



THE CITY OF WINNIPEG

BID OPPORTUNITY

BID OPPORTUNITY NO. 6-2006

**ST. MARY'S ROAD - STREET RENEWAL DUNKIRK TO GREENDELL –
WATERMAIN RENEWAL RIEL TO WOODLAWN AND WOODYDELL TO RIVER**

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PART B - BIDDING PROCEDURES

B1. PROJECT TITLE

- B1.1 ST. MARY'S ROAD - STREET RENEWAL DUNKIRK TO GREENDELL – WATERMAIN RENEWAL RIEL TO WOODLAWN AND WOODYDELL TO RIVER

B2. SUBMISSION DEADLINE

- B2.1 The Submission Deadline is 12:00 noon Winnipeg time, April 4, 2006.
- B2.2 Bid Submissions determined by the Manager of Materials to have been received later than the Submission Deadline will not be accepted and will be returned upon request.
- B2.3 The Contract Administrator or the Manager of Materials may extend the Submission Deadline by issuing an addendum at any time prior to the time and date specified in B2.1.

B3. ENQUIRIES

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

B4. ADDENDA

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

B5. SUBSTITUTES

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

B6. BID SUBMISSION

- B6.1 The Bid Submission consists of the following components:
- (a) Form A: Bid;
 - (b) Form B: Prices, hard copy;
 - (c) Form G1: Bid Bond and Agreement to Bond, or
Form G2: Irrevocable Standby Letter of Credit and Undertaking, or
a certified cheque or draft;
- B6.2 All components of the Bid Submission 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 in ink, to constitute a responsive Bid.
- B6.3 The Bid Submission shall be submitted enclosed and sealed in an envelope. The envelope shall be clearly marked with the Bid Opportunity number and the Bidder's name and address.
- B6.3.1 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.
- B6.3.2 A hard copy of Form B: Prices must be submitted with the Bid Submission. If there is any discrepancy between the Adobe PDF version of Form B: Prices and the Microsoft Excel version of Form B: Prices, the PDF version shall take precedence.
- B6.4 Bid Submissions submitted by facsimile transmission (fax) or Internet electronic mail (e-mail) will not be accepted.
- B6.5 Bid Submissions shall be submitted to:
- The City of Winnipeg
Corporate Finance Department
Materials Management Branch
185 King Street, Main Floor
Winnipeg MB R3B 1J1

B7. BID

- B7.1 The Bidder shall complete Form A: Bid, making all required entries.
- B7.2 Paragraph 2 of Form A: Bid shall be completed in accordance with the following requirements:
- (a) if the Bidder is a sole proprietor carrying on business in his own name, his name shall be inserted;
 - (b) if the Bidder is a partnership, the full name of the partnership shall be inserted;
 - (c) if the Bidder is a corporation, the full name of the corporation shall be inserted;
 - (d) if the Bidder is carrying on business under a name other than his own, the business name and the name of every partner or corporation who is the owner of such business name shall be inserted.
- B7.2.1 If a Bid is submitted jointly by two or more persons, each and all such persons shall identify themselves in accordance with B7.2.
- B7.3 In Paragraph 3 of Form A: Bid, the Bidder shall identify a contact person who is authorized to represent the Bidder for purposes of the Bid.

- B7.4 Paragraph 12 of Form A: Bid shall be signed in accordance with the following requirements:
- (a) if the Bidder is a sole proprietor carrying on business in his own name, it shall be signed by the Bidder;
 - (b) if the Bidder is a partnership, it shall be signed by the partner or partners who have authority to sign for the partnership;
 - (c) if the Bidder is a corporation, it shall be signed by its duly authorized officer or officers and the corporate seal, if the corporation has one, shall be affixed;
 - (d) if the Bidder is carrying on business under a name other than his own, it shall be signed by the registered owner of the business name, or by the registered owner's authorized officials if the owner is a partnership or a corporation.
- B7.4.1 The name and official capacity of all individuals signing Form A: Bid shall be printed below such signatures.
- B7.4.2 All signatures shall be original and shall be witnessed except where a corporate seal has been affixed.
- B7.5 If a Bid is submitted jointly by two or more persons, the word "Bidder" shall mean each and all such persons, and the undertakings, covenants and obligations of such joint Bidders in the Bid Submission and the Contract, when awarded, shall be both joint and several.

B8. PRICES

- B8.1 The Bidder shall state a price in Canadian funds for each item of the Work identified on Form B: Prices.
- B8.1.1 For the convenience of Bidders, and pursuant to B6.3.2 and B14.4.2, an electronic spreadsheet Form B: Prices in Microsoft Excel (.xls) format is available along with the Adobe PDF documents for this Bid Opportunity on the Bid Opportunities page at the Materials Management Branch internet website at <http://www.winnipeg.ca/matmgt>.
- B8.2 The quantities listed on Form B: Prices are to be considered approximate only. The City will use said quantities for the purpose of comparing Bids.
- B8.3 The quantities for which payment will be made to the Contractor are to be determined by the Work actually performed and completed by the Contractor, to be measured as specified in the applicable Specifications.
- B8.4 Form B: Prices is organized into Parts: Part A of the Work, Part B of the Work, and Part C of the Work. Bidders shall provide a total price for each Part and, on the summary sheet, a Total Bid Price consisting of the sum of prices for Part A through C.

B9. QUALIFICATION

- B9.1 The Bidder shall:
- (a) undertake to be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba;
 - (b) be responsible and not be suspended, debarred or in default of any obligation to the City;
 - (c) be financially capable of carrying out the terms of the Contract;
 - (d) have all the necessary experience, capital, organization, and equipment to perform the Work in strict accordance with the terms and provisions of the Contract;
 - (e) have successfully carried out work, similar in nature, scope and value to the Work; and

- (f) employ only Subcontractors who:
 - (i) are responsible and not suspended, debarred or in default of any obligation 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 Branch internet site at <http://www.winnipeg.ca/matmgt>); and
 - (ii) have successfully carried out work similar in nature, scope and value to the portion of the Work proposed to be subcontracted to them, and are fully capable of performing the Work required to be done in accordance with the terms of the Contract;
 - (g) have a written workplace safety and health program in accordance with The Workplace Safety and Health Act (Manitoba);
- B9.2 Further to B9.1(g), the Bidder shall, within three (3) Business Days of a request by the Contract Administrator, provide proof satisfactory to the Contract Administrator that the Bidder 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 - Option 1 administered by the Manitoba Heavy Construction Association's Safety, Health and Environment Program; or
 - (b) a valid COR certification number under the Certificate of Recognition (COR) Program administered by the Manitoba Construction Safety Association; or
 - (c) 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 Branch Internet site at <http://www.winnipeg.ca/matmgt>.)
- B9.3 The Bidder shall be prepared to submit, within three (3) Business Days of a request by the Contract Administrator, proof satisfactory to the Contract Administrator of the qualifications of the Bidder and of any proposed Subcontractor.
- B9.4 The Bidder shall provide, on the request of the Contract Administrator, full access to any of the Bidder's equipment and facilities to confirm, to the Contract Administrator's satisfaction, that the Bidder's equipment and facilities are adequate to perform the Work.
- B10. BID SECURITY**
- B10.1 The Bidder shall provide bid security in the form of:
- (a) a bid bond, in the amount of at least ten percent (10%) of the Total Bid Price, and agreement to bond of a company registered to conduct the business of a surety in Manitoba, in the form included in the Bid Submission (Form G1: Bid Bond and Agreement to Bond); or
 - (b) an irrevocable standby letter of credit, in the amount of at least ten percent (10%) of the Total Bid Price, and undertaking issued by a bank or other financial institution registered to conduct business in Manitoba and drawn on a branch located in Winnipeg, in the form included in the Bid Submission (Form G2: Irrevocable Standby Letter of Credit and Undertaking); or
 - (c) a certified cheque or draft payable to "The City of Winnipeg", in the amount of at least fifty percent (50%) of the Total Bid Price, drawn on a bank or other financial institution registered to conduct business in Manitoba.
- B10.1.1 If the Bidder submits alternative bids, the bid security shall be in the amount of the specified percentage of the highest Total Bid Price submitted.

