



THE CITY OF WINNIPEG

BID OPPORTUNITY

BID OPPORTUNITY NO. 151-2011

**ELMWOOD KILDONAN POOL PARKING LOT RECONSTRUCTION – 909
CONCORDIA AVENUE**

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PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

B1.1 ELMWOOD KILDONAN POOL PARKING LOT RECONSTRUCTION – 909 CONCORDIA AVENUE

B2. SUBMISSION DEADLINE

B2.1 The Submission Deadline is 4:00 p.m. Winnipeg time, April 21, 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. SITE INVESTIGATION

B3.1 Further to C3.1, the Bidder may view the Site without making an appointment.

B4. ENQUIRIES

B4.1 All enquiries shall be directed to the Contract Administrator identified in D3.1.

B4.2 If the Bidder finds errors, discrepancies or omissions in the Bid Opportunity, or is unsure of the meaning or intent of any provision therein, the Bidder shall notify the Contract Administrator of the error, discrepancy or omission, or request a clarification as to the meaning or intent of the provision at least five (5) Business Days prior to the Submission Deadline.

B4.3 Responses to enquiries which, in the sole judgment of the Contract Administrator, require a correction to or a clarification of the Bid Opportunity will be provided by the Contract Administrator to all Bidders by issuing an addendum.

B4.4 Responses to enquiries which, in the sole judgment of the Contract Administrator, do not require a correction to or a clarification of the Bid Opportunity will be provided by the Contract Administrator only to the Bidder who made the enquiry.

B4.5 The Bidder shall not be entitled to rely on any response or interpretation received pursuant to B4 unless that response or interpretation is provided by the Contract Administrator in writing.

B5. ADDENDA

B5.1 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.

B5.2 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.

B5.2.1 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>

B5.2.2 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.

B5.2.3 The Bidder shall acknowledge receipt of each addendum in Paragraph 8 of Form A: Bid. Failure to acknowledge receipt of an addendum may render a Bid non-responsive.

B6. SUBSTITUTES

B6.1 The Work is based on the Plant, Materials and methods specified in the Bid Opportunity.

B6.2 Substitutions shall not be allowed unless application has been made to and prior approval has been granted by the Contract Administrator in writing.

B6.3 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.

B6.4 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.

B6.5 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.

B6.6 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.

B6.6.1 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.

B6.7 If the Contract Administrator approves a substitute as an “approved equal”, any Bidder may use the approved equal in place of the specified item.

B6.8 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.

B6.9 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.

B6.10 Notwithstanding B6.2 to B6.9, and in accordance with B7.7, deviations inconsistent with the Bid Opportunity document shall be evaluated in accordance with B14.1(a).

B7. BID COMPONENTS

- B7.1 The Bid shall consist of the following components:
- (a) Form A: Bid;
 - (b) Form B: Prices;
- B7.2 Further to B7.1, the Bidder should include the written correspondence from the Contract Administrator approving a substitute in accordance with B6.
- B7.3 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.
- B7.4 The Bid Submission may be submitted by mail, courier or personal delivery, or by facsimile transmission.
- B7.5 If the Bid Submission is submitted by mail, courier or personal delivery, it shall be enclosed and sealed in an envelope clearly marked with the Bid Opportunity number and the Bidder's name and address, and shall be submitted to:
- The City of Winnipeg
Corporate Finance Department
Materials Management Division
185 King Street, Main Floor
Winnipeg, MB R3B 1J1
- B7.5.1 Samples or other components of the Bid Submission which cannot reasonably be enclosed in the envelope may be packaged separately, but shall be clearly marked with the Bid Opportunity number, the Bidder's name and address, and an indication that the contents are part of the Bidder's Bid Submission.
- B7.6 Bidders are advised not to include any information/literature except as requested in accordance with B7.1.
- B7.7 Bidders are advised that inclusion of terms and conditions inconsistent with the Bid Opportunity document, including the General Conditions, will be evaluated in accordance with B14.1(a).
- B7.8 If the Bid Submission is submitted by facsimile transmission, it shall be submitted to (204) 949-1178.
- B7.8.1 The Bidder is advised that the City cannot take responsibility for the availability of the facsimile machine at any time.
- B7.8.2 Bids submitted by internet electronic mail (e-mail) will not be accepted.

B8. BID

- B8.1 The Bidder shall complete Form A: Bid, making all required entries.
- B8.2 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.
- B8.2.1 If a Bid is submitted jointly by two or more persons, each and all such persons shall identify themselves in accordance with B8.2.

- B8.3 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.
- B8.4 Paragraph 10 of Form A: Bid shall be signed in accordance with the following requirements:
- (a) if the Bidder is a sole proprietor carrying on business in his own name, it shall be signed by the Bidder;
 - (b) if the Bidder is a partnership, it shall be signed by the partner or partners who have authority to sign for the partnership;
 - (c) if the Bidder is a corporation, it shall be signed by its duly authorized officer or officers;
 - (d) if the Bidder is carrying on business under a name other than his 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.
- B8.4.1 The name and official capacity of all individuals signing Form A: Bid should be printed below such signatures.
- B8.4.2 All signatures shall be original.
- B8.5 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.

B9. PRICES

- B9.1 The Bidder shall state a price in Canadian funds for each item of the Work identified on Form B: Prices.
- B9.2 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.
- B9.3 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.
- B9.4 Payments to Non-Resident Contractors are subject to Non-Resident Withholding Tax pursuant to the Income Tax Act (Canada).
- B9.1 The Bidder shall state the lump sum price in Canadian funds for the Work on Form B: Prices.
- B9.1.1 Notwithstanding C12.2.3(c), the price on Form B: Prices shall not include the Manitoba Retail Sales Tax (MRST, also known as PST), which shall be extra where applicable.
- B9.2 Payments to Non-Resident Contractors are subject to Non-Resident Withholding Tax pursuant to the Income Tax Act (Canada).

B10. QUALIFICATION

- B10.1 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.
- B10.2 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>

B10.3 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);

B10.4 Further to B10.3(c), the Bidder shall, within five (5) Business Days of a request by the Contract Administrator, provide proof satisfactory to the Contract Administrator that the Bidder/Subcontractors has a workplace safety and health program meeting the requirements of The Workplace Safety and Health Act (Manitoba), by providing:

- (a) a valid COR certification number under the Certificate of Recognition (COR) Program administered by the 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>)

B10.5 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.

B10.6 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.

B11. OPENING OF BIDS AND RELEASE OF INFORMATION

B11.1 Bids will not be opened publicly.

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/bidopp.asp>

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 9 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 for the time period specified in Paragraph 9 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 10 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 10 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.

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 there from (pass/fail);
- (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B10 (pass/fail);
- (c) Total Bid Price;
- (d) economic analysis of any approved alternative pursuant to B6.

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.

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.

B15.4 Notwithstanding C4, the City will issue a Purchase Order to the successful Bidder in lieu of the execution of a Contract.

B15.5 The Contract, as defined in C1.1, in its entirety shall be deemed to be incorporated in and to form a part of the Purchase Order notwithstanding that it is not necessarily attached to or accompany said Purchase Order.

PART C - GENERAL CONDITIONS

C0. GENERAL CONDITIONS

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

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

- (a) Demolition/Removals
- (b) Land Drainage Sewer
- (c) Earth and Base Works
- (d) Landscaping, Fencing, Signage and Miscellaneous
- (e) Electrical Work

D3. CONTRACT ADMINISTRATOR

D3.1 The Contract Administrator is:

Lou Chubenko
Project Officer II
Planning, Property and Development Department
Municipal Accommodations Division
4th Floor, 185 King Street
Winnipeg, Manitoba R3B 1J1

Telephone No. (204) 470-7881
Facsimile No. (204) 986-7311

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

D4. NOTICES

D4.1 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.

D4.2 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the City, except as expressly otherwise required in D4.3, D4.4 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.

D4.3 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

- D4.4 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: City Solicitor
185 King Street, 3rd Floor
Winnipeg MB R3B 1J1
Facsimile No.: (204) 947-9155

SUBMISSIONS

D5. AUTHORITY TO CARRY ON BUSINESS

- D5.1 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.

D6. SAFE WORK PLAN

- D6.1 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.
- D6.2 The Safe Work Plan should be prepared and submitted in the format shown in the City's template which is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/Safety/default.stm>

D7. INSURANCE

- D7.1 The Contractor shall provide and maintain the following insurance coverage:
- (a) commercial general liability insurance, in the amount of at least two million dollars (\$2,000,000.00) inclusive, with The City of Winnipeg added as an additional insured, with a cross-liability clause, such liability policy to also contain contractual liability, unlicensed motor vehicle liability, non-owned automobile liability and products and completed operations, to remain in place at all times during the performance of the Work and throughout the warranty period;
 - (b) 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;
- D7.2 Deductibles shall be borne by the Contractor.
- D7.3 The Contractor shall provide the Contract Administrator with a certificate(s) of insurance, in a form satisfactory to the City Solicitor, at least two (2) Business Days prior to the commencement of any Work but in no event later than seven (7) Calendar Days from notification of the award of Contract by Purchase Order.
- D7.4 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.

