



THE CITY OF WINNIPEG

BID OPPORTUNITY

BID OPPORTUNITY NO. 500-2011

**CONCRETE PRESERVATION PROGRAM – BISHOP GRANDIN BOULEVARD
FROM LAKEWOOD BOULEVARD TO STE. ANNES ROAD WESTBOUND, &
PORTAGE AVENUE FROM AINSLEY STREET TO ALDINE STREET EASTBOUND-
WESTBOUND**

TABLE OF CONTENTS

PART A - BID SUBMISSION

Form A: Bid	1
Form B: Prices	4
Form G1: Bid Bond and Agreement to Bond	12
Form G2: Irrevocable Standby Letter of Credit and Undertaking	14

PART B - BIDDING PROCEDURES

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

PART C - GENERAL CONDITIONS

C0. General Conditions	1
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PART D - SUPPLEMENTAL CONDITIONS

General

D1. General Conditions	1
D2. Scope of Work	1
D3. Contract Administrator	2
D4. Contractor's Supervisor	2
D5. Notices	2
D6. Furnishing of Documents	3

Submissions

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

Schedule of Work

D13. Commencement	4
D14. Working Days	5
D15. Restricted Work Hours	5
D16. Work By Others	5
D17. Sequence of Work	5
D18. Critical Stages	6
D19. Substantial Performance	6
D20. Total Performance	6
D21. Liquidated Damages	6
D22. Scheduled Maintenance	7

Control of Work

D23. Job Meetings	7
D24. Prime Contractor – The Workplace Safety and Health Act (Manitoba)	7

Measurement and Payment

D25. Payment	7
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Warranty

D26. Warranty	7
Form H1: Performance Bond	9
Form H2: Irrevocable Standby Letter of Credit	11
Form J: Subcontractor List	13
Form L: Detailed Work Schedule	14

PART E - SPECIFICATIONS

General

E1. Applicable Specifications and Drawings	1
E2. Protection of Existing Trees	1
E3. Traffic Control	2
E4. Traffic Management	2
E5. Water Obtained From the City	2
E6. Operating Constraints for Work in Close Proximity to the Bishop Grandin Aqueduct	2
E7. Surface Restorations	4
E8. Double Cutting of Concrete Pavement	4
E9. Partial Depth Concrete Repairs	5
E10. Patching of Existing Pavement	8
E11. Concrete Finishing Tolerances	9
E12. Salt Tolerant Grass Seeding	9
E13. Supply and Install Detectable Warning Surface Tiles	10
E14. Removal of Existing Culverts	23

PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

- B1.1 Concrete Preservation Program – Bishop Grandin Boulevard from Lakewood Boulevard to Ste. Annes Road Westbound, & Portage Avenue from Ainsley Street to Aldine Street Eastbound-Westbound

B2. SUBMISSION DEADLINE

- B2.1 The Submission Deadline is 12:00 noon Winnipeg time, September 16, 2011.
- B2.2 Bids determined by the Manager of Materials to have been received later than the Submission Deadline will not be accepted and will be returned upon request.
- B2.3 The Contract Administrator or the Manager of Materials may extend the Submission Deadline by issuing an addendum at any time prior to the time and date specified in B2.1.

B3. ENQUIRIES

- B3.1 All enquiries shall be directed to the Contract Administrator identified in D3.1.
- B3.2 If the Bidder finds errors, discrepancies or omissions in the Bid Opportunity, or is unsure of the meaning or intent of any provision therein, the Bidder shall notify the Contract Administrator of the error, discrepancy or omission, or request a clarification as to the meaning or intent of the provision at least five (5) Business Days prior to the Submission Deadline.
- B3.3 Responses to enquiries which, in the sole judgment of the Contract Administrator, require a correction to or a clarification of the Bid Opportunity will be provided by the Contract Administrator to all Bidders by issuing an addendum.
- B3.4 Responses to enquiries which, in the sole judgment of the Contract Administrator, do not require a correction to or a clarification of the Bid Opportunity will be provided by the Contract Administrator only to the Bidder who made the enquiry.
- B3.5 The Bidder shall not be entitled to rely on any response or interpretation received pursuant to B3 unless that response or interpretation is provided by the Contract Administrator in writing.

B4. ADDENDA

- B4.1 The Contract Administrator may, at any time prior to the Submission deadline, issue addenda correcting errors, discrepancies or omissions in the Bid Opportunity, or clarifying the meaning or intent of any provision therein.
- B4.2 The Contract Administrator will issue each addendum at least two (2) Business Days prior to the Submission Deadline, or provide at least two (2) Business Days by extending the Submission Deadline.
- B4.2.1 Addenda will be available on the Bid Opportunities page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/bidopp.asp>
- B4.2.2 The Bidder is responsible for ensuring that he has received all addenda and is advised to check the Materials Management Division website for addenda regularly and shortly before the Submission Deadline, as may be amended by addendum.
- B4.3 The Bidder shall acknowledge receipt of each addendum in Paragraph 10 of Form A: Bid. Failure to acknowledge receipt of an addendum may render a Bid non-responsive.

B5. SUBSTITUTES

- B5.1 The Work is based on the Plant, Materials and methods specified in the Bid Opportunity.
- B5.2 Substitutions shall not be allowed unless application has been made to and prior approval has been granted by the Contract Administrator in writing.
- B5.3 Requests for approval of a substitute will not be considered unless received in writing by the Contract Administrator at least five (5) Business Days prior to the Submission Deadline.
- B5.4 The Bidder shall ensure that any and all requests for approval of a substitute:
- (a) provide sufficient information and details to enable the Contract Administrator to determine the acceptability of the Plant, Material or method as either an approved equal or alternative;
 - (b) identify any and all changes required in the applicable Work, and all changes to any other Work, which would become necessary to accommodate the substitute;
 - (c) identify any anticipated cost or time savings that may be associated with the substitute;
 - (d) certify that, in the case of a request for approval as an approved equal, the substitute will fully perform the functions called for by the general design, be of equal or superior substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule and the dates specified in the Supplemental Conditions for Substantial Performance and Total Performance;
 - (e) certify that, in the case of a request for approval as an approved alternative, the substitute will adequately perform the functions called for by the general design, be similar in substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule and the dates specified in the Supplemental Conditions for Substantial Performance and Total Performance.
- B5.5 The Contract Administrator, after assessing the request for approval of a substitute, may in his sole discretion grant approval for the use of a substitute as an “approved equal” or as an “approved alternative”, or may refuse to grant approval of the substitute.
- B5.6 The Contract Administrator will provide a response in writing, at least two (2) Business Days prior to the Submission Deadline, only to the Bidder who requested approval of the substitute.
- B5.6.1 The Bidder requesting and obtaining the approval of a substitute shall be entirely responsible for disseminating information regarding the approval to any person or persons he wishes to inform.
- B5.7 If the Contract Administrator approves a substitute as an “approved equal”, any Bidder may use the approved equal in place of the specified item.
- B5.8 If the Contract Administrator approves a substitute as an “approved alternative”, any Bidder bidding that approved alternative may base his Total Bid Price upon the specified item but may also indicate an alternative price based upon the approved alternative. Such alternatives will be evaluated in accordance with B14.
- B5.9 No later claim by the Contractor for an addition to the Total Bid Price because of any other changes in the Work necessitated by the use of an approved equal or an approved alternative will be considered.
- B5.10 Notwithstanding B5.2 to B5.9, in accordance with B6.6, deviations inconsistent with the Bid Opportunity document shall be evaluated in accordance with B14.1(a).

B6. BID COMPONENTS

- B6.1 The Bid shall consist of the following components:
- (a) Form A: Bid;
 - (b) Form B: Prices, hard copy;
 - (c) Bid Security;
 - (i) Form G1: Bid Bond and Agreement to Bond, or
Form G2: Irrevocable Standby Letter of Credit and Undertaking, or
a certified cheque or draft;
- B6.2 Further to B6.1, the Bidder should include the written correspondence from the Contract Administrator approving a substitute in accordance with B5.
- B6.3 All components of the Bid shall be fully completed or provided, and submitted by the Bidder no later than the Submission Deadline, with all required entries made clearly and completely, to constitute a responsive Bid.
- B6.4 The Bid shall be submitted enclosed and sealed in an envelope clearly marked with the Bid Opportunity number and the Bidder's name and address.
- B6.4.1 Samples or other components of the Bid which cannot reasonably be enclosed in the envelope may be packaged separately, but shall be clearly marked with the Bid Opportunity number, the Bidder's name and address, and an indication that the contents are part of the Bidder's Bid.
- B6.4.2 A hard copy of Form B: Prices must be submitted with the Bid. If there is any discrepancy between the Adobe PDF version of Form B: Prices and the Microsoft Excel version of Form B: Prices, the PDF version shall take precedence.
- B6.5 Bidders are advised not to include any information/literature except as requested in accordance with B6.1.
- B6.6 Bidders are advised that inclusion of terms and conditions inconsistent with the Bid Opportunity document, including the General Conditions, will be evaluated in accordance with B14.1(a).
- B6.7 Bids submitted by facsimile transmission (fax) or internet electronic mail (e-mail) will not be accepted.
- B6.8 Bids shall be submitted to:
- The City of Winnipeg
Corporate Finance Department
Materials Management Division
185 King Street, Main Floor
Winnipeg MB R3B 1J1

B7. BID

- B7.1 The Bidder shall complete Form A: Bid, making all required entries.
- B7.2 Paragraph 2 of Form A: Bid shall be completed in accordance with the following requirements:
- (a) if the Bidder is a sole proprietor carrying on business in his own name, his name shall be inserted;
 - (b) if the Bidder is a partnership, the full name of the partnership shall be inserted;
 - (c) if the Bidder is a corporation, the full name of the corporation shall be inserted;

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

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

B7.3 In Paragraph 3 of Form A: Bid, the Bidder shall identify a contact person who is authorized to represent the Bidder for purposes of the Bid.

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

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

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

B7.5 If a Bid is submitted jointly by two or more persons, the word "Bidder" shall mean each and all such persons, and the undertakings, covenants and obligations of such joint Bidders in the Bid and the Contract, when awarded, shall be both joint and several.

B8. PRICES

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

B8.1.1 For the convenience of Bidders, and pursuant to B6.4.2 and B14.4.3, 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 Payments to Non-Resident Contractors are subject to Non-Resident Withholding Tax pursuant to the Income Tax Act (Canada).

B8.5 Form B: Prices is organized into Parts: Part 1 of the Work and Part 2 of the Work. Bidders shall provide a total price for each Part and, on the summary sheet, a Total Bid Price consisting of the sum of prices for Part 1 and Part 2.

B9. QUALIFICATION

B9.1 The Bidder shall:

- (a) undertake to be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba; and

- (b) be financially capable of carrying out the terms of the Contract; and
- (c) have all the necessary experience, capital, organization, and equipment to perform the Work in strict accordance with the terms and provisions of the Contract.

B9.2 The Bidder and any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:

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

B9.3 The Bidder and/or any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:

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

B9.4 Further to B9.3(c), the Bidder shall, within five (5) Business Days of a request by the Contract Administrator, provide proof satisfactory to the Contract Administrator that the Bidder/Subcontractor has a workplace safety and health program meeting the requirements of The Workplace Safety and Health Act (Manitoba), by providing:

- (a) a valid COR certification number under the Certificate of Recognition (COR) Program administered by the Manitoba Construction Safety Association or by the Manitoba Heavy Construction Association's Safety, Health and Environment Program; or
- (b) a report or letter to that effect from an independent reviewer acceptable to the City. (A list of acceptable reviewers and the review template are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt>)

B9.5 The Bidder shall submit, within three (3) Business Days of a request by the Contract Administrator, proof satisfactory to the Contract Administrator of the qualifications of the Bidder and of any proposed Subcontractor.

