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Infrastructure Program**

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**THE CITY OF WINNIPEG**

# **BID OPPORTUNITY**

**BID OPPORTUNITY NO. 461-2010**

**2010 ACTIVE TRANSPORTATION – INFRASTRUCTURE STIMULUS PROGRAM:  
NORTH WINNIPEG**

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## **PART B - BIDDING PROCEDURES**

### **B1. CONTRACT TITLE**

B1.1 2010 Active Transportation – Infrastructure Stimulus Program: North Winnipeg

### **B2. SUBMISSION DEADLINE**

B2.1 The Submission Deadline is 12:00 noon Winnipeg time, July 7, 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 D4.1.

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 B14.4.3, 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.
- B14.2.1 Any bid with an apparent imbalance between the unit prices in the various Parts of the Work (A,B,C, etc.) may be determined to be non-responsive and rejected by the Award Authority in its sole discretion, acting reasonably.
- 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 six parts:

- (a) Part A – King/Flora/Charles Bike Boulevard
- (b) Part B – Powers Bike Boulevard
- (c) Part C – Manitoba/Pritchard/Flora Bike Boulevard
- (d) Part D – Church/Machray Bike Boulevard
- (e) Part E – Charles Street Reconstruction
- (f) Part F – Brazier/Roch Bike Boulevard

D2.2 Within the various Parts of the Work, there are various intersection and site areas that can be grouped into the following major types:

- (a) Curb Extensions
  - (i) King at Dufferin, Stella's Walk, and Flora
  - (ii) Powers at Mountain
  - (iii) Machray at Airlies
- (b) Curb Ramps
  - (i) Brazier at Midwinter
- (c) Median Closures
  - (i) Powers at Inkster
  - (ii) Pritchard at McPhillips
- (d) Median Refuge
  - (i) Machray at Arlington
- (e) Multi-Use Pathways
  - (i) Powers at Selkirk
  - (ii) Roch at Arby Bay
- (f) Raised Intersections
  - (i) Flora at Charles
  - (ii) Powers at Machray and Hartford
  - (iii) Pritchard at Sinclair
  - (iv) Machray at Andrews
  - (v) Roch at Neil
  - (vi) Roch at Hawthorne
- (g) Street Reconstruction
  - (i) Charles from Flora to Selkirk
- (h) Traffic Calming Circles
  - (i) Powers at Anderson
  - (ii) Pritchard at McNichol, Flora at Parr and McKenzie

- (iii) Machray at Airlies, McKenzie, and Aikins
- (iv) Roch at Larsen, Washington, Helmsdale, Linden, and Leighton

D2.3 The major components of each type of Work are generally as follows:

- (a) Curb Extensions
  - (i) Removal of existing curb and pavement
  - (ii) Installation of drainage inlets and connections
  - (iii) Construction of curb
  - (iv) Construction of sidewalk and monolithic curb and sidewalk
  - (v) Installation of detectible warning tiles (where applicable)
  - (vi) Installation of topsoil and sod
  - (vii) Placement of asphalt overlay and/or asphalt patching
- (b) Curb Ramps
  - (i) Removal of existing curb
  - (ii) Construction of curb ramps
  - (iii) Placement of asphalt patching
- (c) Median Closures
  - (i) Removal of existing curb and pavement
  - (ii) Construction of pavement structure and concrete pavement
  - (iii) Construction of curb
  - (iv) Construction of sidewalk, monolithic curb and sidewalk, and monolithic median
  - (v) Installation of detectible warning tiles (where applicable)
  - (vi) Installation of topsoil and sod
  - (vii) Placement of asphalt overlay and/or asphalt patching
- (d) Median Refuge
  - (i) Planing of existing asphalt overlay
  - (ii) Construction of monolithic median
  - (iii) Placement of asphalt overlay and/or asphalt patching
- (e) Multi-Use Pathways
  - (i) Demolition and removal of selected structures, and restoration of area (Powers at Selkirk)
  - (ii) Removal of existing sidewalk, paving stones, and other surface treatments
  - (iii) Installation of bollards
  - (iv) Construction of curb
  - (v) Construction of concrete multi-use pathways
  - (vi) Construction of sidewalk
  - (vii) Installation of detectible warning tiles (where applicable)
  - (viii) Installation of paving stones
  - (ix) Installation of topsoil and sod
  - (x) Placement of asphalt overlay and/or asphalt patching
- (f) Raised Intersections
  - (i) Planing of existing asphalt overlay
  - (ii) Removal of existing curb
  - (iii) Installation of drainage inlets and connections
  - (iv) Construction of raised concrete crosswalks
  - (v) Construction of curb
  - (vi) Construction of sidewalk and monolithic curb and sidewalk

- (vii) Installation of detectible warning tiles
- (viii) Installation of topsoil and sod
- (ix) Placement of asphalt overlay, ramps, and intersection box
- (g) Street Reconstruction
  - (i) Removal of existing curb, pavement, and sidewalk
  - (ii) Excavation for pavement structure
  - (iii) Installation of drainage inlets and connections
  - (iv) Construction of pavement structure and concrete pavement
  - (v) Construction of curb
  - (vi) Construction of sidewalk and monolithic curb and sidewalk
  - (vii) Installation of paving stones
  - (viii) Installation of topsoil and sod
  - (ix) Placement of asphalt patching
- (h) Traffic Calming Circles
  - (i) Removal of existing curb and pavement
  - (ii) Planing of existing asphalt overlay
  - (iii) Construction of pavement structure and concrete pavement for intersection radius improvements (where applicable)
  - (iv) Adjustment of manholes
  - (v) Construction of modified barrier curb
  - (vi) Construction of barrier curb and integral paving stone base
  - (vii) Construction of sidewalk and monolithic curb and sidewalk
  - (viii) Installation of paving stones
  - (ix) Installation of topsoil and sod
  - (x) Placement of asphalt patching
  - (xi) Installation of landscaping

### D3. DEFINITIONS

D3.1 When used in this Bid Opportunity:

- (a) "**Bike Boulevard**" means a shared roadway with vehicles that has been optimized through treatments such as traffic calming circles or raised intersections for cycling.
- (b) "**Curb Extension**" means a widening of the boulevard, thereby narrowing the roadway lane;
- (c) "**Median Closure**" means a physical barrier in the median of an intersection preventing through or left turn vehicle movements from the intersecting street. Median closures have openings for pedestrians and cyclists;
- (d) "**Median Refuge**" means a development of a physical median at an intersection at which pedestrians or cyclists can pause when crossing a street between opposing directions of traffic. The median refuge does not block intersecting street vehicle movements;
- (e) "**Multi-Use Pathway**" means a physically separated pathway from a roadway that is shared between cyclists and pedestrians;
- (f) "**Raised Intersection**" means the intersection box is raised 80-100 mm so that the pedestrian crosswalk areas are at grade with the adjacent boulevards. Asphalt ramps are at all legs of the intersection, resulting in a structure similar to a raised crosswalk;
- (g) "**Traffic Calming Circle**" means a raised, round median in the centre of an intersection box, along with appropriate signage to create a circulatory vehicle path in a counterclockwise direction.

**D4. CONTRACT ADMINISTRATOR**

D4.1 The Contract Administrator is Dillon Consulting Limited, represented by:

David Wiebe, P.Eng. LEED AP  
Project Manager  
200 – 895 Waverley Street  
Winnipeg MB R3T 5P4

Telephone No. (204) 453-2301  
Facsimile No. (204) 453-2301

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

**D5. CONTRACTOR'S SUPERVISOR**

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

D5.2 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 D5.1 or an alternate can be contacted twenty-four (24) hours a day to respond to an emergency.

**D6. NOTICES**

D6.1 Except as provided for in C23.2.2, all notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the Contractor shall be sent to the address or facsimile number identified by the Contractor in Paragraph 2 of Form A: Bid.

D6.2 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the City, except as expressly otherwise required in D6.3, D6.4 or elsewhere in the Contract, shall be sent to the attention of the Contract Administrator at the address or facsimile number identified in D4.1.

D6.3 Notwithstanding C21., all notices of appeal to the Chief Administrative Officer shall be sent to the attention of the Chief Financial Officer at the following 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

D6.4 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications required to be submitted or returned to the City Solicitor shall be sent to the following address or facsimile number:

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

Facsimile No.: (204) 947-9155



## **D7. FURNISHING OF DOCUMENTS**

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

## **SUBMISSIONS**

### **D8. AUTHORITY TO CARRY ON BUSINESS**

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

### **D9. SAFE WORK PLAN**

- D9.1 The Contractor shall provide the Contract Administrator with a Safe Work Plan at least five (5) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract.
- D9.2 The Safe Work Plan 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>

### **D10. INSURANCE**

- D10.1 The Contractor shall provide and maintain the following insurance coverage:
- (a) Commercial general liability insurance, in the amount of at least two million dollars (\$2,000,000.00) inclusive, with The City of Winnipeg, 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;

- D10.2 All Policies shall be taken out with insurers licensed to and carrying on business in the Province of Manitoba.
- D10.3 Deductibles shall be borne by the Contractor.
- D10.4 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.
- D10.4.1 The certificate of insurance for the commercial general liability insurance must clearly state "operations to include demolition work". (Part B: Powers at Selkirk)
- D10.5 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.
- D10.6 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.
- D10.7 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.