D8. PERFORMANCE SECURITY

- D8.1 If the Contract Price exceeds twenty-five thousand dollars (\$25,000.00), the Contractor shall provide and maintain performance security until the expiration of the warranty period in the form of:
- (a) a performance bond of a company registered to conduct the business of a surety in Manitoba, in the form attached to these Supplemental Conditions (Form H1: Performance Bond), in the amount of fifty percent (50%) of the Contract Price; or
 - (b) an irrevocable standby letter of credit issued by a bank or other financial institution registered to conduct business in Manitoba and drawn on a branch located in Winnipeg, in the form attached to these Supplemental Conditions (Form H2: Irrevocable Standby Letter of Credit), in the amount of fifty percent (50%) of the Contract Price; or
 - (c) a certified cheque or draft payable to "The City of Winnipeg", drawn on a bank or other financial institution registered to conduct business in Manitoba, in the amount of fifty percent (50%) of the Contract Price.
- D8.1.1 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.
- D8.2 The Contractor shall provide the City Solicitor with the required performance security within seven (7) Calendar Days of notification of the award of the Contract by way of Purchase Order and prior to the commencement of any Work on the Site.

D9. SUBCONTRACTOR LIST

- D9.1 The Contractor shall provide the Contract Administrator with a complete list of the Subcontractors whom the Contractor proposes to engage (Form J: Subcontractor List) at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than seven (7) Calendar Days from notification of the award of Contract.

SCHEDULE OF WORK

D10. COMMENCEMENT

- D10.1 The Contractor shall not commence any Work until he is in receipt of a Purchase Order from the Award Authority authorizing the commencement of the Work.
- D10.2 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 D5;
 - (ii) evidence of the workers compensation coverage specified in C6.15;
 - (iii) the Safe Work Plan specified in D6;
 - (iv) evidence of the insurance specified in D7;
 - (v) the performance security specified in D8;
 - (vi) the Subcontractor list specified in D9;
 - (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.
- D10.3 The Contractor shall commence the Work on the Site within seven (7) Working Days of receipt of the Purchase Order.

D11. SUBSTANTIAL PERFORMANCE

- D11.1 The Contractor shall achieve Substantial Performance within forty-five (45) consecutive Working Days of the commencement of the Work as specified in D10.

D11.2 When the Contractor considers the Work to be substantially performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Substantial Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be reinspected.

D11.3 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.

D12. TOTAL PERFORMANCE

D12.1 The Contractor shall achieve Total Performance within sixty (60) consecutive Working Days of the commencement of the Work as specified in D10.

D12.2 When the Contractor or the Contract Administrator considers the Work to be totally performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Total Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be reinspected.

D12.3 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.

D13. LIQUIDATED DAMAGES

D13.1 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 two hundred and fifty dollars (\$250.00) per Working Day for each and every Working Day following the day fixed herein for Substantial Performance during which such failure continues.

D13.2 The amount specified for liquidated damages in D13.1 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.

D13.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

CONTROL OF WORK

D14. JOB MEETINGS

D14.1 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.

D14.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever he deems it necessary.

D15. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)

D15.1 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

D16. INVOICES

D16.1 Further to C12, the Contractor shall submit an invoice for each order delivered to:

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

Facsimile No.: (204) 949-0864
Email: CityWpgAP@winnipeg.ca

D16.2 Invoices must clearly indicate, as a minimum:

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

D16.3 The City will bear no responsibility for delays in approval of invoices which are improperly submitted.

D16.4 Bids Submissions must be submitted to the address in B7.5.

D17. PAYMENT

D17.1 Further to C12, the City may at its option pay the Contractor by direct deposit to the Contractor's banking institution.

WARRANTY

D18. WARRANTY

D18.1 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.

D18.2 Notwithstanding C13.2 or D18.1, 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

FORM H1: PERFORMANCE BOND
(See D8)

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. 151-2011

ELMWOOD KILDONAN POOL PARKING LOT RECONSTRUCTION – 909 CONCORDIA AVENUE

which is by reference made part hereof and is hereinafter referred to as the "Contract".

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

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

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

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

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

_____ day of _____, 20____ .

SIGNED AND SEALED
in the presence of:

(Witness as to Principal if no seal)

(Name of Principal)

Per: _____ (Seal)

Per: _____

(Name of Surety)

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

**FORM H2: IRREVOCABLE STANDBY LETTER OF CREDIT
(PERFORMANCE SECURITY)**
(See D8)

(Date)

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

RE: PERFORMANCE SECURITY - BID OPPORTUNITY NO. 151-2011

ELMWOOD KILDONAN POOL PARKING LOT RECONSTRUCTION – 909 CONCORDIA
AVENUE

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

(Name of Contractor)

(Address of Contractor)

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

_____ Canadian dollars.

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

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

Partial drawings are permitted.

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

(Address)

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

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

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

(Date)

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

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

This credit is subject to the Uniform Customs and Practice for Documentary Credit (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>
C01	EXISTING/DEMOLITION SITE PLAN
C02	LAYOUT PLAN
C03	GRADING PLAN
C04	LANDSCAPING, FENCING AND SIGNAGE PLAN
E01	ELECTRICAL SITE PLAN

E2. SOILS INVESTIGATION REPORT

- E2.1 Further to C3.1, the test holes in Appendix A – Geotechnical Investigation, and as shown on the drawings, are provided to supplement the Contractor's evaluation of the site conditions within the repair work areas. The information is considered reflective only of the actual test holes and/or excavations examined at the locations indicated and at the time of the investigation. However, variations in soil conditions may exist between test holes and fluctuations in ground water levels can be expected seasonally and may occur as a result of construction activities.

E3. HAZARDOUS MATERIALS

- E3.1 If asbestos or other hazardous materials are encountered during the Work of the Contract, the Contractor shall stop all work and notify the Contract Administrator immediately. Removal of hazardous materials shall be dealt with by the City and the Contractor shall await further instruction by the Contract Administrator.

E4. PROTECTION OF EXISTING TREES

- E4.1 The Contractor shall take the following precautionary steps to prevent damage from construction activities to existing trees within the limits of the construction area:
- The Contractor shall not stockpile materials and soil or park vehicles and equipment on boulevards within 2 metres of trees.
 - Trees identified to be at risk by the Contract Administrator are to be strapped with 25 x 100 x 2400mm wood planks, or suitably protected as approved by the Contract Administrator.
 - Excavation shall be performed in a manner that minimizes damage to the existing root systems. Where possible, excavation shall be carried out such that the edge of the excavation shall be a minimum of 1.5 times the diameter (measured in inches), with the

outcome read in feet, from the closest edge of the trunk. Where roots must be cut to facilitate excavation, they shall be pruned neatly at the face of excavation.

- (d) Operation of equipment within the dripline of the trees shall be kept to the minimum required to perform the work required. Equipment shall not be parked, repaired, refuelled; construction materials shall not be stored, and earth materials shall not be stockpiled within the driplines of trees. The dripline of a tree shall be considered to be the ground surface directly beneath the tips of its outermost branches. The Contractor shall ensure that the operations do not cause flooding or sediment deposition on areas where trees are located.
- (e) Work on-site shall be carried out in such a manner so as to minimize damage to existing tree branches. Where damage to branches does occur, they shall be neatly pruned.

E4.2 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.

E4.3 No separate measurement or payment will be made for the protection of trees.

E4.4 Except as required in clause E4.1(c) and E4.1(e), Elm trees shall not be pruned at any time between April 1 and July 31.

E5. CONSTRUCTION STAGING

E5.1 In addition to a construction schedule, the Contractor shall provide a proposed construction staging plan to the Contract Administrator for approval, a minimum seven (7) Business Days in advance of commencing Work. The Contractor shall schedule construction activities to meet the following access requirements:

- (a) Ambulance, fire lane and emergency vehicle access must be maintained at all times to the main entrance of the building.
- (b) A minimum of 50 parking spaces, including 3 handicap spaces, must be available to facility users and staff at all times during construction. Any temporary parking areas shall have temporary line painting and regulatory signs installed.
- (c) Safe pedestrian access to the main entrance of the building must be maintained at all times from the parking and sidewalk areas. Should the Contractor be unable to maintain access to the main entrance, the Contractor shall provide a minimum of 48 hours notification to the Contract Administrator and shall install pedestrian detours to an alternate entrance approved by the Elmwood-Kildonan Pool Supervisor of Building Operation Services.
- (d) Refuse and recycling collection vehicle access must be maintained at all times.

E5.2 The Contractor shall bear all costs associated with providing and maintaining access and parking for all vehicles and pedestrians during construction, as part of his construction staging plan.