B9.6 The Bidder shall provide, on the request of the Contract Administrator, full access to any of the Bidder's equipment and facilities to confirm, to the Contract Administrator's satisfaction, that the Bidder's equipment and facilities are adequate to perform the Work.

B10. BID SECURITY

B10.1 The Bidder shall provide bid security in the form of:

- (a) a bid bond, in the amount of at least ten percent (10%) of the Total Bid Price, and agreement to bond of a company registered to conduct the business of a surety in Manitoba, in the form included in the Bid Submission (Form G1: Bid Bond and Agreement to Bond); or
- (b) an irrevocable standby letter of credit, in the amount of at least ten percent (10%) of the Total Bid Price, and undertaking issued by a bank or other financial institution registered to conduct business in Manitoba and drawn on a branch located in Winnipeg, in the form included in the Bid Submission (Form G2: Irrevocable Standby Letter of Credit and Undertaking); or

- (c) a certified cheque or draft payable to “The City of Winnipeg”, in the amount of at least fifty percent (50%) of the Total Bid Price, drawn on a bank or other financial institution registered to conduct business in Manitoba.

- B10.1.1 If the Bidder submits alternative bids, the bid security shall be in the amount of the specified percentage of the highest Total Bid Price submitted.
- B10.1.2 All signatures on bid securities shall be original.
- B10.1.3 The Bidder shall sign the Bid Bond.
- B10.1.4 The Surety shall sign and affix its corporate seal on the Bid Bond and the Agreement to Bond.
- B10.2 The bid security of the successful Bidder and the next two lowest evaluated responsive and responsible Bidders will be released by the City when a Contract for the Work has been duly executed by the successful Bidder and the performance security furnished as provided herein. The bid securities of all other Bidders will be released when a Contract is awarded.
- B10.2.1 Where the bid security provided by the successful Bidder is in the form of a certified cheque or draft pursuant to B10.1(c), it will be deposited and retained by the City as the performance security and no further submission is required.
- B10.2.2 The City will not pay any interest on certified cheques or drafts furnished as bid security or subsequently retained as performance security.
- B10.3 The bid securities of all Bidders will be released by the City as soon as practicable following notification by the Contract Administrator to the Bidders that no award of Contract will be made pursuant to the Bid Opportunity.

B11. OPENING OF BIDS AND RELEASE OF INFORMATION

- B11.1 Bids will be opened publicly, after the Submission Deadline has elapsed, in the office of the Corporate Finance Department, Materials Management Division, or in such other office as may be designated by the Manager of Materials.
 - B11.1.1 Bidders or their representatives may attend.
 - B11.1.2 Bids determined by the Manager of Materials, or his designate, to not include the bid security specified in B10 will not be read out.
- B11.2 Following the submission deadline, the names of the Bidders and their Total Bid Prices (unevaluated, and pending review and verification of conformance with requirements) will be available on the Closed Bid Opportunities (or Public/Posted Opening & Award Results) page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt>
- B11.3 After award of Contract, the name(s) of the successful Bidder(s) and the Contract amount(s) will be available on the Closed Bid Opportunities (or Public/Posted Opening & Award Results) page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt>
- B11.4 The Bidder is advised that any information contained in any Bid may be released if required by City policy or procedures, by The Freedom of Information and Protection of Privacy Act (Manitoba), by other authorities having jurisdiction, or by law.

B12. IRREVOCABLE BID

- B12.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 11 of Form A: Bid.
- B12.2 The acceptance by the City of any Bid shall not release the Bids of the next two lowest evaluated responsive Bidders and these Bidders shall be bound by their Bids on such Work

until a Contract for the Work has been duly executed and the performance security furnished as herein provided, but any Bid shall be deemed to have lapsed unless accepted within the time period specified in Paragraph 11 of Form A: Bid.

B13. WITHDRAWAL OF BIDS

- B13.1 A Bidder may withdraw his Bid without penalty by giving written notice to the Manager of Materials at any time prior to the Submission Deadline.
- B13.1.1 Notwithstanding C23.3, the time and date of receipt of any notice withdrawing a Bid shall be the time and date of receipt as determined by the Manager of Materials.
- B13.1.2 The City will assume that any one of the contact persons named in Paragraph 3 of Form A: Bid or the Bidder's authorized representatives named in Paragraph 12 of Form A: Bid, and only such person, has authority to give notice of withdrawal.
- B13.1.3 If a Bidder gives notice of withdrawal prior to the Submission Deadline, the Manager of Materials will:
- (a) retain the Bid until after the Submission Deadline has elapsed;
 - (b) open the Bid to identify the contact person named in Paragraph 3 of Form A: Bid and the Bidder's authorized representatives named in Paragraph 12 of Form A: Bid; and
 - (c) if the notice has been given by any one of the persons specified in B13.1.3(b), declare the Bid withdrawn.
- B13.2 A Bidder who withdraws his Bid after the Submission Deadline but before his Bid has been released or has lapsed as provided for in B12.2 shall be liable for such damages as are imposed upon the Bidder by law and subject to such sanctions as the Chief Administrative Officer considers appropriate in the circumstances. The City, in such event, shall be entitled to all rights and remedies available to it at law, including the right to retain the Bidder's bid security.

B14. EVALUATION OF BIDS

- B14.1 Award of the Contract shall be based on the following bid evaluation criteria:
- (a) compliance by the Bidder with the requirements of the Bid Opportunity, or acceptable deviation therefrom (pass/fail);
 - (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B9 (pass/fail);
 - (c) Total Bid Price;
 - (d) economic analysis of any approved alternative pursuant to B5.
- B14.2 Further to B14.1(a), the Award Authority may reject a Bid as being non-responsive if the Bid is incomplete, obscure or conditional, or contains additions, deletions, alterations or other irregularities. The Award Authority may reject all or any part of any Bid, or waive technical requirements or minor informalities or irregularities, if the interests of the City so require.
- B14.3 Further to B14.1(b), the Award Authority shall reject any Bid submitted by a Bidder who does not demonstrate, in his Bid or in other information required to be submitted, that he is responsible and qualified.
- B14.4 Further to B14.1(c), the Total Bid Price shall be the sum of the quantities multiplied by the unit prices for each item shown on Form B: Prices.
- B14.4.1 If there is any discrepancy between the Total Bid Price written in figures, the Total Bid Price written in words and the sum of the quantities multiplied by the unit prices for each item, the sum of the quantities multiplied by the unit prices for each item shall take precedence.

- B14.4.2 Further to B14.1(a), in the event that a unit price is not provided on Form B: Prices, the City will determine the unit price by dividing the Amount (extended price) by the approximate quantity, for the purposes of evaluation and payment.
- B14.4.3 The electronic Form B: Prices and the formulas imbedded in that spreadsheet are only provided for the convenience of Bidders. The City makes no representations or warranties as to the correctness of the imbedded formulas. It is the Bidder's responsibility to ensure the extensions of the unit prices and the sum of Total Bid Price performed as a function of the formulas within the electronic Form B: Prices are correct.

B15. AWARD OF CONTRACT

- B15.1 The City will give notice of the award of the Contract or will give notice that no award will be made.
- B15.2 The City will have no obligation to award a Contract to a Bidder, even though one or all of the Bidders are determined to be responsible and qualified, and the Bids are determined to be responsive.
- B15.2.1 Without limiting the generality of B15.2, the City will have no obligation to award a Contract where:
- (a) the prices exceed the available City funds for the Work;
 - (b) the prices are materially in excess of the prices received for similar work in the past;
 - (c) the prices are materially in excess of the City's cost to perform the Work, or a significant portion thereof, with its own forces;
 - (d) only one Bid is received; or
 - (e) in the judgment of the Award Authority, the interests of the City would best be served by not awarding a Contract.
- B15.3 Where an award of Contract is made by the City, the award shall be made to the responsible and qualified Bidder submitting the lowest evaluated responsive Bid, in accordance with B14.
- B15.3.1 Following the award of contract, a Bidder will be provided with information related to the evaluation of his Bid upon written request to the Contract Administrator.

PART C - GENERAL CONDITIONS

C0. GENERAL CONDITIONS

- C0.1 The *General Conditions for Construction* (Revision 2006 12 15) are applicable to the Work of the Contract.
- C0.1.1 The *General Conditions for Construction* are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at http://www.winnipeg.ca/matmgt/gen_cond.stm
- C0.2 A reference in the Bid Opportunity to a section, clause or subclause with the prefix “**C**” designates a section, clause or subclause in the *General Conditions for Construction*.

PART D - SUPPLEMENTAL CONDITIONS

GENERAL

D1. GENERAL CONDITIONS

D1.1 In addition to the General Conditions for Construction, these Supplemental Conditions are applicable to the Work of the Contract.

D2. SCOPE OF WORK

D2.1 The Work to be done under the Contract shall consist of:

- (a) Pavement rehabilitation Bishop Grandin Boulevard from Lakewood Boulevard to Ste. Annes Road WB;
- (b) Pavement rehabilitation Portage Avenue from Ainsley St to Aldine Street EB-WB Intersection;
- (c) Construction of intersection improvements at Bishop Grandin Blvd & Lakewood Blvd.

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

- (a) Pavement rehabilitation of Bishop Grandin Boulevard from Lakewood Boulevard to Ste. Annes Road WB
 - (i) Renewal of existing concrete joints through partial joint repair methods;
 - (ii) Renewal of existing concrete slabs and joints through full depth repairs;
 - (iii) Renewal of existing curbs as required;
 - (iv) Adjustment of existing manhole(s) and catch basin(s) as required;
 - (v) Excavation of shoulder;
 - (vi) Compaction of existing shoulder sub-grade;
 - (vii) Installation of separation geotextile fabric;
 - (viii) Placement of base course material;
 - (ix) Placement of asphalt material (average thickness – 75mm);and,
 - (x) Boulevard grading and seeding as required.
- (b) Pavement rehabilitation Portage Avenue from Ainsley St to Aldine Street EB-WB Intersection
 - (i) Renewal of existing concrete joints through partial joint repair methods;
 - (ii) Renewal of existing concrete slabs and joints through full depth repairs;
 - (iii) Renewal of existing curbs as required; and,
 - (iv) Adjustment of existing manhole(s) and catch basin(s) as required.
- (c) Construction of intersection improvements at Bishop Grandin Blvd & Lakewood Blvd
 - (i) Removal of existing pavement;
 - (ii) Curb removal;
 - (iii) Excavation;
 - (iv) Compaction of existing sub-grad;
 - (v) Placement of separation geotextile fabric;
 - (vi) Placement of sub-base and base course materials;
 - (vii) Construction of 200 mm concrete (plain-dowelled)
 - (viii) Construction of 180 mm barrier curb;
 - (ix) Placement of detectable warning surface tile(s);
 - (x) Renewal of existing concrete joints through partial joint repair methods;
 - (xi) Renewal of existing concrete slabs and joints through full depth repairs;

- (xii) Placement of asphalt overlay;
- (xiii) Boulevard grading and seeding; and,
- (xiv) Ditch grading and sloping.

D3. CONTRACT ADMINISTRATOR

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

Vilko Maroti , CET, P.Eng.
Senior Transportation Engineer
100-1355 Taylor Ave
Winnipeg, MB R3M 3Y9

Telephone No. (204) 928-8834
Facsimile No. (204) 284-4795

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

D4. CONTRACTOR'S SUPERVISOR

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

D4.2 At least two (2) business days prior to the commencement of any Work on the site, the Contractor shall provide the Contract Administrator with a phone number where the supervisor identified in D4.1 or an alternate can be contacted twenty-four (24) hours a day to respond to an emergency.

D5. NOTICES

D5.1 Except as provided for in C23.2.2, all notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the Contractor shall be sent to the address or facsimile number identified by the Contractor in Paragraph 2 of Form A: Bid.