## **D11. PERFORMANCE SECURITY**

- D11.1 The Contractor shall provide and maintain performance security until the expiration of the warranty period in the form of:
- (a) a performance bond of a company registered to conduct the business of a surety in Manitoba, in the form attached to these Supplemental Conditions (Form H1: Performance Bond), in the amount of fifty percent (50%) of the Contract Price; or
  - (b) an irrevocable standby letter of credit issued by a bank or other financial institution registered to conduct business in Manitoba and drawn on a branch located in Winnipeg, in the form attached to these Supplemental Conditions (Form H2: Irrevocable Standby Letter of Credit), in the amount of fifty percent (50%) of the Contract Price; or
  - (c) a certified cheque or draft payable to "The City of Winnipeg", drawn on a bank or other financial institution registered to conduct business in Manitoba, in the amount of fifty percent (50%) of the Contract Price.
- D11.1.1 Where the performance security is in the form of a certified cheque or draft, it will be deposited by the City. The City will not pay any interest on certified cheques or drafts furnished as performance security.
- D11.2 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.

## **D12. SUBCONTRACTOR LIST**

- D12.1 The Contractor shall provide the Contract Administrator with a complete list of the Subcontractors whom the Contractor proposes to engage (Form J: Subcontractor List) at 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.

## **D13. DETAILED WORK SCHEDULE**

- D13.1 The Contractor shall provide the Contract Administrator with a detailed work schedule at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in the General Conditions for the return of the executed Contract.

- D13.2 The detailed work schedule shall consist of the following:
- (a) a Gantt chart for the Work acceptable to the Contract Administrator.
- D13.3 Further to D13.2(a), the Gantt chart shall show the time on a weekly basis, required to carry out the Work of each Part of the Work (A,B,C, etc.), and/or the major types of Work (raised intersections, traffic calming circles, etc.) The time shall be on the horizontal axis, and the type of trade shall be on the vertical axis.

## **SCHEDULE OF WORK**

### **D14. COMMENCEMENT**

- D14.1 The Contractor shall not commence any Work until he is in receipt of a letter of intent from the Award Authority authorizing the commencement of the Work.
- D14.2 The Contractor shall not commence any Work on the Site until:
- (a) the Contract Administrator has confirmed receipt and approval of:
    - (i) evidence of authority to carry on business specified in D8;
    - (ii) evidence of the workers compensation coverage specified in C6.15;
    - (iii) the twenty-four (24) hour emergency response phone number specified in D5.2.
    - (iv) the Safe Work Plan specified in D9;
    - (v) evidence of the insurance specified in D10;
    - (vi) the performance security specified in D11;
    - (vii) the subcontractor list specified in D12; and
    - (viii) the detailed work schedule specified in D13.
  - (b) the Contractor has attended a pre-construction meeting with the Contract Administrator, or the Contract Administrator has waived the requirement for a pre-construction meeting.
- D14.3 The Contractor shall commence the Work on the Site within seven (7) Working Days of receipt of the letter of intent.
- D14.4 The City intends to award this Contract by July 19, 2010
- D14.4.1 If the actual date of award is later than the intended date, the dates specified for Critical Stages, Substantial Performance, and Total Performance will be adjusted by the difference between the aforementioned intended and actual dates.

### **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) MB Hydro – Adjustment of manholes or other appurtenances affected by the Work;
  - (b) MTS – Adjustment of manholes or other appurtenances affected by the Work;
  - (c) City of Winnipeg Traffic Services Branch – Adjustment/replacement of signage and/or line painting;

## **D17. SEQUENCE OF WORK**

- D17.1.1 Immediately following the completion of the asphaltic concrete works of Phase I, the Contractor shall clean up the Site and remove all plant, surplus material, waste and debris, other than that left by the City or other Contractors.
- D17.1 Further to C6.1, the sequence of Work shall be as follows:
- D17.1.1 Construction activity is to be limited to ten (10) intersections or site areas at a time. No construction shall commence on subsequent intersections or sites until all Work, excluding topsoil, sod, or landscaping is completed on sites under construction.
- D17.1.2 Where the Contractor utilizes two (2) or more crews that work independently on the same major component of the Work as identified in D2, the Contract Administrator may approve an increase to the maximum number of streets under construction at any time.
- D17.1.3 Immediately following the completion of an intersection or site area, the Contractor shall clean up the Site and remove all plant, surplus material, waste and debris, other than that left by the City or other Contractors.
- D17.1.4 The Contractor should note that more than once concrete crew may be required at any one time to complete the Work by the specified dates.

## **D18. CRITICAL STAGES**

- D18.1 The Contractor shall achieve critical stages of the Work in accordance with the following requirements:
- (a) The raised intersections at Flora at Charles, Powers at Machray, Pritchard at Sinclair, and Machray at Andrews must be open to traffic and pedestrians by September 3, 2010.
  - (b) The multi-use path at Roch at Arby Bay must be open to pedestrians and cyclists by September 3, 2010.
- D18.2 The date on which the Work listed in D18.1 has been accepted by the Contract Administrator as being completed to the requirements listed is the date on which completion of the Work listed in D18.1 has been achieved.

## **D19. SUBSTANTIAL PERFORMANCE**

- D19.1 The Contractor shall achieve Substantial Performance by October 8, 2010.
- D19.2 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.
- D19.3 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.

## **D20. TOTAL PERFORMANCE**

- D20.1 The Contractor shall achieve Total Performance by October 15, 2010.
- D20.2 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.

D20.3 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.

#### **D21. LIQUIDATED DAMAGES**

D21.1 If the Contractor fails to achieve Critical Stages, or Total Performance in accordance with the Contract by the days fixed herein for same, the Contractor shall pay the City the following amounts per Calendar Day for each and every Calendar Day following the days fixed herein for same during which such failure continues:

- (a) Any Critical Stage items listed in D18.1 – One thousand, five hundred dollars (\$1,500);
- (b) Total Performance - Two thousand, nine hundred dollars (\$2,900).

D21.2 The amounts specified for liquidated damages in D21.1 are based on a genuine pre-estimate of the City's losses in the event that the Contractor does not achieve critical stages, Substantial Performance or Total Performance by the days fixed herein for same.

D21.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

#### **D22. SCHEDULED MAINTENANCE**

D22.1 The Contractor shall perform the following scheduled maintenance in the manner and within the time periods required by the Specifications:

- (a) Sod maintenance as specified in CW 3510;
- (b) Reflective Crack Maintenance during warranty period as specified in CW 3250;
- (c) Plant Material Extended Maintenance as specified in E18.

D22.2 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**

#### **D23. JOB MEETINGS**

D23.1 Regular weekly job meetings will be held at the Site. These meetings shall be attended by a minimum of one representative of the Contract Administrator, one representative of the City and one representative of the Contractor. Each representative shall be a responsible person capable of expressing the position of the Contract Administrator, the City and the Contractor respectively on any matter discussed at the meeting including the Work schedule and the need to make any revisions to the Work schedule. The progress of the Work will be reviewed at each of these meetings.

D23.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever he deems it necessary.

#### **D24. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)**

D24.1 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**

### **D25. WARRANTY**

- D25.1 Notwithstanding C13.2, the warranty period shall begin on the date of Total Performance and shall expire one (1) year thereafter, except where longer warranty periods are specified in the respective Specification sections, unless extended pursuant to C13.2.1 or C13.2.2, in which case it shall expire when provided for thereunder.
- D25.1.1 For the purpose of Performance Security, the warranty period shall be one (1) year.
- D25.2 Notwithstanding C13.2, the Contract Administrator may permit the warranty period for a portion or portions of the Work to begin prior to the date of Total Performance if a portion of the Work cannot be completed because of unseasonable weather or other conditions reasonably beyond the control of the Contractor but that portion does not prevent the balance of the Work from being put to its intended use.
- D25.2.1 In such case, the date specified by the Contract Administrator for the warranty period to begin shall be substituted for the date specified in C13.2 for the warranty period to begin.