B10.2 The bid security of the successful Bidder and the next two lowest evaluated responsive and responsible Bidders will be released by the City when a Contract for the Work has been duly executed by the successful Bidder and the performance security furnished as provided herein. The bid securities of all other Bidders will be released when a Contract is awarded.

B10.2.1 Where the bid security provided by the successful Bidder is in the form of a certified cheque or draft pursuant to B10.1(c), it will be deposited and retained by the City as the performance security and no further submission is required.

B10.2.2 The City will not pay any interest on certified cheques or drafts furnished as bid security or subsequently retained as performance security.

B10.3 The bid securities of all Bidders will be released by the City as soon as practicable following notification by the Contract Administrator to the Bidders that no award of Contract will be made pursuant to the Bid Opportunity.

B11. OPENING OF BIDS AND RELEASE OF INFORMATION

B11.1 Bid Submissions will be opened publicly, after the Submission Deadline has elapsed, in the office of the Corporate Finance Department, Materials Management Branch, or in such other office as may be designated by the Manager of Materials.

B11.1.1 Bidders or their representatives may attend.

B11.1.2 Bid Submissions determined by the Manager of Materials, or his designate, to not include the bid security specified in B10 will not be read out.

B11.2 After the public opening, the names of the Bidders and their Total Bid Prices as read out (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 Branch internet site at <http://www.winnipeg.ca/matmgt>.

B11.3 After award of Contract, the name(s) of the successful Bidder(s) and the Contract Amount(s) will be available on the Closed Bid Opportunities (or Public/Posted Opening & Award Results) page at The City of Winnipeg, Corporate Finance, Materials Management Branch Internet site at <http://www.winnipeg.ca/matmgt>.

B11.4 The Bidder is advised that any information contained in any Bid Submission may be released if required by City policy or procedures, by The Freedom of Information and Protection of Privacy Act (Manitoba), by other authorities having jurisdiction, or by law.

B12. IRREVOCABLE BID

B12.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 11 of Form A: Bid.

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

B13. WITHDRAWAL OF BIDS

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

- B13.1.1 Notwithstanding GC:23.3, the time and date of receipt of any notice withdrawing a Bid shall be the time and date of receipt as determined by the Manager of Materials.
- B13.1.2 The City will assume that any one of the contact persons named in Paragraph 3 of Form A: Bid or the Bidder's authorized representatives named in Paragraph 12 of Form A: Bid, and only such person, has authority to give notice of withdrawal.
- B13.1.3 If a Bidder gives notice of withdrawal prior to the Submission Deadline, the Manager of Materials shall:
- (a) retain the Bid Submission until after the Submission Deadline has elapsed;
 - (b) open the Bid Submission to identify the contact person named in Paragraph 3 of Form A: Bid and the Bidder's authorized representatives named in Paragraph 12 of Form A: Bid; and
 - (c) if the notice has been given by any one of the persons specified in B13.1.3(b), declare the Bid withdrawn.
- B13.2 A Bidder who withdraws his Bid after the Submission Deadline but before his Bid has been released or has lapsed as provided for in B12.2 shall be liable for such damages as are imposed upon the Bidder by law and subject to such sanctions as the Chief Administrative Officer considers appropriate in the circumstances. The City, in such event, shall be entitled to all rights and remedies available to it at law, including the right to retain the Bidder's bid security.

B14. EVALUATION OF BIDS

- B14.1 Award of the Contract shall be based on the following bid evaluation criteria:
- (a) compliance by the Bidder with the requirements of the Bid Opportunity (pass/fail);
 - (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B9 (pass/fail);
 - (c) Total Bid Price;
 - (d) economic analysis of any approved alternative pursuant to B5.
- B14.2 Further to B14.1(a), the Award Authority may reject a Bid as being non-responsive if the Bid Submission 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 if the interests of the City so require.
- B14.2.1 Any bid with an apparent imbalance between the unit prices for similar pay items in Part A through Part C may be determined to be non-responsive and rejected by the Award Authority in its sole discretion, acting reasonably.
- B14.3 Further to B14.1(b), the Award Authority shall reject any Bid submitted by a Bidder who does not demonstrate, in his Bid Submission 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 The electronic Form B: Prices and the formulas imbedded in that spreadsheet are only provided for the convenience of Bidders. The City makes no representations or warranties as to the correctness of the imbedded formulas. It is the Bidder's responsibility to ensure

the extensions of the unit prices and the sum of Total Bid Price performed as a function of the formulas within the electronic Form B: Prices are correct.

B15. AWARD OF CONTRACT

- B15.1 The City will give notice of the award of the Contract by way of a letter of intent, 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.

PART C - GENERAL CONDITIONS

C1. GENERAL CONDITIONS

- C1.1 The General Conditions for Construction Contracts (Revision 2000 11 09) are applicable to the Work of the Contract.
- C1.2 The *General Conditions for Construction Contracts* are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Branch Internet site at <http://www.winnipeg.ca/matmgt>.

PART D - SUPPLEMENTAL CONDITIONS

GENERAL

D1. GENERAL CONDITIONS

- D1.1 In addition to the General Conditions for Construction Contracts, these Supplemental Conditions are applicable to the Work of the Contract.
- D1.2 The General Conditions are amended by striking out "The City of Winnipeg Act" wherever it appears in the General Conditions and substituting "The City of Winnipeg Charter".
- D1.3 The General Conditions are amended by striking out "Tender Package" wherever it appears in the General Conditions and substituting "Bid Opportunity".
- D1.4 The General Conditions are amended by striking out "Tender Submission" wherever it appears in the General Conditions and substituting "Bid Submission".
- D1.5 The General Conditions are amended by deleting GC:6.16 and GC:6.17. The City of Winnipeg is now within the jurisdiction of the Manitoba Ombudsman pursuant to The Ombudsman Act.

