



**THE CITY OF WINNIPEG**

# **BID OPPORTUNITY**

**BID OPPORTUNITY NO. 583-2010**

**2010 ACTIVE TRANSPORTATION INFRASTRUCTURE STIMULUS PROGRAM –  
BANNATYNE/MCDERMOT BIKE BOULEVARD FROM RORIE STREET TO  
WATERFRONT DRIVE**

## TABLE OF CONTENTS

### PART A - BID SUBMISSION

Form A: Bid	1
Form B: Prices	4
Form G1: Bid Bond and Agreement to Bond	7
Form G2: Irrevocable Standby Letter of Credit and Undertaking	9

### PART B - BIDDING PROCEDURES

B1. Contract Title	1
B2. Submission Deadline	1
B3. Enquiries	1
B4. Addenda	1
B5. Substitutes	2
B6. Bid Components	3
B7. Bid	3
B8. Prices	4
B9. Qualification	4
B10. Bid Security	5
B11. Opening of Bids and Release of Information	6
B12. Irrevocable Bid	6
B13. Withdrawal of Bids	6
B14. Evaluation of Bids	7
B15. Award of Contract	8

### PART C - GENERAL CONDITIONS

C0. General Conditions	1
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### PART D - SUPPLEMENTAL CONDITIONS

#### General

D1. General Conditions	1
D2. Scope of Work	1
D3. Contract Administrator	1
D4. Contractor's Supervisor	1
D5. Notices	2
D6. Furnishing of Documents	2

#### Submissions

D7. Authority to Carry on Business	2
D8. Safe Work Plan	2
D9. Insurance	3
D10. Performance Security	4
D11. Subcontractor List	4
D12. Detailed Work Schedule	4

#### Schedule of Work

D13. Commencement	4
D14. Working Days	5
D15. Restricted Work Hours	5
D16. Work By Others	5
D17. Substantial Performance	5
D18. Total Performance	5
D19. Liquidated Damages	6
D20. Scheduled Maintenance	6

#### Control of Work

D21. Job Meetings	6
D22. Prime Contractor – The Workplace Safety and Health Act (Manitoba)	6

**Warranty**

D23. Warranty	7
Form H1: Performance Bond	8
Form H2: Irrevocable Standby Letter of Credit	10
Form J: Subcontractor List	12
Form L: Detailed Work Schedule	13

**PART E - SPECIFICATIONS**

**General**

E1. Applicable Specifications and Drawings	1
E2. Protection of Existing Trees	1
E3. Traffic Control	2
E4. Traffic Management	2
E5. Pedestrian and Cyclist Safety	2
E6. Water Obtained From the City	3
E7. Removal of Existing unit Paving Stone and Brick Paver for Reinstallation	3
E8. 100 mm Concrete Sidewalk With Paving Stone, And Brick Inset	3
E9. Paving Stones and Brick Pavers	4
E10. Tree Vaults	6
E11. Plant Material	9
E12. Topsoil and Finish Grading	13
E13. Landscape Curb	13
E14. Sign Support Clamps	14
E15. Installation of Detectable Warning Surface Tiles	14

## **PART B - BIDDING PROCEDURES**

### **B1. CONTRACT TITLE**

- B1.1 2010 ACTIVE TRANSPORTATION INFRASTRUCTURE STIMULUS PROGRAM –  
BANNATYNE/McDERMOT BIKE BOULEVARD FROM RORIE STREET TO WATERFRONT  
DRIVE

### **B2. SUBMISSION DEADLINE**

- B2.1 The Submission Deadline is 12:00 noon Winnipeg time, September 2, 2010.
- 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. ENQUIRIES**

- B3.1 All enquiries shall be directed to the Contract Administrator identified in D3.1.
- B3.2 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.
- B3.3 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.
- B3.4 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.
- B3.5 The Bidder shall not be entitled to rely on any response or interpretation received pursuant to B3 unless that response or interpretation is provided by the Contract Administrator in writing.

### **B4. ADDENDA**

- B4.1 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.
- B4.2 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.
- B4.2.1 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>
- B4.2.2 The Bidder is responsible for ensuring that he has received all addenda and is advised to check the Materials Management Division website for addenda regularly and shortly before the Submission Deadline, as may be amended by addendum.
- B4.3 The Bidder shall acknowledge receipt of each addendum in Paragraph 10 of Form A: Bid. Failure to acknowledge receipt of an addendum may render a Bid non-responsive.

## **B5. SUBSTITUTES**

- B5.1 The Work is based on the Plant, Materials and methods specified in the Bid Opportunity.
- B5.2 Substitutions shall not be allowed unless application has been made to and prior approval has been granted by the Contract Administrator in writing.
- B5.3 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.
- B5.4 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.
- B5.5 The Contract Administrator, after assessing the request for approval of a substitute, may in his sole discretion grant approval for the use of a substitute as an “approved equal” or as an “approved alternative”, or may refuse to grant approval of the substitute.
- B5.6 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.
- B5.6.1 The Bidder requesting and obtaining the approval of a substitute shall be entirely responsible for disseminating information regarding the approval to any person or persons he wishes to inform.
- B5.7 If the Contract Administrator approves a substitute as an “approved equal”, any Bidder may use the approved equal in place of the specified item.
- B5.8 If the Contract Administrator approves a substitute as an “approved alternative”, any Bidder bidding that approved alternative may base his Total Bid Price upon the specified item but may also indicate an alternative price based upon the approved alternative. Such alternatives will be evaluated in accordance with B14.
- B5.9 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.
- B5.10 Notwithstanding B5.2 to B5.9, in accordance with B6.6, deviations inconsistent with the Bid Opportunity document shall be evaluated in accordance with B14.1(a).

## **B6. BID COMPONENTS**

B6.1 The Bid shall consist of the following components:

- (a) Form A: Bid;
- (b) Form B: Prices, hard copy;
- (c) Bid Security;
  - (i) Form G1: Bid Bond and Agreement to Bond, or  
Form G2: Irrevocable Standby Letter of Credit and Undertaking, or  
a certified cheque or draft;

B6.2 Further to B6.1, the Bidder should include the written correspondence from the Contract Administrator approving a substitute in accordance with B5.

B6.3 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.

B6.4 The Bid shall be submitted enclosed and sealed in an envelope clearly marked with the Bid Opportunity number and the Bidder's name and address.

B6.4.1 Samples or other components of the Bid which cannot reasonably be enclosed in the envelope may be packaged separately, but shall be clearly marked with the Bid Opportunity number, the Bidder's name and address, and an indication that the contents are part of the Bidder's Bid.

B6.4.2 A hard copy of Form B: Prices must be submitted with the Bid. If there is any discrepancy between the Adobe PDF version of Form B: Prices and the Microsoft Excel version of Form B: Prices, the PDF version shall take precedence.

B6.5 Bidders are advised not to include any information/literature except as requested in accordance with B6.1.

B6.6 Bidders are advised that inclusion of terms and conditions inconsistent with the Bid Opportunity document, including the General Conditions, will be evaluated in accordance with B14.1(a).

B6.7 Bids submitted by facsimile transmission (fax) or internet electronic mail (e-mail) will not be accepted.

B6.8 Bids shall be submitted to:

The City of Winnipeg  
Corporate Finance Department  
Materials Management Division  
185 King Street, Main Floor  
Winnipeg MB R3B 1J1

## **B7. BID**

B7.1 The Bidder shall complete Form A: Bid, making all required entries.

B7.2 Paragraph 2 of Form A: Bid shall be completed in accordance with the following requirements:

- (a) if the Bidder is a sole proprietor carrying on business in his own name, his name shall be inserted;
- (b) if the Bidder is a partnership, the full name of the partnership shall be inserted;
- (c) if the Bidder is a corporation, the full name of the corporation shall be inserted;

- (d) if the Bidder is carrying on business under a name other than his own, the business name and the name of every partner or corporation who is the owner of such business name shall be inserted.

B7.2.1 If a Bid is submitted jointly by two or more persons, each and all such persons shall identify themselves in accordance with B7.2.

B7.3 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.

B7.4 Paragraph 12 of Form A: Bid shall be signed in accordance with the following requirements:

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

B7.4.1 The name and official capacity of all individuals signing Form A: Bid should be printed below such signatures.

B7.5 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.

## **B8. PRICES**

B8.1 The Bidder shall state a price in Canadian funds for each item of the Work identified on Form B: Prices.

B8.1.1 For the convenience of Bidders, and pursuant to B6.4.2 and B14.4.2, an electronic spreadsheet Form B: Prices in Microsoft Excel (.xls) format is available along with the Adobe PDF documents for this Bid Opportunity on the Bid Opportunities page at the Materials Management Division website at <http://www.winnipeg.ca/matmgt>

B8.2 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.

B8.3 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.

B8.4 Prices from Non-Resident Bidders are subject to a Non-Resident Withholding Tax pursuant to the Income Tax Act (Canada).

## **B9. QUALIFICATION**

B9.1 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.

- B9.2 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>
- B9.3 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);
- B9.4 Further to B9.3(c), the Bidder shall, within five (5) Business Days of a request by the Contract Administrator, provide proof satisfactory to the Contract Administrator that the Bidder/Subcontractor has a workplace safety and health program meeting the requirements of The Workplace Safety and Health Act (Manitoba), by providing:
- (a) a valid COR certification number under the Certificate of Recognition (COR) Program administered by the Manitoba Construction Safety Association or by the Manitoba Heavy Construction Association's Safety, Health and Environment Program; or
  - (b) a report or letter to that effect from an independent reviewer acceptable to the City. (A list of acceptable reviewers and the review template are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt>)
- B9.5 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.
- B9.6 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.

## **B10. BID SECURITY**

- B10.1 The Bidder shall provide bid security in the form of:
- (a) a bid bond, in the amount of at least ten percent (10%) of the Total Bid Price, and agreement to bond of a company registered to conduct the business of a surety in Manitoba, in the form included in the Bid Submission (Form G1: Bid Bond and Agreement to Bond); or
  - (b) an irrevocable standby letter of credit, in the amount of at least ten percent (10%) of the Total Bid Price, and undertaking issued by a bank or other financial institution registered to conduct business in Manitoba and drawn on a branch located in Winnipeg, in the form included in the Bid Submission (Form G2: Irrevocable Standby Letter of Credit and Undertaking); or
  - (c) a certified cheque or draft payable to "The City of Winnipeg", in the amount of at least fifty percent (50%) of the Total Bid Price, drawn on a bank or other financial institution registered to conduct business in Manitoba.
- B10.1.1 If the Bidder submits alternative bids, the bid security shall be in the amount of the specified percentage of the highest Total Bid Price submitted.
- B10.1.2 All signatures on bid securities shall be original.
- B10.1.3 The Bidder shall sign the Bid Bond.