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

D5.3 Notwithstanding C21., all notices of appeal to the Chief Administrative Officer shall be sent to the attention of the Chief Financial Officer at the following facsimile number:

The City of Winnipeg
Chief Financial Officer
Facsimile No.: (204) 949-1174

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

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

D6. FURNISHING OF DOCUMENTS

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

SUBMISSIONS

D7. AUTHORITY TO CARRY ON BUSINESS

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

D8. SAFE WORK PLAN

- D8.1 The Contractor shall provide the Contract Administrator with a Safe Work Plan at least five (5) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract.
- D8.2 The Safe Work Plan shall be prepared and submitted in the format shown in the City's template which is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/safety/default.stm>

D9. INSURANCE

- D9.1 The Contractor shall provide and maintain the following insurance coverage:
- (a) commercial general liability insurance, in the amount of at least two million dollars (\$2,000,000.00) inclusive, with The City of Winnipeg added as an additional insured, with a cross-liability clause, such liability policy to also contain contractual liability, unlicensed motor vehicle liability, non-owned automobile liability, 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;
 - (b) automobile liability insurance for owned automobiles used for or in connection with the Work in the amount of at least two million dollars (\$2,000,000.00) at all times during the performance of the Work and until the date of Total Performance;
 - (c) an all risks Installation Floater carrying adequate limits to cover all machinery, equipment, supplies and/or materials intended to enter into and form part of any installation.
- D9.2 Deductibles shall be borne by the Contractor.
- D9.3 The Contractor shall provide the City Solicitor with a certificate(s) of insurance, in a form satisfactory to the City Solicitor, at least two (2) Business Days prior to the commencement of any Work but in no event later than the date specified in the C4.1 for the return of the executed Contract.
- D9.4 The Contractor shall not cancel, materially alter, or cause each policy to lapse without providing at least thirty (30) Calendar Days prior written notice to the Contract Administrator.

D10. PERFORMANCE SECURITY

- D10.1 The Contractor shall provide and maintain performance security until the expiration of the warranty period in the form of:
- (a) a performance bond of a company registered to conduct the business of a surety in Manitoba, in the form attached to these Supplemental Conditions (Form H1: Performance Bond), in the amount of fifty percent (50%) of the Contract Price; or
 - (b) an irrevocable standby letter of credit issued by a bank or other financial institution registered to conduct business in Manitoba and drawn on a branch located in Winnipeg, in the form attached to these Supplemental Conditions (Form H2: Irrevocable Standby Letter of Credit), in the amount of fifty percent (50%) of the Contract Price; or
 - (c) a certified cheque or draft payable to "The City of Winnipeg", drawn on a bank or other financial institution registered to conduct business in Manitoba, in the amount of fifty percent (50%) of the Contract Price.
- D10.1.1 Where the performance security is in the form of a certified cheque or draft, it will be deposited by the City. The City will not pay any interest on certified cheques or drafts furnished as performance security.
- D10.2 If the bid security provided in his Bid was not a certified cheque or draft pursuant to B10.1(c), the Contractor shall provide the City Solicitor with the required performance security within seven (7) Calendar Days of notification of the award of the Contract by way of letter of intent and prior to the commencement of any Work on the Site and in no event later than the date specified in the C4.1 for the return of the executed Contract.

D11. SUBCONTRACTOR LIST

- D11.1 The Contractor shall provide the Contract Administrator with a complete list of the Subcontractors whom the Contractor proposes to engage (Form J: Subcontractor List) at or prior to a pre-construction meeting, or at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in the C4.1 for the return of the executed Contract.

D12. DETAILED WORK SCHEDULE

- D12.1 The Contractor shall provide the Contract Administrator with a detailed work schedule (Form L: Detailed Work Schedule) at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in the General Conditions for the return of the executed Contract.

SCHEDULE OF WORK

D13. COMMENCEMENT

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

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

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

D13.4 The City intends to award this Contract by September 23, 2011.

D13.4.1 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.

D14. WORKING DAYS

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

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

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

D15. RESTRICTED WORK HOURS

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

D16. WORK BY OTHERS

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

- (a) City of Winnipeg Public Works - Diamond grinding of Bishop Grandin from Lagimodiere Blvd to Ste. Annes Rd – WB, and Portage Ave from Ainsley St. to Aldine St. – WB-EB.
- (b) City of Winnipeg Traffic Signals – The Contractor is expected to cooperate with City of Winnipeg Traffic Signals to facilitate construction.
- (c) City of Winnipeg Traffic Services Department – Replacement of signs and paint lines. The Contractor is expected to cooperate with City of Winnipeg to facilitate construction.
- (d) Winnipeg Transit – The Contractor will coordinate with Winnipeg Transit to maintain their service flow during construction.

D17. SEQUENCE OF WORK

D17.1 Further to C6.1, the sequence of work shall be as follows:

D17.1.1 Construction activities on Bishop Grandin Boulevard Westbound, Portage Avenue East bound, and Portage Avenue Westbound are to be limited to one lane of the roadway at a time. No construction shall commence on the adjacent lane until all work is completed on the lane under construction, or as otherwise approved by the Contract Administrator.

D17.1.2 The Contractor will be required to start construction activities in the median lane of Bishop Grandin, and upon completing the work from Lakewood to Ste. Annes, will be permitted to start the construction activities in the curb lane of Bishop Grandin from Lakewood to Ste.

Annes, or as otherwise approved by the Contract Administrator. During the time of the Work taking place in the curb lane, the Contractor will also perform the Work on the shoulder as described in D2.2 (a).

- D17.1.3 The Contractor will be required to grow the work zone as the project progresses in order to maintain as much roadway available to vehicular traffic as possible.
- D17.1.4 The Partial Depth repairs to be completed shall commence prior to the full depth concrete pavement repairs and at all times precede the full depth concrete repairs within the work zone.
- D17.1.5 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.

D18. CRITICAL STAGES

- D18.1 The Contractor shall achieve critical stages of the Work in accordance with the following requirements:
 - (a) Concrete Pavement Works (Partial Depth Repairs, Full Depth Repairs, Slab Placement) – October 17, 2011.

D19. SUBSTANTIAL PERFORMANCE

- D19.1 The Contractor shall achieve Substantial Performance within thirty-five (35) consecutive Working Days of the commencement of the Work as specified in D13.
- 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 within forty (40) consecutive Working Days of the commencement of the Work as specified in D13.
- 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 Substantial Performance in accordance with the Contract by the day fixed herein for Substantial Performance, the Contractor shall pay the City one thousand five hundred dollars (\$1500) per Working Day for each and every Working Day following the day fixed herein for Substantial Performance during which such failure continues.

D21.2 The amount specified for liquidated damages in D21.1 is based on a genuine pre-estimate of the City's damages in the event that the Contractor does not achieve Substantial Performance by the day fixed herein for same.

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) Seeding as specified in CW 3520-R7;
- (b) Reflective Crack Maintenance as specified in CW 3250-R7;

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).

MEASUREMENT AND PAYMENT

D25. PAYMENT

D25.1 Further to C12, the City may at its option pay the Contractor by direct deposit to the Contractor's banking institution.

WARRANTY

D26. WARRANTY

D26.1 Notwithstanding C13.2, the warranty period shall begin on the date of Substantial Performance and shall expire one (1) year thereafter unless extended pursuant to C13.2.1 or C13.2.2, in which case it shall expire when provided for thereunder.

- D26.2 Notwithstanding C13.2 or D26.1, the Contract Administrator may permit the warranty period for a portion or portions of the Work to begin prior to the date of Substantial Performance if:
- (a) a portion of the Work cannot be completed because of unseasonable weather or other conditions reasonably beyond the control of the Contractor but that portion does not prevent the balance of the Work from being put to its intended use; or
 - (b) Substantial Performance has been achieved.
- D26.2.1 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 D10)

KNOW ALL MEN BY THESE PRESENTS THAT

_____ ,
(hereinafter called the "Principal"), and

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

_____ dollars (\$_____)

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

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

BID OPPORTUNITY NO. 500-2011

Concrete Preservation Program – Bishop Grandin Boulevard from Lakewood Boulevard to Ste. Annes Road Westbound, & Portage Avenue from Ainsley Street to Aldine Street Eastbound-Westbound which is by reference made part hereof and is hereinafter referred to as the "Contract".

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

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

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

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

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

_____ day of _____, 20____.

SIGNED AND SEALED
in the presence of:

(Witness as to Principal if no seal)

(Name of Principal)

Per: _____ (Seal)

Per: _____

(Name of Surety)

By: _____ (Seal)
(Attorney-in-Fact)

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

(Date)

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

RE: PERFORMANCE SECURITY – BID OPPORTUNITY NO. 500-2011

Concrete Preservation Program – Bishop Grandin Boulevard from Lakewood Boulevard to Ste. Annes Road Westbound, & Portage Avenue from Ainsley Street to Aldine Street Eastbound-Westbound

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

(Name of Contractor)

(Address of Contractor)

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

_____ Canadian dollars.

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

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

Partial drawings are permitted.

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

(Address)

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

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

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

(Date)

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

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

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

(Name of bank or financial institution)

Per: _____
(Authorized Signing Officer)

Per: _____
(Authorized Signing Officer)

PART E - SPECIFICATIONS

GENERAL

E1. APPLICABLE SPECIFICATIONS AND DRAWINGS

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

<u>Drawing No.</u>	<u>Drawing Name/Title</u>	<u>Drawing (Original) Sheet Size</u>
T-3257	Lakewood Blvd. at Bishop Grandin Blvd. Intersection Improvements	A1

E2. PROTECTION OF EXISTING TREES

- E2.1 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.
 - 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.
 - Work on-site shall be carried out in such a manner so as to minimize damage to existing tree branches. Where damage to branches does occur, they shall be neatly pruned.
- E2.2 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.
- E2.3 No separate measurement or payment will be made for the protection of trees.

- E2.4 Except as required in clause E2.1(c) and E2.1(e), Elm trees shall not be pruned at any time between April 1 and July 31.

E3. TRAFFIC CONTROL

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

E4. TRAFFIC MANAGEMENT

- E4.1 Further to clause 3.7 of CW 1130:
- E4.1.1 Maintain a minimum of one lane of traffic on Bishop Grandin Boulevard westbound, Portage Avenue eastbound, and Portage Avenue westbound during all construction activities.
 - E4.1.2 Where left turn lanes exist, an additional lane to accommodate the left turn storage lane shall be maintained at all times.
 - E4.1.3 Where right turn lanes exist, an additional lane to accommodate the right turn storage lane shall be maintained at all times.
 - E4.1.4 North/South and East/West traffic at Portage Avenue and Moray Street intersection must be maintained during construction to allow for one lane of traffic in each direction to go straight through and another lane in each direction to turn left. When no work is being performed in the intersection and providing it is safe for vehicles, north and south lane closures in the intersection will not be permitted.
 - E4.1.5 Intersecting street and private approach access shall be maintained at all times.
 - E4.1.6 Should the Contractor be unable to maintain pedestrian or vehicular access to a residence or business, he shall review the planned disruption with the business or residence and the Contract Administrator, and take reasonable measures to minimize the impact. The Contractor shall provide a minimum of 24 hours notification to the affected residence or business and the Contract Administrator, prior to disruption of access.
 - E4.1.7 Pedestrian and ambulance/emergency vehicle access must be maintained at all times.

E5. WATER OBTAINED FROM THE CITY

- E5.1 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.

E6. OPERATING CONSTRAINTS FOR WORK IN CLOSE PROXIMITY TO THE BISHOP GRANDIN AQUEDUCT

- E6.1 DESCRIPTION
- E6.1.1 This Section details operating constraints for all work to be carried out in close proximity to the North Bishop Grandin Aqueduct. Close proximity shall be deemed to be any construction activity within a 5 m offset from the centreline of the aqueduct.