D2. SCOPE OF WORK

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

Public Works Department Funded Work

- (a) Part A: St. Mary's Road – Street Renewal Dunkirk Drive to Greendell Avenue

Water and Waste Department Funded Work

- (b) Part B: St. Mary's Road – Watermain Renewal Riel Avenue to Woodlawn Avenue
(c) Part C: St. Mary's Road – Watermain Renewal Woodydell Avenue to River Road

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

- (a) Part A: St. Mary's Road – Street Renewal Dunkirk Drive to Greendell Avenue
- (i) Planing of existing asphalt overlay
 - (ii) Removal of existing curbs, bullnoses, medians
 - (iii) Construction of new concrete pavement structures (turn lane extensions)
 - (iv) Installation and adjustment of drainage inlets, manholes, and connection pipe
 - (v) Full depth concrete repairs of existing slabs and joints
 - (vi) Partial depth concrete repairs of existing joints
 - (vii) Adjustment of existing drainage inlets, water valves, and manholes
 - (viii) Renewal of existing sidewalk
 - (ix) Construction of splash strip utilizing slip-form paving equipment
 - (x) Renewal of curbs at all intersections and side streets
 - (xi) Renewal of miscellaneous concrete slabs, including medians, safety medians
 - (xii) Boulevard grading and sodding
 - (xiii) Minor joint and crack repair
 - (xiv) Placement of asphalt overlay (average thickness – 90 mm)
 - (xv) Planing of existing asphalt and/or concrete pavement for tie-ins

- (b) Part B: St. Mary's Road – Watermain Renewal Riel Avenue to Woodlawn Avenue
 - (i) 290.0m of 150mm watermain renewal, 1.5m of 200mm watermain renewal and 11.0m of 250mm watermain renewal
 - (ii) Temporary road and sidewalk restorations
 - (iii) Final restorations to be completed under Part A.
- (c) Part C: St. Mary's Road – Watermain Renewal Woodydell Avenue to River Road
 - (i) 150.0m of 150mm watermain renewal and 13.0m of 250mm watermain renewal
 - (ii) Final concrete restorations including roadway, curb, and sidewalk
 - (iii) Boulevard grading and sodding.

D3. CONTRACT ADMINISTRATOR

D3.1 The Contract Administrator is Dillon Consulting Limited, represented by:

David Wiebe, P.Eng.
Project Manager
Suite 200 – 895 Waverley Street
Winnipeg, Manitoba R3T 5P4
Telephone No. (204) 453-2301
Facsimile No. (204) 452-4412

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

D4. CONTRACTOR'S SUPERVISOR

- D4.1 At the pre-construction meeting, the Contractor shall identify his designated supervisor and any additional personnel representing the Contractor and their respective roles and responsibilities for the Work.
- D4.2 At least two (2) business days prior to the commencement of any Work on the site, the Contractor shall provide the Contract Administrator with a phone number where the supervisor identified in D4.1 or an alternate can be contacted 24 hours a day to respond to an emergency.

D5. NOTICES

- D5.1 Except as provided for in GC:23.2.2, all notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the Contractor shall be sent to the address or facsimile number identified by the Contractor in Paragraph 2 of Form A: Bid.
- D5.2 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the City, except as expressly otherwise required in D5.3, D5.4 or elsewhere in the Contract, shall be sent to the attention of the Contract Administrator at the address or facsimile number identified in D3.1.

- D5.3 All notices of appeal to the Chief Administrative Officer shall be sent to the attention of the Chief Financial Officer at the following address or facsimile number:

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

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

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

D6. FURNISHING OF DOCUMENTS

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

SUBMISSIONS

D7. SAFE WORK PLAN

- D7.1 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 GC:4.1 for the return of the executed Contract.
- D7.2 The Safe Work Plan shall be prepared and submitted in the format shown in the City's template which is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Branch Internet site at <http://www.winnipeg.ca/matmgt>.

D8. INSURANCE

- D8.1 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) all inclusive, with The City of Winnipeg being named as an additional insured, with a cross-liability clause, such liability policy to also contain a contractual liability, an unlicensed motor vehicle liability and a completed operations endorsement to remain in place at all times during the performance of the Work and throughout the warranty period;
 - (b) automobile liability insurance for owned and non-owned automobiles used for or in connection with the Work in the amount of at least two million dollars (\$2,000,000.00) at all times during the performance of the Work and until the date of Total Performance;
- D8.2 Deductibles shall be borne by the Contractor.

D8.3 The Contractor shall provide the City Solicitor with a certified true copy or a certificate of insurance of each policy, in a form satisfactory to the City Solicitor, at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in the GC:4.1 for the return of the executed Contract.

D8.4 The Contractor shall not cancel, materially alter, or cause each policy to lapse without providing at least fifteen (15) Calendar Days prior written notice to the Contract Administrator.

D9. PERFORMANCE SECURITY

D9.1 The Contractor shall provide and maintain performance security until the expiration of the warranty period in the form of:

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

D9.1.1 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.

D9.2 If the bid security provided in his Bid Submission was not a certified cheque or draft pursuant to B10.1(c), the Contractor shall provide the City Solicitor with the required performance security within seven (7) Calendar Days of notification of the award of the Contract by way of letter of intent and prior to the commencement of any Work on the Site and in no event later than the date specified in the GC:4.1 for the return of the executed Contract.

D10. SUBCONTRACTOR LIST

D10.1 The Contractor shall provide the Contract Administrator with a complete list of the Subcontractors whom the Contractor proposes to engage (Form J: Subcontractor List) at or prior to a pre-construction meeting, or at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in the GC:4.1 for the return of the executed Contract.

D11. EQUIPMENT LIST

D11.1 The Contractor shall provide the Contract Administrator with a complete list of the equipment which the Contractor proposes to utilize (Form K: Equipment List) at or prior to a pre-construction meeting, or at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in the GC:4.1 for the return of the executed Contract.

D12. DETAILED WORK SCHEDULE

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

D13. SECURITY CLEARANCE

D13.1 Each individual proposed to perform the following portions of the Work:

- (a) Part B and C: Communicating with residents and homeowners in person or by telephone;
- (b) Part B and C: Any work on private property;

shall be required to obtain a Criminal Record Search Certificate from the police service having jurisdiction at his place of residence.

D13.2 Prior to the commencement of any Work, and during the term of the Contract if additional or replacement individuals are proposed to perform Work, the Contractor shall supply the Contract Administrator with a Criminal Record Search Certificate obtained not earlier than one (1) year prior to the Submission Deadline, or a certified true copy thereof, for each individual proposed to perform Work within City facilities or on private property.

D13.3 Any individual for whom a Criminal Record Search Certificate is not provided, or for whom a Criminal Record Search Certificate indicates any convictions or pending charges related to property offences or crimes against another person, will not be permitted to perform any Work within City facilities or on private property.

D13.4 Any Criminal Record Search Certificate obtained thereby will be deemed valid for the duration of the Contract subject to a repeated records search as hereinafter specified.