- B10.1.4 The Surety shall sign and affix its corporate seal on the Bid Bond and the Agreement to Bond.
- B10.2 The bid security of the successful Bidder and the next two lowest evaluated responsive and responsible Bidders will be released by the City when a Contract for the Work has been duly executed by the successful Bidder and the performance security furnished as provided herein. The bid securities of all other Bidders will be released when a Contract is awarded.
- B10.2.1 Where the bid security provided by the successful Bidder is in the form of a certified cheque or draft pursuant to B10.1(c), it will be deposited and retained by the City as the performance security and no further submission is required.
- B10.2.2 The City will not pay any interest on certified cheques or drafts furnished as bid security or subsequently retained as performance security.
- B10.3 The bid securities of all Bidders will be released by the City as soon as practicable following notification by the Contract Administrator to the Bidders that no award of Contract will be made pursuant to the Bid Opportunity.

## **B11. OPENING OF BIDS AND RELEASE OF INFORMATION**

- B11.1 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.
- B11.1.1 Bidders or their representatives may attend.
- B11.1.2 Bids determined by the Manager of Materials, or his designate, to not include the bid security specified in B10 will not be read out.
- B11.2 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>
- B11.3 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>
- B11.4 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.

## **B12. IRREVOCABLE BID**

- B12.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 11 of Form A: Bid.
- B12.2 The acceptance by the City of any Bid shall not release the Bids of the next two lowest evaluated responsive Bidders and these Bidders shall be bound by their Bids on such Work until a Contract for the Work has been duly executed and the performance security furnished as herein provided, but any Bid shall be deemed to have lapsed unless accepted within the time period specified in Paragraph 11 of Form A: Bid.

## **B13. WITHDRAWAL OF BIDS**

- B13.1 A Bidder may withdraw his Bid without penalty by giving written notice to the Manager of Materials at any time prior to the Submission Deadline.

- B13.1.1 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.
- B13.1.2 The City will assume that any one of the contact persons named in Paragraph 3 of Form A: Bid or the Bidder's authorized representatives named in Paragraph 12 of Form A: Bid, and only such person, has authority to give notice of withdrawal.
- B13.1.3 If a Bidder gives notice of withdrawal prior to the Submission Deadline, the Manager of Materials will:
- (a) retain the Bid until after the Submission Deadline has elapsed;
  - (b) open the Bid to identify the contact person named in Paragraph 3 of Form A: Bid and the Bidder's authorized representatives named in Paragraph 12 of Form A: Bid; and
  - (c) if the notice has been given by any one of the persons specified in B13.1.3(b), declare the Bid withdrawn.
- B13.2 A Bidder who withdraws his Bid after the Submission Deadline but before his Bid has been released or has lapsed as provided for in B12.2 shall be liable for such damages as are imposed upon the Bidder by law and subject to such sanctions as the Chief Administrative Officer considers appropriate in the circumstances. The City, in such event, shall be entitled to all rights and remedies available to it at law, including the right to retain the Bidder's bid security.

#### **B14. EVALUATION OF BIDS**

- B14.1 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 therefrom (pass/fail);
  - (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B9 (pass/fail);
  - (c) Total Bid Price;
  - (d) economic analysis of any approved alternative pursuant to B5.
- B14.2 Further to B14.1(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.
- B14.3 Further to B14.1(b), the Award Authority shall reject any Bid submitted by a Bidder who does not demonstrate, in his Bid or in other information required to be submitted, that he is responsible and qualified.
- B14.4 Further to B14.1(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.
- B14.4.1 If there is any discrepancy between the Total Bid Price written in figures, the Total Bid Price written in words and the sum of the quantities multiplied by the unit prices for each item, the sum of the quantities multiplied by the unit prices for each item shall take precedence.
- B14.4.2 Further to B14.1(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.
- B14.4.3 The electronic Form B: Prices and the formulas imbedded in that spreadsheet are only provided for the convenience of Bidders. The City makes no representations or warranties as to the correctness of the imbedded formulas. It is the Bidder's responsibility to ensure the extensions of the unit prices and the sum of Total Bid Price performed as a function of the formulas within the electronic Form B: Prices are correct.

**B15. AWARD OF CONTRACT**

- B15.1 The City will give notice of the award of the Contract or will give notice that no award will be made.
- B15.2 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.
- B15.2.1 Without limiting the generality of B15.2, 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.
- B15.3 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 B14.
- B15.3.1 Following the award of contract, a Bidder will be provided with information related to the evaluation of his Bid upon written request to the Contract Administrator.

## PART C - GENERAL CONDITIONS

### C0. GENERAL CONDITIONS

- C0.1 The *General Conditions for Construction* (Revision 2006 12 15) are applicable to the Work of the Contract.
- C0.1.1 The *General Conditions for Construction* are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at [http://www.winnipeg.ca/matmgt/gen\\_cond.stm](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:

- (a) Construction of Bike Boulevard
  - (i) Rorie Street to Waterfront Drive

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

- (a) Construction of Asphalt Multi-use Pathway
  - (i) Remove existing concrete sidewalk
  - (ii) Asphalt milling and filling (average thickness – 60mm)
  - (iii) Renewal of existing curbs
  - (iv) Installation of catch basins and lead pipes
  - (v) Renewal of concrete approaches
  - (vi) Construction of 100mm concrete sidewalk complete with paving band
  - (vii) Salvage, stockpiling and reinstallation of unit pavers
  - (viii) Supply and installation of unit pavers
  - (ix) Supply and installation of detectable warning surfaces
  - (x) Installation of cast in place concrete tree vault
  - (xi) Installation of trees
  - (xii) Boulevard Restoration

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

D3.1 The Contract Administrator is Stantec Consulting Ltd., represented by:

Vilko Maroti, C.E.T., P.Eng.  
Senior Transportation Engineer  
100-1355 Taylor Avenue

Telephone No. (204) 928-8834  
Facsimile No. (204) 453-9012

D3.2 At the pre-construction meeting, Vilko Maroti, C.E.T., P.Eng. will identify additional personnel representing the Contract Administrator and their respective roles and responsibilities for the Work.

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

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

D4.2 At least two (2) business days prior to the commencement of any Work on the site, the Contractor shall provide the Contract Administrator with a phone number where the supervisor

identified in D4.1 or an alternate can be contacted twenty-four (24) hours a day to respond to an emergency.

## **D5. NOTICES**

D5.1 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.

D5.2 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the City, except as expressly otherwise required in D5.3, D5.4 or elsewhere in the Contract, shall be sent to the attention of the Contract Administrator at the address or facsimile number identified in D3.1.

D5.3 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 address or facsimile number:

The City of Winnipeg  
Chief Financial Officer  
Administration Building, 3rd Floor  
510 Main Street  
Winnipeg MB R3B 1B9  
Facsimile No.: (204) 949-1174

D5.4 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications required to be submitted or returned to the City Solicitor shall be sent to the following address or facsimile number:

The City of Winnipeg  
Internal Services Department  
Legal Services Division  
Attn: City Solicitor  
185 King Street, 3rd Floor  
Winnipeg MB R3B 1J1  
Facsimile No.: (204) 947-9155

## **D6. FURNISHING OF DOCUMENTS**

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

## **SUBMISSIONS**

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

D7.1 The Contractor shall be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba, or if the Contractor does not carry on business in Manitoba, in the jurisdiction where the Contractor does carry on business, throughout the term of the Contract, and shall provide the Contract Administrator with evidence thereof upon request.

### **D8. SAFE WORK PLAN**

D8.1 The Contractor shall provide the Contract Administrator with a Safe Work Plan at least five (5) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract.

D8.2 The Safe Work Plan shall be prepared and submitted in the format shown in the City's template which is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/safety/default.stm>

## **D9. INSURANCE**

D9.1 The Contractor shall provide and maintain the following insurance coverage:

- (a) Commercial general liability insurance, in the amount of at least two million dollars (\$2,000,000.00) inclusive, with The City of Winnipeg, The Province of Manitoba and The Government of Canada, including authorized officials and representatives of the aforementioned, added as an additional insureds; such liability policy to also contain a cross-liability clause, contractual liability, unlicensed motor vehicle liability (contractors' equipment), broad form property damage cover and products and completed operations, to remain in place at all times during the performance of the Work and throughout the warranty period;
  - (i) Completed operations cover shall extend for a minimum of twenty-four (24) months beyond Total Performance date;
  - (ii) The policy shall provide coverage for the aforementioned entities as well as all contractors and consultants and their directors, officers, employees and agents. A wrap-up liability policy, covering the entire scope of the Work may be purchased in place of a commercial general liability policy;
- (b) Automobile liability insurance for owned and non-owned automobiles used for or in connection with the Work in the amount of at least two million dollars (\$2,000,000.00) to be retained at all times during the performance of the Work and until the date of Total Performance; such insurance may be met through the commercial general liability cover where applicable;
- (c) Builder's Risk insurance (Broad Form) including testing and commissioning, in the amount of one hundred percent (100%) of the total construction costs; written in the name of the Contractor, The City of Winnipeg and all other contractors, sub-contractors, engineering and architectural consultants etcetera;
- (d) Any other insurances, carrying suitable limits and deductibles, as may be required to cover the scope of Work;

D9.2 All Policies shall be taken out with insurers licensed to and carrying on business in the Province of Manitoba.

D9.3 Deductibles shall be borne by the Contractor.

D9.4 The Contractor shall provide the Contract Administrator with a certificate of insurance of each policy, in a form satisfactory to the City Solicitor, at least two (2) Business Days prior to the commencement of any Work on the site.

D9.5 The Contractor shall not cancel, or cause any such policy or policies to lapse without providing at least thirty (30) Calendar Days prior written notice to the Contract Administrator.

D9.6 The Contractor shall provide written notice to the City of Winnipeg of any material changes to their policies within thirty (30) days of the change taking effect.

D9.7 The City shall have the right to alter the limits and/or coverage's as reasonably required from time to time during the continuance of this agreement.

## **D10. PERFORMANCE SECURITY**

- D10.1 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.
- D10.1.1 Where the performance security is in the form of a certified cheque or draft, it will be deposited by the City. The City will not pay any interest on certified cheques or drafts furnished as performance security.
- D10.2 If the bid security provided in his Bid was not a certified cheque or draft pursuant to B10.1(c), the Contractor shall provide the City Solicitor with the required performance security within seven (7) Calendar Days of notification of the award of the Contract by way of letter of intent and prior to the commencement of any Work on the Site and in no event later than the date specified in the C4.1 for the return of the executed Contract.