E6. TRAFFIC CONTROL

E6.1 Further to Clauses 3.6 and 3.7 of CW 1130, latest edition:

- (a) The Contractor shall construct and maintain temporary asphalt ramps to alleviate vertical pavement obstructions to the satisfaction of the Contract Administrator. No separate measurement or payment will be made for this work.
- (b) In accordance with the Manual of Temporary Traffic Control, the Contractor ("Agency" in this manual), shall make arrangements with the Traffic Services Section of the City of Winnipeg to place temporary regulatory signs. The Contractor shall bear all costs associated with the placement of temporary traffic control devices by the Traffic Services Section of the City of Winnipeg in connection with the Works undertaken by the Contractor.

E7. PEDESTRIAN SAFETY

- E7.1 During the project, the Contractor shall install temporary snow fence and barricades around open excavations and constructions areas. The Contractor shall be responsible for maintaining the snow fence and barricades in a proper working condition. No separate measurement or payment will be made for supply and installation of the snow fence or barricades.

E8. WATER USED BY CONTRACTOR

- E8.1 Further to clause 3.7 of CW1120, latest edition, the contractor shall pay for all costs associated with obtaining water in accordance with the Waterworks By-Law. Sewer charges will not be assessed for water obtained from a hydrant.

E9. PERMITS

DESCRIPTION

- E9.1 General
- E9.1.1 Further to GC:6.12, the Contractor shall give all necessary notices, obtain all necessary permits and pay all fees in order that the Work may be carried out. The Contractor shall submit all plans required by any inspection authority and obtain approval of same before proceeding with the Work, and pay any cost attached to the inspection of such plans.
- E9.1.2 The Contractor shall comply with all laws, ordinances, rules and regulations that would relate the Work.
- E9.1.3 All notices, consents, approvals, statements, authorizations, documents or communications to the City shall be submitted to the Contract Administrator.
- E9.1.4 All Work shall be performed in compliance with the Manitoba Workplace Health and Safety Act.

E10. TEMPORARY UTILITIES

DESCRIPTION

- E10.1 General
- E10.1.1 Further to GC:6.12 the Contractor shall make his own arrangements in connection with the temporary use of lighting, power, gas, sewer, water or other utilities, and pay all costs in connection therewith.
- E10.1.2 All necessary permits, fees and other like expenses as well as the cost of temporary connections to existing facilities shall be arranged and paid for by the Contractor.

E11. LAYOUT OF WORK

DESCRIPTION

- E11.1 General
- E11.1.1 The Contractor shall mark to the extent determined necessary, the location, alignment and elevation of the work by means of stakes, buoys or marks. The Contractor will set control lines and benchmarks by means of stakes, buoys or marks and the Contractor shall make the completed works conform to the lines and marks thus indicated. The Contractor shall furnish all other lines and levels required. The Contractor shall be responsible for the careful preservation of all stakes and marks so set whether relating to his own or to other work. Care must be taken that the Contractor be notified immediately of the disturbance of any such stakes or marks; the cost of correcting any errors arising out of neglect of the Contractor or his agent or his employees, to so notify the Contract Administrator shall be borne entirely by the Contractor.

- E11.1.2 All layouts shall be reviewed and approved by the Contract Administrator prior to construction.
- E11.1.3 Before commencing Work the Contractor shall satisfy himself as to the meaning and correctness of all stakes and marks and no claims shall be entertained by the City of Winnipeg on account of any alleged inaccuracies. If any error or suspected in the plans, specifications or the directions of the Contract Administrator, Work shall be discontinued until the errors are rectified, but no claims shall be made on account of any delay occasioned thereby.
- E11.1.4 The Contractor is responsible to determine the location of all underground utilities and obtain clearances prior to construction. Underground structures as shown on the drawings are based on the best information available but no guarantee is given that all existing utilities are shown or that given locations are exact.

E12. SITE RESTORATION

DESCRIPTION

- E12.1 General
- E12.1.1 Total Performance of the Work shall not be attained until the Contractor has cleaned up the Site and has removed all plant, tools, equipment, waste, debris and surplus foundation earth to the satisfaction of the Contract Administrator. Unless otherwise specified the Contractor shall restore all areas of the Site beyond the established limit of Work, which have been disturbed by the Contractor's operations to as good as or better than the original condition to the satisfaction of the Contract Administrator. The Contractor shall pay all costs associated with this work.
- E12.1.2 All necessary permits, fees and other like expenses as well as the cost of temporary connections to existing facilities shall be arranged and paid for by the Contractor.

E13. DEMOLITION / REMOVALS

DESCRIPTION

- E13.1 General
- E13.1.1 This Specification covers any demolition, removal and temporary relocation work required for new construction and shall amend and supplement Specification CW 3110, latest edition.

CONSTRUCTION METHODS

- E13.2 General
- E13.2.1 Demolition/removals shall be as per the Drawings and as directed by the Contract Administrator.
- E13.2.2 All removal and temporary relocation work shall be done in a careful, workmanlike manner. The use of equipment which might damage portions of the existing items or materials to be relocated will not be permitted. Relocated items shall be placed in areas designated by the Contract Administrator.
- E13.2.3 All debris from removals shall be disposed of by the Contractor.
- E13.3 Pavement Removal
- E13.3.1 Remove existing concrete and asphalt pavement, including parking lot, curbs, approaches, sidewalks, and pads at locations shown on the Drawings and as directed by the Contract Administrator.
- E13.4 Pinned Parking Curb Removal

- E13.4.1 All existing pinned parking curbs shall be removed and disposed of, unless otherwise directed by the Contract Administrator to salvage certain pinned curbs upon request from the facility. Any salvaged pinned parking curbs shall be delivered to the Elmwood-Kildonan Pool Maintenance Supervisor.
- E13.5 Tree and Shrub Removal
- E13.5.1 Remove existing trees and shrubs at locations shown on the Drawings and as directed by the Contract Administrator.
- E13.6 Fence and Bollard Removal
- E13.6.1 Remove existing fencing and bollards at locations shown on the Drawings and as directed by the Contract Administrator. All existing fence posts and bollards to be removed shall be excavated completely to its full buried post length including any concrete bases, visible or not. Fill and re-grade any holes created from the removal of fence post and bollards using an acceptable fill approved by the Contract Administrator.
- E13.7 Remove and Salvage Existing Signage
- E13.7.1 Remove and salvage existing signage, posts and hardware secured to any fencing, light posts or pavement areas to be removed, as directed by the Contract Administrator. Salvaged signs and hardware shall be sorted to the satisfaction of the Contract Administrator and delivered to the Elmwood-Kildonan Pool Maintenance Supervisor.

MEASUREMENT AND PAYMENT

- E13.8 Pinned Parking Curb Removal
- E13.8.1 Removal of existing pinned parking curbs will be measured on a unit basis and paid for at the Contract Unit Price for "Pinned Parking Curb Removal". The amount to be paid for will be the total number of pinned parking curbs removed in accordance with this specification, accepted and measured by the Contract Administrator.
- E13.8.2 No separate measurement or payment will be made for any pinned parking curbs salvaged upon request from the facility.
- E13.9 Fence Removal
- E13.9.1 Fence removal will be measured on a length basis and paid for at the Contract Unit Price per metre for the "Items of Work" listed here below. The length to be paid for will be the total number of metres of fence removed in accordance with this specification and accepted and measured by the Contract Administrator.
- Items of Works:
- i) Wood Post Bumper Fence
 - ii) Wood Bollard c/w Chain
- E13.10 Steel Bollard Removal
- E13.10.1 Removal of existing steel bollards will be measured on a unit basis and paid for at the Contract Unit Price for "Steel Bollard Removal". The amount to be paid for will be the total number of steel bollards removed in accordance with this specification, accepted and measured by the Contract Administrator.
- E13.11 Remove and Salvage Existing Signage
- E13.11.1 Removal and salvage of signage will be measured on a unit basis and paid for at the Contract Unit Price for "Remove and Salvage Existing Signage". The amount to be paid for will be the total number of signs removed and salvaged in accordance with this specification, accepted and measured by the Contract Administrator.

E13.12 Temporary Relocation of Garbage Bins, Recycling Bins, Donation Bins, Bick Racks, and Planters.

E13.12.1 Temporary relocation of garbage bins, recycling bins, donation bins, bike racks and planters will be included in the payment for "Pavement Removal" and no additional payment will be made.

E13.13 Trees and Shrub Removal

E13.13.1 No separate measurement or payment will be made for the removal of existing trees and shrubs. Removal of existing trees and shrubs will be included in the payment for "Pavement Removal".

E14. LAND DRAINAGE SEWER

DESCRIPTION

E14.1 General

E14.1.1 This Specification covers supply and installation of land drainage sewer and shall amend and supplement Specifications CW 2030 and CW 2130, latest editions.