**FORM H1: PERFORMANCE BOND**  
(See D11)

KNOW ALL MEN BY THESE PRESENTS THAT

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

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

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

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

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

BID OPPORTUNITY NO. 461-2010

2010 Active Transportation – Infrastructure Stimulus Program: North Winnipeg  
which is by reference made part hereof and is hereinafter referred to as the "Contract".

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

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

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

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

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

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

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

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

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

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

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

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

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



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

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

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

RE: PERFORMANCE SECURITY – BID OPPORTUNITY NO. 461-2010

2010 Active Transportation – Infrastructure Stimulus Program: North Winnipeg

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)

**FORM J: SUBCONTRACTOR LIST**  
(See D12)

2010 Active Transportation – Infrastructure Stimulus Program: North Winnipeg

<u>Portion of the Work</u>	<u>Name</u>	<u>Address</u>
<b>SUPPLY OF MATERIALS:</b>		
Concrete		
Asphalt		
Base Course & Sub Base		
Catchbasins/Manholes/Drainage Pipe		
Paving Stones		
Landscaping		
<b>INSTALLATION/CONSTRUCTION:</b>		
Asphalt Planing		
Demolition (Powers at Selkirk)		
Concrete		
Asphalt		
Base Course & Sub Base		
Catchbasins/Manholes/Drainage Pipe		
Paving Stones		
Landscaping		

## 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-378-01	Cover Sheet	A1
W-378-02	Active Transportation Network Overview (1 of 2)	A1
W-378-03	Active Transportation Network Overview (2 of 2)	A1
W-378-04	King-Flora-Charles (1 of 1)	A1
W-378-05	Powers (1 of 2 )	A1
W-378-06	Powers (2 of 2)	A1
W-378-07	Manitoba-Pritchard-Flora (1 of 2)	A1
W-378-08	Manitoba-Pritchard-Flora (2 of 2)	A1
W-378-09	Church-Machray (1 of 2)	A1
W-378-10	Church-Machray (2 of 2)	A1
P-3323-11	Charles Street Reconstruction	A1
W-378-12	Brazier-Roch (1 of 3)	A1
W-378-13	Brazier-Roch (2 of 3)	A1
W-378-14	Brazier-Roch (3 of 3)	A1
W-378-15	Details (1 of 2)	A1
W-378-16	Details (2 of 2)	A1

#### E2. GEOTECHNICAL REPORT

- E2.1 Further to C3.1, a geotechnical report is provided to aid the Contractor's evaluation of existing soil conditions in Part E. The geotechnical report is contained in Appendix 'A'.

#### E3. PROTECTION OF EXISTING TREES

- E3.1 The Contractor shall take the following precautionary steps to prevent damage from construction activities to existing boulevard trees within the limits of the construction area:
- The Contractor shall not stockpile materials and soil or park vehicles and equipment on boulevards within 2 metres of trees.
  - Trees identified to be at risk by the Contract Administrator are to be strapped with 25 x 100 x 2400mm wood planks, or suitably protected as approved by the Contract Administrator.
  - Excavation shall be performed in a manner that minimizes damage to the existing root systems. Where possible, excavation shall be carried out such that the edge of the

excavation shall be a minimum of 1.5 times the diameter (measured in inches), with the outcome read in feet, from the closest edge of the trunk. Where roots must be cut to facilitate excavation, they shall be pruned neatly at the face of excavation.

- (d) Operation of equipment within the 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.
- (e) 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.

E3.2 All damage to existing trees caused by the Contractor's activities shall be repaired to the requirements and satisfaction of the Contract Administrator and the City Forester or his designate.

E3.3 No separate measurement or payment will be made for the protection of trees.

E3.4 Except as required in clause E3.1(c) and E3.1(e), Elm trees shall not be pruned at any time between April 1 and July 31.

#### **E4. TRAFFIC CONTROL**

E4.1 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.

#### **E5. TRAFFIC MANAGEMENT**

E5.1 Further to clause 3.7 of CW 1130:

E5.1.1 Traffic Management is unique for each site, and are grouped into the major types of work listed in D2.2:

- (a) Curb Extensions
  - (i) Maintain a minimum of one lane for local access traffic during construction.
  - (ii) Remove materials and equipment at end of work day to provide two lanes for local access traffic.
  - (iii) At Powers at Mountain, maintain one lane of traffic eastbound, and one lane of traffic westbound at all times.
- (b) Curb Ramps
  - (i) At Brazier at Midwinter, maintain two lanes of traffic during construction.
- (c) Median Closures
  - (i) At Powers at Inkster, maintain one lane of traffic eastbound, and one lane of traffic westbound at all times. Maintain access to Powers as a "right in/right out only".
  - (ii) At Pritchard at McPhillips, maintain three lanes of traffic southbound between 0700 – 0900 hours and three lanes of traffic northbound between 1530 – 1730 hours. In all other hours, maintain two lanes in either direction. Maintain a

minimum of 40 metres for the southbound left turn storage lane at McPhillips at Selkirk. Maintain access to Pritchard as a “right in/right out only”.

- (d) Median Refuge
  - (i) At Machray at Arlington, maintain one lane of traffic southbound on Arlington at all times.
  - (ii) Sign northbound Arlington as “Road Closed – Local Access Only” at Church Avenue. Sign westbound Machray as “Road Closed – Local Access Only” at Garlies Street. Maintain access to west leg of Machray as a “right in/right out only”.
  - (iii) Co-ordinate Work with Traffic Services, who will provide northbound Truck Route re-routing signage for duration of construction.
- (e) Multi-Use Pathways
  - (i) At Powers at Selkirk, maintain two lanes of traffic on Selkirk Avenue at all times.
  - (ii) At Roch at Arby Bay, maintain two lanes of traffic on Springfield Road at all times.
- (f) Raised Intersections
  - (i) For the duration of construction, the Contractor can close all legs of the intersection to vehicular traffic. With permission from the Contract Administrator, the Contractor may close all sidewalks leading to the raised intersection as well.
  - (ii) Sign each approach leg leading to the intersection at the last cross street with “Road Closed – Local Access Only”.
- (g) Street Reconstruction
  - (i) At Charles from Flora to Selkirk, sign each approach leg leading to the intersection at the last cross street with “Road Closed”. Sign all sidewalks on Charles Street as “Sidewalk Closed”
- (h) Traffic Calming Circles
  - (i) Maintain a minimum of one lane for local access traffic during construction.
  - (ii) Protect the traffic calming circle with barricades for the duration of construction.

E5.1.2 Co-ordinate traffic management with City Traffic Services Branch regarding temporary and permanent parking/no-stopping zones to facilitate construction.

E5.1.3 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.

E5.1.4 Pedestrian access must be maintained on one side of the roadway at all times unless approved by the Contract Administrator. On either side of sidewalks under construction, the sidewalk must be signed “Sidewalk Closed” at the nearest cross-street.

E5.1.5 Ambulance/emergency vehicle access must be maintained at all times.

## **E6. REFUSE AND RECYCLING COLLECTION**

E6.1 While access to refuse and/or recycling collection vehicles is restricted, on collection day(s) the Contractor shall move all of the affected property owners refuse and/or recycling materials to a nearby common area, prior to an established time, in accordance with E6.2 to permit the normal collection vehicles to collect the materials. Immediately following recycling collection the Contractor shall return recycling receptacles to the addresses marked on the receptacles.

E6.2 Collection Schedule:

**Charles Street – Flora to Selkirk.**

<i>Collection Day(s):</i>	<b>Day 4 for Single family residential, Wednesdays and Saturdays for Canadian Polish Manor bins.</b>
<i>Collection Time:</i>	<b>9:00 am to 6:00 pm</b>
<i>Common Collection Area:</i>	<b>Single family residential (max 2 homes) move to south sidewalk of Selkirk Avenue. Canadian Polish Manor bins to be determined with Manitoba Housing.</b>

E6.3 No measurement or payment will be made for the work associated with this specification.

**E7. PEDESTRIAN SAFETY**

E7.1 During the project, temporary snow fence shall be installed where necessary if there is a steep drop-off adjacent to a sidewalk. The Contractor shall be responsible for maintaining the snow fence in a proper working condition. No measurement for payment shall be made for this work.

**E8. WATER OBTAINED FROM THE CITY**

E8.1 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.

**E9. SURFACE RESTORATIONS**

E9.1 Further to clause 3.3 of CW 1130, when Total Performance is not achieved in the year the Contract is commenced, the Contractor shall temporarily repair any Work commenced and not completed to the satisfaction of the Contract Administrator. The Contractor shall maintain the temporary repairs in a safe condition as determined by the Contract Administrator until permanent repairs are completed. The Contractor shall bear all costs associated with temporary repairs and their maintenance.