## **D11. SUBCONTRACTOR LIST**

- D11.1 The Contractor shall provide the Contract Administrator with a complete list of the Subcontractors whom the Contractor proposes to engage (Form J: Subcontractor List) at or prior to a pre-construction meeting, or 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 the C4.1 for the return of the executed Contract.

## **D12. DETAILED WORK SCHEDULE**

- D12.1 The Contractor shall provide the Contract Administrator with a detailed work schedule (Form L: 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 the General Conditions for the return of the executed Contract.

## **SCHEDULE OF WORK**

### **D13. COMMENCEMENT**

- D13.1 The Contractor shall not commence any Work until he is in receipt of a letter of intent from the Award Authority authorizing the commencement of the Work.
- D13.2 The Contractor shall not commence any Work on the Site until:
- (a) the Contract Administrator has confirmed receipt and approval of:
    - (i) evidence of authority to carry on business specified in D7;
    - (ii) evidence of the workers compensation coverage specified in C6.15;
    - (iii) the twenty-four (24) hour emergency response phone number specified in D4.2.
    - (iv) the Safe Work Plan specified in D8;
    - (v) evidence of the insurance specified in D9;
    - (vi) the performance security specified in D10;
    - (vii) the subcontractor list specified in D11;



- (viii) the detailed work schedule specified in D12; and
- (b) the Contractor has attended a pre-construction meeting with the Contract Administrator, or the Contract Administrator has waived the requirement for a pre-construction meeting.

D13.3 The Contractor shall commence the Work on the Site within seven (7) Working Days of receipt of the letter of intent.

#### **D14. WORKING DAYS**

D14.1 Further to C1.1(gg);

D14.1.1 The Contract Administrator will determine daily if a Working Day has elapsed and will record his assessment. On a weekly basis the Contract Administrator will provide the Contractor with a record of the Working Days assessed for the preceding week. The Contractor shall sign each report signifying that he agrees with the Contract Administrator's determination of the Working Days assessed for the report period.

D14.1.2 Work done to restore the Site to a condition suitable for Work, shall not be considered "work" as defined in the definition of a Working Day.

D14.1.3 When the Work includes two or more major types of Work that can be performed under different atmospheric conditions, the Contract Administrator shall consider all major types of Work in determining whether the Contractor was able to work in assessing Working Days.

#### **D15. RESTRICTED WORK HOURS**

D15.1 Further to clause 3.10 of CW 1130, the Contractor shall require written permission forty-eight (48) hours in advance from the Contract Administrator for any work to be performed between 2000 hours and 0700 hours, or on Saturdays, Sundays, Statutory Holidays and or Civic Holidays.

#### **D16. WORK BY OTHERS**

D16.1 Work by others on or near the Site will include but not necessarily be limited to:

- (a) City of Winnipeg Traffic Services Department – Replace signage and painting lines.

#### **D17. SUBSTANTIAL PERFORMANCE**

D17.1 The Contractor shall achieve Substantial Performance within twenty-five (25) consecutive Working Days of the commencement of the Work as specified in D13.

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 re-inspected.

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 within thirty (30) consecutive Working Days of the commencement of the Work as specified in D13.

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 re-inspected.

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 Substantial Performance or Total Performance in accordance with the Contract by the days fixed herein for same, the Contractor shall pay the City the following amounts per Working Day for each and every Working Day following the days fixed herein for same during which such failure continues:

- (a) Substantial Performance – One Thousand dollars (\$1,000.00);
- (b) 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 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) Maintenance of Sodding as specified in CW3510;
- (b) Maintenance of Tress as specified in E7.

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 weekly job meetings will be held at Site. These meetings shall be attended by a minimum of one representative of the Contract Administrator, 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 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).

## **WARRANTY**

### **D23. WARRANTY**

- D23.1 Notwithstanding C13.2, the warranty period shall begin on the date of Substantial 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.

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

KNOW ALL MEN BY THESE PRESENTS THAT

\_\_\_\_\_ ,  
(hereinafter called the "Principal"), and

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

\_\_\_\_\_ dollars (\$ \_\_\_\_\_)

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

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

BID OPPORTUNITY NO. 583-2010

2010 ACTIVE TRANSPORTATION INFRASTRUCTURE STIMULUS PROGRAM –  
BANNATYNE/McDERMOT BIKE BOULEVARD FROM RORIE STREET TO WATERFRONT DRIVE  
which is by reference made part hereof and is hereinafter referred to as the "Contract".

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

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

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

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

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

\_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

**SIGNED AND SEALED**  
in the presence of:

\_\_\_\_\_  
(Witness as to Principal if no seal)

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

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

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

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

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

**FORM H2: IRREVOCABLE STANDBY LETTER OF CREDIT  
(PERFORMANCE SECURITY)**  
(See D10)

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

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

RE: PERFORMANCE SECURITY – BID OPPORTUNITY NO. 583-2010

2010 ACTIVE TRANSPORTATION INFRASTRUCTURE STIMULUS PROGRAM –  
BANNATYNE/McDERMOT BIKE BOULEVARD FROM RORIE STREET TO WATERFRONT DRIVE

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

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

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

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

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

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

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

Partial drawings are permitted.

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

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

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

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

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

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

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

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

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

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

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

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







## PART E - SPECIFICATIONS

### GENERAL

#### E1. APPLICABLE SPECIFICATIONS AND DRAWINGS

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

<u>Drawing No.</u>	<u>Drawing Name/Title</u>	<u>Drawing (Original) Sheet Size</u>
W-380-01	Cover Sheet	A1
W-380-02	Bannatyne /McDermot Bike Boulevard – Rorie Street to Waterfront Drive – Sta. 0+65 to Sta. 0+350	A1
W-380-03	Bannatyne /McDermot Bike Boulevard – Rorie Street to Waterfront Drive – Rorie Street to Matchline B-B	A1
W-380-04	Bannatyne /McDermot Bike Boulevard – Rorie Street to Waterfront Drive – Matchline B-B to Ship Street & Enlargements	A1
W-380-05	Bannatyne /McDermot Bike Boulevard – Rorie Street to Waterfront Drive – Details	A1

#### E2. PROTECTION OF EXISTING TREES

- E2.1 The Contractor shall take the following precautionary steps to prevent damage from construction activities.
- E2.2 All trees will have a protective zone at the dripline of the crown, which will remain free of digging, trenching, grade changes, stock piling of materials and soil compaction, throughout the duration of the Contract. Protective snow fencing around these areas is required.
- E2.3 Trees within and immediately adjacent to proposed construction areas and those identified to be at risk by the Contract Administrator, will require 25 x 100 x 2400mm wood planks strapped to the tree trunk to completely protect the tree trunk from impact damage during the entire construction period or as agreed upon by the Contract Administrator. (Smaller trees will be similarly protected using proportionally sized wood planks.)
- E2.4 Excavation shall be performed in a manner that minimizes damage to the existing root systems. Where possible, excavation shall be carried out such that the edge of the excavation shall be a minimum of 3m from the closest edge of the trunk. Where roots must be cut to facilitate excavation, they shall be pruned neatly at the face of excavation by an arborist certified to practice in the Province of Manitoba. They must be properly trimmed with sharp tools to prevent crushing or being pulled up by construction equipment. No paint is required. All exposed roots

must be mulched until the excavated area is filled with clean earth to avoid exposure to sunlight and desiccation.

- E2.5 Operation of equipment within the dripline of the trees shall be kept to the minimum required to perform the Work required. Equipment shall not be parked, repaired, refuelled; construction materials shall not be stored, and earth materials shall not be stockpiled within the driplines of trees. The dripline of a tree shall be considered to be the ground surface directly beneath the tips of its outermost branches. The Contractor shall ensure that the operations do not cause flooding or sediment deposition on areas where trees are located.
- E2.6 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.
- E2.7 All damage to existing trees caused by the Contractor's activities shall be repaired to the requirements and satisfaction of the Contract Administrator and the City Forester or his designate.
- E2.8 No separate measurement or payment will be made for the protection of trees.
- E2.9 Auguring under existing trees will be the only acceptable method of underground installations. Any other excavations must be approved by the Forestry Branch.

### **E3. TRAFFIC CONTROL**

- E3.1 Further to clauses 3.6 and 3.7 of CW 1130:
- (a) Where directed, the Contractor shall construct and maintain temporary asphalt ramps to alleviate vertical pavement obstructions such as manholes and planing drop-offs to the satisfaction of the Contract Administrator. Payment shall be in accordance with CW3410.
  - (b) In accordance with the Manual of Temporary Traffic Control in Work Areas on City Streets, the Contractor ("Agency" in the manual) shall make arrangements with the Traffic Services Branch of the City of Winnipeg to place all temporary regulatory signs. The Contractor shall bear all costs associated with the placement of temporary traffic control devices by the Traffic Services Branch of the City of Winnipeg in connection with the works undertaken by the Contractor.

### **E4. TRAFFIC MANAGEMENT**

- E4.1 Further to clause 3.7 of CW 1130:
- E4.1.1 Maintain a minimum of one lane of traffic eastbound during their respective construction times.
  - E4.1.2 Parking will be prohibited during construction.
  - E4.1.3 Intersecting street and private approach access shall be maintained at all times.
  - E4.1.4 Should the Contractor be unable to maintain pedestrian or vehicular access to a residence or business, he shall review the planned disruption with the business or residence and the Contract Administrator, and take reasonable measures to minimize the impact. The Contractor shall provide a minimum of 24 hours notification to the affected residence or business and the Contract Administrator, prior to disruption of access.
  - E4.1.5 Pedestrian and ambulance/emergency vehicle access must be maintained at all times.

### **E5. PEDESTRIAN AND CYCLIST SAFETY**

- E5.1 During the project, the sidewalk on the constructing side will be closed as required.
- E5.2 The Contractor shall maintain all designated and signed crosswalks during construction.

E5.3 During the project the Contractor shall be responsible for maintaining safe pedestrian access including detours.

## **E6. WATER OBTAINED FROM THE CITY**

E6.1 Further to clause 3.7 of CW 1120, the Contractor shall pay for all costs, including sewer charges, associated with obtaining water from the City in accordance with the Waterworks and Sewer By-laws.

## **E7. REMOVAL OF EXISTING UNIT PAVING STONE AND BRICK PAVER FOR REINSTALLATION**

E7.1 Description

E7.1.1 This Specification shall supplement Standard Construction Specification CW 3330 and shall cover all operations related to the removal and stockpiling of existing Unit Paving Stones and Brick Pavers for reinstallation .