MATERIALS

E14.2 Bedding and Backfill

E14.2.1 Bedding and Backfill will be in accordance with Specification CW 2030, latest edition, with Class 2 Bedding and Backfill used in all pavement areas.

E14.3 Catch Basins

E14.3.1 All catch basins shall have a standard frame with standard grated cover

CONSTRUCTION METHODS.

E14.4 General

E14.4.1 Land drainage sewers will be installed in a trench in accordance with Clause 3.3 of CW 2130, latest edition.

E14.4.2 Inlet control devices shall be installed in locations shown on the construction drawings, in accordance with Specification CW 2130, latest edition.

MEASUREMENT AND PAYMENT

E14.5 Removal of Existing Catch Basin

E14.5.1 Removal of existing catch basin will be included in the payment for installation of new manhole.

E14.6 Inlet Control Device

E14.6.1 Supply and installation of inlet control devices will be included in the payment for "Catch Basins" and no additional payment will be made.

E15. EARTH AND BASE WORKS

DESCRIPTION

E15.1 General

E15.1.1 This Specification shall amend and supplement Specification CW 3110, latest edition.

MATERIALS

E15.2 Sub-Base

E15.2.1 Sub-Base will be crushed limestone and have a maximum aggregate size of 50 millimetres and be supplied in accordance with Clause 2.1 of CW 3110, latest edition.

E15.3 Base Course

E15.3.1 Base Course will be crushed limestone in accordance with Clause 2.2 of CW 3110, latest edition.

CONSTRUCTION METHODS

E15.4 General

E15.4.1 Excavation will be in accordance with Section 3 of CW 3110, latest edition and will be understood to include excavation from existing ground elevation after any pavement removal, to proposed sub-grade elevation. 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.

E15.4.2 Sub-grade will be prepared in accordance with Clause 3.3 of CW 3110, latest edition. Sub-grade shall be free from any fibrous organics, softened and disturbed soil. The prepared sub-grade shall be proof rolled with a heavy sheep's foot roller (min. 25 passes) and reviewed by the Contract Administrator prior to placement of overlying granular fills.

E15.4.3 Sub-Base and Base Course will be placed to the compacted thickness as shown on the Drawings. Sub-Base and Base Course will be in accordance with Clauses 3.3 and 3.4 of CW 3110, latest edition.

E15.4.4 Construction of Drainage Swale will be in accordance with Clause 3.8 of CW 3110, latest edition. Complete required excavation or backfilling to a depth up to 600 millimetres such that the drainage swale, after compaction, is at a uniform depth of 100 millimetres below finished grade prior to topsoil and sodding.

MEASUREMENT AND PAYMENT

E15.5 Excavation

E15.5.1 Further to Clause 4.6 of CW 3110-R6, the Contractor will be responsible for providing cross-section surveys and field notes, for review and measurement of quantities by the Contract Administrator. Field notes will include surveyors name, date, and description of Work being measured. All notes will be in neat and legible form and will include both raw data and reduced calculation. All surveys will indicate level circuit closures of 10 mm or less.

E15.6 Base Course

E15.6.1 Further to Clause 4.6 of CW 3110-R6, the Contractor will be responsible for providing cross-section surveys and field notes, for review and measurement of quantities by the Contract Administrator. Field notes will include surveyors name, date, and description of Work being measured. All notes will be in neat and legible form and will include both raw data and reduced calculation. All surveys will indicate level circuit closures of 10 mm or less.

E16. PAVEMENT CONSTRUCTION

DESCRIPTION

E16.1 General

E16.1.1 This Specification covers pavement construction including construction of concrete pads, curbs, curb and gutters, approaches and sidewalks, and shall amend and supplement Specifications CW 3310, CW 3325, and CW 3410, latest editions.

MATERIALS

E16.2 Asphalt

E16.2.1 Asphalt material will be Type 1A and will be supplied in accordance with Sections 5 and 6 of CW 3410, latest edition.

E16.3 Concrete

E16.3.1 Concrete approaches, pads, curbs and curb and gutter sections shall be Type 1 in accordance with Section 6 of CW 3310, latest edition.

E16.3.2 Concrete median slabs and sidewalks shall be Type 2 in accordance with Section 6 of CW 3310, latest edition.

CONSTRUCTION METHODS

E16.4 General

E16.4.1 Asphalt pavement will be placed to the compacted thickness as shown on the Drawings and in accordance with Specification CW 3410, latest edition.

E16.4.2 Concrete approach shall be constructed according to the details shown on the Drawings and in accordance to SD-232, complete with modified barrier curbs and sidewalk ramp.

E16.4.3 Concrete pads shall be constructed according to the details shown on the Drawings and in accordance with Specification CW 3310, latest edition.

E16.4.4 Concrete barrier curb and gutter shall be constructed in accordance to SD-200 with a specified curb height of 150 mm.

E16.4.5 Concrete lip curb and gutter shall be constructed in accordance to SD-200 with a specified curb in accordance to SD-202A..

E16.4.6 Concrete curb ramp and gutter shall be constructed in accordance to SD-200 with a specified curb in accordance to the curb ramp layout and details in SD-229B and SD-229E.

E16.4.7 "Type A" Barrier Curb shall be constructed according to the details shown on the Drawings and in accordance with Specification CW 3310, latest edition.

E16.4.8 "Type A" Curb Ramp shall be constructed according to layout and details shown on the Drawings and in accordance with Specification CW 3310, latest edition.

MEASUREMENT AND PAYMENT

E16.5 Concrete Approach

E16.5.1 Concrete approaches will be measured on an area basis and paid for at the Contract Unit Price for "Construction of 250 mm Concrete Approach (Reinforced)". The amount to be paid for will be the total number of square metres of concrete approach installed in accordance with this specification, accepted and measured by the Contract Administrator.

E16.5.2 Supply an installation of integral curbs and tie-bars required for concrete approach construction will be included in the payment for "Construction of 250 mm Concrete Approach (Reinforced)", and no additional payment will be made.

E16.6 Concrete Pad

E16.6.1 Concrete pads will be measured on an area basis and paid for at the Contract Unit Price for "Construction of 200 mm Concrete Pad (Reinforced)". The amount to be paid for will be the total number of square metres of concrete pad installed in accordance with this specification, accepted and measured by the Contract Administrator.

E16.7 "Type A" Barrier Curb

E16.7.1 "Type A" Barrier Curb will be measured on a length basis and paid for at the Contract Unit Price for "Construction of "Type A" Barrier Curb". The amount to be paid for will be the total number of metres of "Type A" Barrier Curb installed in accordance with this specification, accepted and measured by the Contract Administrator.

E16.8 "Type A" Curb Ramp

E16.8.1 "Type A" Curb Ramp will be measured on a length basis and paid for at the Contract Unit Price for "Construction of "Type A" Curb Ramp". The amount to be paid for will be the total number of metres of "Type A" Curb Ramp installed in accordance with this specification, accepted and measured by the Contract Administrator.

E17. SUPPLY AND INSTALL DETECTABLE WARNING SURFACE TILES

DESCRIPTION

E17.1 This specification covers the supply and installation of detectable warning surface tiles in sidewalk ramps and multi-use path ramps.

SPECIFICATIONS AND DRAWINGS

E17.2 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

E17.3 Attached; SDE Drawings and Installation Manual

- (a) SDE-229AE – Curb Ramp for Pedestrian Corridor with a Traffic Control Device
- (b) SDE-229AF – Detectable Warning Surface Tile Orientation for Offset Intersections
- (c) SDE-229BB – Detectable Warning Surface Tile in Curb Ramps for Medians
- (d) SDE-229E - Curb Ramp Depressed Curb
- (e) Installation Instructions for Cast in Place Inline Dome Detectable/Tactile Warning Surface Tile.

MATERIALS

E17.4 Acceptable Detectable Warning Surface Tile product is:

- (a) 610 x 1220mm (2'x 4') Armor-Tile Cast in Place (Federal Yellow).
- (b) 300 x 300mm (1'x1') Armor-Tile cast in Place (Federal Yellow).

Available from:

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

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

or

Alsip's Building Products
1 Cole Avenue
Winnipeg, Manitoba

Attention: Jason Alsip
Ph. 204-667-3330

- E17.4.1 Detectable warning surface tiles shall be Federal Yellow (USA); or Safety Yellow (Canada).
- E17.4.2 Detectable warning surface tiles shall be cast in place type.
- E17.4.3 Truncated domes on detectable warning surface tiles shall be in accordance with ADA Accessibility Guidelines (ADAAG).