D13.5 Notwithstanding the foregoing, at any time during the term of the Contract, the City may, at its sole discretion and acting reasonably, require an updated criminal records search. Any individual who fails to provide a satisfactory Criminal Record Search Certificate as a result of a repeated criminal records search will not be permitted to continue to perform Work under the Contract within City facilities or on private property.

SCHEDULE OF WORK

D14. COMMENCEMENT

D14.1 The Contractor shall not commence any Work until he is in receipt of a letter of intent from the Award Authority authorizing the commencement of the Work.

D14.2 The Contractor shall not commence any Work on the Site until:

- (a) the Contract Administrator has confirmed receipt and approval of:
 - (i) evidence that the Contractor is 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;
 - (ii) evidence of the workers compensation coverage specified in GC:6.14;
 - (iii) the twenty-four (24) hour emergency response phone number specified in D4.2.
 - (iv) the Safe Work Plan specified in D7;
 - (v) evidence of the insurance specified in D8;
 - (vi) the performance security specified in D9;
 - (vii) the subcontractor list specified in D10;
 - (viii) the equipment list specified in D11; and
 - (ix) the detailed work schedule specified in D12, and
 - (x) the security clearances specified in D13.

- (b) the Contractor has attended a pre-construction meeting with the Contract Administrator, or the Contract Administrator has waived the requirement for a pre-construction meeting.

D14.3 The Contractor shall not commence the Work on Parts B or C before May 23, 2006, and shall commence the Work on Part A no later than June 5, 2006.

D14.4 The City intends to award this Contract by April 17, 2006.

D15. WORKING DAYS

D15.1 Further to GC:1.1(gg);

D15.1.1 The Contract Administrator will determine daily if a Working Day has elapsed and will record his assessment. On a weekly basis the Contract Administrator will provide the Contractor with a record of the Working Days assessed for the preceding week. The Contractor shall sign each report signifying that he agrees with the Contract Administrator's determination of the Working Days assessed for the report period.

- (a) Working Days will be recorded separately for Part A and for Parts B and C combined due to the nature of the work.

D15.1.2 Work done to restore the Site to a condition suitable for Work, shall not be considered "work" as defined in the definition of a Working Day.

D15.1.3 When the Work includes two or more major types of Work that can be performed under different atmospheric conditions, the Contract Administrator shall consider all major types of Work in determining whether the Contractor was able to work in assessing Working Days.

D16. RESTRICTED WORK HOURS

D16.1 Further to Clause 3.10 of CW 1130, the Contractor shall require written permission 48 hours in advance from the Contract Administrator for any work to be performed between 2000 hours and 0700 hours, or on Saturdays, Sundays, Statutory Holidays and or Civic Holidays.

D17. WORK BY OTHERS

D17.1 Work by others on or near the Site will include but not necessarily be limited to:

- (a) City of Winnipeg Traffic Signals – Installation or renewal of signal tie line along boulevard for much of the length of the project. Underground traffic loop replacement as necessary at the St. Mary's/Bishop Grandin intersection. Underground traffic loop and signal pole/pit replacements at the St. Mary's/St. Vital Mall intersection. Underground traffic loop and east side signal pole/pit replacements at the St. Mary's/Meadowood intersection. Pavement rehabilitation and boulevard restoration at these locations must be co-ordinated with Traffic Signals so that their appurtenances can be installed. Preformed loop leads must be protected during pavement rehabilitation until they can be run to their final location.
- (b) MTS – Miscellaneous adjustments to manholes or other appurtenances may be required as well. These adjustments should be co-ordinated with the adjustment of drainage inlets and manholes.
- (c) Manitoba Hydro – Miscellaneous adjustments to manholes or other appurtenances may be required. These adjustments should be co-ordinated with the adjustment of drainage inlets and manholes.
- (d) City of Winnipeg Forestry Branch – One tree removal is required in the median south of Riel Boulevard where the southbound left turn lane to Meadowood is to be extended. The

trees should be relocated/removed prior to construction. Work cannot proceed on turn lane construction until Forestry Branch has completed their work.

D18. SEQUENCE OF WORK

D18.1 Further to GC:6.1, the sequence of work shall be as follows:

D18.1.1 The Work shall be divided into three Parts. Each Part shall be divided into Phases. Each Phase shall be subdivided into Stages. Stages are further subdivided into major items of work:

Part A: St. Mary's Road – Street Renewal Dunkirk Drive to Greendell Avenue

D18.1.2 **Phase I** – St. Mary's Road north of Bishop Grandin Boulevard

(a) **Stage I** – Median Lanes Rehabilitation

- (i) Planing of existing asphalt overlay to varying depths in median lanes;
- (ii) Removal of existing median lane curbs, bullnoses, medians;
- (iii) Construction of extension of southbound median through lane at Bishop Grandin Boulevard intersection;
- (iv) Installation and adjustment of catchbasins, catchpits, and connection pipe;
- (v) Full depth concrete repairs of existing slabs and joints;
- (vi) Adjustment of existing drainage inlets, water valves, and manholes;
- (vii) Construction of splash strip;
- (viii) Renewal of bullnoses and monolithic median slabs;
- (ix) Centre median grading and sodding;
- (x) Joint and crack maintenance;
- (xi) Partial depth concrete repairs of existing joints;
- (xii) Asphalt patching over full depth concrete repairs where there is a remaining asphalt overlay;
- (xiii) Placing of scratch course of asphalt.

(b) **Stage II** – Gutter Lanes Rehabilitation

- (i) Planing of existing asphalt overlay to varying depths in gutter lanes;
- (ii) Removal of existing gutter lane curbs, monolithic curb and sidewalk, and sidewalk;
- (iii) Installation and adjustment of catchbasins, catchpits, and connection pipe;
- (iv) Full depth concrete repairs of existing slabs and joints;
- (v) Adjustment of existing drainage inlets, water valves, and manholes;
- (vi) Construction of splash strip utilizing slip-form paving equipment;
- (vii) Renewal of monolithic curb and sidewalk and sidewalk;
- (viii) Boulevard grading, sodding, and tree placement;
- (ix) Joint and crack maintenance;
- (x) Partial depth concrete repairs of existing joints;
- (xi) Asphalt patching over full depth concrete repairs where there is a remaining asphalt overlay;
- (xii) Placing of scratch course of asphalt.

(c) **Stage III** – Final Asphalt Works

- (i) Placement of final lift of asphalt overlay utilizing automatic grade control for all mainlines;

- (ii) Placement of asphalt overlay in all median openings, cross streets, and private approaches;
- (iii) Cleanup and demobilization in project area north of Bishop Grandin Boulevard.

D18.1.3 **Phase II** – St. Mary's Road south of Bishop Grandin Boulevard

- (a) **Stage I** - Left Turn Lanes Rehabilitation from Bishop Grandin Boulevard to St. Vital Centre Entrance
 - (i) Major items of work as stated in Phase I, Stage I.
- (b) **Stage II** – Median Lanes Rehabilitation
 - (i) Major items of work as stated in Phase I, Stage I.
- (c) **Stage III** – Gutter Lanes Rehabilitation
 - (i) Major items of work as stated in Phase I, Stage II.
- (d) **Stage IV** – Final Asphalt Works
 - (i) Major items of work as stated in Phase I, Stage III.