E7.2 Construction Methods

E7.2.1 Removal of existing precast concrete unit paving stone and brick pavers for reinstallation shall include removal of paving stones and base courses as required, disposal of unusable paving stone and base course material and stockpiling of paving stones in approved area for future reinstallation.

E7.2.2 Any existing lean mix concrete base found is to be removed and disposed to City of Winnipeg Standards.

E7.2.3 Any existing lean mix concrete base at the limits of the designated area shall be sawcut for the full depth of the pavement prior to the demolition and removal operations. All costs in connection with sawcutting are incidental and shall be included in the unit price bid for "Removal of Interlock Paving Stone and brick pavers for Reinstallation".

E7.2.4 The Contractor shall exercise due caution during the Interlock paving stone removal Works so as to limit vibration. The Contractor shall take all necessary precautions when Working in the vicinity of any existing duct lines, trees, hedges, etc.

E7.3 Method of Measurement and Basis of Payment

E7.3.1 Removal and stockpiling of existing interlock paving stone and brick pavers for reinstallation will be measured on an area basis and will be paid for at the Contract Unit Price per square metre as follows:

(a) Removal and stockpile of Paving Stone and Brick Paver for reinstallation:

- (i) Interlock Paving Stone - Munic / Tri-Hex
- (ii) Endicott Brick

measured as specified herein, which price shall be payment in full for performing all operations herein described and all other items incidental to the Work included in this Specification.

## **E8. 100 MM CONCRETE SIDEWALK WITH PAVING STONE, AND BRICK INSET**

E8.1 Further to Specification CW 3325 the Contractor shall construct the proposed concrete sidewalk with block-outs (for paving stone and brick) with a minimum 100 mm depth of Concrete as shown on the Drawings. The "block-outs" shall be constructed utilizing forming techniques capable of accommodating the proposed paving stone and brick paving to the dimensions and tolerances as shown on the Drawings and as confirmed with paving stone and brick manufacturer.

E8.2 The concrete sidewalk shall be poured such that the block-outs and remaining sidewalk act as a monolithic section.

- E8.3 All costs in connection with the additional forming and placement of concrete as a result of the "block-outs", and additional depths in areas as shown on the Drawing are incidental and shall be included in the unit price bid for "100 mm Concrete Sidewalk c/w reveal for paving band". Minimum 75mm depth compacted granular levelling course shall be included in unit price bid for "100 mm Concrete Sidewalk c/w reveal for paving band".
- E8.4 Sidewalk to be poured adjacent to transformer pits, areaways and buildings with approved bond breaker. Cost of bond breaker and shall be included in the unit price bid for "100 mm Concrete Sidewalk c/w reveal for paving band".
- E8.5 All saw cutting required and shall be included in the unit price bid for "100 mm Concrete Sidewalk c/w reveal for paving band". All sawcut joints shall be laid out on Site for review and approval by Contract Administrator prior to construction. All sawcutting to City of Winnipeg Specifications.

## **E9. PAVING STONES AND BRICK PAVERS**

### **E9.1 Description**

#### **E9.1.1 General**

- (a) Further to CW 3335 this Specification shall cover the:
- (i) supply and installation of interlocking paving stones (unit pavers);
  - (ii) supply and installation of brick pavers;
  - (iii) installation of stockpiled interlocking paving stones (unit pavers);
  - (iv) installation of stockpiled brick pavers;
  - (v) supply and installation of limestone levelling course;
  - (vi) supply and installation of grout.
- (b) The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all other things necessary or and incidental to the satisfactory performance and completion of all Work as hereinafter specified.

#### **E9.1.2 Referenced Standard Construction Specifications**

- (a) CW 3330 – Installation of Interlocking Paving Stones
- (b) CW 3335 – Installation of Interlocking Paving Stones on a Lean Concrete Base

### **E9.2 Materials**

#### **E9.2.1 Concrete interlocking paving stones (unit pavers) shall be Holland and Munic/Tri-hex Precast Concrete Pavers, supplied by Barkman, (contact Wayne Wiebe, phone 667-3310), as shown on the Drawings and as follows:**

- (a) Mahogany Holland Square Paver 80x210x210mm;
- (b) Tan Interlock Tri-Hex / Munic Paver.

#### **E9.2.2 Brick Pavers shall be Endicott Brick Pavers, supplied by Alsip's Building Products and Services (Contact Jason Alsip 667-3330) as shown on the Construction Drawings and as follows:**

- (a) Dark Ironspot Endicott Brick Paver 93 (3 5/8") x 194 (7 5/8") x 57 (2 1/4") mm

#### **E9.2.3 Sand:**

- (a) Bedding sand shall be fine aggregate as specified in Section 5.4.1 of Specification CW 3310, with the exception that the sand shall have a minimum of 30% of the particle larger than 3mm.
- (b) Filler sand shall have a maximum aggregate size of 3mm.

E9.2.4 Grout:

- (a) Grout as specified hereinafter shall be used for grouting paving stone under 50mm x 50mm in size. The grout shall have a compressive strength of 25 MPA at 28 days, determined on 50 mm cubes stored and tested in accordance with ASTM C109, and shall consist of normal Portland cement, sand and water;
- (b) The water-cement ratio shall be kept in the range of 0.45 to 0.55;
- (c) The grout shall have between 3% and 5% entrained air;
- (d) Acryl-Stik or approved equal to be used in grout at approximately 4 litres Acryl-Stik to 3 litres water;
- (e) Admixtures to be used in the grout shall be supplied in accordance with the requirements of the City of Winnipeg Standard CW 3310;
- (f) The grout shall be of a consistency suitable for the application intended as approved by the Contract Administrator;
- (g) The Contractor shall provide the Contract Administrator with a mix design statement certifying the constituent materials and mix proportions that will be used in the grout for approval prior to construction.

E9.3 Construction Methods

E9.3.1 Contractor to verify the exact dimensions of pavers prior to construction of block outs in concrete sidewalk.

- (a) Install concrete sidewalk and blockouts as specified on Drawings. Interlocking paving stones and brick pavers shall be installed in block outs in concrete sidewalk as per the Drawings;
- (b) Install sand bed to minimum depth as specified on Drawings;
- (c) Do not compact setting bed prior to installation of pavers;
- (d) Spread only sufficient area which can be covered with pavers same day;
- (e) Lay pavers on sand bed hand tight;
- (f) In areas where pavers are to be grouted in place clean existing concrete, install grout bed and then place pavers on grout;
- (g) Grout between pavers as required ensuring stability;
- (h) Remove adjacent pavers in bands as required to ensure that bricks do not require cutting to fit existing paving pattern;
- (i) Where paving pattern is interrupted by vertical structural elements pavers must be sawcut and fit true and hand tight;
- (j) Commence installation of pavers against edge to obtain straightest possible course for installation;
- (k) Pavers shall be cut with a saw only, to obtain true even undamaged edges. Chipped pavers are unacceptable;
- (l) Crews shall Work on installed pavers, not on sand layer;
- (m) Spread and fine grade brick sand over paving surface and sweep into joints, in several directions. Sand is incidental to the price for supply and installation of pavers;
- (n) Compact pavers with vibratory plate compactor having mass of at least 113kg. Compaction is incidental to the price for supply and installation of paving stone;
- (o) Sweep remaining sand over all paving areas and remove from Site;
- (p) Replace at no extra cost all whole or cut stones marked as unacceptable;
- (q) Remove cracked, chipped, broken or otherwise damaged paving materials from Site immediately;
- (r) Upon completion, clean in accordance with manufacturer's recommendations.

E9.3.2 If cutting of existing concrete sidewalk is required, this shall be incidental to the pay item described in this specification.

#### E9.4 Measurement and Payment

E9.4.1 Reinstallation of interlocking paving stones and brick pavers will be measured on an area basis and will be paid for at the Contract Unit Price per square metre as follows:

- (a) Reinstall Stockpiled Interlocking Paving Stone and Endicott Brick (including sand, leveling course):
  - (i) Interlock Paving Stone
  - (ii) Endicott Brick

measured as specified herein, which price shall be payment in full for performing all operations herein described and all other items incidental to the Work included in this Specification.

E9.4.2 Supply and installation of interlocking paving stones and brick pavers will be measured on an area basis and will be paid for at the Contract Unit Price per square metre as follows:

- (a) Supply and Install Endicott Brick Pavers- Dark Ironspot
- (b) Supply and Install Heavy Duty Mahogany Holland Stone (80 mm) Interlock Paving in approaches

measured as specified herein, which price shall be payment in full for performing all operations herein described and all other items incidental to the Work included in this Specification.

### E10. TREE VAULTS

#### E10.1 Description

E10.1.1 This Specification covers the installation of cast-in-place concrete tree vaults with precast concrete sidewalk panels and related excavation, tree vault sub drainage, geotextile, root barrier, planting medium, tree grates and tree guards.

#### E10.2 Materials

E10.2.1 Granular drainage material in accordance with Specification CW 3120 - Installation of Sub Drains to Specification CW 3120 - Installation of Sub Drains.

E10.2.2 C.I.P. concrete in accordance with Concrete Foundations.

E10.2.3 Tree grate to be two-piece cast iron Kiva 1.22m x 1.83m rectangular tree cover with 500mm diameter opening in centre as supplied by Urban Accessories. Contact Play Works, Jeff Kuby, Phone: 414-2990, or approved equal.

E10.2.4 Sidewalk panel to be min. 150mm thick reinforced precast concrete panel to accommodate AASHTO HS-20 loading. Manufacturer to supply shop drawings stamped by a structural engineer.

E10.2.5 Precast concrete sidewalk panels supplied by Barkman, 909 Gateway Road, Winnipeg, MB, Phone: 667-3310, or approved equal.

E10.2.6 Tree Guard to be two piece A-coated black Terressa tree guard as supplied by Urban Park. 49 Life Sciences Parkway, Steinbach, MB 1-800-775-0018. Contact Myron Krentz.

E10.2.7 Planting Soil: For mix imported topsoil with 20% peatmoss loose by volume, and 5% sand loose by volume. Incorporate bonemeal into planting soil at rate of 5 lbs /cu.yd. of soil mixture. Planting soil items to be comprised as follows:

- (a) Peatmoss: horticultural grade Class "A" decomposed plant material, fairly elastic and homogeneous. Free of decomposed colloidal residue, weed, sulphur and iron. To have pH value of 5.9 to 7.0, 60% organic matter by weight, moisture content not

exceeding 15% and water absorption capacity of not less than 300% by weight on oven dry basis.

