treatment, minimum of 90% kill of target plants without damaging installed plant material.
- (b) For soil sterilization, achieve within 12 months of treatment, 100% kill of vegetation.

**E22.4.8 Waste Disposal**

- (a) Triple rinse empty herbicide containers with diluent and add rinsate to spray mixture in tank.
- (b) Puncture and crush glass, plastic, and metal containers making them unsuitable for further use.
- (c) Dispose of containers in accordance with Provincial requirements.
- (d) Do not rinse or wash spray tanks and equipment on site.

**E22.5 Measurement and Payment**

**E22.5.1** Chemical Control of Vegetation: Broad scale application of chemical herbicides following soil amendment will be paid for on an area basis at the Contract Unit Price per square metre for "Chemical Application of Herbicide". The area paid for shall be the total number of square metres sprayed in accordance with this specification and accepted by the Contract Administrator, as computed by the Contract Administrator.

**E22.5.2** Spot Weed Control: Application of chemical herbicides to control excessive weed growth in seeded areas following completion of planting operations will be incidental to Seeding.

**E23. SEEDING**

**E23.1 Description**

**E23.1.1** This specification shall amend and supplement City of Winnipeg Standard Construction Specification CW 3520 "Seeding", and shall cover all aspects of supply and installation of native grass seed, including preparation of finish grade, hydro mulching, and maintenance.

**E23.2 Materials**

**E23.2.1** Provide the Contract Administrator with Certificates of Analysis and mix compositions for all seed mixes. Include supplier's name and telephone contact information, and percentages of each species and cultivar in each mix.

**E23.2.2** Obtain Contract Administrator's approval for any proposed adjustments to the seed mix species or cultivars.

**E23.2.3** Native Grass seed mix (for Creek bank areas) shall be a mixture of the following species and cultivars, at the percentage by weight indicated:

- (a) 10% Fowl blue grass (*Poa palustris*)
- (b) 15% Canada wild rye (*Elymus canadensis*)
- (c) 5% Slough grass (*Beckmannia syzigachne*)
- (d) 10% Prairie cord grass (*Spartina pectinata*)
- (e) 10% Awned wheat grass (*Agropyron trachycaulum*)
- (f) 10% Streambank wheatgrass (*Elymus lanceolatus*)
- (g) 20% Switch grass (*Panicum virgatum*)
- (h) 20% Big bluestem (*Andropogon gerardii*)

**E23.2.4** Native Perennial Flowering seed mix (for Creek bank areas) shall be a mixture of 5 of the following species and cultivars, each at an equal number of seeds computed from (Industry-Standard Germination Rate times Number of Seeds/kg):

- (a) Canada Anemone (*Anemone Canadensis*)

- (b) Swamp Milkweed (*Asclepias incarnate*) or Whorled Milkweed (*Asclepias verticillata*)
- (c) Purple Prairie Clover (*Dalea purpurea*)
- (d) Narrowleaf Sunflower (*Helianthus maximilliani*)
- (e) Canada Goldenrod (*Solidago Canadensis*)
- (f) New England Aster (*Symphotrichum novae-angliae*) or Smooth Aster (*Symphotrichum* leave)
- (g) Culver's Root (*Veronicastrum virginicum*)

E23.2.5 Cover crop (Nurse Crop) shall be Oats in all seeded areas.

E23.2.6 Hydro Mulch, water and tackifier shall be in accordance with CW 3520, Section 5.6

### E23.3 Construction Methods

E23.3.1 Native Perennial Flower seed and cover crop may be sown with the Native Grass Mix.

E23.3.2 Seed Native Grass and Flower mix with a Brillion Seeder, or equal, on 100 mm compacted depth of amended soil.

E23.3.3 Sow Native Grass seed mix at a rate of 28 kg/ha.

E23.3.4 Sow Native Perennial Flower seed mix at a rate of 5 kg/ha

E23.3.5 Sow cover crop at 54 kg/ha.

### E23.4 Maintenance Methods

E23.4.1 Immediately after the completion of the 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 listed herein.

E23.4.2 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 Termination of the Maintenance Period criteria.

E23.4.3 In situations where commencement of the Maintenance Period is not granted by the Contract Administrator before the end of a growing season, the Maintenance Period will commence on May 15 of the following year or such date as is mutually agreed upon by all parties.