D18.1.4 Generally, Phase I of Part A can be constructed concurrently with Part B. Part B must be completed before Phase II of Part A can commence.

D18.1.5 Construction activity is limited to one Phase of Part A at a time. No major construction can commence on Phase II until Phase I is complete. However, the Contract Administrator will allow planing and concrete construction works to commence on Phase II when final asphalt works on Phase I are proceeding.

D18.1.6 Construction will be by the lane-at-a-time method. (see E5 for minimum requirements of traffic lanes to be left open at various times).

D18.1.7 In Phase II, a maximum of 500 metres of each lane being rehabilitated in each direction can be closed to traffic initially for concrete works. This ensures that long areas of the lane are not closed to traffic when no work is being performed in those areas. As concrete works progress, the Contract Administrator will allow an increase in the maximum length of the lane closures.

D18.1.8 The Contract Administrator may increase the maximum length of the lane closures in Phase II depending on the number of concrete crews working on the project at any one time.

D18.1.9 It should be noted that more than one concrete crew may be required at any one time to complete Part A within the allotted number of Working Days.

D18.1.10 Placing the topsoil and finished grading of all boulevard and median areas shall be completed prior to commencing construction of the asphaltic concrete overlay, including the scratch course.

D18.1.11 At the end of any day of asphalt placement, there shall be no drop-off accessible to traffic along any longitudinal joint, excepting the longitudinal joint between the gutter and approaches.

D18.1.12 Immediately following the completion of Phase II, the Contractor shall clean up the site and remove all plant, surplus material, waste and debris, other than that left by the City or other Contractors.

Part B: St. Mary's Road – Watermain Renewal Riel Avenue to Woodlawn Avenue

D18.1.13 **Phase I** – Watermain Renewal

- (a) **Stage I** – Watermain Construction
 - (i) Renewal of new watermain off line;

- (ii) Installation of valves and other appurtenances;
 - (iii) Renewal or reconnection of all private services;
 - (iv) Testing of new watermain;
 - (v) Abandonment of existing watermain;
 - (vi) Inspect segments for deficiencies.
 - (b) **Stage II** – Surface Restoration
 - (i) Construct and maintain temporary surface restorations until roadworks in that lane in Part A commences.
- D18.1.14 Generally, the work in Part B must be complete, except for permanent surface works restoration, before Phase II of Part A commences to avoid overlap of work area. The permanent surface works restorations can take place with the work in Part A.
- D18.1.15 More than one underground crew may be required at any one time to complete Part B and C within the allotted number of Working Days.

Part C: St. Mary's Road – Watermain Renewal Woodydell Avenue to River Road

- D18.1.16 **Phase I** – Watermain Renewal
- (a) **Stage I** – Watermain Construction
 - (i) Major items of work as stated in Part B, Phase I, Stage I.
 - (b) **Stage II** – Surface Restoration
 - (i) Construct final surface restorations including pavement, sidewalk, and curb repairs;
 - (ii) Grading and sodding of boulevard.
- D18.1.17 Generally, the work in Part C can commence concurrently with Part A and B if the Contractor desires.
- D18.1.18 More than one underground crew may be required at any one time to complete Part B and C within the allotted number of Working Days.

D19. SUBSTANTIAL PERFORMANCE

- D19.1 The Contractor shall achieve Substantial Performance of Parts B and C within thirty (30) consecutive Working Days of the commencement of the work on Parts B or C as specified in D14.
- D19.2 The Contractor shall achieve Substantial Performance of the Work including Parts A, B and C within seventy (70) consecutive Working Days of the commencement of the work on Part A as specified in D14. This will be considered to be Substantial Performance of the Contract for the purposes of The Builders' Liens Act.
- D19.3 When the Contractor considers the Work to be substantially performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Substantial Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be re-inspected.
- D19.4 The date on which the Work has been certified by the Contract Administrator as being substantially performed to the requirements of the Contract through the issue of a certificate of Substantial Performance is the date on which Substantial Performance has been achieved.

D20. TOTAL PERFORMANCE

- D20.1 The Contractor shall achieve Total Performance within seventy-five (75) consecutive Working Days of the commencement of the Work of Part A as specified in D14.
- D20.2 When the Contractor or the Contract Administrator considers the Work to be totally performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Total Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be re-inspected.
- D20.3 The date on which the Work has been certified by the Contract Administrator as being totally performed to the requirements of the Contract through the issue of a certificate of Total Performance is the date on which Total Performance has been achieved.

D21. LIQUIDATED DAMAGES

- D21.1 If the Contractor fails to achieve Substantial Performance for Parts B and C in accordance with the Contract by the day fixed in D19.1 for Substantial Performance for Parts B and C, the Contractor shall pay one thousand dollars (\$1,000.00) per Working Day for each and every Working Day following the day fixed herein for Substantial Performance during which such failure continues.
- D21.2 If the Contractor fails to achieve Substantial Performance for the Work including Parts A, B and C in accordance with the Contract by the day fixed in D19.2 for Substantial Performance the Contractor shall pay one thousand, eight hundred dollars (\$1,800.00) per Working Day for each and every Working Day following the day fixed herein for Substantial Performance during which such failure continues.
- D21.3 The amounts specified for liquidated damages in D21.1 and D21.2 are based on a genuine pre-estimate of the City's losses in the event that the Contractor does not achieve Substantial Performance by the days fixed herein for same.
- D21.4 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

D22. SCHEDULED MAINTENANCE

- D22.1 The Contractor shall perform the following scheduled maintenance in the manner and within the time periods required by the Specifications:
- (a) Reflective Crack Maintenance (during one year warranty period) as specified in CW 3250-R6;
 - (b) Sodding (maintenance period) as specified in CW 3510-R8;
 - (c) Seeding (maintenance period) as specified in CW3520-R6
 - (d) Tree Maintenance as specified in E18.
- D22.2 Determination of Substantial Performance and Total Performance shall be exclusive of scheduled maintenance identified herein. All scheduled maintenance shall be completed prior to the expiration of the warranty period. Where the scheduled maintenance cannot be completed during the warranty period, the warranty period shall be extended for such period of time as it takes the Contractor to complete the scheduled maintenance.

CONTROL OF WORK

D23. JOB MEETINGS

- D23.1 Regular weekly job meetings will be held at the site. These meetings shall be attended by a minimum of one representative of the Contract Administrator, one representative of the City and one representative of the Contractor. Each representative shall be a responsible person capable of expressing the position of the Contract Administrator, the City and the Contractor respectively on any matter discussed at the meeting including the Work schedule and the need to make any revisions to the Work schedule. The progress of the Work will be reviewed at each of these meetings.
- D23.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever he deems it necessary.

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

- D24.1 Further to GC:6.26, the Contractor shall be the Prime Contractor and shall serve as, and have the duties of the Prime Contractor in accordance with The Workplace Safety and Health Act (Manitoba).