- (b) Bonemeal: shall be raw bonemeal, finely ground with a minimum analysis of 3% nitrogen and 20% phosphoric acid.
- (c) Imported topsoil: natural, fertile, agricultural soil typical of locality, capable of sustaining vigorous plant growth, from well drained Site that is free of flooding, not in frozen or muddy condition, not less than 6% organic matter to a maximum 25% organic matter by volume, and pH value of 5.9 to 7.0. Free from subsoil, slag or clay, stones, lumps, live plants and their roots, sticks, crabgrass, couchgrass, noxious weeds and foreign matter.
- (d) Sand: hard, granular natural beach sand, washed free of impurities, chemical or organic matter.

E10.2.8 Fertilizer: commercial type with 50% of the elements derived from organic sources. Deliver and store fertilizer in waterproof bags showing weight, analysis and name of manufacturer.

E10.2.9 Separation Geotextile Fabric as per CW 3130 for each application.

E10.2.10 Drainage material as per CW 3120.

E10.2.11 Drainage pipe as per CW 3120.

### E10.3 Submittals

E10.3.1 Prior to installation, submit to the Contract Administrator samples of the following materials:

- (a) Geotextile: 1 sq.m
- (b) Root barrier: 1 panel
- (c) Planting Soil Mixture: 1 kg

E10.3.2 Prior to installation, arrange for inspection and approval of the following materials:

- (a) Tree cover: 1 panel
- (b) Sidewalk panel: 1 panel

### E10.4 Construction Methods

E10.4.1 The Contractor must ensure that all buried utilities and services are located and if necessary, protected and exposed prior to any excavation in accordance with Specification CW 1120.

E10.4.2 Excavate the tree vault to the dimensions and depth shown on the Drawings. Soft dig/ day lighting process to be used in area of existing underground utilities. Ensure base of tree pit slopes to drain toward roadway drainage system (min 2% slope).

E10.4.3 Remove roadway base and sub base where required to achieve tree pit width indicated on the Drawings. Do not remove any base or sub-base material within 450mm of back of curb.

E10.4.4 Clear excavation of all construction debris, trash, rubble and any foreign material. Excavate and remove oil spills and other soil contamination sufficiently to remove the harmful material. Fill over excavations with approved fill and compact to the required subgrade compaction.

E10.4.5 All excavated material shall be disposed of off site.

E10.4.6 Backfill between roadway base gravel and tree vault edge with compacted granular where required.

E10.4.7 Construct cast-in-place concrete tree well in accordance with Concrete Foundations and the Drawings.



- E10.4.8 Remove debris, broken roots, branches, stones in excess of 50mm diameter and other deleterious materials. Remove subsoil that has been contaminated with oil, gasoline or calcium chloride. Dispose of removed materials as directed.
- E10.4.9 Excavate tree vaults to depths as per the Drawings.
- E10.4.10 Supply and place 150 mm depth granite drainage course with perforated pipe in accordance with Specification CW 3120 – Installation of Sub Drains and as shown on the Drawings. Ensure pipe has minimum 25mm cover of drainage course above and below. Place subdrain pipe, drainage fabric and drainage material as per the Drawings. Connect subdrain to catch basins as shown on the drawings. All Work related to subdrain for planters is incidental to the unit prices bid for planter preparation.
- E10.4.11 Cover drainage course and sides of tree pit with geotextile in accordance with Specification CW 3120 – Installation of Sub Drains and as shown on the Drawings.
- E10.4.12 Do not install planting soil mixture until Contract Administrator has inspected subdrain.
- E10.4.13 Mix fertilizer at manufacturer's recommended rate of application. Mix fertilizer thoroughly into upper 150mm of planting soil to be placed.
- E10.4.14 Install planting soil mixture with adequate moisture in uniform layers during dry weather over approved, dry, unfrozen sub-grade, where planting is indicated.
- E10.4.15 Remove stones, roots, grass, weeds, construction materials, debris and foreign non-organic objects from soil mixture.
- E10.4.16 Fine grade entire planting soil area. Eliminate rough spots.
- E10.4.17 Compact planting soil to leave surface smooth, uniform, firm against deep foot printing, with a fine, loose texture. Tolerance: plus or minus 15mm of design grade.
- E10.4.18 Plant trees in locations as per the Drawings. Ensure tree trunk is centred on opening of tree covers.
- E10.4.19 After tree planting, ensure that the finished soil level is 100 mm below bottom edge of tree cover and 25mm below bottom edge of sidewalk panel.
- E10.4.20 Install precast concrete sidewalk panels and cast iron tree covers ensuring edges are supported by tree well.
- E10.4.21 Where indicated on the Drawings, install tree guard. Supply and install tree guard on tree cover as per manufacturer's specifications.
- E10.5 Measurement and Payment
- E10.5.1 Tree vault construction will be measured and paid on an unit basis at the Contract unit price per unit for 'Tree vault' which price shall be payment in full for supply of all materials and performing all operations herein described and for all other items incidental to the Work included in this Specification. The area to be paid for shall be the total number of square metres constructed in accordance with this Specification acceptable to the Contract Administrator, as computed from measurements made by the Contract Administrator.
- E10.5.2 No separate measurement or payment will be made for drainage course, drain lines, geotextile, root barrier and planting soil. All work is incidental to tree vault construction.
- E10.5.3 Tree covers will be measured and paid on a per unit basis at the Contract unit price per item for 'Supply and install tree grate' which price shall be payment in full for supply of all materials and performing all operations herein described and for all other items incidental to the Work included in this Specification. The number to be paid for shall be the total number installed in accordance with this Specification acceptable to the Contract Administrator, as computed from measurements made by the Contract Administrator.
- E10.5.4 Sidewalk panels will be measured and paid on a per unit basis at the Contract unit price per item for 'Supply and install sidewalk panels' which price shall be payment in full for supply of all materials and performing all operations herein described and for all other

items incidental to the Work included in this Specification. The number to be paid for shall be the total number installed in accordance with this Specification acceptable to the Contract Administrator, as computed from measurements made by the Contract Administrator.

E10.5.5 Tree guards will be measured and paid on a per unit basis at the Contract unit price per item for 'Supply and install tree guards' which price shall be payment in full for supply of all materials and performing all operations herein described and for all other items incidental to the Work included in this Specification. The number to be paid for shall be the total number installed in accordance with this Specification acceptable to the Contract Administrator, as computed from measurements made by the Contract Administrator.

## **E11. PLANT MATERIAL**

### **E11.1 Description**

#### **E11.1.1 General**

- (a) The following list generally describes the scope of this section:
  - (i) Supply and planting of trees;
  - (ii) Maintenance to date of Total Performance.
  - (iii) Extended maintenance for two years from the date of Total Performance.
- (b) Obtain approval of plant material at source.
- (c) Notify Contract Administrator of source of material at least 7 days in advance of shipment. No Work under this Section is to proceed without approval.
- (d) Acceptance of plant material at source does not prevent rejection at Site prior to or after planting operations.
- (e) Source of all plant material to be from an area within the same hardiness zone and soil conditions as Winnipeg.

#### **E11.1.2 Shipment and Pre-Planting Care**

- (a) Co-ordinate shipping of plants and excavation of holes to ensure minimum time lapse between digging and planting. Tie branches of trees and shrubs securely and protect plant material against abrasion, exposure and extreme temperature change during transit. Avoid binding of planting stock with rope or wire which would damage bark, break branches or destroy natural shape of plant. Give full support to root ball of large trees during lifting.
- (b) Cover plant foliage with tarpaulin, and protect bare roots by means of dampened straw, peatmoss, sawdust or other acceptable material to prevent loss of moisture during transit and storage.
- (c) Remove broken and damaged roots with sharp pruning shears. Make clean cut and cover cuts over 50 mm diameter with wound dressing.
- (d) Keep roots moist and protected from sun and wind.

### **E11.2 Materials**

E11.2.1 Water should be potable and free of minerals, which may be detrimental to plant growth.

E11.2.2 Anti-desiccant should be wax-like emulsion to provide film over plant surface reducing evaporation but permeable enough to permit transpiration.

E11.2.3 Wound dressing should be horticulturally accepted non-toxic, non-hardening emulsion.

#### **E11.2.4 Plant Material**

- (a) Quality and Source: Comply with City of Winnipeg tree planting guidelines, referring to size and development of plant material and root ball. All plant material to be approved by City and Contract Administrator at source.

- (b) Measure plants when branches are in their natural position. Height and spread dimensions refer to main body of plant and not from branch tip to branch tip. Use trees of No. 1 grade.
- (c) Additional plant material qualifications:
  - (i) Trees must have been root pruned regularly, but not later than one growing season prior to arrival on Site.

E11.2.5 Approval required for plant material, which has been held in cold storage.

E11.2.6 Acceptable if containers large enough for root development. Plants that have become root bound are not acceptable. Container stock must have been fertilized with slow releasing fertilizer.

E11.2.7 Substitutions to plant material as indicated on plantings plan are not permitted unless written approval has been obtained as to type, variety and size prior to award of Contract. Plant substitutions must be similar species and of equal size to those originally specified.

E11.2.8 Root balls

- (a) Deciduous trees in excess of 3 m height must have been dug with large firm ball. Root balls must include 75% of fibrous and feeder root system. This excludes use of native trees grown in light sandy or rocky soil. Lift root ball from hole, place in wire basket designed for purpose and line with burlap. Secure root balls with burlap, heavy twine and wire basket. Protect root balls against sudden changes in temperature and exposure to heavy rainfall. Take care not to injure trunk of tree with wire basket ties or rope.
- (b) Tree spade material shall not be accepted, unless dug in field and secured as above.

E11.3 Construction Methods

- (a) Stake out location of trees as per the Construction Drawings. Obtain approval by City and Contract Administrator prior to excavating.
- (b) Apply anti-desiccant in accordance with material manufacturer's instructions only as required.
- (c) Co-ordinate operations. Keep site clean and planting holes drained. Immediately remove soil or debris spilled onto pavement.

E11.3.2 Planting Time

- (a) Plant deciduous plant material during dormant period, before buds have broken. Plant material noted for spring planting only, must be planted in dormant period.
- (b) When permission has been obtained to plant materials after buds have broken, spray plants with anti-desiccant to slow down transpiration prior to transplanting.
- (c) Plant only under conditions that are conducive to health and physical conditions of plants.
- (d) Provide planting schedule. Executing planting operations over long period using limited crew will not be accepted.