**E10. RECYCLED CONCRETE BASE COURSE MATERIAL**

DESCRIPTION

E10.1 General

E10.1.1 Further to CW 3110, this specification covers recycled concrete as base course material.

E10.2 Definitions

(a) Deleterious material – are materials such as vegetation, organic material, wood, glass, plastic, metal, reinforcing steel, building rubble, brick, salvaged asphalt materials, clay, shale, and friable particles.

E10.3 Referenced Standard Construction Specifications

(a) CW 3110 – Sub-Grade, Sub-Base, and Base Course Construction

MATERIALS

E10.4 Recycled Concrete Base Course Material

(a) Recycled concrete base course material must meet the approval of the Contract Administrator.

(b) Recycled concrete base course material will consist of sound durable particles produced by crushing, screening, and grading of recovered concrete materials, free from soft material that would disintegrate through decay or weathering.

- (c) Recycled concrete base course material will be well graded and conform to the following grading requirements:

Recycled Concrete Base Course Material Grading Requirements

CANADIAN METRIC SIEVE SIZE	PERCENT OF TOTAL DRY WEIGHT PASSING EACH SIEVE
20 000	100%
5 000	40% - 70%
2 500	25% - 60%
315	8% - 25%
80	6% - 17%

- (d) Recycled concrete base course material when subjected to the abrasion test will have a loss of not more than 35% when tested in accordance with grading B of ASTM C131, Test for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
- (e) The amount of deleterious material will be limited to a maximum of two percent of the total dry weight.

CONSTRUCTION METHODS

E10.5 Placement of Recycled Concrete Base Course Material

- (a) Spread materials uniformly to avoid segregation free of pockets of fine and coarse material.
- (b) Place and compact recycled concrete base course material to a minimum 75 millimetres in thickness for pavement, approaches and asphalt pathways to a minimum of 100% Standard Proctor Density for the full width of the excavation unless otherwise shown on the Drawings or as directed by the Contract Administrator.
- (c) Maintain the finished material until the hard surfacing is placed.

MEASUREMENT AND PAYMENT

E10.6 Recycled Concrete Base Course Material

- (a) Recycled concrete base course material will be paid as Base Course Material in accordance with CW 3110.

**E11. SUPPLY AND INSTALL DETECTABLE WARNING SURFACE TILES**

DESCRIPTION

- E11.1 This specification covers the supply and installation of detectable warning surface tiles in sidewalk ramps and multi-use path ramps.

SPECIFICATIONS AND DRAWINGS

E11.2 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

- E11.3 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

E11.4 Acceptable Detectable Warning Surface Tile product is:

2'x 4' (610 x 1220mm) Armor-Tile Cast in Place (yellow).

Available from:

Engineered Plastics Inc.  
1400 Cornwall Road Unit 6  
Oakville, Ontario L6J 7W5

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

or

Alsip's Building Products  
1 Cole Avenue  
Winnipeg, Manitoba

Attention: Jason Alsip  
Ph. 204-667-3330

- E11.4.1 Detectable warning surface tiles shall be Highway Yellow (USA) or Safety Yellow (Canada).
- E11.4.2 Detectable warning surface tiles shall be cast in place type.
- E11.4.3 Truncated domes on detectable warning surface tiles shall be in accordance with ADA Accessibility Guidelines (ADAAG).

#### CONSTRUCTION METHODS

E11.5 General

- (a) Construct curb ramps, sidewalk ramps and multi-use path in accordance with referenced Standard Construction Specifications, Standard Details, and SDE drawings (attached).
- (b) Construct the lip of the depressed curb in accordance with SDE-229E.
- (c) Construct sidewalk ramp grades in accordance with SD-229C and SD-229D.
- (d) 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.
- (e) Trim the corner of the tile at radii in accordance with SDE-229A, SDE-229AA and SDE-228AB
- (f) Install and orient the detectable warning surface tiles as shown on the referenced drawings or as directed by the Contract Administrator.

**E11.6 Medians and Refuge Islands:**

- (a) 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.
- (b) 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.

**E11.7 Multi-use Paths**

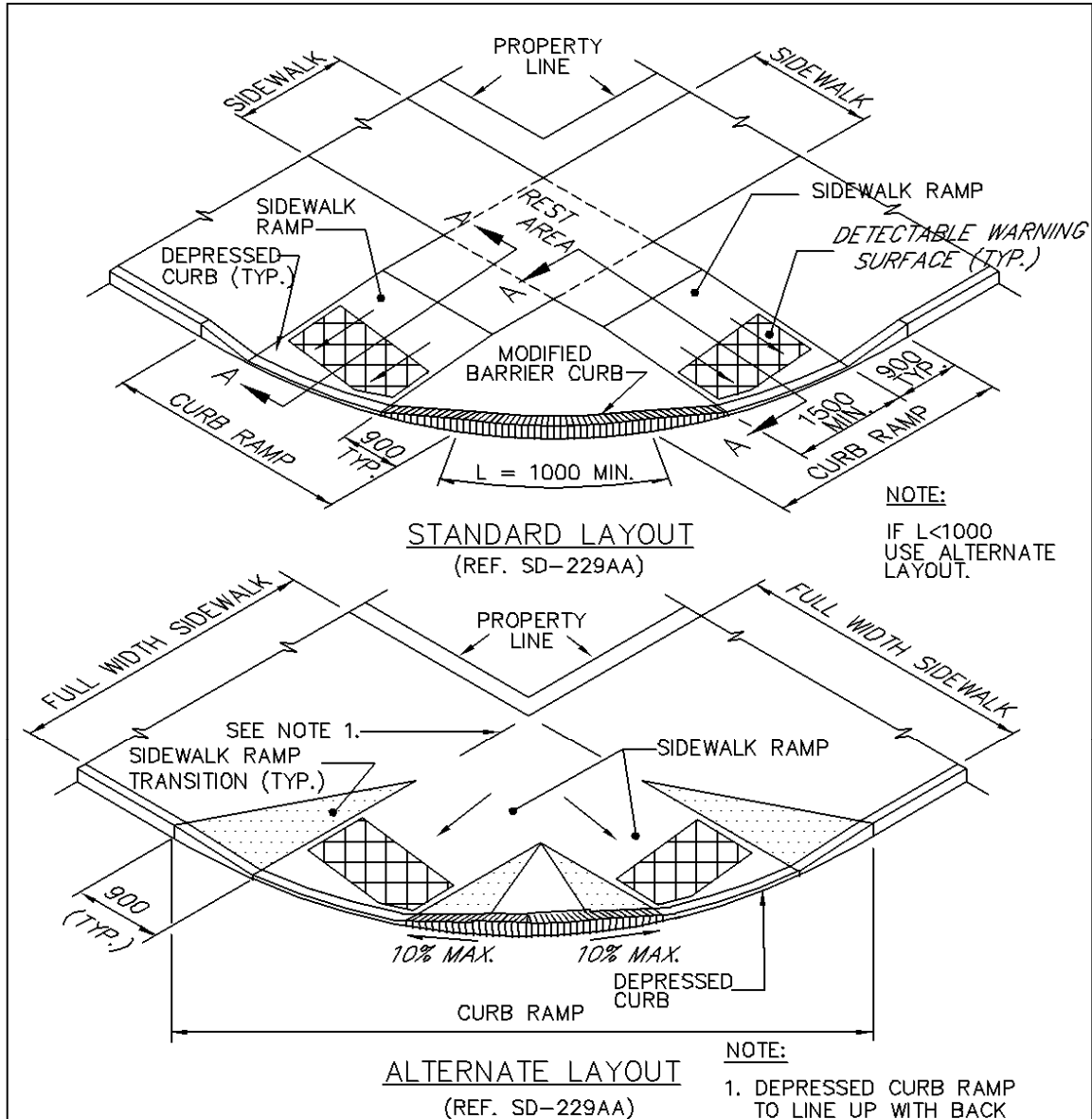
- (a) Construct a curb ramp with a depressed curb to the full width of the multi-use path in accordance with SDE-229E.
- (b) Construct a concrete ramp the width of the multi-use path and a minimum of 1.50m deep from back of curb in accordance with SD-229C and SD-229D.
- (c) Install two (2) tiles in each 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.
- (d) 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**

**E11.8** Supply and installation of detectable warning surface tiles will be measured on a unit basis and paid for at the Contract Unit Price for "Detectable Warning Surface Tiles". The number of units to be paid for will be the total number of full or trimmed tiles supplied and installed in accordance with this specification, accepted and measured by the Contract Administrator.

- (a) 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.
- (b) 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.
- (c) Curb ramp will be paid in accordance with CW 3240 or CW 3310.