CONSTRUCTION METHODS

E17.5 General

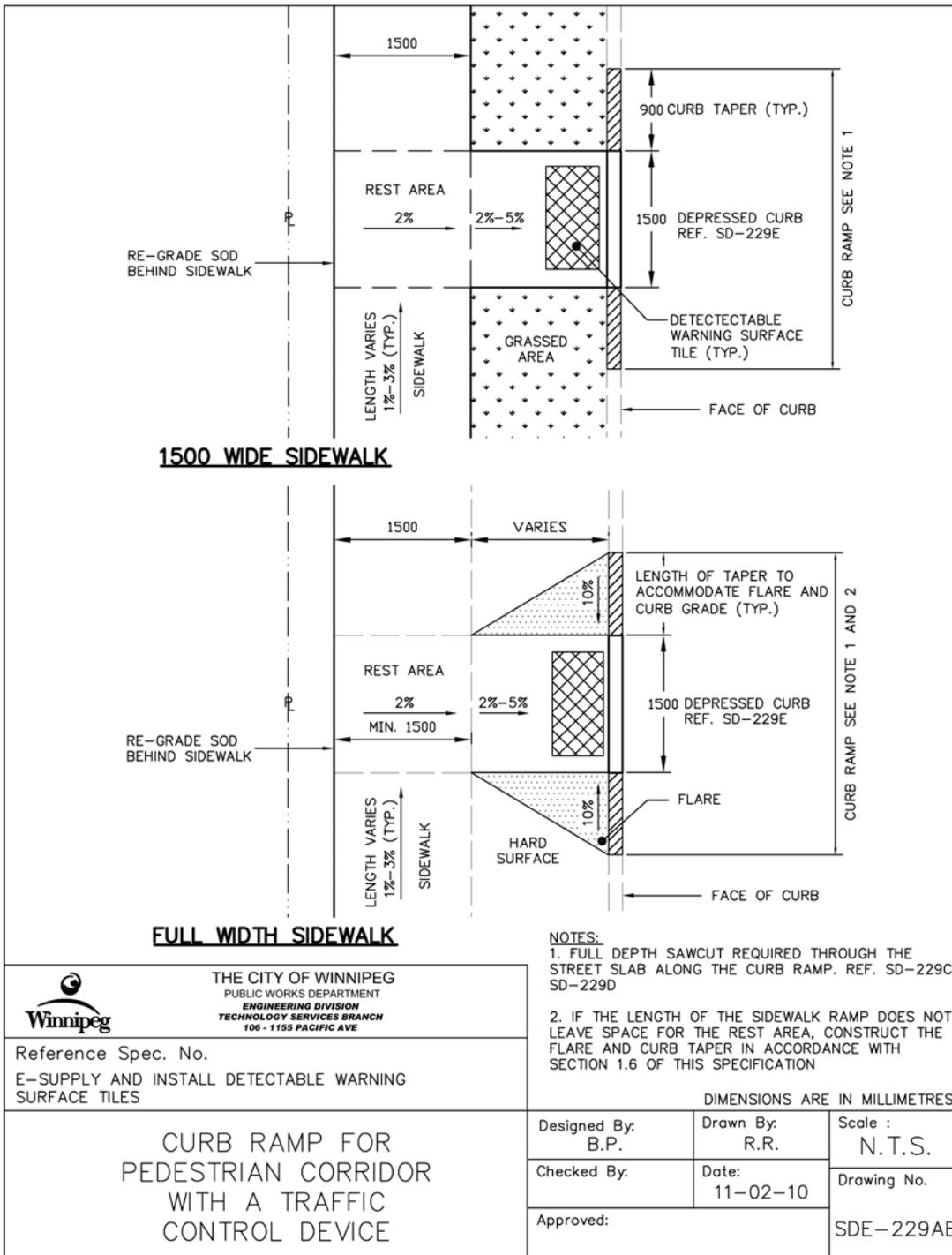
- E17.5.1 Construct curb ramps, sidewalk ramps and multi-use paths in accordance with the referenced Standard Construction Specifications, Standard Details, and SDE drawings.
 - E17.5.2 Detectable warning surface tile shall not be placed at private approaches or alleys.
 - E17.5.3 All curb ramps opposite each other shall have the same width.
 - E17.5.4 Construct the lip of the depressed curb in accordance with SDE – 229E.
 - E17.5.5 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.
 - E17.5.6 Construct flare and curb taper slopes according to the following:
 - a) If the curb taper is within a grassed area, construct the curb taper 900mm in length.
 - b) 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.
 - c) When the flare and curb taper are in a full width sidewalk and the sidewalk area at the top of the ramp is \geq 1500mm in width, construct the flare and curb taper at 10% slope.
 - E17.5.7 Install the detectable warning surface tile in accordance with the attached Installation Instructions. Drill additional 6mm air vent holes in the ribs under the tile as required, and use vibration to help seat the tile, to facilitate the installation process.
 - E17.5.8 Install the detectable warning surface tiles as shown on the referenced drawings or as directed by the Contract Administrator.
 - E17.5.9 Orient the detectable warning surface tiles perpendicular to the crossing direction.
 - E17.5.10 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 Contract Administrator.
- ##### E17.6 Medians and Refuge Islands
- E17.6.1 Where the distance from back of curb to back of curb is 1.32m or greater, install one detectable warning surface tile 50mm from the back of each curb.
 - E17.6.2 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.

MEASUREMENT AND PAYMENT

Detectable Warning Surface Tiles

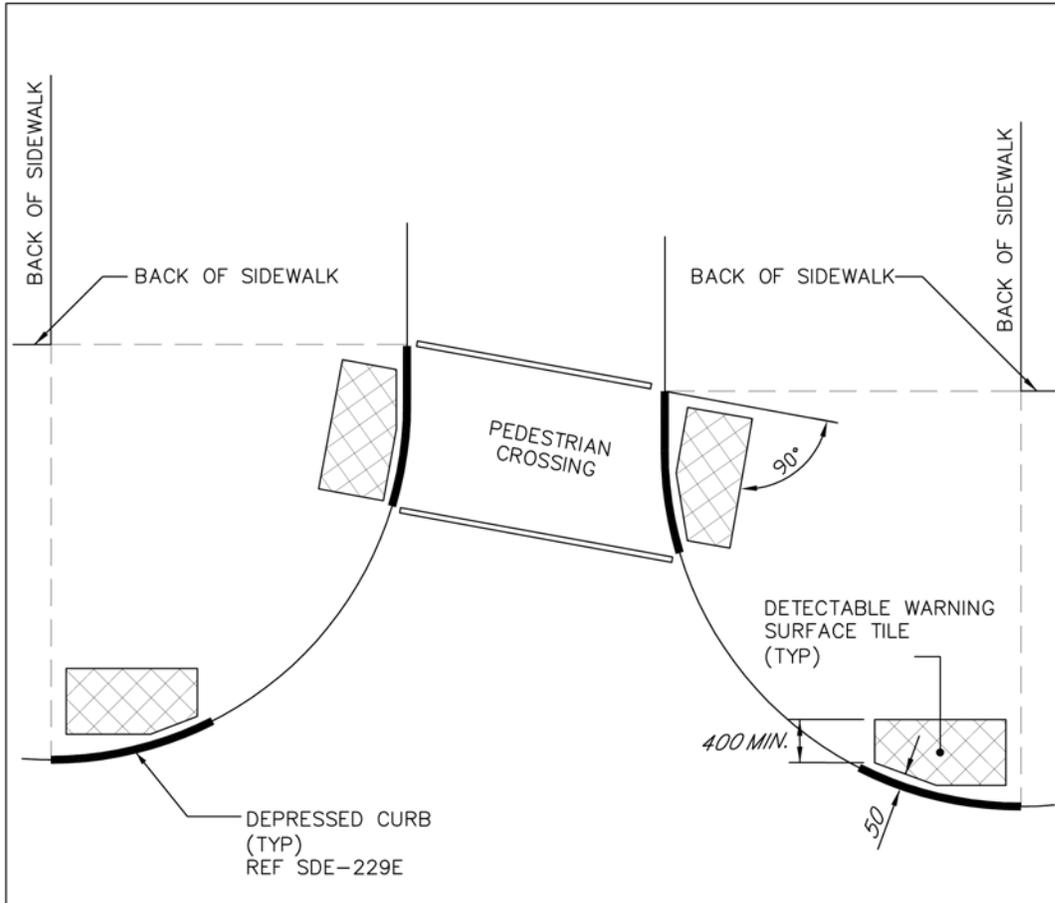
- E17.7 Supply and installation of detectable warning surface tiles will be measured on a unit basis and paid for at the Contract Unit Price for "Detectable Warning Surface Tiles". The number of units to be paid for will be the total number of full or trimmed tiles supplied and installed in accordance with this specification, accepted and measured by the Contract Administrator.
- E17.8 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.
- E17.9 The concrete sidewalk ramp will be paid as 100mm sidewalk in accordance with CW 3235 or CW 3325.
- E17.10 Curb ramp will be paid in accordance with CW 3240 or CW 3310.