E11.3.3 Excavations

- (a) Prepare planters as shown on the Drawings and as specified.
- (b) Protect bottom of excavations against freezing.
- (c) Remove water, which enters excavations prior to planting. Ensure source of water is not ground water.

E11.3.4 Planting

- (a) Plant trees and shrubs vertically with roots placed straight out in hole. Orient plant material to give best appearance in relation to structure, roads and walks.

- (b) Place plant material to depth equal to depth they were originally growing in nursery. Allow for soil settlement in planting.
- (c) With balled and burlapped roots balls, loosen burlap and cut away minimum top 1/2 without disturbing root ball. Cut vertical slits in remaining burlap around root ball at 250mm intervals. Remove all rope, string, or other ties from around trunk. Do not pull burlap or rope from under root ball. With container stock, remove entire container without disturbing root ball. Non bio-degradable wrappings must be removed, wire baskets to be cut vertically and the top rings bent over below grade.
- (d) Tamp planting soil around root system in layers of 150mm eliminating air voids. Frozen or saturated planting soil is unacceptable. When 2/3 of planting soil has been placed, fill hole with water. After water has completely penetrated into soil, complete backfilling.
- (e) Build 100 mm deep saucer around outer edge of hole to assist with maintenance watering. Install 100mm depth wood chip mulch in saucer as shown on drawings.
- (f) When planting is completed, give surface of planting saucer dressing of organic 10-6-4 fertilizer at rate of 12 kg/100 m for shrub beds or 40 to 50 g/m<sup>2</sup> of calliper for trees. Mix fertilizer thoroughly with top layer of planting soil and water in well.

E11.3.5 Prune trees and shrubs after planting only as required to remove broken diseased or dead branches. Employ clean sharp tools and make cuts flush with main branch, smooth and sloping as to prevent accumulation of water.

E11.3.6 Stake and guy trees as required in planters as per the Drawings.

#### E11.4 Maintenance to date of Total Performance

##### E11.4.1 Maintenance to date of Total Performance

- (a) After completion of planting operation to the satisfaction of the Contract Administrator and City of Winnipeg, the Contractor shall be responsible for the maintenance of the plant material until date of Total Performance and commencement of two year warranty.
- (b) Replace any dead or damaged plant material during the maintenance period, including replacement of vandalized material.
- (c) Water sufficiently to maintain optimum growing conditions. Ensure adequate moisture in root zone at freeze-up.
- (d) The Contractor shall provide all necessary equipment, including: tractors, mowers, hand mowers, trimmers, fertilizer spreaders, pruning tools, hoses, water meters, and any other items necessary for the maintenance of the plant material indicated in this Specification.
- (e) Remove all weeds and debris from planters on a weekly basis.
- (f) Turn and top up mulch in planters prior to start of extended maintenance.
- (g) Personnel
  - (i) The Contractor shall provide all necessary personnel for the ongoing maintenance operations.
  - (ii) Personnel should have at least one year of experience in landscape maintenance and should be under the direction of a foreman, in all cases, with not less than five years of experience with similar maintenance operations.

##### E11.4.2 Maintenance Methods

- (a) Watering
  - (i) Plants shall be watered twice weekly, or during the summer, if temperatures are fairly high and there has been no rainfall, water approximately once a week.
  - (ii) To determine the need for watering, make a soil test weekly with a one-inch auger. Take a test sample from both the planting soil and from the root ball by

drilling to a minimum depth of 600 mm. The soil shall contain enough moisture to hold together when compressed in the hand, but not be muddy.

E11.4.3 Fertilizing

- (a) Because of the specialized nature of such operations, fertilizing is to be done by a qualified local arborist.
- (b) Fertilize in the fall over the surface of the ground surrounding the plants, then soak the area thoroughly, use 10-6-4 analysis fertilizer spreading a maximum of 0.13 kg per square metre.

E11.4.4 Spraying

- (a) Spray plants to control insect pests and diseases. Use horticulturally recommended compounds specific for the problem to be contained.

E11.4.5 Insects and Diseases

- (a) Spray plants to combat pests and diseases. Do not use DDT or sprays prohibited by Agriculture Canada.

E11.5 Extended maintenance for two years from the date of Total Performance

E11.5.1 Maintenance Methods

(a) Watering

- (i) All plant material shall be watered bi-weekly, or during the summer, if temperatures are fairly high and there has been no rainfall, water approximately once a week. Where irrigation is not available this should be executed by leaving a hose, with a gentle rate of flow, running into the saucer of the root ball for about one hour.
- (ii) To determine the need for watering, make a soil test weekly with a one-inch auger. Take a test sample from both the planting soil and from the root ball by drilling to a minimum depth of 600 mm. The soil shall contain enough moisture to hold together when compressed in the hand, but shall not be muddy.

E11.5.2 Fertilizing and pest control

- (a) Fertilizing, Pruning and Spraying Deciduous Trees and Shrubs. Because of the specialized nature of such operations, this should be done by a qualified local arborist.
- (b) Fertilize in the fall over the surface of the ground surrounding the plants, then soak the area thoroughly. Use 10-6-4 analysis fertilizer spreading a maximum of 0.13 kg per square metre.
- (c) Spray to control insect pests and diseases. Use horticulturally recommended compounds specific for the problem to be contained.

E11.5.3 Weeding

- (a) Remove all weeds in planters by hand on a weekly basis. Do not use chemical weed killer.
- (b) Remove all debris from beds, including weeds, and dispose of off Site in a legal manner.

E11.5.4 Other Maintenance

- (a) Tighten, or remove, turnbuckles or guy wires for trees as required or directed by the Contract Administrator.
- (b) Straighten trees as required and directed by the Contract Administrator.
- (c) Remove stakes and guys prior to end of maintenance.

E11.5.5 Replacements

- (a) The Contractor shall agree and guarantee to replace and replant any nursery stock found dead or in poor condition during and at the completion of the maintenance period.
- (b) All plant material to be replaced and maintained for a minimum of 30 days prior to end of maintenance period.
- (c) Replaced plant material to be maintained for two (2) years following date of replacement and is subject to the same conditions for warranty and maintenance as original planting. Where a tree has died in the same location a second time the tree hole is to be filled, the surface repaired to match surrounding area and a new location for the replacement tree determined by the Contract Administrator.
- (d) "Poor Condition" shall be interpreted as meaning nursery stock in which branches are dead or dying, or have not shown satisfactory growth of leaves.
- (e) All replacements shall be of same size and species, as specified.

**E11.5.6 Quality Assurance**

- (a) Upon the end of the maintenance period, a Site inspection shall be held. If at this time, all material and Works is satisfactory the Contract for maintenance and warranty shall be terminated. If materials and Works are found unacceptable the warranty shall be extended by 30 days for a follow up inspection. Extension of warranty will continue in 30 day increments for inspection until all Work and material are satisfactory.

**E11.6 Measurement and Payment**

- E11.6.1 Supply and installation of plant material will be measured on a unit basis and will be paid for at the Contract Unit Price per unit for "Supply and Install American Elm in prepared tree vault", measured as specified herein, which price shall be payment in full for performing all operations herein described including two year maintenance and two year warrant and all other items incidental to the Work included in this Specification.

**E12. TOPSOIL AND FINISH GRADING**

- E12.1 All work to be to City of Winnipeg specification CW3540

**E12.2 Method of Measurement and Basis of Payment**

- E12.2.1 There shall be no separate measurement for the Work associated with this Specification. Payment for Work specified under this Specification is incidental to the unit price for Sodding.

**E13. LANDSCAPE CURB**

**DESCRIPTION**

- E13.1 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 other things necessary or and incidental to the satisfactory performance and completion of all Work as hereinafter specified.

**MATERIALS**

- E13.2 The concrete shall be supplied in accordance with CSA A23.1/A23.2 with an S-2 class of exposure.

**CONSTRUCTION METHODS**

- E13.3 The Contractor shall place the concrete in accordance with CSA A23.1/A23.2.

## MEASUREMENT AND PAYMENT

- E13.4 Supply and installation of Reinforced Concrete Retaining Wall will be paid for at the Contract Unit Price per lineal metre for "Landscape Curb" measured as specified herein, which price shall be payment in full for supplying all materials and performing all operations herein described and all other items incidental to the Work included in this Specification including formwork, excavation, backfill, compacted base supplying and placing concrete and supply and placing steel.

### **E14. SIGN SUPPORT CLAMPS**

- E14.1 The Contractor shall install all new sign support clamps at the locations as shown on the Drawings or as directed by the Contract Administrator. The City shall supply all sign support clamps and parking meter poles.
- E14.2 All costs in connection with the installation of sign support clamps are incidental.

### **E15. INSTALLATION OF DETECTABLE WARNING SURFACE TILES**

#### DESCRIPTION

- E15.1 This specification covers the installation of detectable warning surface tiles in sidewalk ramps and multi-use path ramps.

#### SPECIFICATIONS AND DRAWINGS

- E15.2 Referenced Standard Construction Specifications and Standard Details
- (a) CW 3235 - Renewal of Existing Miscellaneous Concrete Slabs
  - (b) CW 3240 - Renewal of Existing Curbs
  - (c) CW 3310 - Portland Cement Concrete Pavement Works
  - (d) CW 3325 - Portland Cement Concrete Sidewalk
  - (e) SD-229C - Curb Ramp for Concrete Pavement
  - (f) SD-229D - Curb Ramp for Asphalt Overlay
- E15.3 Attached; SDE Drawings and Installation Manual
- (a) SDE-229A - Curb Ramp Layout for Intersections
  - (b) SDE-229AA - Detectable Warning Surface in Curb Ramps for Intersections
  - (c) SDE-229AB - Curb Ramp Layout for Offset Intersections
  - (d) SDE-229BB - Detectable Warning Surface in Curb Ramps for Medians
  - (e) SDE-229E - Curb Ramp Depressed Curb
  - (f) Manufacturer's Installation Manual – Armor-Tile Cast in Place Inline Dome Detectable/Tactile Warning Surface Tile.

#### MATERIALS

- E15.4 The detectable tiles will be provided by the City of Winnipeg

#### CONSTRUCTION METHODS

- E15.5 General
- E15.5.1 Construct curb ramps, sidewalk ramps and multi-use path in accordance with referenced Standard Construction Specifications, Standard Details, and SDE drawings (attached).
- E15.5.2 Construct the lip of the depressed curb in accordance with SDE-229E.