**DRAWINGS AND MANUFACTURER INSTALLATION MANUAL FOLLOWS**



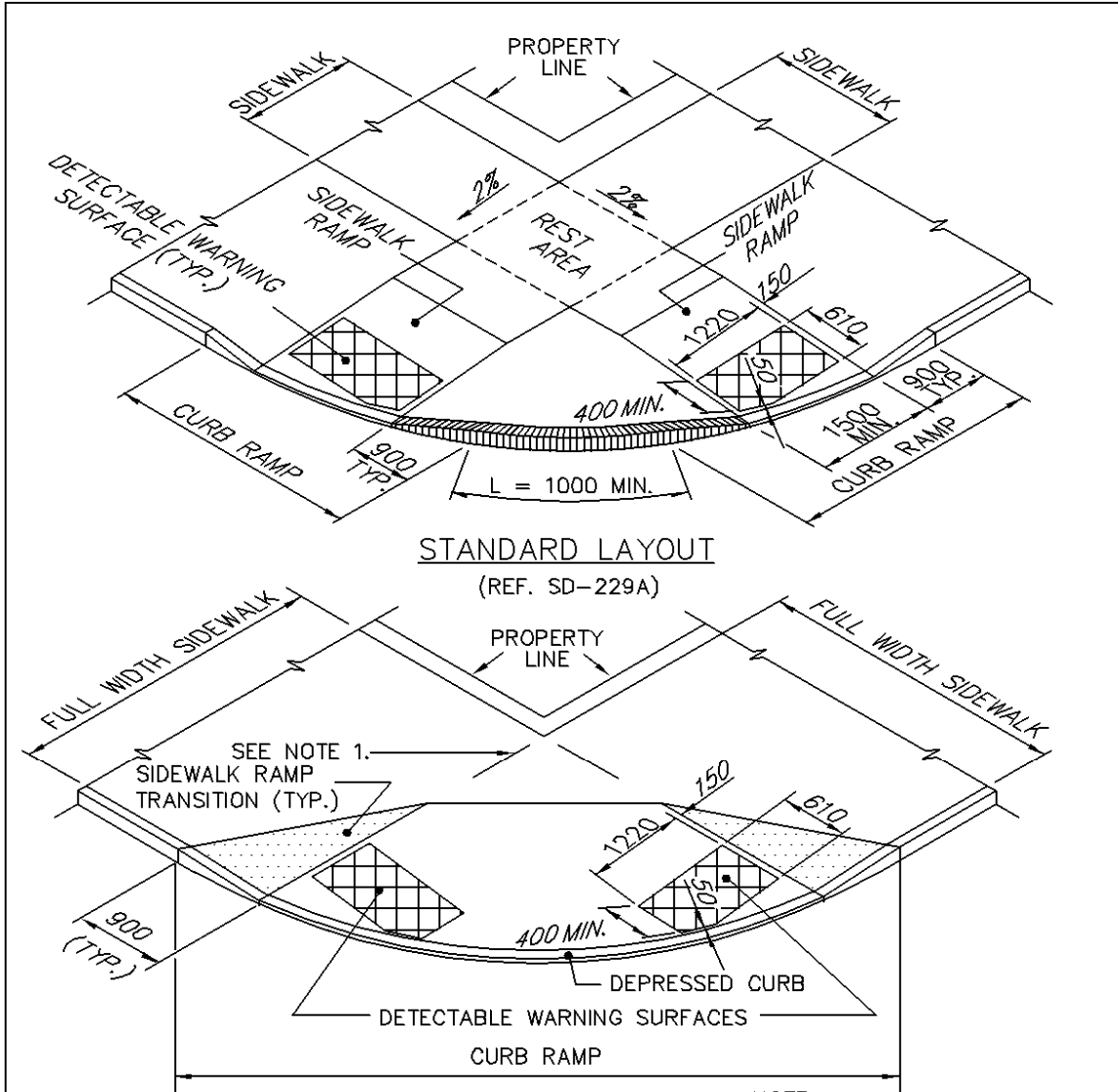
- NOTE:**
1. DEPRESSED CURB RAMP TO LINE UP WITH BACK OF SIDEWALK.
  2. FOR SECTION A-A SEE SD-229C & SD-229D
  3. SEE SDE-229AA, SDE-229BB & SDE-229E FOR DETECTABLE WARNING SURFACES.
- DIMENSIONS ARE IN MILLIMETRES

 **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.
Approved:		SDE-229A




**STANDARD LAYOUT**  
 (REF. SD-229A)

**ALTERNATE LAYOUT**  
 (REF. SD-229A)

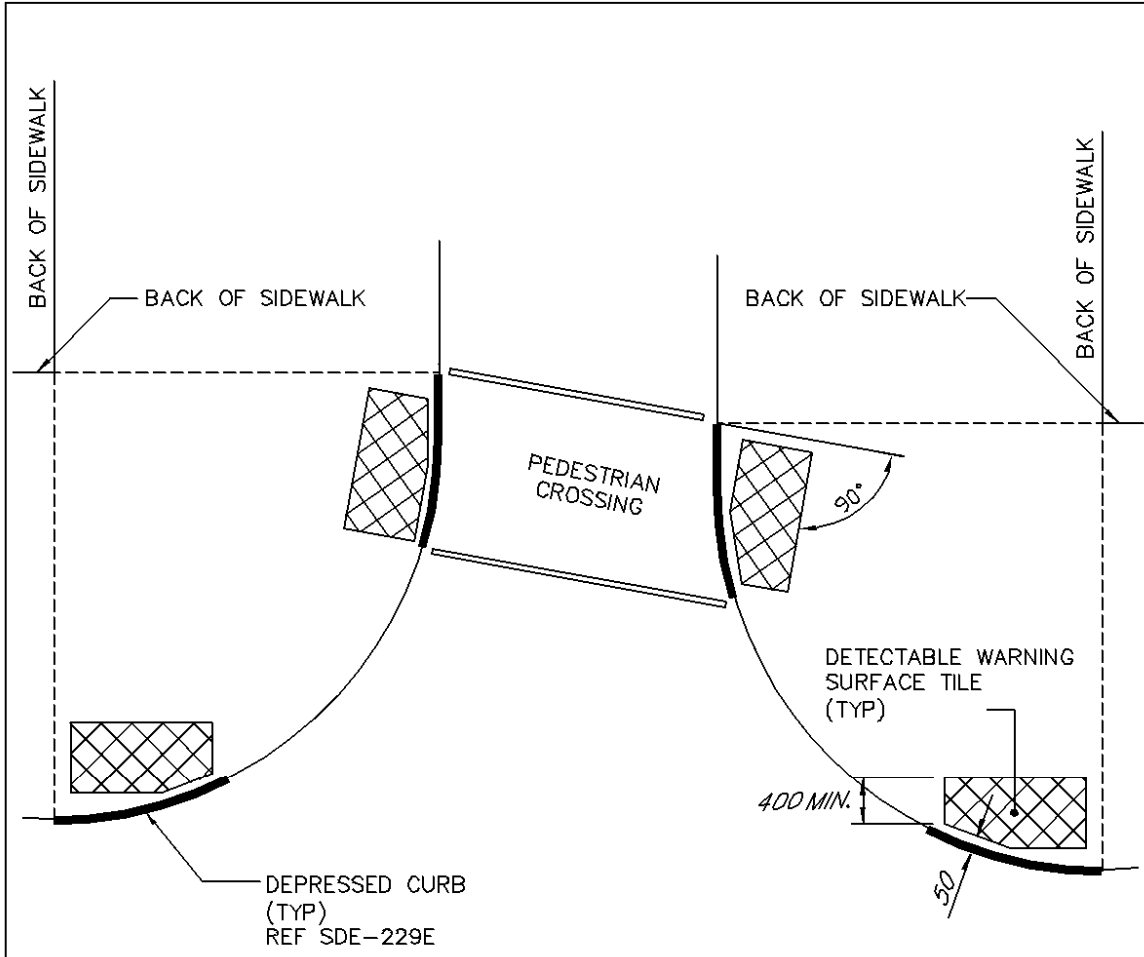
**NOTE:**

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>	

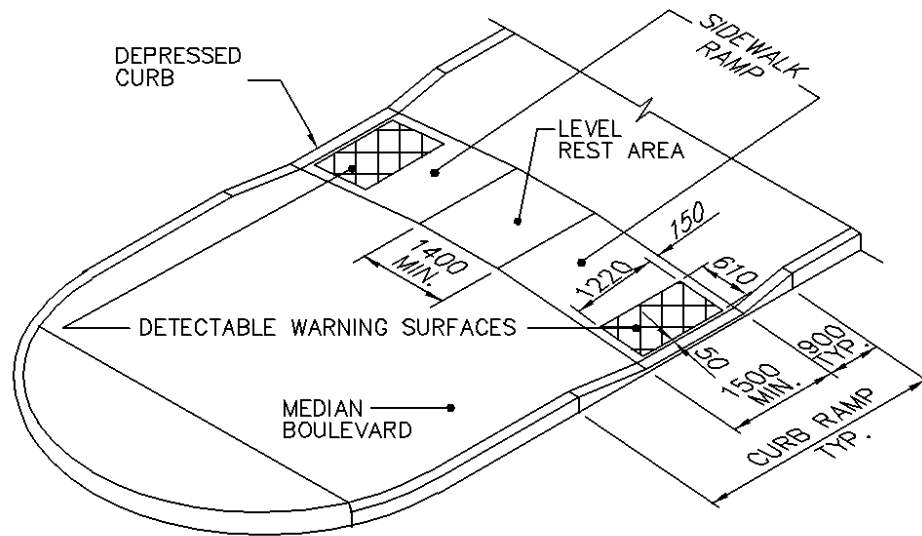
Designed By: B.P.	Drawn By: T.G.A.	Scale: N.T.S.
Checked By: F.W.C.	Date: 10-02-18	Drawing No.
Approved:		SDE-229AA