WARRANTY

D25. WARRANTY

- D25.1 Notwithstanding GC:13.2, the warranty period shall begin on the date of Total Performance and shall expire one (1) years thereafter, unless extended pursuant to GC:13.2.1 or GC:13.2.2, in which case it shall expire when provided for thereunder.
- D25.2 Notwithstanding GC:13.2 or D25.1, the Contract Administrator may permit the warranty period for a portion or portions of the Work to begin prior to the date of Total Performance if:
- (a) a portion of the Work cannot be completed because of unseasonable weather or other conditions reasonably beyond the control of the Contractor but that portion does not prevent the balance of the Work from being put to its intended use.
- D25.2.1 In such case the date specified by the Contract Administrator for the warranty period to begin shall be substituted for the date specified in GC:13.2 for the warranty period to begin.

FORM H1: PERFORMANCE BOND
(See D9)

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 dated the

_____ day of _____, 20____, for:

BID OPPORTUNITY NO. 6-2006

ST. MARY'S ROAD - STREET RENEWAL DUNKIRK TO GREENDELL – WATERMAIN RENEWAL RIEL
TO WOODLAWN AND WOODYDELL TO RIVER
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)

(Name of Principal)

Per: _____ (Seal)

Per: _____

(Name of Surety)

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

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

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

(Date)

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

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

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

(Name of bank or financial institution)

Per: _____
(Authorized Signing Officer)

Per: _____
(Authorized Signing Officer)

FORM K: EQUIPMENT
(See D11)

ST. MARY'S ROAD - STREET RENEWAL DUNKIRK TO GREENDELL – WATERMAIN RENEWAL RIEL
TO WOODLAWN AND WOODYDELL TO RIVER

1. Category/type:	Asphalt Planing
Make/Model/Year: _____	Serial No.: _____
Registered owner: _____	
Make/Model/Year: _____	Serial No.: _____
Registered owner: _____	
Make/Model/Year: _____	Serial No.: _____
Registered owner: _____	
2. Category/type:	Concrete Restoration and Concrete Paving (Including Curbing)
Make/Model/Year: _____	Serial No.: _____
Registered owner: _____	
Make/Model/Year: _____	Serial No.: _____
Registered owner: _____	
Make/Model/Year: _____	Serial No.: _____
Registered owner: _____	
3. Category/type:	Asphalt Paving
Make/Model/Year: _____	Serial No.: _____
Registered owner: _____	
Make/Model/Year: _____	Serial No.: _____
Registered owner: _____	
Make/Model/Year: _____	Serial No.: _____
Registered owner: _____	

FORM L: DETAILED WORK SCHEDULE
 (See D12)

ST. MARY'S ROAD - STREET RENEWAL DUNKIRK TO GREENDELL – WATERMAIN RENEWAL RIEL TO WOODLAWN AND WOODYDELL TO RIVER

For each item of Work, indicate the cumulative percentage proposed to be completed by the end of each time period until 100% completion is achieved.								
Items of Work	Time Period in Working Days							
	5	15	25	35	45	55	65	75
PART A: ST. MARY'S ROAD – STREET RENEWAL DUNKIRK DRIVE TO GREENDELL AVENUE								
Phase I – St. Mary's Road north of Bishop Grandin Boulevard								
Stage I – Median Lanes Rehabilitation								
Stage II – Gutter Lanes Rehabilitation								
Stage III – Final Asphalt Works								
Phase II – St. Mary's Road south of Bishop Grandin Boulevard								
Stage I – Left Turn Lanes Rehabilitation from Bishop Grandin Boulevard to St. Vital Centre Entrance								
Stage II – Median Lanes Rehabilitation								
Stage III – Gutter Lanes Rehabilitation								
Stage IV – Final Asphalt Works								
PART B: ST. MARY'S ROAD – WATERMAIN RENEWAL RIEL AVENUE TO WOODLAWN AVENUE								
Phase I – Watermain Renewal								
Stage I – Watermain Construction								
Stage II – Surface Restoration								
PART C: ST. MARY'S ROAD – WATERMAIN RENEWAL WOODYDELL AVENUE TO RIVER ROAD								
Phase I – Watermain Renewal								
Stage I – Watermain Construction								
Stage II – Surface Restoration								
Schedule is based on _____ concrete crews.								
Schedule is based on _____ watermain crews.								

PART E - SPECIFICATIONS

GENERAL

E1. APPLICABLE SPECIFICATIONS, STANDARD DETAILS AND DRAWINGS

E1.1 *The City of Winnipeg Standard Construction Specifications* in its entirety, whether or not specifically listed on Form B: Prices, shall apply to the Work.

E1.1.1 *The City of Winnipeg Standard Construction Specifications* is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Branch internet site at <http://www.winnipeg.ca/matmgt>.

E1.1.2 The version in effect three (3) Business Days before the Submission Deadline shall apply.

E1.1.3 Further to GC:2.4(d), Specifications included in the Bid Opportunity shall govern over *The City of Winnipeg Standard Construction Specifications*.

E1.2 The following Drawings are applicable to the Work:

<u>Drawing No.</u>	<u>Drawing Name/Title</u>	<u>Drawing (Original) Sheet Size</u>
--	Cover Sheet	A1
P-3257-01	Greendell Ave. to Sta. 0+150	A1
P-3257-02	Sta. 0+150 to Sta. 0+300	A1
P-3257-03	Sta. 0+300 to Sta. 0+450	A1
P-3257-04	Sta. 0+450 to Sta. 0+600	A1
P-3257-05	Sta. 0+600 to Sta. 0+750	A1
P-3257-06	Sta. 0+750 to Bishop Grandin Blvd.	A1
P-3257-07	Bishop Grandin Blvd. to Sta. 1+110	A1
P-3257-08	Sta. 1+110 to Sta. 1+250	A1
P-3257-09	Sta. 1+250 to Sta. 1+375	A1
P-3257-10	Sta. 1+375 to Sta. Dunkirk Dr.	A1
P-3257-11	Sections and Details	A1
D-8893	Woodlawn Ave. to Sta. 0+225	A1
D-8894	Sta. 0+225 to Sta. 0+375	A1
D-8895	Sta. 0+375 to Riel Ave.	A1
D-8896	River Rd. to Sta. 0+160	A1
D-8897	Sta. 0+160 to Woodydell Ave.	A1

E2. OFFICE FACILITIES

E2.1 The Contractor shall supply office facilities meeting the following requirements:

- (a) The field office shall be for the exclusive use of the Contract Administrator.
- (b) The building shall be conveniently located near the site of the Work.
- (c) The building shall have a minimum floor area of 15 square metres, a height of 2.4 m with two windows for cross ventilation and a door entrance with a suitable lock.
- (d) The building shall be suitable for all weather use. It shall be equipped with a heater and air conditioner so that the room temperature can be maintained between either 16-18°C or 24-25°C.
- (e) The building shall be adequately lighted with fluorescent fixtures and have a minimum of two wall outlets.