DRAWINGS AND INSTALLATION MANUAL



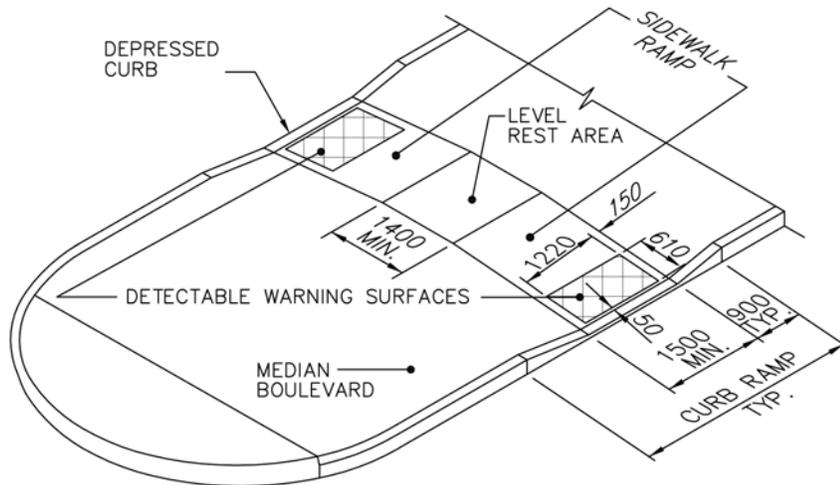
THE CITY OF WINNIPEG
 PUBLIC WORKS DEPARTMENT
 ENGINEERING DIVISION
 TECHNOLOGY SERVICES BRANCH
 106 - 1155 PACIFIC AVE

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.	Scale : N.T.S.
	Checked By: F.W.C.	Date: 11-02-10	Drawing No.
	Approved:		SDE-229AF

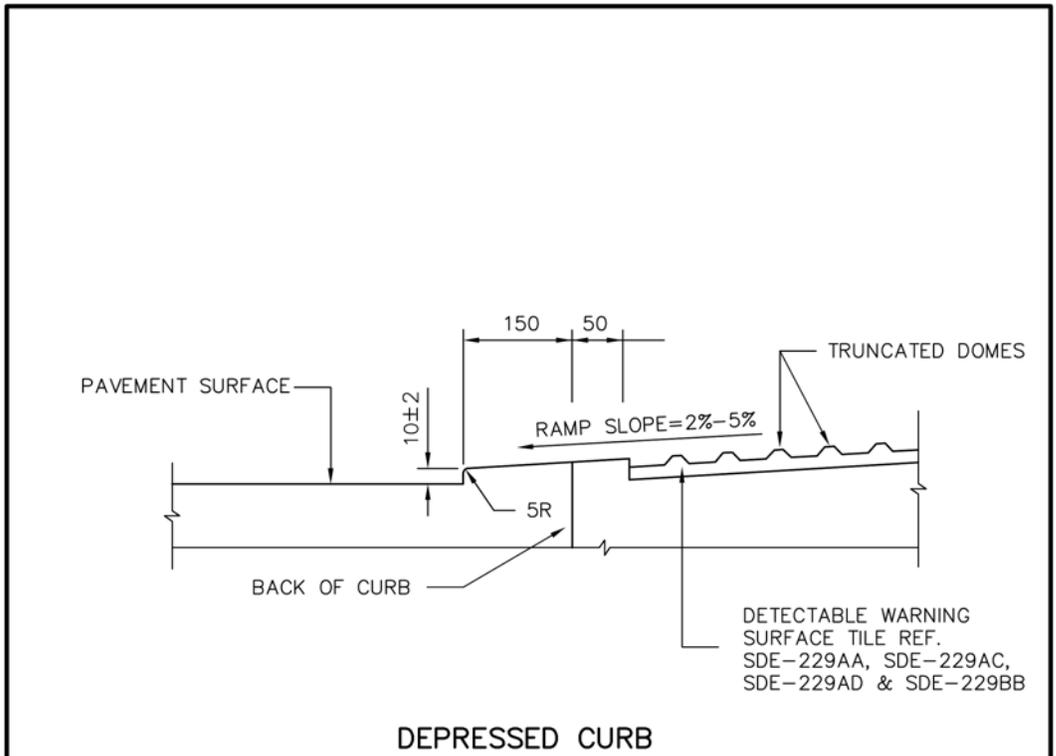


MEDIAN SIDEWALK CROSSING
 (REF. SD-229B)

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	Designed By: B.P.	Drawn By: T.G.A.
DETECTABLE WARNING SURFACE TILE IN CURB RAMPS FOR MEDIANS	Checked By: F.W.C.	Date: 11-02-10	Drawing No. SDE-229BB
	Approved:		



DEPRESSED CURB

NOTES:

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

 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				
CURB RAMP DEPRESSED CURB		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-229E

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) The concrete pouring and finishing operations require typical mason's tools, however, a 4' long level with electronic slope readout, 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 0.3m square.
- (f) The factory-installed plastic sheeting must remain in place during the entire installation process to prevent the splashing of concrete onto the finished surface of the tile.
- (g) When preparing to set the tile, it is important that NO concrete be removed in the area to accept the tile. It is imperative that the installation technique eliminates any air voids under the tile. Holes in the tile perimeter allow air to escape during the installation process. Concrete will flow through the large holes in each embedment flange on the underside of the tile. This will lock the tile solidly into the cured concrete.
- (h) The concrete shall be poured and finished true and smooth to the required dimensions and slope prior to the tile placement. The tile shall be placed in accordance with the contract drawings.
- (i) 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.
- (j) 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.
- (k) 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.
- (l) 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.
- (m) 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.
- (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) 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.

E18. LANDSCAPING, FENCING, SIGNAGE AND MISCELLANEOUS

DESCRIPTION

E18.1 General

- E18.1.1 This Specification covers landscaping, fencing, signage and miscellaneous works. This Specification shall amend and supplement Specifications CW 3110, CW 3130, CW 3310, CW 3510 and CW 3540, latest editions.

MATERIALS

E18.2 Topsoil and Sodding

- E18.2.1 Topsoil will conform to the materials as outlined in Section 5.2 of CW 3540, latest edition.
- E18.2.2 Sod will conform to the materials as outlined in CW 3510, latest edition.

E18.3 Landscape Rock and Geotextile

- E18.3.1 Landscape rock shall be either limestone or granite rock from a Manitoba quarry, colour to be approved by the Contract Administrator. Size range to be 300 mm to 600 mm O.D.
- E18.3.2 Geotextile for landscape rock shall be separation/reinforcement fabric in accordance with CW 3130, latest edition.

E18.4 Fencing

- E18.4.1 All fencing lumber shall be pressure treated SPF. Pressure treatment shall be CCA Type B in accordance with CAN/CSA 080-M to a minimum retention of preservative of 6.4 kg/cm of wood. All wood to be dimple treated during the treatment process.
- E18.4.2 All hardware and fasteners shall be hot dipped galvanized, size indicated on the Drawings. All field cuts and holes to be treated with two coats of CCA Type B matching colour field cut preservative.
- E18.4.3 Base course backfill for post installation shall be 20 mm crushed limestone, in accordance with CW 3110, latest edition.
- E18.4.4 Concrete backfill for post installation shall be Type 2 in accordance with Section 6 of CW 3310, latest edition.
- E18.4.5 Fences are to be guaranteed against defects in material and workmanship for a period of 12 months from the date of Substantial Performance.

E18.5 Signage

- E18.5.1 All signs shall be in accordance with applicable City of Winnipeg Specifications and By-Laws and the Manual of Uniform Traffic Control Devices for Canada.
 - (i) No Parking - Fire Lane – RB-52 L, Airmaster or equivalent approved by Contract Administrator.
 - (ii) Stop Sign – RA-1 (600mm x 600mm), Airmaster or equivalent approved by Contract Administrator.
 - (iii) Handicap Parking Only – RB-71, Airmaster or equivalent approved by Contract Administrator.
 - (iv) Do Not Enter – RB-23, Airmaster or equivalent approved by Contract Administrator.

- (v) Pedestrian Crossing – RA-4, Airmaster or equivalent approved by Contract Administrator.