**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
		Scale : N.T.S.	
		Drawing No. SDE-229AB	
		Approved:	

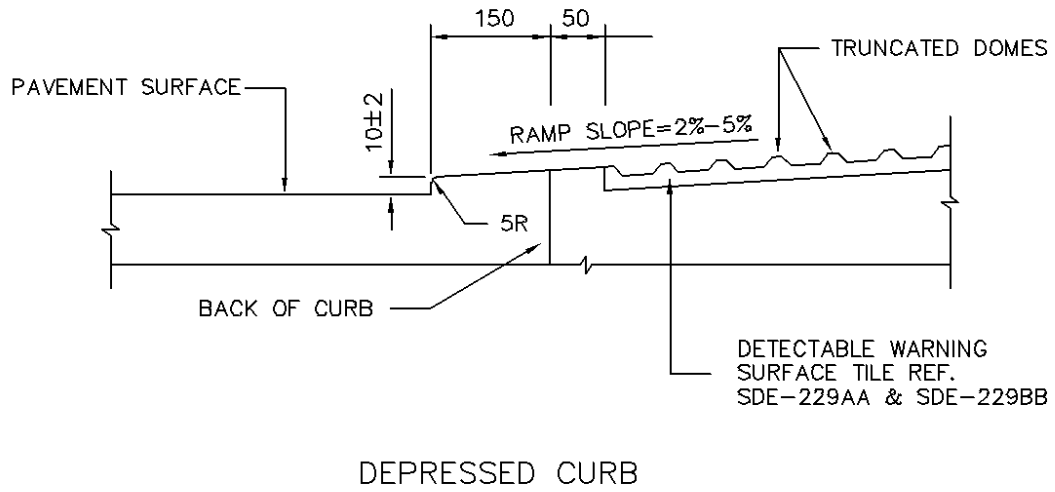


MEDIAN SIDEWALK CROSSING  
 (REF. SD-229B)

**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.	Scale : N.T.S.
DETECTABLE WARNING SURFACE IN CURB RAMPS FOR MEDIANS		Checked By: F.W.C.	Date: 10-12-18	Drawing No. SDE-229BB
		Approved:		



DEPRESSED CURB

NOTES:

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

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

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

### Inline Dome Detectable/Tactile Warning Surface Tile

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



## **E12. RAISED INTERSECTIONS**

### **E12.1 Description**

#### **E12.1.1 General**

- (a) This specification covers the construction of various non-standard items as part of a raised intersection. This includes the asphalt ramps at each approach, the raised concrete crosswalk, and asphalt pavement in the centre of the intersection box.
- (b) Referenced Standard Construction Specifications:
  - (i) CW 3230 – Full-Depth Patching of Existing Pavement Slabs and Joints
  - (ii) CW 3235 – Renewal of Existing Miscellaneous Concrete Slabs
  - (iii) CW 3240 – Renewal of Existing Curbs
  - (iv) CW 3310 – Portland Cement Concrete Pavement Works
  - (v) CW 3325 – Portland Cement Concrete Sidewalk
  - (vi) CW 3410 – Asphaltic Concrete Pavement Works
  - (vii) CW 3450 – Planing of Pavement

#### **E12.2 Materials**

- (a) Base course material as per CW 3110.
- (b) Concrete materials as per Clause 6.2 CW 3310. Raised concrete crosswalks are considered pavements and are thus Type 1 (32 MPa)
- (c) Reinforcing steel as per CW 3310.
- (d) Bonding grout as per CW 3310.
- (e) Asphalt materials including asphaltic concrete pavement, tack coat, and other incidental materials as per CW 3410. Asphalt concrete paving mix to be Type 1A (surface course)

#### **E12.3 Construction Methods**

##### **E12.3.1 Planing of Pavement**

- (a) Existing asphalt overlay shall be saw-cut and planed at limits shown on the Contract Drawings. Plane asphalt overlay full depth to underlying concrete pavement.
- (b) Mechanically sweep planed surface.
- (c) Perform pavement repairs in accordance with CW 3230.
- (d) Maintain or re-sawcut edge to satisfaction of Contract Administrator before installation of new asphalt overlay.

##### **E12.3.2 Raised Concrete Crosswalks**

- (a) Install reinforcing steel as per Clause 3.3 of CW 3240 and to dimensions shown on the Contract Drawings.
- (b) Apply bonding grout to surface of existing concrete pavement immediately prior to concrete placement.
- (c) Supply and place concrete as per Clause 9 of CW 3310 and to dimensions shown on the Contract Drawings.
- (d) Where existing concrete pavement joints are present under the raised concrete crosswalk, including the pavement longitudinal joint, or any transverse joints, a joint shall be sawn overtop in the raised concrete crosswalk, and sealed as per SD-212.

##### **E12.3.3 Monolithic Curb and Sidewalk, Sidewalk, and Curb Construction**

- (a) Construct monolithic curb and sidewalk and sidewalk as per CW 3235 and to dimensions shown on the Contract Drawings.

- (b) Construct various curb types as per CW 3240.

#### E12.3.4 Asphaltic Concrete Overlay

- (a) Place tack coat as per Clause 9.2 of CW 3410. Tack the vertical walls of the raised concrete crosswalks.
- (b) Place and compact asphalt pavement as per Clause 9 of CW 3410. Do not place in lifts greater than 75 mm in the intersection box. Asphalt ramps may be placed in one lift.
- (c) Construct asphalt ramps including sinusoidal profile as per Contract Drawings.

#### E12.4 Measurement and Payment

##### E12.4.1 Raised Concrete Crosswalks

- (a) The construction of raised concrete crosswalks will be measured on an area basis per square metre paid for at the Contract Unit Price for "Raised Concrete Crosswalks". The amount to be paid for will be the total square metres of raised concrete crosswalk constructed in accordance with this specification, accepted and measured by the Contract Administrator.

##### E12.4.2 Asphaltic Concrete Overlay

- (a) The asphalt pavement and incidental materials, including the asphalt ramps and asphalt in the intersection box will be measured and paid in accordance with Clause 13.2 ii) of CW 3410 as "Tie-ins and Approaches".

##### E12.4.3 General

- (a) All other items of work related to the construction of raised intersections, including but not limited to planing, concrete curbs, sidewalks, topsoil and sod, and detectible warning tiles will be measured and paid for in accordance with their applicable specifications.

### E13. TRAFFIC CALMING CIRCLES

#### E13.1 Description

##### E13.1.1 General

- (a) This specification covers the construction of various non-standard items as part of a traffic calming circle. This includes a barrier curb with integral paving stone base.
- (b) Referenced Standard Construction Specifications:
  - (i) CW 3230 – Full-Depth Patching of Existing Pavement Slabs and Joints
  - (ii) CW 3240 – Renewal of Existing Curbs
  - (iii) CW 3310 – Portland Cement Concrete Pavement Works
  - (iv) CW 3335 – Installation of Interlocking Paving Stone on a Lean Concrete Base
  - (v) CW 3410 – Asphaltic Concrete Pavement Works
  - (vi) CW 3450 – Planing of Pavement

##### E13.2 Materials

- (a) Concrete materials as per Clause 6.2 CW 3310.
- (b) Reinforcing steel as per CW 3310.
- (c) Approved interlocking paving stones shall be Barkman Concrete "Victorian" style, "Antique Brown" in colour. Further to CAN 3-A231-2.6.1.1, where paving stones are shipped for installation before the pavers are 28 days old, the average compressive strength of these pavers at the time of delivery to the Work site shall be not less than 40MPa. Other incidental paving stone materials such as bedding and filler sand as per CW 3335.