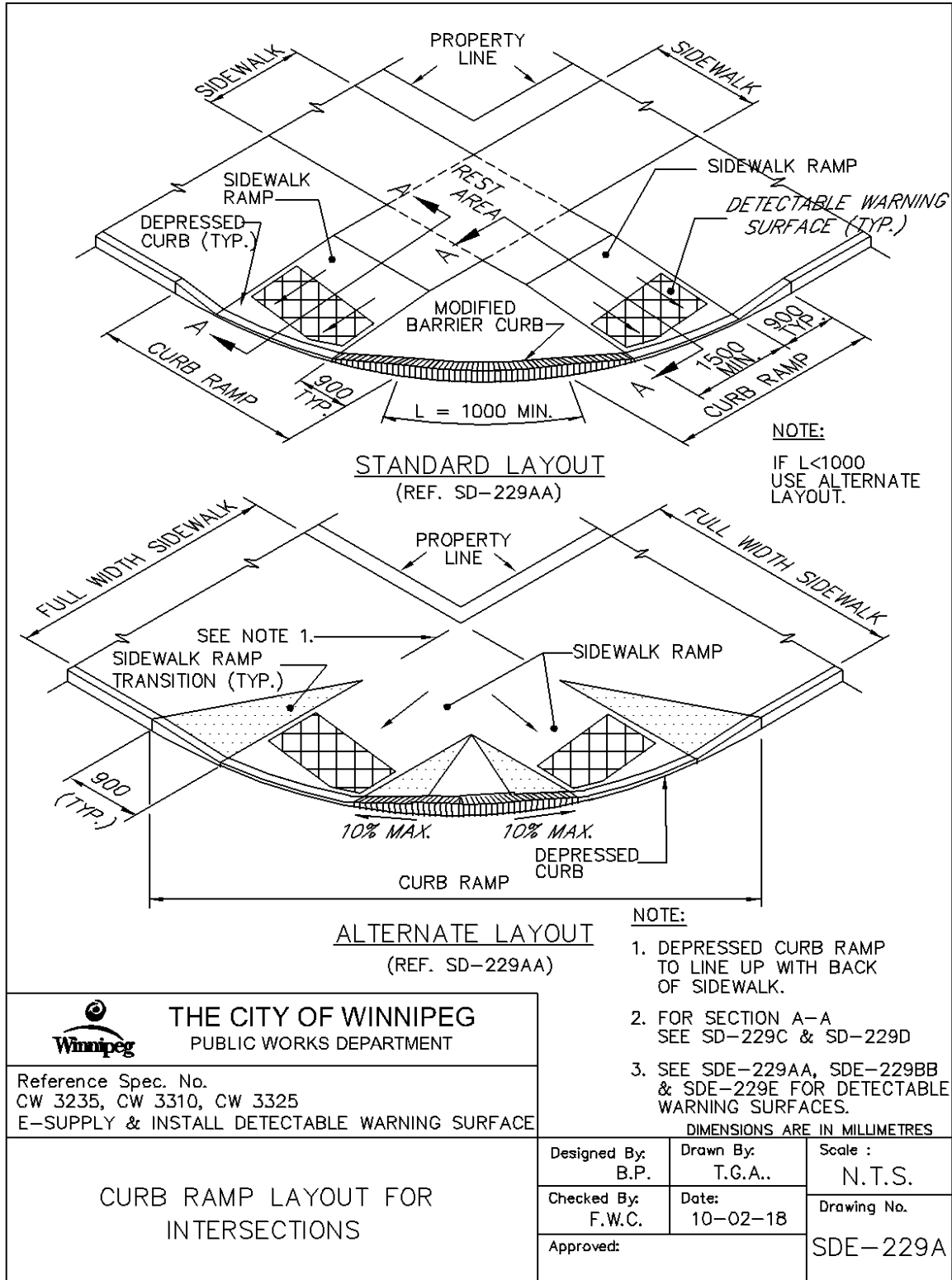
- E15.5.3 Construct sidewalk ramp grades in accordance with SD-229C and SD-229D.
- E15.5.4 Install the detectable warning surface tile in accordance with the amended Manufacturer's Installation Manual (attached). Drill additional 6mm air vent holes in ribs under the tile as required and use vibration to help seat the tile, to facilitate the installation process.
- E15.5.5 Trim the corner of the tile at radii in accordance with SDE-229A, SDE-229AA and SDE-228AB
- E15.5.6 Install and orient the detectable warning surface tiles as shown on the referenced drawings or as directed by the Contract Administrator.
- E15.6 Medians and Refuge Islands:
- E15.6.1 Where the distance from back of curb to back of curb is 1.32m or greater, install one detectable warning surface tile 50mm from the back of each curb.
- E15.6.2 Where the distance from back of curb to back of curb is less than 1.32m, leaving 50mm between the back of curb and the tile, cut the tile(s) to fill the remaining area between the curbs.
- E15.7 Multi-use Paths
- E15.7.1 Construct a curb ramp with a depressed curb to the full width of the multi-use path in accordance with SDE-229E.
- E15.7.2 Construct a concrete ramp the width of the multi-use path and a minimum of 1.50m deep from back of curb in accordance with SD-229C and SD-229D.
- E15.7.3 Install two (2) tiles in each concrete ramp, one (1) on each side for each direction. Place the short edge of each tile 150mm from the edge of the concrete ramp, with both tiles in line with each other transversely across the concrete ramp. The tile(s) nearest the curb must be 50mm from back of curb similar to tile placement in SDE-229A.
- E15.7.4 Saw cut the middle of the concrete slab, perpendicular to the curb and to a depth of D/4. Cut additional sawcuts as directed by the Contract Administrator.

#### MEASUREMENT AND PAYMENT

- E15.8 Installation of detectable warning surface tiles will be measured on a unit basis and paid for at the Contract Unit Price for "Detectable Warning Surface Tiles". The number of units to be paid for will be the total number of full or trimmed tiles supplied and installed in accordance with this specification, accepted and measured by the Contract Administrator.
- E15.8.1 The area under the detectable warning surface tile is part of the concrete sidewalk ramp and will be paid in accordance with CW 3235 and CW 3325.
- E15.8.2 The concrete sidewalk ramp and the concrete ramp for multi-use paths will be paid as 100mm sidewalk in accordance with CW 3235 or CW 3325.
- E15.8.3 Curb ramp will be paid in accordance with CW 3240 or CW 3310.

#### DRAWINGS AND INSTALLATION MANUAL



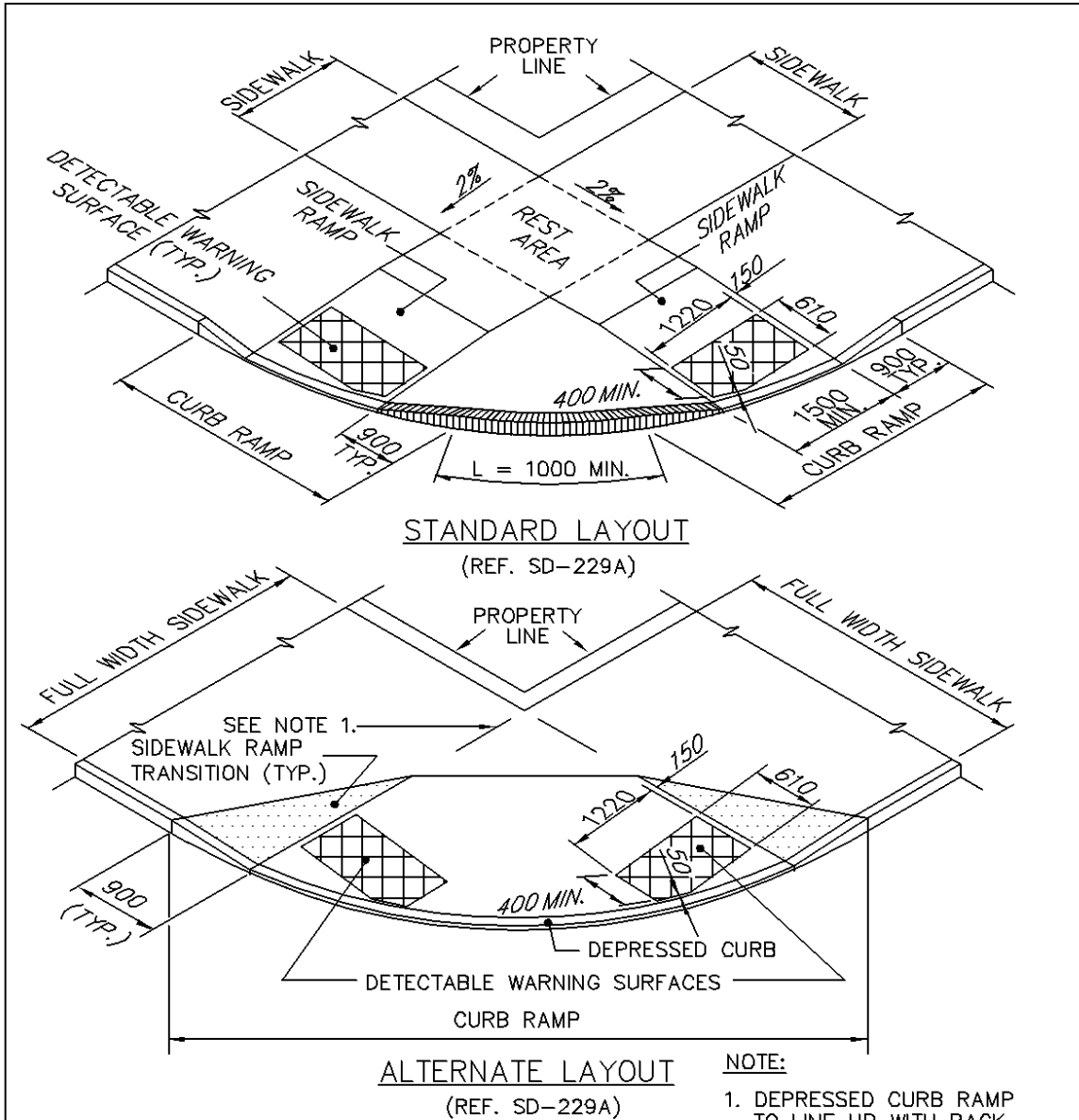


 **THE CITY OF WINNIPEG**  
 PUBLIC WORKS DEPARTMENT

Reference Spec. No.  
 CW 3235, CW 3310, CW 3325  
 E-SUPPLY & INSTALL DETECTABLE WARNING SURFACE


**CURB RAMP LAYOUT FOR INTERSECTIONS**

Designed By: B.P.	Drawn By: T.G.A.	Scale: N.T.S.
Checked By: F.W.C.	Date: 10-02-18	Drawing No. SDE-229A
Approved:		