E6.2 GENERAL CONDITIONS FOR WORK IN CLOSE PROXIMITY TO THE BISHOP GRANDIN AQUEDUCT

- E6.2.1 The Bishop Grandin Aqueduct is a critical component of the City of Winnipeg Regional Water Supply System and work in close proximity to the pipelines shall be undertaken with an abundance of caution. The pipes cannot be taken out of service to facilitate construction and inadvertent damage caused to the pipes would likely have catastrophic consequences.
- E6.2.2 Work around the Aqueduct shall be planned and implemented to minimize the time period that work is carried out in close proximity to the pipes and to ensure that the pipelines are not subjected to excessive construction related loads, including excessive vibrations and/or concentrated or asymmetrical lateral loads during backfill placement.
- E6.2.3 Generally, loading conforming to legal highway loading for adjacent roadways or AASHTO HS 20 loading will be permitted, subject to review as outlined in Submittals section below.

E6.3 SUBMITTALS

- E6.3.1 Submit a Construction Method Statement with proposed construction plan including haul routes, excavation equipment locations, loading positioning and base construction sequencing to the Contract Administrator for review seven (7) days prior to construction. Do not commence construction until the Construction Method Statement has been reviewed and accepted by the Contract Administrator.
- E6.3.2 The Contract Administrator will review construction method statement in light of the aqueduct loading limitations.

E6.4 PROTECTION OF THE BISHOP GRANDIN AQUEDUCT DURING CONSTRUCTION

- E6.4.1 Contractors carrying out repair work or working in close proximity to the Aqueduct shall meet the following conditions and technical requirements:
- (a) Pre-work, Planning and General Execution
 - (i) No work shall commence at the site until the Construction Method Statement has been accepted and the Aqueduct locations has been clearly delineated in the field.
 - (ii) Work shall only be carried out with equipment that has been reviewed and quantified in terms of its loading implications by the Contract Administrator.
 - (iii) For transverse crossings of the Aqueduct in support of pavement construction activities, designate crossing locations and confine equipment crossing the pipe(s) to these locations. Reduce equipment speeds to levels that minimize the impacts of impact loading.
 - (iv) For construction work activities either longitudinally or transverse to the alignment of the Aqueduct work only with equipment and in the manner stipulated in the accepted Construction Method Statement and the supplemental requirements noted herein.
 - (v) Subgrade, sub-base and base construction shall be kept in a rut free condition at all times. Construction equipment is prohibited from crossing pipelines if the grade is insufficient to support the equipment without rutting.
 - (vi) Granular material, construction material, soil or other material shall not stockpiled on the pipelines or within 5 metres of the pipe centerline.
 - (vii) Stage construction such that the Aqueduct is not subjected to significant asymmetrical loading at any time.
 - (viii) Where work is in proximity to the Aqueduct, utilize construction practices and procedures that do not impart excessive vibration loads on the Aqueduct or that would cause settlement of the subgrade below the Aqueduct.
 - (b) Demolition and Excavation
 - (i) Concrete demolition and removal within 3 metres horizontally of the Aqueduct shall be completed by sawcutting and removal, or use of hand held

jackhammers. Use of machine mounted concrete breakers above the Aqueduct shall not be permitted.

- (ii) Where there is less than 1.6 metres of earth cover over the Aqueduct and further excavation is required either adjacent to or over the Aqueduct, utilize only smooth edged excavation buckets, soft excavation or hand excavation techniques.
- (iii) Where there is less than 2.5 m of cover over the Aqueduct, offset backhoe or excavation equipment from Aqueduct, a minimum of 2.5 m from Aqueduct centerline, to carry out excavation. Only single live loads will be permitted on the Aqueduct at any one time.

(c) Subgrade Construction

- (i) Subgrade compaction shall be limited to static compaction methods and only with equipment that are well within the rated loading superimposed loading capacity of the Aqueduct.
- (ii) Stage work activities to minimize the time period that unprotected subgrade is exposed to the environment and protect the subgrade against the impacts of adverse weather if sub-base/ base course construction activities are not sequential with excavation.

(d) Sub-base and Base Course Construction

- (i) Sub-base or base course materials shall not be dumped directly on pipelines but shall be carefully bladed in-place.
- (ii) Sub-base compaction shall be either carried out by static methods without vibration or with smaller approved equipment such as hand held plate packers or smaller roller equipment.

E6.4.2 The Contractor shall ensure that all work crew members understand and observe the requirements of this specification. Prior to commencement of on-site work, the Contractor shall jointly conduct an orientation meeting with the Contractor Administrator with all superintendents, foremen and heavy equipment operators to make all workers on site are fully cognizant of the limitations of altered loading on the Aqueduct, the ramifications of inadvertent damage to the pipelines, the constraints associated with work in close proximity to the Aqueduct and the specific details of the Construction Method Statement in instances where a Construction Method Statement is in effect.

E6.4.3 E26.4.3 Employees of the Contractor or any Subcontractor that fail to comply with the conditions for working in close proximity to the Aqueduct shall be promptly removed from the Site.

E6.5 MEASUREMENT AND PAYMENT

E6.5.1 No measurement or payment will be made for the works listed in this specification.

E7. SURFACE RESTORATIONS

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

E8. DOUBLE CUTTING OF CONCRETE PAVEMENT

E8.1 DESCRIPTION

E8.1.1 General

- (a) Further to CW 3230-R6 and CW 3235-R8, this specification covers double cutting of concrete pavement.

E8.1.2 Referenced Standard Construction Specifications

- (a) CW 3230-R6 – Full-Depth Patching of Existing Pavement Slabs and Joints.
- (b) CW 3235-R* - Renewal of Existing Miscellaneous Concrete Slabs.

E8.2 MATERIALS

E8.2.1 As per City of Winnipeg Specifications, CW 3230-R6 and CW 3235-R8.

E8.3 CONSTRUCTION METHODS

E8.3.1 In addition to City of Winnipeg Specifications, CW 3230-R6 Section 9.1 and CW 3235-R8 Section 3.1, the Contractor shall double cut each joint.

E8.3.2 The Contractor shall cut, to full depth, two cuts 150mm apart at every concrete joint to ensure that no chipping, spalling, or other damage to adjacent pavement occurs during removal, to the Contract Administrator's satisfaction.

E8.3.3 Should the adjacent pavement chip, spall or otherwise be damaged, the Contractor shall re-saw cut the pavement edge and remove the damaged concrete, to the Contract Administrator's satisfaction.

E8.4 MEASUREMENT AND PAYMENT

E8.4.1 There will be no measurement or payment for double cutting of concrete pavement as described in this specification.

E9. PARTIAL DEPTH CONCRETE REPAIRS

E9.1 DESCRIPTION

E9.1.1 This Specification shall cover all operations relating to partial depth concrete repairs of concrete pavement joints. The work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all work as hereinafter specified.

E9.1.2 Referenced Standard Construction Specifications

- (a) CW 3310 – Portland Cement Concrete Pavement Works.

E9.2 MATERIALS

E9.2.1 Concrete Repair Materials

- (a) Acceptable material to be used for the partial depth repairs is Five Star Highway Patch. This material shall be covered and kept out of direct sunlight when being stored. No substitutions are allowed for this material.
- (b) Clean and potable water is to be used for mixing of the patching material. Water used for mixing must not exceed 25° Celsius.
- (c) 10 mm gravel in accordance with the following gradation:
 - Sieve % Passing
 - 10 100%
 - 5 0 – 15%
 - 2.5 0 – 5%
 - 80 micron 0 – 1%
- (d) Curing Compound will be Type 2, white-pigmented and water based liquid membrane forming curing in accordance with ASTM C309.

E9.2.2 Bond Breaker

- (a) Bond Breaker shall be Styrofoam (6.5 ± .5 mm thick) or waxed cardboard or other suitable product approved by the Contract Administrator.

E9.3 EQUIPMENT

- E9.3.1 Chipping hammers shall be either Hilti TE 905 electric driven or if using air driven hammers, shall be less than or equal to 13.5 kg, combined with sharp chipping tempered hammer bits.
- E9.3.2 Sand blasting equipment shall be air compressor operated with a nozzle size matched to the air compressor pressure. Preferred equipment is:
 - (a) Clemco Model 2020 with a #4 nozzle on a dolly using Black Diamond 20/40 grit at an operating pressure of 110 PSI
Acceptable sand blasting equipment is:
 - (b) Clemco Model 1042 using fine silica sand at an operating pressure of 100 PSI.
- E9.3.3 An oil free jetted air compressor shall be used to blow out repairs, vacuum will not be acceptable.
- E9.3.4 Quickie Saw, capable of holding 2-14" diamond tip blades and must be used in conjunction with a cart to make long straight cuts.
- E9.3.5 A mason's hammer for sounding concrete.
- E9.3.6 Calibrated 3 litre (2.84 quart) water container.

E9.4 CONSTRUCTION METHODS

- E9.4.1 Remove any existing AMZ or asphaltic material if applicable from the concrete surface adjacent to the area to be repaired.
- E9.4.2 Sawcut the repair edge a minimum width of 25 mm beyond the edge of the deteriorated concrete, to a minimum depth of 25 mm. Sawcuts shall be made parallel to the joint. No diagonal cuts are allowed. For pavements where deterioration is observed 50 mm or less in depth, a 12 mm edge sawcut can be utilized.
- E9.4.3 Remove existing sealant 100 mm beyond the ends of the repair.
- E9.4.4 Remove all loose or deteriorated concrete with either an electric or air driven 13.5 kg chipping hammer without damaging the saw cut or existing joint. If during removal, damage occurs beyond the sawcut, remove the concrete at a 45° angle down to the joint. A new sawcut is not required.
- E9.4.5 Sound the concrete using sight, sound and feel with a mason's hammer to determine the presence of additional deteriorated concrete. Complete additional removal of any unsound concrete, as stated above.
- E9.4.6 If any of the following conditions are present in a concrete joint, repairs should be completed as a full depth repair:
 - (a) Vertical displacement of the concrete slab by more than 5mm.
 - (b) Corrosion of the tie bars or dowels.
 - (c) Concrete deterioration is present to the bottom or around the existing tie bars or dowels.
 - (d) Improper layout of original pavement joints.
- E9.4.7 Sawcut 6 mm wide along the existing joint, to a depth of 10mm below the deepest part of the deteriorated concrete or to the depth of the steel. The saw cut shall extend the full length of the repair area. Do not cut the steel.
- E9.4.8 Sandblast the concrete surface of the repair area, the saw cut run-outs and 25mm beyond the perimeter of the repair area to ensure that the concrete surface is rough and clean. The Contractor shall be responsible for protecting traffic during sandblasting.

- E9.4.9 Use compressed air that has an oil free air jet having sufficient volume and pressure to remove dust and loose particles.
- E9.4.10 Place a 6 mm bond breaker to the full length and depth of the saw cut to match the pavement surface. The bond breaker shall extend 50 mm beyond the edge of the repair.
- E9.4.11 Mix the concrete repair material in accordance with the manufacturer's guidelines and according to the following instructions:
- (a) Material and water are to be stored in an enclosed vehicle or facility.
 - (b) Water for mixing must be no more than 25° Celsius and must be clean and potable. If the mix temperature is greater than 25° Celsius bags of cubed ice shall be used for mixing in the water. Bags shall remain intact to keep the ice cubes from mixing in the water.
 - (c) Remove old mix material from the pail by scraping the bucket after every batch.
- E9.4.12 The existing concrete surface shall be misted until immediately prior to placement of the repair material. If the temperature of the concrete is too high place ice in the hand sprayer to reduce the temperature.
- E9.4.13 Place the concrete repair material according to the following instructions:
- (a) Place the repair material on both sides of the bond breaker at the same time. The bond breaker must remain straight during placement of the repair material.
 - (b) Start placing repair material on the high side of the joint if possible. Plan the placement so there will be a minimum number of ends of active material where continuous placement is happening.
 - (c) Do not do partial fill with a layer on the bottom between batches. Only bulkhead a cold joint. If a cold joint is placed, sand blast before butting new material against the bulkhead. Create a cold joint by striking off vertically and removing excess repair material. To keep more than one joint active when more than one head of material is being worked on, use part of each succeeding batch to extend the working time of each active repair material head.
 - (d) To finish a repair, strike off material with the edge of a trowel flush with the existing concrete and finish with a steel trowel.
 - (e) Do not add additional water during mixing or after mixing as it will result in strength loss of the repair material.
 - (f) Use minimal motions to finish the surface. Overworking will result in scaling or spalling of the repair surface.
 - (g) The finished concrete shall be flush with the adjacent existing concrete with a tolerance of 6 mm high and 0 mm low
- E9.4.14 Saw cut run-outs shall be filled with concrete repair material.
- E9.4.15 Uniformly apply water based white pigmented curing compound once the material has set up.
- E9.4.16 Sawcut the width and depth to match the existing pavement joint reservoir and reseal.