- (d) Asphalt materials including asphaltic concrete pavement, tack coat, and other incidental materials as per CW 3410. Asphalt concrete paving mix to be Type 1A (surface course)

### E13.3 Construction Methods

#### E13.3.1 Concrete Pavement Removal

- (a) Existing pavement structure is to be sawcut and removed at the inside of the barrier curb and integral paving stone base. Remaining pavement inside the barrier curb to be no greater than 300 mm in width to provide adequate soil area for plantings.
- (b) Excavate underlying granular pavement structure until sub-grade is exposed or to a depth of 150 mm below the bottom of the existing concrete pavement, whichever is less.

#### E13.3.2 Planing of Pavement

- (a) Existing asphalt overlay shall be saw-cut and planed outside the face of the modified barrier curb as directed by the Contract Administrator. Plane asphalt overlay full depth to underlying concrete pavement.
- (b) Mechanically sweep planed surface.
- (c) Perform pavement repairs in accordance with CW 3230.
- (d) Maintain or re-sawcut edge to satisfaction of Contract Administrator before installation of new asphalt overlay.

#### E13.3.3 Traffic Calming Circle Curbs

- (a) Install reinforcing steel as per Clause 3.3 of CW 3240 and to dimensions shown on the Contract Drawings. Ensure vertical deformed bars have between 40 to 80 mm of cover to top of curbs.
- (b) Construct 180 mm reveal face modified barrier curb as shown on Contract Drawings and as per SD-203B "Modified Dowelled Barrier Curb with Asphalt" detail.
- (c) Construct 150 mm reveal face barrier curb integrally with the paving stone base as shown on Contract Drawings and as per SD-205 detail.

#### E13.3.4 Interlocking Paving Stones

- (a) Place bedding sand and install paving stones as per Clause 9.2 and 9.3 of CW 3335.
- (b) Install pavers in a soldier course pattern using mainly 121mm \* 121 mm and 60mm \* 121mm shapes.

#### E13.3.5 Asphaltic Concrete Overlay

- (a) Place tack coat as per Clause 9.2 of CW 3410.
- (b) Place and compact asphalt pavement as per Clause 9 of CW 3410.

### E13.4 Measurement and Payment

#### E13.4.1 Traffic Calming Circle Curbs

- (a) The construction of traffic calming circle curbs will be measured on a length basis per lineal metre paid for at the Contract Unit Price for the "Items of Work" listed below. The amount to be paid for will be the total lineal metres of curb constructed in accordance with this specification, accepted and measured by the Contract Administrator.

- (i) Items of Work:
  - Modified Barrier Curb
  - Barrier Curb with Integral Paving Stone Base

#### E13.4.2 Asphaltic Concrete Overlay

- (a) The asphalt pavement patching against the new traffic circle curbs, and any other areas at the site including radius reconstructions will be measured and paid in accordance with Clause 13.2 ii) of CW 3410 as "Tie-ins and Approaches"

#### E13.4.3 General

- (a) All other items of work related to the construction of traffic calming circles, including but not limited to planing, concrete pavement removal, excavation, interlocking paving stones, topsoil and plantings, radius reconstructions on the outside of intersections, and sidewalks will be measured and paid for in accordance with their applicable specifications.

### **E14. INTERLOCKING PAVING STONES**

#### E14.1 Description

##### E14.1.1 General

- (a) This specification covers the supply and installation of interlocking paving stones for various sites. This includes Powers at Selkirk, Charles from Flora to Selkirk, and Roch at Arby Bay.
- (b) Interlocking paving stones for the traffic calming circles are included in E13.
- (c) Referenced Standard Construction Specifications:
  - (i) CW 3330 – Installation of Interlocking Paving Stones
  - (ii) CW 3335 – Installation of Interlocking Paving Stone on a Lean Concrete Base

#### E14.2 Materials

##### E14.2.1 Powers at Selkirk Paving Stones

- (a) Paving bands generally adjacent to west side of multi use path shall be Barkman Concrete "Holland" style, "Rustic Red" in colour. Further to CAN 3-A231-2.6.1.1, where paving stones are shipped for installation before the pavers are 28 days old, the average compressive strength of these pavers at the time of delivery to the Work site shall be not less than 40MPa.
- (b) Paving fields generally adjacent to east side of multi use path shall be constructed of salvaged red colour "UniDecor" style pavers. Salvage existing paving stones on site for reuse.
- (c) Additional "UniDecor" style pavers will be made available to the Contractor through another City of Winnipeg project. The paving stones will be stacked and stored by others at the north sidewalk of Portage Avenue between Spence Street and Young Street. The Contract Administrator will indicate when the paving stones are available, likely in late August or September 2010. The Contractor shall pick up the paving stones and transport them to the Powers at Selkirk site for reuse and reinstallation.

##### E14.2.2 Charles from Flora to Selkirk Paving Stones

- (a) Paving bands and fields shall be Barkman Concrete "Holland" style, "Old Town" in colour, 210 mm \* 210 mm in shape, and "Desert Buff" in colour, 210 mm \* 105 mm in shape. Further to CAN 3-A231-2.6.1.1, where paving stones are shipped for installation before the pavers are 28 days old, the average compressive strength of these pavers at the time of delivery to the Work site shall be not less than 40MPa.

##### E14.2.3 Roch at Arby Bay Paving Stones

- (a) Paving fields adjacent to the concrete multi-use path shall be Barkman Concrete "Holland" style, "Old Town" in colour, 210 mm \* 105 mm in shape. Further to CAN 3-A231-2.6.1.1, where paving stones are shipped for installation before the pavers are 28 days old, the average compressive strength of these pavers at the time of delivery to the Work site shall be not less than 40MPa.

##### E14.2.4 Other Materials

- (a) Supply lean concrete mix, bedding sand, and filler sand in accordance with Section 5 of CW 3335.

#### E14.3 Construction Methods

##### E14.3.1 Lean Concrete Base

- (a) Construct as per Clause 9.2 of CW 3335.

##### E14.3.2 Interlocking Paving Stones

- (a) Install interlocking paving stones as per Clause 9.3 of CW 3335.
- (b) Install in patterns shown on Contract Drawings.

##### E14.3.3 Regrading Existing Interlocking Paving Stone Installations

- (a) Stockpile existing UniDecor paving stones onsite in a manner such that they are secure from vandalism.
- (b) Prepare sub-grade, sub-base, and bedding sand as per Clause 9.2 of CW 3330.
- (c) Install stockpiled UniDecor paving stones as per Clause 9.4 of CW 3330.

#### E14.4 Measurement and Payment

##### E14.4.1 Regrading Existing Interlocking Paving Stone Installations

- (a) Measurement and Payment as per Section 12.3 and 13.3 of CW 3330.

##### E14.4.2 Supply and Installation of Interlocking Paving Stones

- (a) Measurement and Payment as per Section 12.1 and 13.1 of CW 3335.

### E15. WOODEN BOLLARDS

#### E15.1 Description

##### E15.1.1 General

- (a) This specification covers the supply and installation of wooden bollards.
- (b) Supply and installation as per following specification and the Contract Drawings.

#### E15.2 Materials

##### E15.2.1 Wooden Bollards

- (a) The (uprights) shall be 8" (in) x 10" (in) x 8' (ft) timbers, S4S, square edge to CSA 080, pressure treated pine or fir to National Lumber Grades Authority standard grading rules, all kiln dried to a maximum moisture content of 19%.
- (b) Detailing shall be ¼" (in) radius on all exposed edges except on reveille and top peak, 1" (in) dado reveille 4" (in) from top of timber on all four sides, peaked 1" (in) relief on top of timber, equal distant front and back.
- (c) Colour finish shall be a solid colour deck & siding stain, Flood – FloodPro Series #428 (Pebblestone Clay).
- (d) All timber bollards shall be free of defects, warping, checked or bent materials as they will be rejected.
- (e) Timber bollards shall be identified by an official grade mark, continuing symbol of grading agency, mill number or name, grade of lumber, species or species grouping or combination designation, rules under which grade and conditions of seasoning at time of manufacture.

##### E15.2.2 Crushed Limestone Base

- (a) Supply crushed limestone base as per CW 3110.