- (f) The building shall be furnished with one drafting table, one meeting table, one stool, one legal size filing cabinet, and a minimum of 8 chairs.
- (g) A portable toilet shall be located near the field office building. The toilet shall have a locking door and be for the exclusive use of the Contract Administrator and other personnel from the City.
- (h) The field office building and the portable toilet shall be cleaned on a weekly basis immediately prior to each site meeting. The Contract Administrator may request additional cleaning when he deems it necessary.

E2.2 The Contractor shall be responsible for all installation and removal costs, all operating costs, and the general maintenance of the office facilities.

E2.3 The office facilities will be provided from the date of the commencement of the Work to the date of Total Performance.

E3. PROTECTION OF EXISTING TREES

E3.1 The Contractor shall take the following precautionary steps to prevent damage from construction activities to existing boulevard trees within the limits of the construction area:

- (a) The Contractor shall not stockpile materials and soil or park vehicles and equipment on boulevards within 2 metres of trees.
- (b) 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.
- (c) Excavation shall be performed in a manner that minimizes damage to the existing root systems. Where possible, excavation shall be carried out such that the edge of the excavation shall be 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 drip line of the trees shall be kept to the minimum required to perform the work required. Equipment shall not be parked, repaired, refuelled; construction materials shall not be stored, and earth materials shall not be stockpiled within the drip lines of trees. The drip line of a tree shall be considered to be the ground surface directly beneath the tips of its outermost branches. The Contractor shall ensure that the operations do not cause flooding or sediment deposition on areas where trees are located.
- (e) Work on-site shall be carried out in such a manner so as to minimize damage to existing tree branches. Where damage to branches does occur, they shall be neatly pruned.

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

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

E3.4 Elm trees cannot be trimmed between April 1 and July 31, inclusive.

E4. TRAFFIC CONTROL

E4.1 Further to clauses 3.6 and 3.7 of CW 1130-R1:

- (a) Where directed, the Contractor shall construct and maintain temporary asphalt ramps to alleviate vertical pavement obstructions such as manholes and planing drop-offs to the satisfaction of the Contract Administrator. No measurement for payment will be made for this work.

- (b) In accordance with the Manual of Temporary Traffic Control, the Contractor ("Agency" in the manual) shall make arrangements with the Traffic Services Section of the City of Winnipeg to place all temporary regulatory signs. The Contractor shall bear all costs associated with the placement of temporary traffic control devices by the Traffic Services Section of the City of Winnipeg in connection with the works undertaken by the Contractor.

E5. TRAFFIC MANAGEMENT

E5.1 Further to clause 3.7 of CW 1130-R1:

- E5.1.1 Maintain a minimum of one through lane of traffic northbound and one lane of traffic southbound at all times;
- E5.1.2 Where left turn lanes exist, an additional lane to accommodate the left turn storage lane shall be maintained at all times.
- E5.1.3 When no work is being performed on a portion of St. Mary's Road within the project limits, and providing it is safe for vehicles, lane closures at these locations will not be permitted, unless written consent is given by the Contract Administrator.
- E5.1.4 Intersecting street and private approach access shall be maintained at all times.
- E5.1.5 Should the Contractor be unable to maintain pedestrian or vehicular access to a residence or business, he shall review the planned disruption with the business or residence and the Contract Administrator, and take reasonable measures to minimize the impact. The Contractor shall provide a minimum of 24 hours notification to the affected residence or business and the Contract Administrator, prior to disruption of access.
- E5.1.6 Pedestrian access must be maintained on one side of St. Mary's Road at all times.
- E5.1.7 Ambulance/emergency vehicle access must be maintained at all times.
- E5.2 The Contractor is responsible for supplying and installing all signage in accordance with the Manual of Temporary Traffic Control in Work Areas on City Streets, 2003 Edition.
- E5.2.1 Further to the Manual of Temporary Traffic Control in Work Areas on City Streets, 2003 Edition, all retro reflective sheeting on temporary traffic signs, traffic barricades and traffic control devices must be Type III (High Intensity) retro reflective sheeting (ASTM D4956) and barricades must show vertical stripping.
- E5.3 Following is a sequence of the lane closures for each Phase and Stage of the work:

Part A: St. Mary's Road – Street Renewal Dunkirk Drive to Greendell Avenue

E5.3.1 **Phase I** – St. Mary's Road north of Bishop Grandin Boulevard

(a) **Stage I** – Median Lanes Rehabilitation

- (i) Closure and rehabilitation of northbound and southbound median lanes north of Bishop Grandin Boulevard. Traffic travels in the gutter lane.
- (ii) Where left turn lanes exist, an additional lane to accommodate the left turn storage shall be provided.
- (iii) Median openings and intersections open to traffic unless joint/slab repairs require temporary closure. Temporary closures to be staggered such that consecutive intersections are not closed at the same time.

(b) **Stage II** – Gutter Lanes Rehabilitation

- (i) Closure and rehabilitation of northbound and southbound gutter lanes north of Bishop Grandin Boulevard. Traffic travels in the median lanes.

- (ii) Where right turn lanes exist, an additional lane to accommodate the right turn storage shall be provided.
 - (iii) Cross streets and private approaches open to traffic unless joint/slab repairs require temporary closure. Temporary closures to be staggered such that consecutive intersections are not closed at the same time.
- (c) **Stage III – Final Asphalt Works**
- (i) Final asphalt overlay of all lanes north of Bishop Grandin Boulevard. One lane may be closed at any one time in both directions.
 - (ii) Cross streets, private approaches, and median openings may be temporarily closed during the asphalt placement and compaction works to allow for mainline grade control devices.

E5.3.2 Phase II – St. Mary's Road south of Bishop Grandin Boulevard

- (a) **Stage I – Left Turn Lanes Rehabilitation from Bishop Grandin Boulevard to St. Vital Centre Entrance**
- (i) Closure and rehabilitation of northbound and southbound left turn lanes. Lane rehabilitation is staggered such that there is one additional lane to accommodate the left turn storage. Left turn storage may be provided in the median lane while through traffic travels in the gutter lane.
 - (ii) Median openings and intersections open to traffic unless joint/slab repairs require temporary closure. Temporary closures to be staggered such that consecutive intersections are not closed at the same time.
 - (iii) If the Contractor has sufficient crews, the Contract Administrator may allow this stage to occur at the same time as Phase I Stage II and III, otherwise it can proceed during Phase II Stage II south of the St. Vital Centre Entrance.
- (b) **Stage II – Median Lanes Rehabilitation**
- (i) Closure and rehabilitation of northbound and southbound median lanes south of Bishop Grandin Boulevard. Traffic travels in the gutter lane. A maximum of 500 metres of lane closure is permitted initially as stated in D18.1.7.
 - (ii) Where left turn lanes exist, an additional lane to accommodate the left turn storage shall be provided.
 - (iii) Median openings and intersections open to traffic unless joint/slab repairs require temporary closure. Temporary closures to be staggered such that consecutive intersections are not closed at the same time.
- (c) **Stage III – Gutter Lanes Rehabilitation**
- (i) Closure and rehabilitation of northbound and southbound gutter lanes south of Bishop Grandin Boulevard. Traffic travels in the median lanes. A maximum of 500 metres of lane closure is permitted initially as stated in D18.1.7.
 - (ii) Where right turn lanes exist, an additional lane to accommodate the right turn storage shall be provided.
 - (iii) Cross streets and private approaches open to traffic unless joint/slab repairs require temporary closure. Temporary closures to be staggered such that consecutive intersections are not closed at the same time.
- (d) **Stage IV – Final Asphalt Works**
- (i) Final asphalt overlay of all lanes south of Bishop Grandin Boulevard. One lane may be closed at any one time in both directions.
 - (ii) Cross streets, private approaches, and median openings may be temporarily closed during the asphalt placement and compaction works to allow for mainline grade control devices.