E9.5 MEASUREMENT & PAYMENT

- E9.5.1 Construction of Partial Depth Concrete Repairs will be measured on an area basis and paid for at the Contract Unit Price per square metre for "Partial Depth Concrete Repairs". The area to be paid for will be the total number of square meters of partial depth concrete repairs supplied and placed in accordance with this specification and accepted by the Contract Administrator, including all materials and operations herein described and all other items incidental to the Work included in this Specification. Any partial depth repair that is less than 0.03 m² shall be measured as 0.03 m².

E10. PATCHING OF EXISTING PAVEMENT

DESCRIPTION

E10.1 General

- E10.1.1 This specification covers patching of existing concrete pavement in preparation for an asphalt overlay.
- E10.1.2 Referenced Standard Construction Specifications
 - (a) CW 3110 – Sub-Grade, Sub-Base and Base Course Construction.
 - (b) CW 3130 – Supply and Installation of Geotextile Fabrics.
 - (c) CW 3410 – Asphaltic Concrete Pavement Works.

MATERIALS

E10.2 Crushed Sub-Base Material

- E10.2.1 Crushed Sub-base material will have a maximum aggregate size of 50 millimetre and be supplied in accordance with Section 2.1 of CW 3110.

E10.3 Geotextile Fabric

- E10.3.1 Geotextile fabric will be supplied in accordance with Section 2 of CW 3130.

E10.4 Asphalt Material

- E10.4.1 Asphalt material will be Type 1A and will be supplied in accordance with Sections 5 and 6 of CW 3410.

CONSTRUCTION METHODS

E10.5 General

- E10.5.1 Remove existing concrete pavement to a minimum width of 1.5 metres at locations as shown on the Drawings or as directed by the Contract Administrator in accordance with Section 3.1 of Specification CW 3110.
- E10.5.2 Excavate to a depth of 350 millimetres below the top of the existing pavement.
- E10.5.3 Compact existing sub-grade to a minimum of 95% Standard Proctor Density.
- E10.5.4 Place separation/reinforcement geotextile fabric in accordance with Specification CW 3130.
- E10.5.5 Place and compact crushed sub-base material in accordance with CW 3110 to a 300 millimetres compacted depth. Compact to a minimum of 100% Standard Proctor Density.
- E10.5.6 Place and compact asphalt material to a 50 millimetres compacted depth matching the top of the existing concrete pavement. Compact to an average of 95% percent of the 75 Blow Marshall Density of the paving mixture with no individual test being less than 90% percent.
- E10.5.7 Each layer must be levelled and accepted by the Contract Administrator before the succeeding layer may be placed.
- E10.5.8 Additional excavation and placement of sub-base material beyond the identified pavement structure will be completed in accordance with CW 3110 as directed by the Contract Administrator.

MEASUREMENT AND PAYMENT

E10.6 Pavement Patching

- E10.6.1 Pavement patching will be measured on an area basis and paid for at the Contract Unit Price per square metre for "Pavement Patching". The area to be paid for will be the total

number of square metres of pavement patched in accordance with this specification, accepted and measured by the Contract Administrator.

E11. CONCRETE FINISHING TOLERANCES

E11.1 DESCRIPTION

E11.1.1 Further to CW 3310, this specification covers the tolerances of concrete pavement.

E11.1.2 Referenced Standard Construction Specifications

(a) CW 3310 – Portland Cement Concrete Pavement Works.

E11.2 MATERIALS

E11.2.1 As per City of Winnipeg Specifications, CW 3310.

E11.3 CONSTRUCTION METHODS

E11.3.1 In addition to City of Winnipeg Specifications, CW 3310 Section 9.5, the Contractor shall ensure that the tolerances for the finishing of concrete pavements are met.

E11.3.2 The Contractor shall ensure that the finished grade of a concrete joint and/or slab is within an accuracy of plus or minus 5 mm with a rounded shape 3.0 metre long metal straight edge on every joint and slab.

E11.3.3 Since these pavements are scheduled for diamond grinding, if upon curing, the old pavement to new joint or slab fall outside the tolerances mentioned in this specification the concrete pavement repair will be removed and replaced to the Contract Administrator's satisfaction, at the Contractor's expense.

E11.4 MEASUREMENT AND PAYMENT

E11.4.1 There will be no measurement and payment for concrete finishing tolerances as described in this specification.

E12. SALT TOLERANT GRASS SEEDING

DESCRIPTION

E12.1 Further to CW 3520 and CW3540, this specification shall cover sub-grade preparation and the supply and placement of Salt Tolerant Grass Seed.

MATERIALS

E12.2 Salt Tolerant Grass Seed

E12.2.1 Salt Tolerant Grass Seed for regional and collector boulevards, medians and interchange areas shall be a mixture composed of:

(a) Seventy percent (70%) Fults or Nuttals Alkaligrass (*Puccinellia* spp.), twenty percent (20%) Audubon or Aberdeen Creeping Red Fescue and ten percent (10%) Perennial Ryegrass.

EQUIPMENT

E12.3 Scarification equipment shall be suitable for the area being scarified, shall be capable of scarifying the sub-grade to the specified depth and shall be accepted by the Contract Administrator. For confined areas a toothed bucket may be acceptable. For larger areas tilling equipment may be required.

CONSTRUCTION METHODS

E12.4 Preparation of Existing Grade

- E12.4.1 Prior to placing topsoil, in areas to be seeded greater in width than 600mm, prepare the existing sub-grade by scarifying to a minimum depth of 75mm and to a maximum depth of 100mm to the satisfaction of the Contract Administrator.
- E12.4.2 Scarification shall consist of breaking up and loosening the sub-grade. No scarification shall occur within the edge of a tree canopy (or drip line).

E12.5 Salt Tolerant Grass Seeding

- E12.5.1 Salt Tolerant Grass Seed shall be sown at a rate of 2.2 kilograms per 100 square meters.

MEASUREMENT AND PAYMENT

- E12.6 Supply, placement and maintenance of Salt Tolerant Grass Seed will be paid for at the Contract Unit Price per square metre for "Salt Tolerant Grass Seeding", measured as specified herein, which price shall be payment in full for supplying all materials and for completing all operations herein described and all other items incidental to the work included in this Specification. Payment for Salt Tolerant Grass Seeding shall be in accordance with the following:
 - (a) Sixty five (65%) percent of quantity following supply and placement.
 - (b) Remaining thirty five (35%) percent of quantity following termination of the Maintenance Period.

E13. SUPPLY AND INSTALL DETECTABLE WARNING SURFACE TILES

DESCRIPTION

- E13.1 This specification covers the supply and installation of detectable warning surface tiles in sidewalk ramps and multi-use path ramps.

SPECIFICATIONS AND DRAWINGS

- E13.2 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
- E13.3 SDE Drawings
 - (a) SDE-229A - Curb Ramp Layout for Intersections
 - (b) SDE-229AA - Detectable Warning Surface Tile in Curb Ramps for Intersections, Layout Option 1
 - (c) SDE-229AC – 300x300 Detectable Warning Surface Tile, Layout Option 3
 - (d) SDE-229AD – 300x300 Detectable Warning Surface Tile, Layout Option 3 DETAIL
 - (e) SDE-229AE – Curb Ramp for Pedestrian Corridor with a Traffic Control Device
 - (f) SDE-229AF – Detectable Warning Surface Tile Orientation for Offset Intersections
 - (g) SDE-229BB – Detectable Warning Surface Tile in Curb Ramps for Medians
 - (h) SDE-229E - Curb Ramp Depressed Curb

MATERIALS

- E13.4 Acceptable Detectable Warning Surface Tile product is:
- (a) 610 x 1220mm (2'x 4') Cast in Place (Federal Yellow).
 - (b) 300 x 300mm (1'x1') Cast in Place (Federal Yellow).

Manufacturer - ADA Solutions Inc.,
Supplier -
Brock White Canada
879 Keewatin Street
Winnipeg, Manitoba

Attention: Bernie Giesbrecht
Ph: 204-479-8089

or

Manufacturer - Armor Tile Tactile Systems
Supplier –
Alsip's Building Products
1 Cole Avenue
Winnipeg, Manitoba

Attention: Jason Alsip
Ph. 204-667-3330

- E13.4.1 Detectable warning surface tiles shall be Federal Yellow (USA); or Safety Yellow (Canada).
- E13.4.2 Detectable warning surface tiles shall be cast in place type with ribs. (Anchored type is not allowed)
- E13.4.3 Truncated domes on detectable warning surface tiles shall be in accordance with ADA Accessibility Guidelines (ADAAG).

CONSTRUCTION METHODS

- E13.5 Selection of Layout Options
 - E13.5.1 Select the appropriate design layout for detectable warning surface tiles according to the following prioritized order:
 - E13.5.2 Layout Option One – Install detectable warning surface tiles in accordance with SDE-229A and SDE-229AA.
 - E13.5.3 If two 610mm x 1220mm tiles would physically overlap each other, or would be within 150mm of each other, or if one tile would lie within the circulation path towards the other tile, then install the detectable warning surface tiles according to the following order, Layout Option Two(2) or Three(3).
 - E13.5.4 Layout Option Two – Separate the tiles by moving either one or both tiles along the curb line in opposite directions, in accordance with this Specification, and keeping the ramp and pedestrian road crossing as perpendicular to the road as is possible, as directed by the Contact Administrator.
 - E13.5.5 Layout Option Three – Install detectable warning surface tiles in accordance with SDE-229AC and SDE-229AD.
 - E13.6 General
 - E13.6.1 Construct curb ramps, sidewalk ramps and multi-use paths in accordance with the referenced Standard Construction Specifications, Standard Details, and SDE drawings.