- E18.5.2 Sign posts shall be in accordance to applicable City of Winnipeg Specifications and By-Laws and the Manual of Uniform Traffic Control Devices for Canada. All posts and hardware shall be steel with hot-dip galvanized zinc coating, supplied by an approved signage manufacturer. U-channel posts shall be used for sign posts secured to fencing, and square or round posts shall be used for stand alone signs posts.
- (i) Square posts – 2" square, 14 gauge tubing with 7/16" diameter holes on 1" centers, full length on all sides.
 - (ii) U-Channel Posts – 2.5" wide with 3/8" diameter holes on 2" centers, full length.
 - (iii) Round Posts – 2-3/8" O.D.
- E18.5.3 All signs, sign posts and hardware provided shall be new and no salvaged components from the existing signage removals shall be used.
- E18.6 Line Painting
- E18.6.1 Line painting shall conform to City of Winnipeg specifications for line painting on asphalt surfaces.
- (i) CGSBB1-GP-74 M, alkyd traffic paint
 - (ii) CGSB 1-GP-12C, Yellow 505-308 for parking lot painting

CONSTRUCTION METHODS

- E18.7 Topsoil and Sodding
- E18.7.1 Topsoil and Sodding shall be as installed to the limits shown on the Drawings and as directed by the Contract Administrator, in accordance with Specifications CW 3540 and CW 3510.
- E18.8 Landscape Rock and Geotextile
- E18.8.1 Landscape rock shall be constructed according to the details shown on the Drawings.
- E18.8.2 Geotextile shall be installed in accordance with Specification CW 3130, latest edition.
- E18.8.3 Landscape rock shall be installed to a minimum 300 mm above top of curb height, or as directed by the Contract Administrator.
- E18.9 Fencing
- E18.9.1 Fencing shall be constructed according to the details shown on the Drawings.
- E18.9.2 Fences are to be guaranteed against defects in material and workmanship for a period of 12 months from the date of Substantial Performance.
- E18.9.3 Fence post alignment tolerance shall be +/- 6 mm from straight line alignment.
- E18.9.4 Asphalt pavement to be cored where fence posts are proposed and shall be patched after installation.
- E18.10 Garbage Enclosure
- E18.10.1 Garbage enclosure shall be constructed according to the details shown on the Drawings.
- E18.10.2 Garbage enclosure shall be guaranteed against defects in material and workmanship for a period of 12 months from the date of Substantial Performance.
- E18.11 Signage
- E18.11.1 Sign posts in pavement areas shall be installed using an anchored base system supplied by the sign post manufacturer and installed in accordance to manufacturer recommendations or applicable standards.

- E18.11.2 Sign posts in landscaped areas shall be installed by either direct embedment into the ground or using an anchored base system supplied by the sign post manufacturer and installed in accordance to manufacturer recommendations or applicable standards. Sign posts directly embedded into the ground shall be installed a minimum of 600 mm below grade.
- E18.11.3 Sign posts may be secured to fencing located within 600 mm of the proposed sign location, only upon approval from the Contract Administrator.
- E18.11.4 Sign post alignment tolerance shall be +/- 6 mm from straight line alignment.

MEASUREMENT AND PAYMENT

E18.12 Topsoil and Sodding

- E18.12.1 Topsoil and Sodding will be measured on an area basis and paid for at the Contract Unit Price for "Topsoil and Sodding". The amount to be paid for will be the total number of square metres of topsoil and sod supplied and installed in accordance with this specification, accepted and measured by the Contract Administrator.

E18.13 Landscape Rock and Geotextile

- E18.13.1 Landscape rock and geotextile will be measured on an area basis and paid for at the Contract Unit Price for "Landscape Rock and Geotextile". The amount to be paid for will be the total number of square metres of landscape rock and geotextile supplied and installed in accordance with this specification, accepted and measured by the Contract Administrator.

E18.14 Fencing

- E18.14.1 Fencing will be measured on a length basis and paid for at the Contract Unit Price per metre for the "Items of Work" listed here below. The length to be paid for will be the total number of metres of fence supplied and installed in accordance with this specification and accepted and measured by the Contract Administrator.

Items of Works:

- i) Light Proof Screen Fence
- ii) Wood Post Parking Fence

E18.15 Garbage Enclosure

- E18.15.1 Garbage enclosure will not be measured but will be paid for at the Contract Unit Price per single (1) lump sum item for "Garbage Enclosure" in accordance with this Specification and accepted by the Contract Administrator.

E18.16 Signage

- E18.16.1 Signage will be measured on a unit basis and paid for at the Contract Unit Price for "Signage (New Sign, Post and Base)". The amount to be paid for will be the total number of signs supplied and installed in accordance with this specification, accepted and measured by the Contract Administrator.

E18.17 Line Painting

- E18.17.1 Line painting will not be measured but will be paid for at the Contract Unit Price per single (1) lump sum item for "Line Painting" in accordance with this Specification and accepted by the Contract Administrator.

E19. ELECTRICAL

DESCRIPTION

E19.1 General

- E19.1.1 Submit to Electrical Inspection Department and supply Authority necessary number of plans and specifications for examination and approval prior to commencement of Work.
- E19.1.2 Notify Contract Administrator of changes required by Electrical Inspection Department prior to making changes.
- E19.1.3 Pay fees such as for permits, licences, temporary utility service, or any other requirements to perform the Work herein.
- E19.1.4 The Contractor shall examine all plans and specifications. Ensure all required Work to be carried out by other trades to suit electrical (e.g. placement of housekeeping pads), is shown on the appropriate drawings. Ensure all Work of an electrical nature indicated in other than electrical documents is included. Ensure that all electrical Work noted throughout plans and specifications is included in the bid price. Any discrepancy between drawings shall be identified to the Contract Administrator prior to close of bidding, in as timely a fashion as possible.
- E19.1.5 Plans do not indicate all construction details. Any installation involving accurate measurements of the building shall be co-ordinated with construction plans and/or actual on site measurements.
- E19.1.6 Plans and specifications are intended to supplement each other, and any information indicated on one and omitted on the other shall be assumed as included on both.
- E19.1.7 In order to provide sufficient detail and clarity, the symbols used for various electrical devices, occupy more space on the plans, than the device actually occupies when installed. The Contractor shall use common sense when placing devices, ensuring that devices are grouped wherever possible. Do not space devices along walls to coincide with the scale location of the electrical device symbol.
- E19.1.8 Any discrepancies in the plans and/or specifications shall be brought to the attention of the Contract Administrator no later than (7) days prior to the closing date of the tender.
- E19.1.9 The terms "Approved Manufacturer" and "Approved Product" and their respective type or catalogue number as the basis of design, is to establish the construction features, sizes, quality, and accessories of an item of equipment in addition to the characteristics specified. Requests for Equivalents may be granted on the basis described herein.
- E19.1.10 Where a product catalogue number and specified features, sizes, quality or accessories are not in agreement, the Contractor shall contact the Contract Administrator for clarification of the requirements.
- E19.1.11 Acceptance of equivalent products will be granted on the basis of the manufacturer and general design only. It shall be conclusively assumed that the individual, or firm, requesting the acceptance of the substitute product, certifies that the substitute will adequately perform the functions called for by the general design plans and associated specifications, be similar and of equal 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 Schedule of Work and Completion Date(s). Furthermore, in the event that the substitute product is accepted, any and all changes required in the applicable Work, and all changes to any other Work, which would become necessary to accommodate the requested substitute, as well as any cost or time impacts that may be associated with the substitute, shall be the responsibility of the individual or firm requesting approval of the substitute product.
- E19.1.12 Where equipment manufacturer has been identified in the bid, substitutions will be subsequently permitted only where it can be shown that unusual or unforeseen circumstances will cause unacceptable delays in completion of the work. The onus will be

on the Contractor to ensure that no delays are caused through the use of substitutes. No substitutions shall be made without review and acceptance by the Contract Administrator.

- E19.1.13 Materials and equipment to be purchased from a Canadian supplier (sales representative) whose sales region includes the project's location.
- E19.1.14 Equipment and materials shall be CSA certified and conform to EEMAC standards. Where there is no alternative to supplying equipment, which is not CSA certified, obtain special approval from Electrical Inspection Department.
- E19.1.15 Submit shop drawings, product data and samples. Indicate details of construction, dimensions, capacities, weights and electrical performance characteristics of equipment or material. Where applicable, include wiring, single line and schematic diagrams. Include diagrams or plans, showing interconnection with other sections. Provide supplier contact information, including firm and individual name and telephone number, relevant to any equipment to be supplied.
- E19.1.16 During construction, the Contractor shall make any equipment or wiring accessible for review purposes, as requested by the Contract Administrator.
- E19.1.17 Operate all manual devices, whether mounted on a control panel or separately mounted. With device in "off" position (or stop button depressed), check that no other device can cause that equipment to run. Check all automatic sequences including alternators, safety lock out circuits and interlocks between equipment. Operate all pressure switches, level switches, thermal switches, limit switches and similar devices to prove sequence of complete circuit.
- E19.1.18 When the Contractor is satisfied that the Work is completed, and after making his own inspection of Work to verify completion, the Contractor shall submit a written request to the Contract Administrator requesting a review of Work. Any deficiencies noted by the Contract Administrator during the review of Work, will be listed by the Contract Administrator, and issued to the Contractor. Such deficiencies shall be corrected within three (3) weeks of the issuance of the deficiency list, or by a mutually agreed upon date. Once complete, the Contractor shall submit a written request to the Contract Administrator requesting a final deficiency review. If subsequent site visits are required by the Contract Administrator because the deficiencies listed were not complete, all time and expense costs incurred by the Contract Administrator will be the responsibility of the Contractor.
- E19.1.19 Submit record plans detailing all Work as built. Obtain one set of solid white prints to be used for record Work as actually installed. Record on this set, all changes associated with the Work.
- E19.1.20 Furnish Certificates of Acceptance from authorities having jurisdiction, to Contract Administrator on completion of Work.
- E19.1.21 Furnish manufacturer's certificate or letter confirming that entire installation as it pertains to each system has been installed to manufacturer's instructions.
- E19.1.22 Instruct Contract Administrator and City operating and maintenance personnel in the operation, care, and maintenance of equipment.
- E19.1.23 Submit a written guarantee stating that all materials and workmanship will be free from defects for a period of two (2) years from date of acceptance by the City.