#### E15.3 Construction Methods

- E15.3.1 Removal of existing bollards
- (a) Utilize appropriate equipment to excavate around bollard and pull out of ground.
  - (b) Protect the public and site from damage during removal.
  - (c) If bollard breaks and a portion remains embedded, demolish to 300 mm below grade.
  - (d) Backfill hole with crushed limestone base course as per Clause 2.2 of CW 3110. Tamp and compact base course to satisfaction of Contract Administrator.
  - (e) Dispose of bollard off-site.
- E15.3.2 Installation of wooden bollards
- (a) Install bollards as per Contract Drawings.
- E15.4 Measurement and Payment
- E15.4.1 Removal of Existing Bollards
- (a) The removal and disposal of existing bollards will be measured on a unit basis per bollard and paid for at the Contract Unit Price for "Removal of Existing Bollards". The number to be paid for will be the total number of bollards removed and disposed in accordance with this specification, accepted and measured by the Contract Administrator.
- E15.4.2 Wooden Bollards
- (a) The supply and installation of wooden bollards will be measured on a unit basis per bollard and paid for at the Contract Unit Price for "Wooden Bollards". The number to be paid for will be the total number of bollards supplied and installed in accordance with this specification, accepted and measured by the Contract Administrator.

## **E16. POWERS PARK DEMOLITION AND REMOVALS**

- E16.1 Description
- (a) In general, the Work includes demolition of various existing structures in the "Powers Park" (also known as "Selkirk Square") to eliminate blind corners and drop offs adjacent to the proposed multi-use pathway.
  - (b) Appendix 'B' contains construction drawings of the Powers Park area, including the structures for demolition and removal. This information is provided to aid in the Contractor's evaluation of the Work. However, The City and the Contract Administrator make no claims as to the accuracy of the information.
  - (c) The Work required under this section shall include, but not be limited to the following:
    - (i) Demolition and removals of existing amphitheatre, pavilion, and farmer's market structures and table and chairs on west side of park.
    - (ii) Demolition of associated concrete stairs, slabs, piles walls, and grade beams.
  - (d) The Work to be done by the Contractor under this Section shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies, and all things necessary for and incidental to the satisfactory performance and completion of all Works as described hereinafter.
  - (e) Restoration of the area after demolition and removal, including adjustment of manhole, backfilling with suitable material, placement and compaction of base course, and supply and installation of paving stones is not included in this Specification.
  - (f) Referenced Standard Construction Specifications
    - (i) CW 1110 – General Instructions
    - (ii) CW 1120 – Existing Services, Utilities, and Structures.
    - (iii) CSA S350-M1980, Code of Practice for Safety in Demolition of Structures.
    - (iv) Manitoba Workplace Safety and Health Act, and all applicable National, Provincial, and Municipal regulations.

## E16.2 Materials

- (a) Not Applicable.

## E16.3 Construction Methods

### E16.3.1 Protection

- (a) Prevent movement, settlement or damage of adjacent structures. Make good damage caused by demolition.

### E16.3.2 Inspection

- (a) Inspect Site with Contract Administrator and verify extent and location of items designated for removal, disposal, salvage and items to remain.
- (b) Locate and protect utilities.
- (c) Notify and obtain approval of Contract Administrator before starting demolition.

### E16.3.3 Preparation

- (a) Do not disrupt active or energized utilities.

### E16.3.4 Safety Code and Requirements

- (a) Unless otherwise specified, carry out demolition Work in accordance with the City of Winnipeg Safety Directives and Guidelines.
- (b) Blasting operations shall not be permitted during demolition unless reviewed and approved by the Contract Administrator.

### E16.3.5 Demolition

- (a) Salvage and stockpile existing Uni-Décor style paving stones around items to be demolished. Stockpile onsite in a secure manner, or stockpile offsite.
- (b) Demolition structures to permit construction of new Work as indicated.
- (c) Demolish grade beams, piles, and structures to a minimum of 400 mm below grade.
- (d) At end of each day's Work, leave Work in safe condition so that no part is in danger of toppling or failing.
- (e) Do not sell or burn materials on Site.

### E16.3.6 Disposal of Demolished Material

- (a) The Contractor shall be responsible for removal of debris and waste from the Work area to the location to an appropriate solid waste disposal area approved by the Contract Administrator.
- (b) Metal debris, which may include structural steel, miscellaneous inserts, and reinforcing steel, shall be removed from the Site and Disposed of by the Contractor.

## E16.4 Measurement and Payment

- (a) The work described will not be measured. This Item of Work will be paid for in the Contract Lump Sum Price for "Powers Park Demolition and Removals", performed in accordance with this Specification and accepted by the Contract Administrator.
- (b) No payment shall be made for Works beyond the limits specified, or those otherwise approved by the Contract Administrator.

## **E17. PLANT MATERIAL**

### E17.1 Description

#### E17.1.1 General

- (a) The following list generally describes the scope of this section:
  - (i) Supply and planting of trees and shrubs;

- (ii) Maintenance to date of total performance.
- (b) Source of all plant material to be from an area within the same hardiness zone and soil conditions as Winnipeg.
- (c) Referenced Standard Construction Specifications:
  - (i) CW 3540 – Topsoil and Finish Grading for Establishment of Turf Areas

#### E17.1.2 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. Heel-in vines, which cannot be planted immediately, in shaded areas, and water well.

#### E17.2 Materials

- (a) Water should be potable and free of minerals, which may be detrimental to plant growth.
- (b) Anti-desiccant should be wax-like emulsion to provide film over plant surface reducing evaporation but permeable enough to permit transpiration.
- (c) Wound dressing should be horticulturally accepted non-toxic, non-hardening emulsion.

#### E17.2.1 Topsoil for Plant Material

- (a) Supply as per Clause 5.2 of CW 3540.

#### E17.2.2 Wood Mulch

- (a) Wood mulch shall be chipped ash, maple, poplar, birch and other deciduous trees. Mulch shall be chipped to sizes ranging from 50mm to 100 mm. Mulch may not contain stringy twigs and seed, free of non-organic material, wood preservatives or diseased wood. The mulch shall contain no more than 5% of the following materials in total: soil, sawdust, peat moss, coniferous wood and needles.

#### E17.2.3 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) Use shrubs with strong fibrous root system free of disease, insects, defects or injuries and structurally sound.
  - (ii) Trees must have been root pruned regularly, but not later than one growing season prior to arrival on Site.
  - (iii) Trees must be minimum 60 mm calliper nursery stock.
- (d) Approval required for plant material, which has been held in cold storage.
- (e) Shrubs must have grown in container for minimum of one growing season but not longer than two. Root system must be able to "hold" soil when removed from



container. Plants that have become root bound are not acceptable. Container stock must have been fertilized with slow releasing fertilizer.

- (f) 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.

#### E17.2.4 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.

#### E17.3 Construction Methods

- (a) Stake out location of trees and shrubs 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.

#### E17.3.2 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) When permission has been obtained, shrubs and perennials growing in containers may be planted throughout growing season.
- (d) Plant only under conditions that are conducive to health and physical conditions of plants.
- (e) Provide planting schedule. Executing planting operations over long period using limited crew will not be accepted.

#### E17.3.3 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.

#### E17.3.4 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 1/3 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.
- (g) 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.

#### E17.3.5 Maintenance

- (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.

#### E17.3.6 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.

#### E17.3.7 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.

#### E17.3.8 Spraying

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

E17.3.9 Insects and Diseases

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

E17.4 Measurement and Payment

- (a) Supply and installation of trees and shrubs will be measured on a unit basis and will be paid for at the Contract Unit Price per unit for "Items of Work", 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.

- (i) Items of Work:

- Plant Material

- (i) Japanese 'Discovery' Elm
      - (ii) Potentilla (fruticosa)

E17.4.1 General

- (a) All other items of work related to the supply and installation of trees and shrubs, including but not limited to wood mulch, topsoil, and fertilizer will not be measured and is incidental to the "Items of Work" listed above.

**E18. PLANT MATERIAL EXTENDED MAINTENANCE**

E18.1 Description

- (a) This Specification shall deal with the maintenance of the trees and shrubs for two (2) calendar years after the date of the Total Performance.

E18.2 Materials

- (a) The Contractor shall provide all necessary equipment, including: tractors, trimmers, fertilizer spreaders, pruning tools, water trucks, hoses, water meters, and any other items necessary for the maintenance of the area indicated in this Specification.
- (b) The Contractor shall provide all necessary personnel for the ongoing maintenance operations.

E18.3 Construction Methods

- (a) The following areas shall be part of the maintenance jurisdiction:
  - (i) The trees and shrubs in traffic calming circles as indicated on the Drawings;
  - (ii) Mulch in traffic calming circles as indicated on the Drawings.

E18.3.1 Maintenance of Trees and Shrubs

- (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.

E18.3.2 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.

#### E18.3.3 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 manor.

#### E18.3.4 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.

#### E18.3.5 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.

#### E18.3.6 Quality Assurance

- (a) Upon the end of the required 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.

#### E18.4 Measurement and Payment

- (a) Extended Maintenance will be measured on a per year lump sum basis and paid for at the per year Contract Lump Sum Price "Plant Material Extended Maintenance", in accordance with this Specification and accepted by the Contract Administrator.