- E13.6.2 Detectable warning surface tile shall not be placed at private approaches or alleys.
- E13.6.3 All curb ramps opposite each other shall have the same width.
- E13.6.4 Construct the lip of the depressed curb in accordance with SDE – 229E.
- E13.6.5 Construct ramp slopes in accordance with SD-229C and SD-229D. Use a ramp slope with preference for a slope as close to 5% maximum as possible.
- E13.6.6 Construct flare and curb taper slopes according to the following:
- If the curb taper is within a grassed area, construct the curb taper 900mm in length.
 - When the flare and curb taper are in a full width sidewalk and the sidewalk area at the top of the ramp is <1500mm in width, construct the flare and curb taper at 5% slope to allow safe passage for wheelchairs in this area.
 - When the flare and curb taper are in a full width sidewalk and the sidewalk area at the top of the ramp is ≥ 1500 mm in width, construct the flare and curb taper at 10% slope.
- E13.6.7 Install the detectable warning surface tile in accordance with E13.10.
- E13.6.8 Trim the corner of the tile at curb radii in accordance with SDE-229AA and SDE-229AD.
- E13.6.9 Install the detectable warning surface tiles as shown on the referenced drawings or as directed by the Contract Administrator.
- E13.6.10 Orient the detectable warning surface tiles perpendicular to the crossing direction.
- E13.6.11 Locate gratings, access covers and other appurtenances outside of the sidewalk ramps, depressed curbs, rest areas, and gutters in front of the depressed curbs, as directed by the Contact Administrator.
- E13.7 Medians and Refuge Islands
- E13.7.1 Where the distance from back of curb to back of curb is 1.32m or greater, install one detectable warning surface tile 50mm from the back of each curb.
- E13.7.2 Where the distance from back of curb to back of curb is less than 1.32m, place the tiles 50mm from the back of curb and cut the tile(s) to fill the remaining area between the curbs.
- E13.8 2.0m Wide Depressed Curb for Multi-use Paths
- E13.8.1 Construct a curb ramp with a 2.0m depressed curb at high volume collector and regional street intersections in accordance with SDE-229E, in accordance with Public Works Department guidelines and as directed by the Contract Administrator.
- E13.8.2 Construct the concrete ramp 2.0m wide and a minimum of 1.50m deep from back of curb.
- E13.8.3 Construct the curb ramp in accordance with SD-229C and SD229D.
- E13.8.4 Install one 610mm x 1220mm tile centered to the 2.0m wide depressed curb. The part of the tile nearest the curb must be 50mm from the back of curb similar to tile placement in SDE-229AA.
- E13.9 3.5m Wide Depressed Curb for Multi-use Paths
- E13.9.1 Construct a curb ramp with a 3.5m depressed curb at low volume collector and residential street intersections in accordance with SDE-229E, in accordance with Public Works Department guidelines and as directed by the Contact Administrator.
- E13.9.2 Construct the concrete ramp 3.5m wide and a minimum of 1.50m deep from back of curb.
- E13.9.3 Construct the curb ramp in accordance with SD-229C and SD229D.
- E13.9.4 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-229AA.

- E13.9.5 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.

INSTALLATION INSTRUCTIONS

- E13.10 Installation Instructions for 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. Do not set Cast In Place tiles in asphaltic concrete.
 - (c) The physical characteristics of the concrete shall be consistent with the contract specifications. An overly wet mix will cause the tile to float. Under these conditions, suitable weights such as 2 concrete blocks or sandbags (12 kg) 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) Pour and finish the concrete using typical mason's tools, however, 12 kg 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 can be employed, if desired. The vibrating unit should be fixed to a soft base such as wood, at least 300mm 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. Remove the plastic sheeting after the concrete has set.
 - (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) Drill additional 6mm vent holes in the ribs under the tile as required to help seat the tile in the concrete.
 - (i) The concrete shall be poured and finished true and smooth to the required dimensions and slope prior to the tile placement. The tile shall be placed in accordance with the contract drawings.
 - (j) The Cast In Place Detectable/Tactile Warning Surface Tiles shall be tamped (or vibrated) into the fresh concrete to ensure that the surface of the truncated domes are flush to the adjacent concrete surface. Embedment of the tile so the top of the truncated domes are flush with the adjacent concrete will reduce the possibility of damage due to snow clearing operations. 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.
 - (k) While concrete is workable, a 3/8" radius edging tool shall be used to create a finished edge of concrete, a steel trowel shall then be used to finish the concrete around the tile's perimeter.
 - (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 12kg each shall be placed on each tile as necessary to ensure solid contact of the underside of tile to concrete.
 - (n) If required, individual tiles can be bolted together using 1/4 inch or equivalent hardware. This can help to ensure that adjacent tiles are flush to each other during the installation process. Tape or caulking can be placed on the underside of the bolted butt joint to ensure that

concrete does not rise up between the tiles during installation. Any protective plastic wrap which was peeled back to facilitate bolting or cutting, should be replaced and taped to ensure that the tile surface remains free of concrete during the installation process.

- (o) 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.
- (p) Tiles can be cut 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) Bolt 300mm x 300mm tiles together prior to placing in plastic concrete. This ensures that the surface of the tiles are flush with each other.

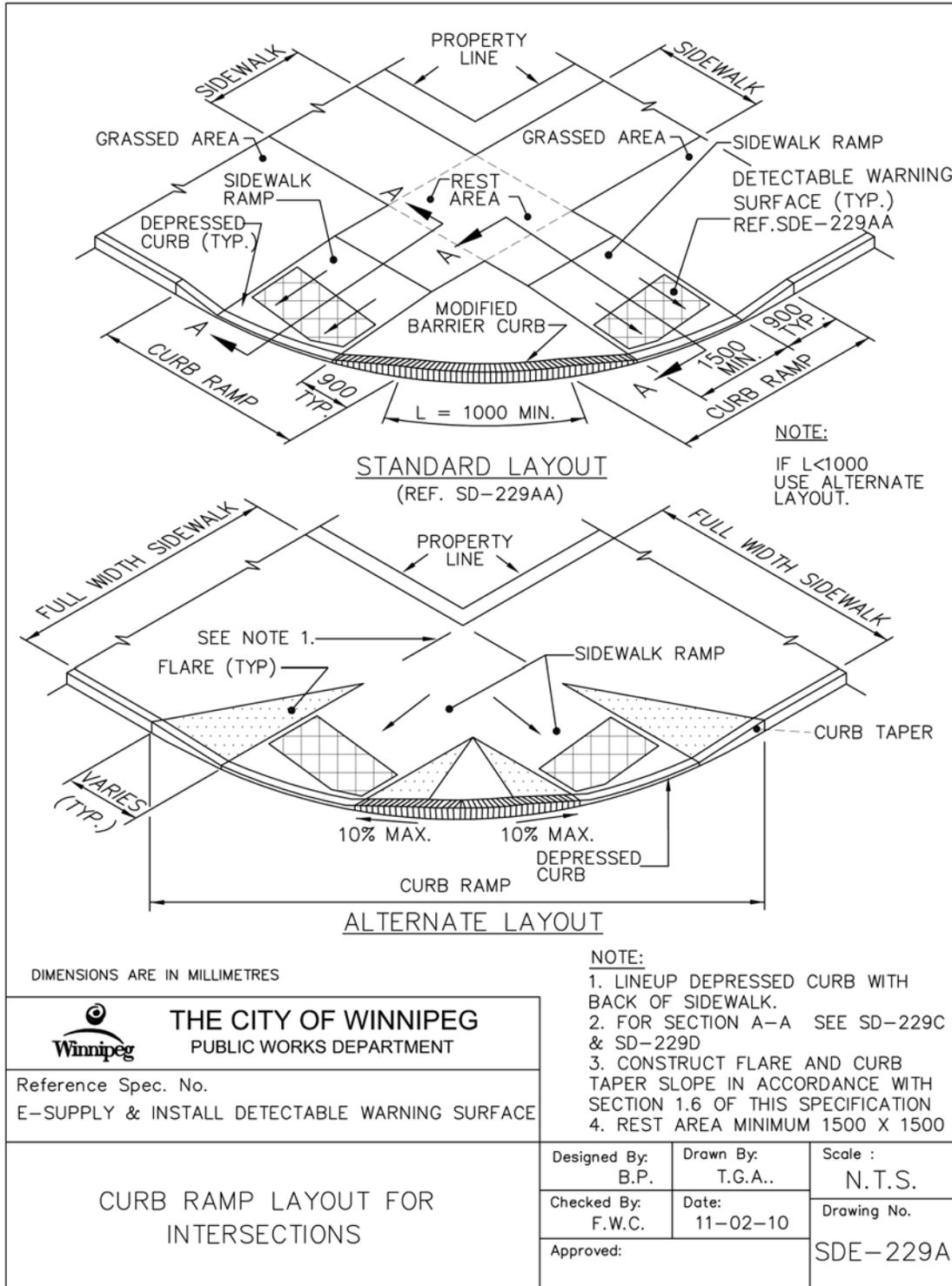
MEASUREMENT AND PAYMENT

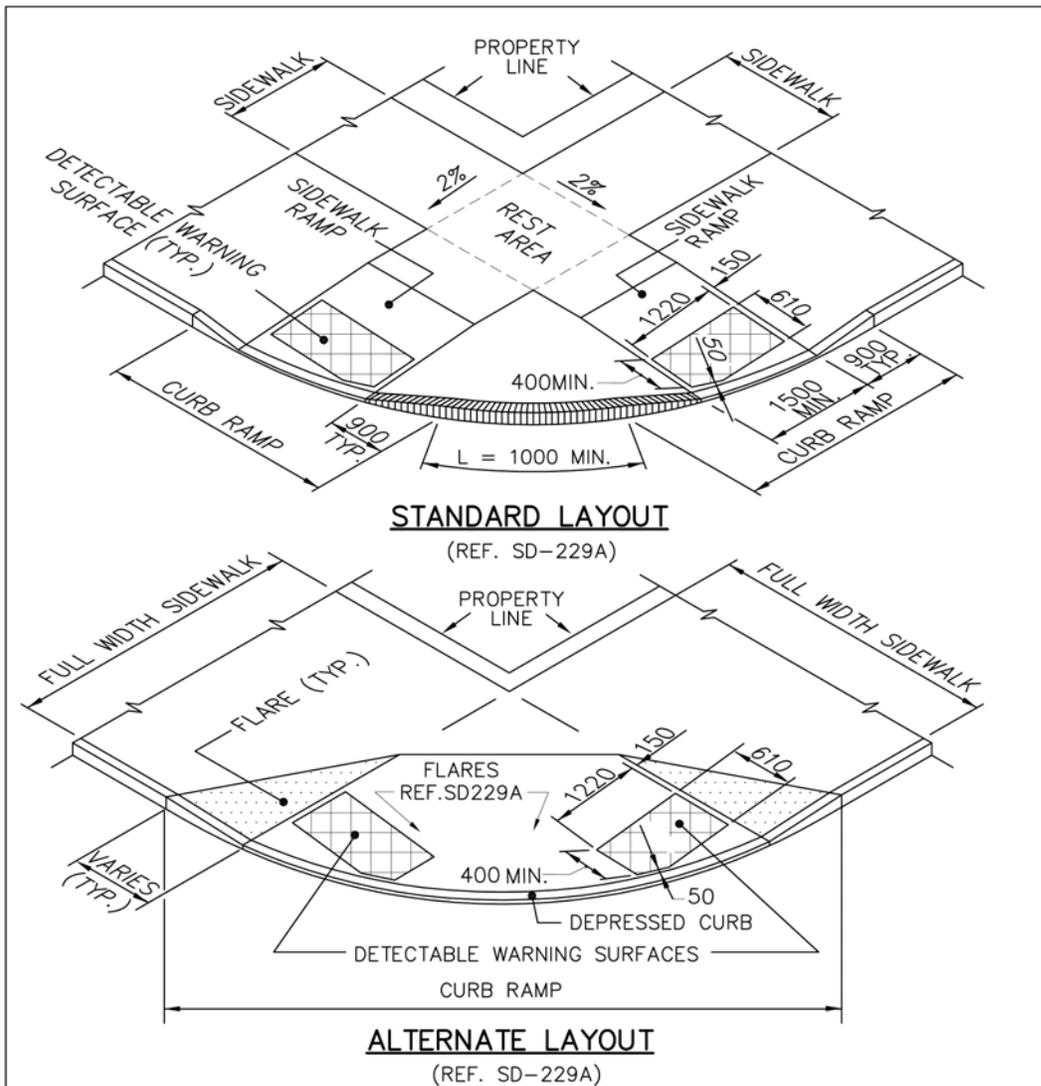
- E13.11 Detectable Warning Surface Tiles shall be measured on a unit basis and paid for at the Contract Unit Price per unit for the "Items of Work" listed here below. The number of units to be paid for shall be the total number of detectable warning surface tiles supplied and installed in accordance with this specification, accepted and measured by the Contract Administrator.