MATERIALS

- E19.2 General
- E19.2.1 Provide wiring as indicated. Wiring shall be copper, minimum size #12AWG or as noted for power circuits.
- E19.2.2 Provide conduit as indicated. Minimum size shall be 21mm. Provide expansion fittings for PVC conduits to accommodate earth and structure movements. Provide short lengths of liquid tight flexible metal conduit rated 75C in EMT and RGS conduit runs to accommodate movements or vibration. AC90 cable may be used where indicated or in short lengths for

final equipment connections where the cable will be entirely accessible. Use as short a length of AC90 as reasonably practicable.

E19.2.3 In trenches, sand bed shall be nominal 6mm screened sand. Backfill shall be suitable for the area. Meet contract specifications for constructed areas, backfill with original material in suitable locations. Restore disturbed surfaces as required.

E19.2.4 Identification labels shall be Lamacoid 3mm engraving sheet with black face, white core.

Nameplate Sizes

Size 1	10 x 50 mm - 1 line	3 mm high letters
Size 2	12 x 62 mm - 1 line	6 mm high letters
Size 3	12 x 62 mm - 2 lines	3 mm high letters
Size 4	20 x 75 mm - 1 line	8 mm high letters
Size 5	20 x 75 mm - 2 lines	6 mm high letters
Size 6	25 x 100 mm - 1 line	12 mm high letters
Size 7	25 x 100 mm - 2 lines	8 mm high letters

E19.2.5 In Category 1&2 areas all rod, bolts, nuts, washers, screws and miscellaneous hardware for electrical item support shall be 304/316 stainless steel unless otherwise specified. The standard of acceptance shall be Unistrut or equivalent. In Category 1&2 areas all Unistrut channels, angles, brackets, etc shall be 304/316 stainless steel. The Contractor may utilize hot-dipped galvanized after fabrication, for supports in dry areas.

E19.2.6 Metal enclosure surfaces shall be factory finished by application of rust resistant primer inside and outside, and at least two coats of finish enamel.

E19.2.7 Lugs, terminals, screws used for termination of wiring shall be suitable for either copper or aluminum conductors.

CONSTRUCTION METHODS

E19.3 General

E19.3.1 The minimum standard of installation shall be to the latest editions of the Winnipeg Electrical Bylaw, Canadian Electrical Code, National Building Code, Manitoba Building Code, National and Provincial Codes and Bulletins, and specifications herein.

E19.3.2 Underground systems shall be in accordance with CSA C22.3 No.7-M94 except where noted otherwise.

E19.3.3 Area classifications shall be as defined by the WEB and the WEB/MEC "Variations to the Diagrams Section of the Code". Areas shall have the greater of the above requirements, or those indicated in the Contract Documents.

E19.3.4 Maintain wiring phase sequence and colour coding throughout. Colour code to WEB.

E19.3.5 Manufacturer nameplates and CSA labels shall be visible and legible after installation of equipment.

E19.3.6 Equipment that is normally mounted at a reachable location in common practice shall be so mounted unless otherwise noted or approved by Contract Administrator.

E19.3.7 Installation is to be supervised by a journeyman electrician for entire duration of the project.

E19.3.8 Conceal equipment in finished areas as practicable. Equipment may remain exposed in finished areas where indicated or where approved by Contract Administrator and City. Equipment that shall remain visible in finished areas shall be finished to match or as required for desired appearance. Paint conduit, couplings, fasteners, boxes, etc. prior to installation.

- E19.3.9 Clean and prime exposed non-galvanized hangers, racks and fastenings to prevent rusting.
- E19.3.10 Clean and touch up surfaces of shop-painted equipment scratched or marred during shipment or installation, to match original paint.
- E19.3.11 Identify electrical equipment with nameplates mechanically attached with self-tapping screws. Wording on nameplates to be approved by Contract Administrator prior to manufacture. Allow for average of twenty-five (25) letters per nameplate. Identification to be English. Nameplates for terminal cabinets and junction boxes to indicate system, i.e. "power", "controls", "instrumentation", "lighting", etc. For lighting circuits and small power 120 Volt circuits, list panel and circuit numbers on the name plate. On disconnects, starters and contactors, indicate equipment being controlled and voltage source. On control cabinets indicate system and voltage. On transformers indicate capacity, primary and secondary voltages, and source by panel/circuit number. On receptacles indicate panel and circuit number (eg. AB-24, for circuit 24 in panel AB). Where voltage is other than 120 Volts, include voltage and phases on label (eg. 600V/3 ϕ). On toggle switches for lighting and small loads indicate panel and circuit number as for receptacles. Indicate the load being switched where it is not immediately obvious (eg. roof mounted fan). On junction / pull boxes indicate the load, circuit number (if applicable) or tag number, as required. For all components not required to be labelled by division 14, or 15, provide lamacoid labels as above. Identify tag name complete with loop number. Nameplate shall be sized for adequate legibility or according to size table where size is indicated.
- E19.3.12 Identify wiring with permanent indelible identifying markings, either numbered or coloured plastic tapes, on both ends of phase conductors of feeders and branch circuit wiring and in junction/pull boxes. Label all wires securely with circuit number or tag numbers in the control panel, junction boxes, and pull boxes.
- E19.3.13 Install conduit and sleeves prior to pouring of concrete. Where plastic sleeves are used in fire rated walls or floors, remove before conduit installation and firestop wall or floor with approved firestopping. Installation of PVC conduit in the hot air flow from heating units shall be avoided.
- E19.3.14 Buried conduit shall be centered horizontally and vertically in sand bed. Marking tape buried to a depth equal to half the trench depth shall be used to indicate the location of the buried conduit. Provide painted lath stakes or other suitable temporary markers to delineate trench during construction to prevent inadvertent damage to conduit. Coordinate trenching and backfill. Provide dimensioned trench layouts on as-built drawings that reference locations of at least two permanent stable visible structures.
- E19.3.15 Firestopping shall be installed where a conduit, wire, cable, cable tray, recessing opening or other penetration is made in a smoke separation, fire separation, firewall, ceiling or floor. The firestop must be ULC approved, installed as part of a ULC approved system, and meet CAN4-5115-M. The use of concrete, mortar, grout, gyprock etc. is not approved. Firestopping shall not shrink or crack or be made of such materials which cannot be easily disposed of. In addition, it shall not burn, melt or release toxic fumes when exposed to heat. The firestop shall be suitable for the ambient temperature and humidity that it will be normally exposed to. The firestop shall be ULC approved for site conditions (e.g. identical wall construction and conduit/cable/cable tray type). All firestopping shall be water resistant when located in damp or wet areas, in Category 1 or 2 areas, below mechanical pipes, in sprinklered areas, where condensation may occur, or where other sources of dripping, splashing or spraying water may be present. Firestop for single conductor cable penetrations shall have low conductivity after curing to minimize sheath currents. Fire stop shall be installed to manufacturers recommendations. Firestopping must be of one manufacturer throughout project. Approved manufacturers: Specseal, 3M.
- E19.3.16 Assist other divisions of this Contract by operating control devices and checking performance of the related electrical systems, as required for commissioning of that division's equipment.

- E19.3.17 Ensure circuit protective devices such as over current trips, relays and fuses are installed to required values and settings.
- E19.3.18 Megger test circuits, feeders and equipment up to 350 V utilizing a 500 V instrument. Megger test 350-600 V circuits, feeders and equipment with a 1000 V instrument. Provide instruments, meters, equipment and personnel required to conduct tests during and at conclusion of project. Submit test results for Contract Administrator's review.
- E19.3.19 At time of final cleaning (after all construction is complete and floors have been swept), clean lighting reflectors, lenses, and other surfaces that have been exposed to construction and dirt. Clean inside and out, panelboards, splitters, and switchboards, exposed to construction.

MEASUREMENT AND PAYMENT

- E19.4 Electrical Work
 - E19.4.1 Electrical work will not be measured but will be paid for at the Contract Unit Price per single (1) lump sum item for "Supply and Install all Electrical Components including all Related Work (Including demolition of existing electrical infrastructure)" in accordance with this Specification and accepted by the Contract Administrator.