E23.4.4 The Contractor shall water hydro mulched areas as required to obtain optimum soil moisture levels for germination and continued growth of plants. Control the watering to prevent seed washouts. Water shall be applied in sufficient quantities to saturate seeded area to a minimum depth of 100 mm. All costs to provide water for seeded areas shall be borne by the Contractor.

E23.4.5 The Contractor shall mow Native Grass and Flower areas when grasses exceed 300 mm in height, mow to 150 mm height.

E23.4.6 Additional mowing, to a height of 100 mm, shall be completed upon the direction of the Contract Administrator, as required to remove extensive weed growth and/or to maintain healthy growth of native grasses.

E23.4.7 The Contractor shall use chemical weed control, Roundup, 2-4 D or Diacamba, only as required to spot remove weeds in localized areas and in accordance with E22. Use only chemicals approved by Agriculture Canada.

E23.4.8 The maintenance period shall be terminated after the following criteria have been met:

- (a) The certified seed sowed meets the requirements of CW 3520;
- (b) The seeded area is free of debris, including leaves;

- (c) The seeded area has a firm, uniform and even surface;
- (d) Seeded grasses or plants show healthy, vigorous growth;
- (e) Seeded native perennials have achieved a minimum density of 1 plant per square metre;
- (f) The area is free of bare and dead spots and with less than 10 noxious weeds per 50 square metres;
- (g) The seeded area has sufficient growth density that bare spots do not exceed 5% of total surface area, and
- (h) Seeded areas are free of damaging insects.

#### E23.5 Measurement and Payment

- E23.5.1 Native Grass and Flower mix hydroseeded on amended soil shall be measured on an area basis and paid for at the Contract Unit Prices for the "Native Grass and Flower Seeding". The total area to be paid for shall be the number of square metres of Native Grass seed mix installed and maintained in accordance with this Specification, measured and accepted by the Contract Administrator. Payment for seeding shall be in accordance with the following:
- (a) Sixty five (65%) percent of quantity following supply and placement.
  - (b) Remaining thirty five (35%) percent of quantity following termination of the maintenance Period.
- E23.5.2 There will be no separate measurement for cover crop (nurse crop) seeding. Seeding of a nurse crop will be included in payment for other seeding operations.
- E23.5.3 There will be no separate measurement for materials, equipment and operations related to the use of herbicides and insecticides.

## PART F - SECURITY CLEARANCE

### F1. SECURITY CLEARANCE

- F1.1 The Contractor's Site Supervisor proposed to perform the following portions of the Work:
- (a) any Work on private property;
  - (b) any Work within City facilities other than:
    - (i) an underground structure such as a manhole;
    - (ii) in areas and at times normally open to the public;
  - (c) communicating with businesses, residents and homeowners in person or by telephone;
- F1.1.1 The Contractor's Site Supervisor shall be required to obtain a Criminal Record Search Certificate from the police service having jurisdiction at his/her place of residence. Or
- (a) BackCheck, forms to be completed can be found on the website at: <http://www.backcheck.net/> ; or
  - (b) Commissionaires (Manitoba Division), forms to be completed can be found on the website at: <http://www.commissionaires.mb.ca/> .
- F1.2 Prior to the commencement of any Work specified in F1.1, and during the term of the Contract if additional or replacement individuals are proposed to perform Work, the Contractor shall supply the Contract Administrator with a Criminal Record Search Certificate obtained not earlier than one (1) year prior to the Submission Deadline, or a certified true copy thereof, for each individual proposed to perform such Work.
- F1.3 Any individual for whom a Criminal Record Search Certificate is not provided, or for whom a Criminal Record Search Certificate indicates any convictions or pending charges related to property offences or crimes against another person will not be permitted to perform any Work specified in F1.1.
- F1.4 Any Criminal Record Search Certificate obtained thereby will be deemed valid for the duration of the Contract subject to a repeated records search as hereinafter specified.
- F1.5 Notwithstanding the foregoing, at any time during the term of the Contract, the City may, at its sole discretion and acting reasonably, require an updated criminal records search. Any individual who fails to provide a satisfactory Criminal Record Search Certificate as a result of a repeated criminal records search will not be permitted to continue to perform any Work specified in F1.1.