Detectable Warning Surface Tiles:

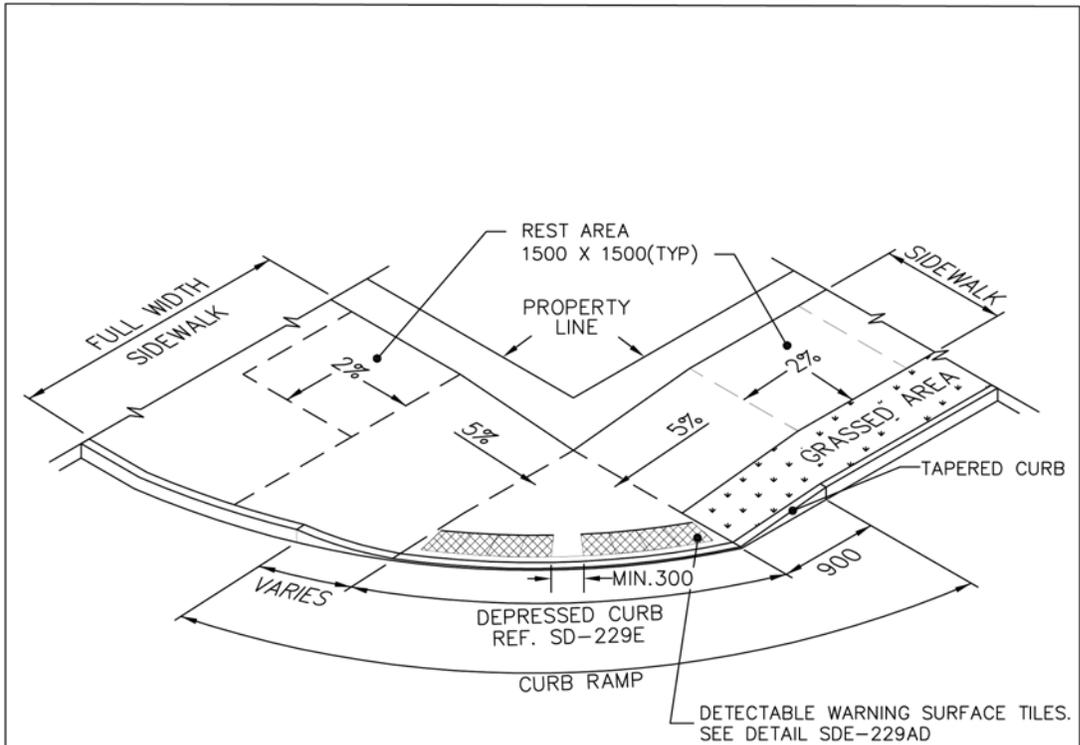
- i) 300mm x 300mm tiles
 - ii) 610mm x 1220mm tiles
- E13.12 The area under the detectable warning surface tile is part of the concrete sidewalk ramp and will be paid in accordance with CW 3235 or CW 3325.
- E13.13 The concrete sidewalk ramp and the concrete ramp for multi-use paths will be paid as 100mm sidewalk in accordance with CW 3235 or CW 3325.
- E13.14 Curb ramp will be paid in accordance with CW 3240 or CW 3310.

DRAWINGS



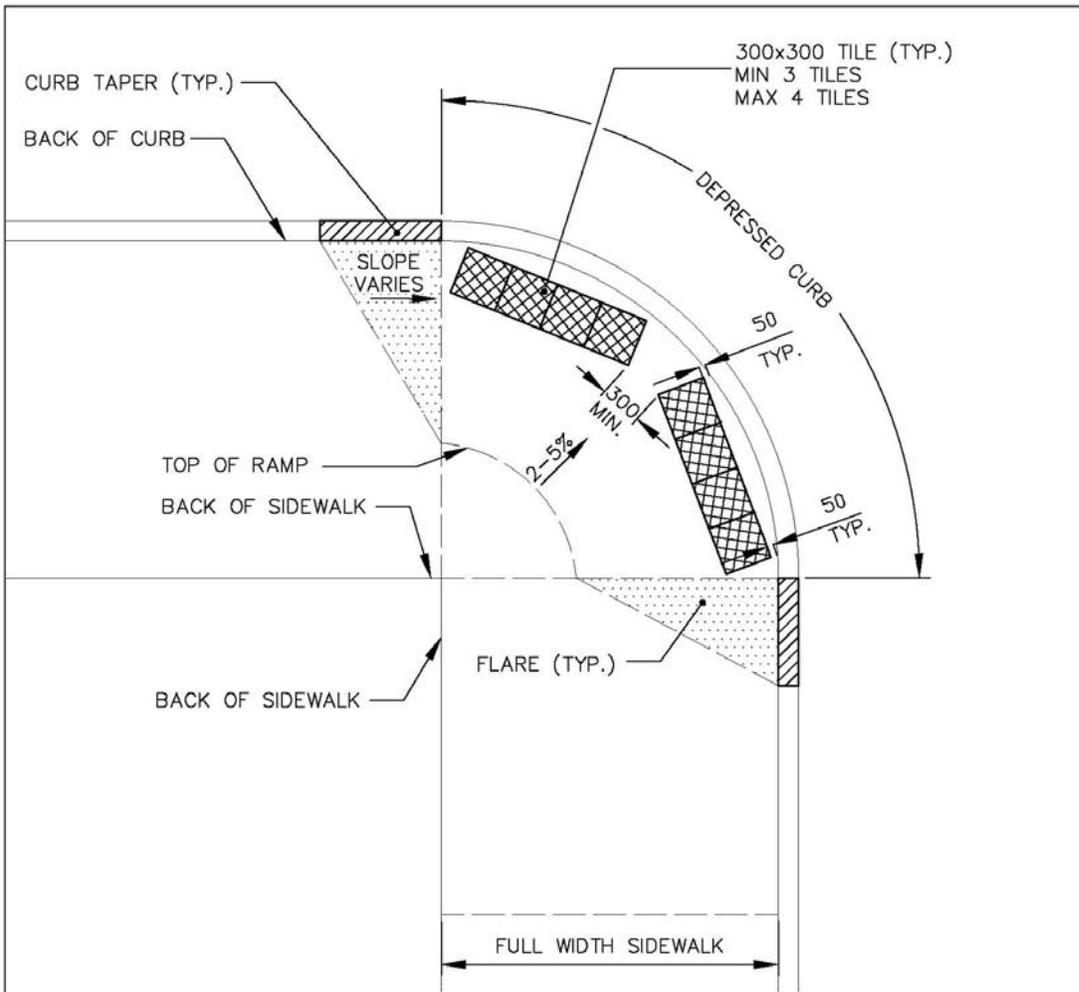


 THE CITY OF WINNIPEG PUBLIC WORKS DEPARTMENT		
Reference Spec. No. CW 3235, CW 3310, CW 3325 E-SUPPLY & INSTALL DETECTABLE WARNING SURFACE		
DIMENSIONS ARE IN MILLIMETRES		
DETECTABLE WARNING SURFACE TILE SURFACE IN CURB RAMPS FOR INTERSECTIONS. LAYOUT OPTION 1	Designed By: B.P.	Drawn By: T.G.A.
	Checked By: F.W.C.	Date: 11-02-10
	Approved:	
		Scale : N.T.S.
		Drawing No. SDE-229AA



NOTES:
 1. PLACE 300x300 DETECTABLE WARNING SURFACE TILES IN ACCORDANCE WITH "SELECTION OF LAYOUT OPTIONS" IN THIS SPECIFICATION.

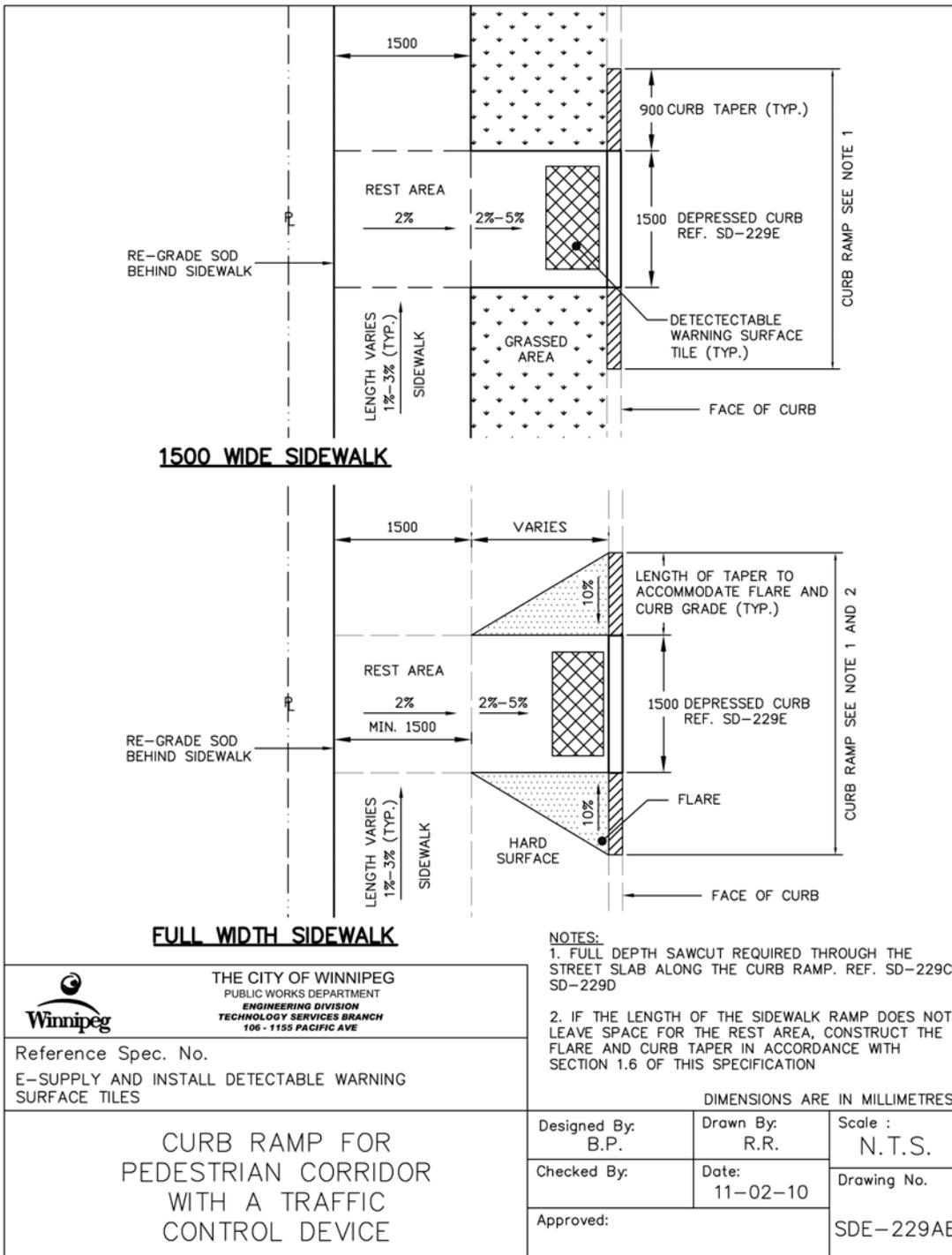
 THE CITY OF WINNIPEG PUBLIC WORKS DEPARTMENT	DIMENSIONS ARE IN MILLIMETRES		
	Reference Spec. No. E-SUPPLY AND INSTALL DETECTABLE WARNING SURFACE TILES	Designed By: B.P.	Drawn By: R.R.
300 X 300 mm DETECTABLE WARNING SURFACE TILE LAYOUT OPTION 3	Checked By:	Date: 11-02-10	Drawing No.
	Approved:	SDE-229AC	



NOTES:
 1. WHEN THE SIDEWALK AREA AT THE TOP OF THE RAMP IS $\geq 1500\text{mm}$ OR $< 1500\text{mm}$ IN WIDTH, CONSTRUCT THE SLOPE OF THE CURB RAMP AND THE CURB TAPER IN ACCORDANCE WITH SECTION 1.6 OF THIS SPECIFICATION.