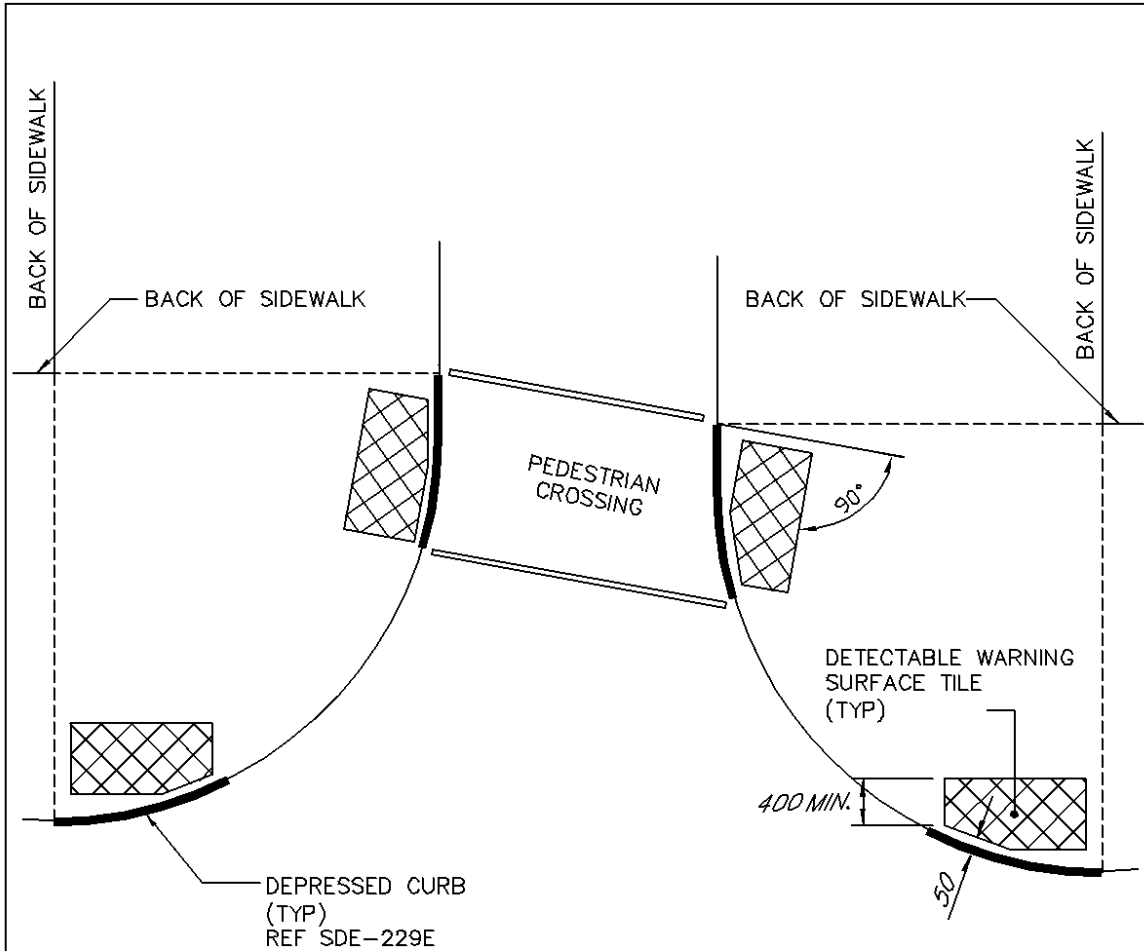


- NOTE:**
1. DEPRESSED CURB RAMP TO LINE UP WITH BACK OF SIDEWALK.
  2. FOR A 1.83m WIDE SIDEWALK USE A DETECTABLE WARNING SURFACE MEASURING 610 X 1520

DIMENSIONS ARE IN MILLIMETRES


 <p><b>THE CITY OF WINNIPEG</b>          PUBLIC WORKS DEPARTMENT</p>	Reference Spec. No. CW 3235, CW 3310, CW 3325 E-SUPPLY & INSTALL DETECTABLE WARNING SURFACE	
	<p>DETECTABLE WARNING SURFACE          IN CURB RAMPS FOR          INTERSECTIONS</p>	

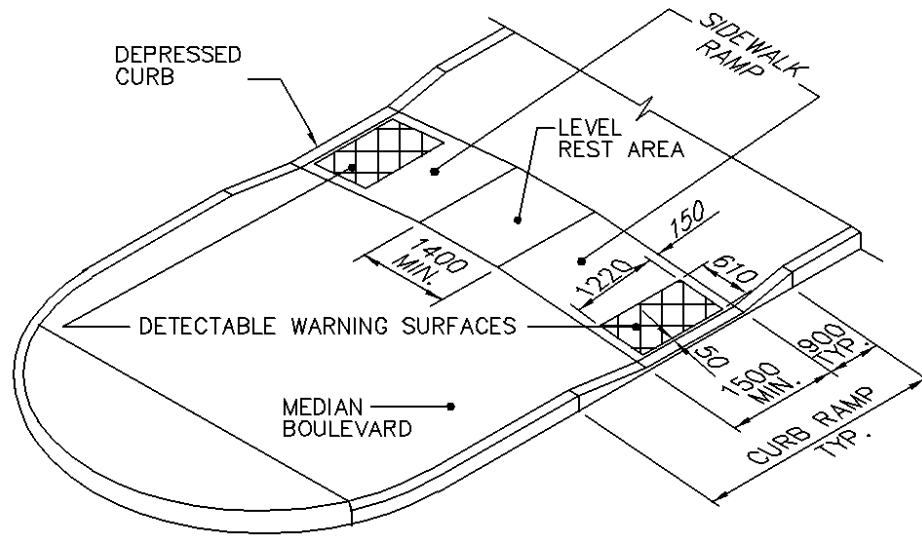
Designed By: B.P.	Drawn By: T.G.A.	Scale: N.T.S.
Checked By: F.W.C.	Date: 10-02-18	Drawing No.
Approved:		SDE-229AA



**NOTES:**

1. LOCATE GRATINGS, ACCESS COVERS AND OTHER APPURTENANCES OUTSIDE OF CURB RAMPS, DEPRESSED CURBS, CLEAR SPACE LANDINGS AND GUTTERS AS DIRECTED BY THE CONTRACT ADMINISTRATOR.
2. LOCATE END OF DEPRESSED CURB IN LINE WITH PROJECTED BACK OF SIDEWALK.


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

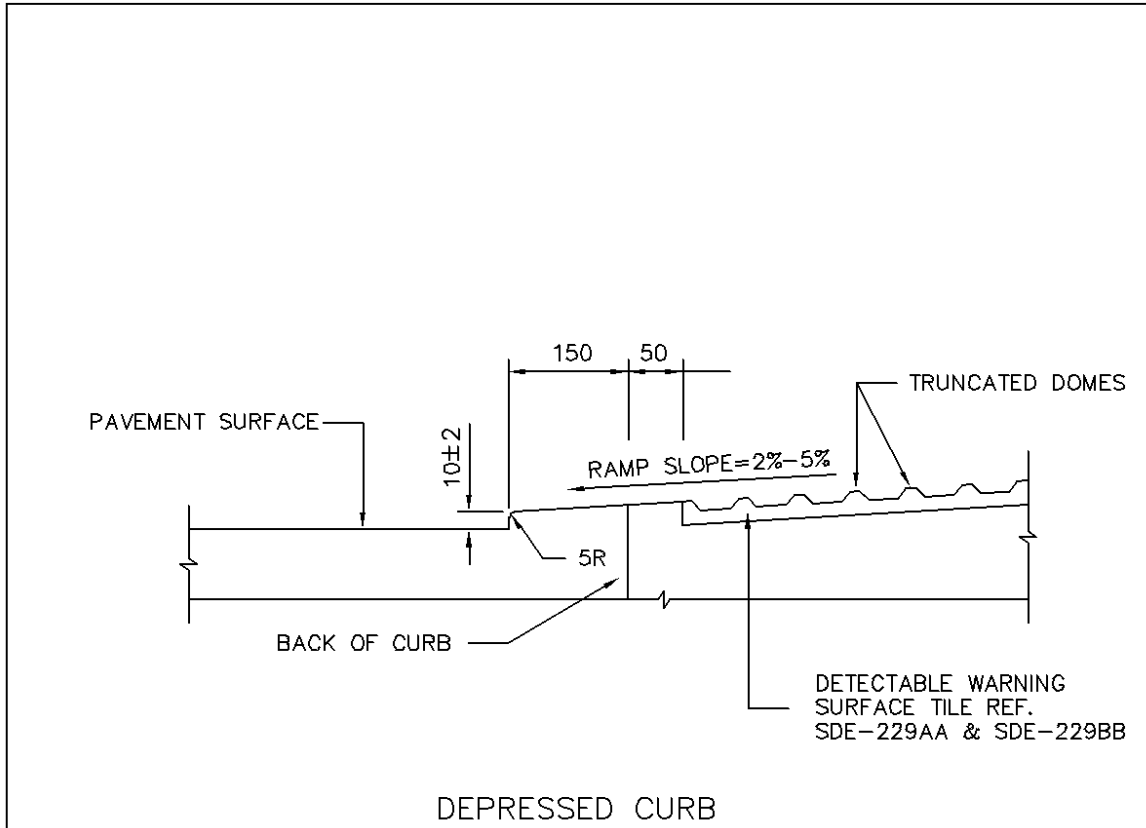


MEDIAN SIDEWALK CROSSING  
 (REF. SD-229B)

**NOTE:**


1. FOR NARROW MEDIANS AND REFUGE ISLANDS < 1.32m IN WIDTH, PLACE DETECTABLE WARNING SURFACE FULL WIDTH, MAINTAINING 50mm SPACING FROM BACK OF CURB.
2. DETECTABLE WARNING SURFACE SHALL NOT BE PLACED AT PRIVATE APPROACHES OR ALLEYS.

 <b>THE CITY OF WINNIPEG</b> PUBLIC WORKS DEPARTMENT	DIMENSIONS ARE IN MILLIMETRES		
	Reference Spec. No. CW 3235, CW 3310, CW 3325 E-SUPPLY & INSTALL DETECTABLE WARNING SURFACE	Designed By: B.P.	Drawn By: T.G.A.
DETECTABLE WARNING SURFACE IN CURB RAMPS FOR MEDIANS	Checked By: F.W.C.	Date: 10-12-18	Drawing No. SDE-229BB
	Approved:		



NOTES:

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

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

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

### Inline Dome Detectable/Tactile Warning Surface Tile

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