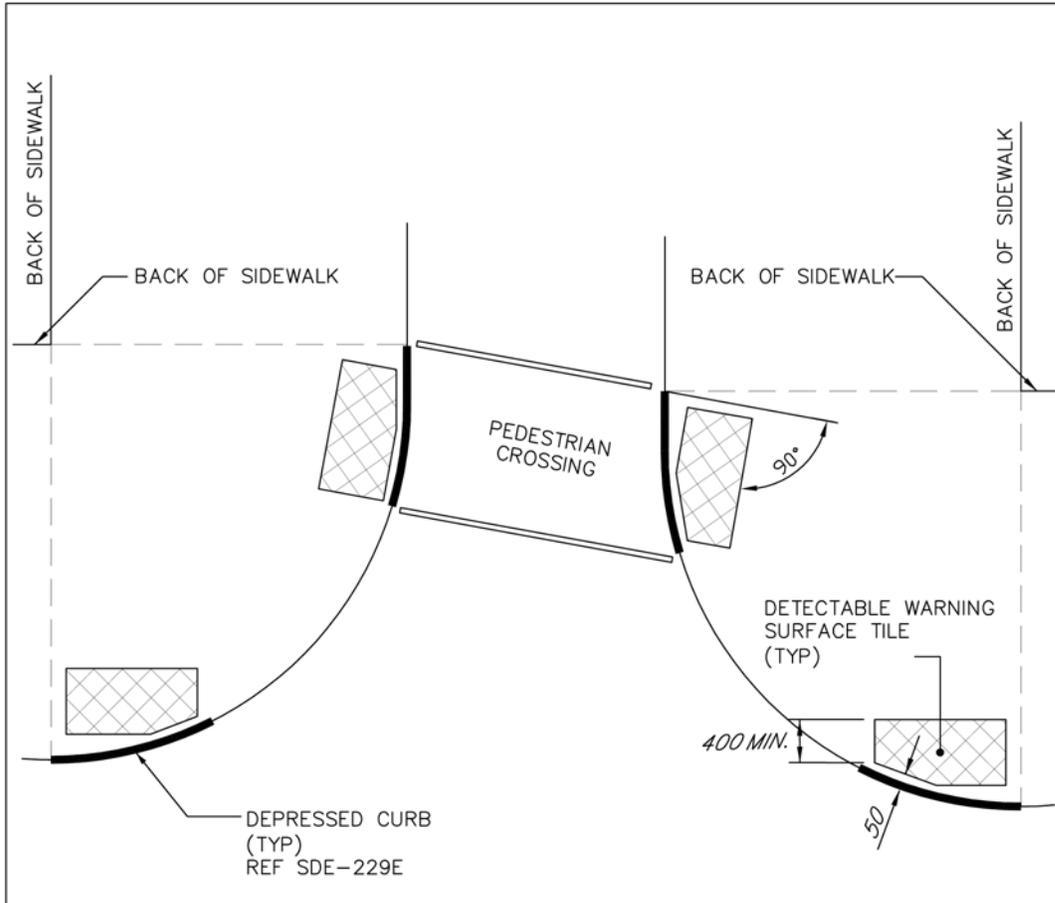
 <p>THE CITY OF WINNIPEG PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION TECHNOLOGY SERVICES BRANCH 106 - 1185 PACIFIC AVE</p>	Reference Spec. No.	
	E-SUPPLY AND INSTALL DETECTABLE WARNING SURFACE TILES	
<p>300x300mm DETECTABLE WARNING SURFACE TILE LAYOUT OPTION 3 DETAIL</p>		

DIMENSIONS ARE IN MILLIMETRES		
Designed By: B.P.	Drawn By: R.R.	Scale : N.T.S.
Checked By:	Date: 11-02-10	Drawing No.
Approved:		SDE-229AD



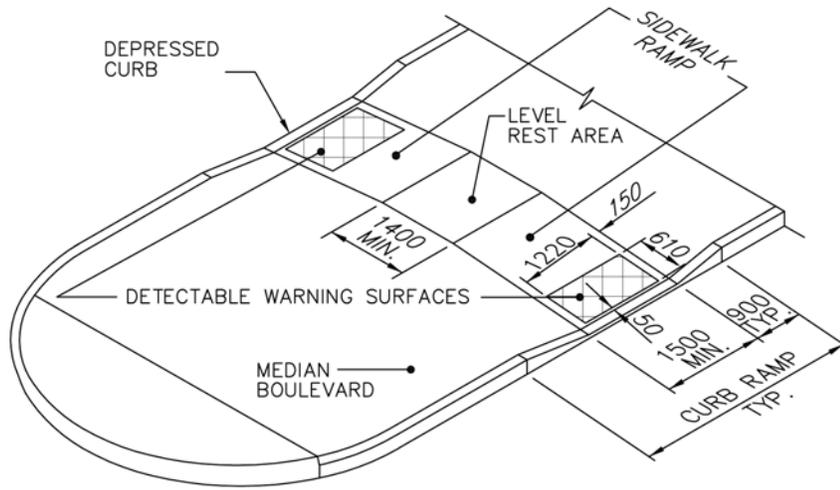

 THE CITY OF WINNIPEG
 PUBLIC WORKS DEPARTMENT
 ENGINEERING DIVISION
 TECHNOLOGY SERVICES BRANCH
 106 - 1155 PACIFIC AVE

Reference Spec. No.
 E-SUPPLY AND INSTALL DETECTABLE WARNING SURFACE TILES



- NOTES:**
 1. LOCATE END OF DEPRESSED CURB IN LINE WITH PROJECTED BACK OF SIDEWALK.
 2. CONSTRUCT FLARES IN ACCORDANCE WITH SDE-229A

 THE CITY OF WINNIPEG PUBLIC WORKS DEPARTMENT		
Reference Spec. No. CW 3235, CW 3310, CW 3325 E-SUPPLY & INSTALL DETECTABLE WARNING SURFACE TILES		
DIMENSIONS ARE IN MILLIMETRES		
DETECTABLE WARNING SURFACE TILE ORIENTATION FOR OFFSET INTERSECTIONS	Designed By: B.P.	Drawn By: T.G.A.
	Checked By: F.W.C.	Date: 11-02-10
	Approved:	
		Scale : N.T.S. Drawing No. SDE-229AF

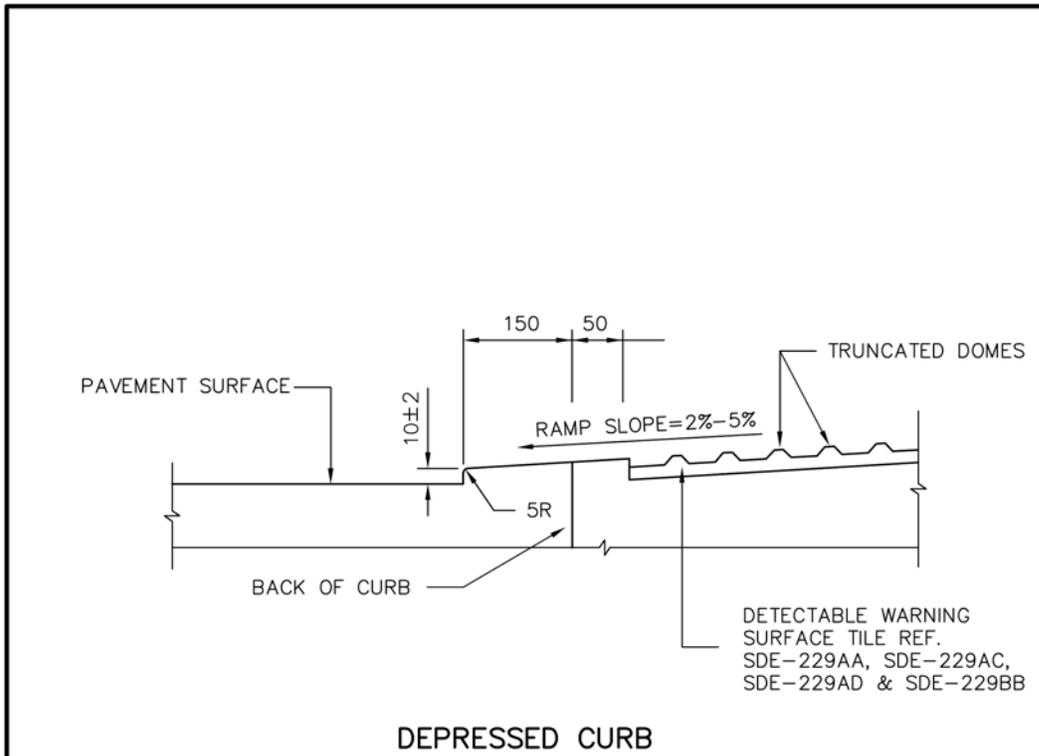


MEDIAN SIDEWALK CROSSING
 (REF. SD-229B)

NOTE:

- FOR NARROW MEDIANS AND REFUGE ISLANDS < 1.32m IN WIDTH, PLACE DETECTABLE WARNING SURFACE FULL WIDTH, MAINTAINING 50mm SPACING FROM BACK OF CURB.

 THE CITY OF WINNIPEG PUBLIC WORKS DEPARTMENT	DIMENSIONS ARE IN MILLIMETRES		
	Reference Spec. No. CW 3235, CW 3310, CW 3325 E-SUPPLY & INSTALL DETECTABLE WARNING SURFACE		
DETECTABLE WARNING SURFACE TILE IN CURB RAMPS FOR MEDIANS	Designed By: B.P.	Drawn By: T.G.A.	Scale : N.T.S.
	Checked By: F.W.C.	Date: 11-02-10	Drawing No.
	Approved:		SDE-229BB



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.

 THE CITY OF WINNIPEG 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: 11-02-10	Drawing No. SDE-229E
	Approved:		

E14. REMOVAL OF EXISTING CULVERTS

E14.1 DESCRIPTION

E14.1.1 This specification covers the removal of existing culverts.

E14.1.2 Referenced Standard Construction Specifications

(a) CW 2030-R7 – Excavation Bedding and Backfill

E14.2 REMOVAL OF EXISTING CULVERTS

E14.2.1 The Contractor shall remove and salvage existing culverts designated for removal within the limits of the Contract and as shown on the Drawings.

E14.2.2 The excavation for removal of existing culverts outside of proposed pavements shall be backfilled to Class 4 standards in accordance with CW 2030. The excavation for removal of existing culverts under proposed pavements shall be backfilled to Class 2 standards in accordance with CW 2030.

E14.2.3 The culverts shall be removed so as not to damage the pipe sections. Where culverts are coupled, the sections shall be separated prior to removal.

E14.2.4 Culverts that are deemed unsalvageable by the Contract Administrator shall be removed and disposed of off Site.

E14.2.5 Salvaged culverts shall be delivered to the City of Winnipeg, Public Works Department, South West District Yard, 1539 Waverley St.

E14.3 MEASUREMENT AND PAYMENT

E14.3.1 The removal of existing culverts will be measured on a length basis for each size of culvert and paid for at the Contract Unit Price for "Removal of Existing Culverts". Length to be paid for will be the total number of lineal metres removed, measured horizontally at grade, in accordance with this specification, accepted and measured by the Contract Administrator.

E14.3.2 Salvaging and delivery or disposal of the culverts shall be included in payment for "Removal of Existing Culverts" and no further payment shall be made.