Part B: St. Mary's Road – Watermain Renewal Riel Avenue to Woodlawn Avenue

E5.3.3 **Phase I** – Watermain Renewal

(a) **Stage I** – Watermain Construction

- (i) Closure of northbound gutter lane between Riel Avenue and Woodlawn Avenue. Traffic travels in the median lanes.
- (ii) Cross streets and private approaches open to traffic unless watermain renewal requires temporary closure.

(b) **Stage II** – Surface Restoration

- (i) As stated in Part B, Phase I, Stage I.

Part C: St. Mary's Road – Watermain Renewal Woodydell Avenue to River Road

E5.3.4 **Phase I** – Watermain Renewal

(a) **Stage I** – Watermain Construction

- (i) Closure of northbound gutter lane between Woodydell Avenue and River Road. Traffic travels in the median lanes.
- (ii) Cross streets and private approaches open to traffic unless watermain renewal requires temporary closure.

(b) **Stage II** – Surface Restoration

- (i) As stated in Part C, Phase I, Stage I.

E6. PEDESTRIAN SAFETY

E6.1 During the project, a temporary snow fence shall be installed if necessary in locations such as open excavations that are adjacent to pedestrian facilities. The Contractor shall be responsible for maintaining the snow fence in a proper working condition. No measurement for payment shall be made for this work.

E7. EXISTING WATER SERVICES

E7.1 Further to Clause 3.3 of CW 1120, prior to construction, the Contractor is to verify the locations of all water services within the construction area using electronic tracing methods. No measurement for payment shall be made for this work.

E7.2 Further to Clause 3.6.4 of CW 1120, the Contractor shall provide adequately sized temporary pressurized water supply for industrial, commercial and institutional customers affected by a planned watermain shutdown or interruption where water is a requirement for business to operate. Such businesses include, but are not limited to:

- (a) 1501 St. Mary's Road – McDonald's Restaurant
- (b) 1555 St. Mary's Road – Meadowood Medical Centre Group Inc.
- (c) 1621 St. Mary's Road – Co-Op

No measurement for payment shall be made for this work.

E7.3 Further to Clause 3.6.4 of CW 1120, due to the number of commercial businesses within the construction area, the Contractor shall schedule any planned watermain shutdown or interruption to suit hours of business operation.

E8. WATER USED BY CONTRACTOR

- E8.1 Further to Section 3.7 of CW 1120, charges incurred for the permits and water meters shall be paid for by the Contractor when taken out. The Contractor shall forward the invoice to the Contract Administrator for reimbursement. The billing for water usage sent to the Contractor shall be forwarded to the Contract Administrator for payment. The Bid Opportunity number shall be noted on each permit.
- E8.2 The Contractor is to obtain two permits to ensure the water usage for Part A remains separate from the water usage for Parts B and C combined.

E9. SURFACE RESTORATIONS

- E9.1 Further to clause 3.3 of CW 1130-R1, when Total Performance is not achieved in the year the Contract is commenced, the Contractor shall temporarily repair any Work commenced and not completed to the satisfaction of the Contract Administrator. The Contractor shall maintain the temporary repairs in a safe condition as determined by the Contract Administrator until permanent repairs are completed. The Contractor shall bear all costs associated with temporary repairs and their maintenance.

E10. CHANGE IN BACKFILL MATERIAL

- E10.1 Where directed by the Contract Administrator, the Contractor will be required to change the proposed class of backfill for the trenchless installation to either Class 3 or Class 1.
- E10.2 Change in backfill material will be measured and paid for in accordance with Clause 4.8 of CW 2030 and will include the disposal of excavated material.

E11. RECYCLED CONCRETE BASE COURSE MATERIAL

DESCRIPTION

- E11.1 General
- E11.1.1 Further to CW 3110, this specification covers supply and placement of recycled concrete base course material for Full-Depth Partial Slab Patches (Class A, B, C, & D), miscellaneous concrete slabs and sidewalks.
- E11.1.2 Referenced Standard Construction Specifications
- (a) CW 3110 – Sub-Grade. Sub-Base and Base Course Construction.
 - (b) CW 3230 – Full-Depth Patching of Existing Pavement Slabs and Joints.
 - (c) CW 3235 – Renewal of Existing Miscellaneous Concrete Slabs.
 - (d) CW 3325 – Portland Cement Concrete Sidewalk.
- E11.2 Definitions
- E11.2.1 Deleterious material – are materials such as vegetation, organic material, wood, glass, plastic, metal, reinforcing steel, building rubble, brick, salvaged asphalt materials, clay, shale, and friable particles.

MATERIALS

- E11.3 Recycled Concrete Base Course Material

- E11.3.1 Recycled concrete base course material when used for Full-Depth Partial Slab Patches (Class A, B, C, & D), miscellaneous concrete slabs and sidewalks will be considered equal to granular or limestone base course material specified in Section 2.2 of CW 3110.
- E11.3.2 Recycled concrete base course material will be approved by the Contract Administrator.
- E11.3.3 Recycled concrete base course material will consist of sound durable particles produced by crushing, screening, and grading of recovered concrete materials, free from soft material that would disintegrate through decay or weathering.
- E11.3.4 The recycled concrete base course material will be well graded and conform to the following grading requirements:
- E11.3.5 Recycled Concrete Base Course Material Grading Requirements

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

- E11.3.6 Recycled concrete base course material when subjected to the abrasion test will have a loss of not more than 35% when tested in accordance with grading B of ASTM C131, Test for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
- E11.3.7 The amount of deleterious material will be limited to a maximum of two percent of the total dry weight.

CONSTRUCTION METHODS

- E11.4 Placement of Recycled Concrete Base Course Material
 - E11.4.1 Place and compact recycled concrete base course material as a levelling course to a maximum thickness of 50 millimetres.
 - E11.4.2 Spread materials uniformly to avoid segregation free of pockets of fine and coarse material.
 - E11.4.3 Level and compact to the finished elevation. Compact to 100% Standard Proctor Density for Full-Depth Partial Slab Patches (Class A, B, C, & D) and 90% Standard Proctor Density for miscellaneous concrete slabs and sidewalks.
 - E11.4.4 Maintain the finished material until the pavement or sidewalk is placed.

MEASUREMENT AND PAYMENT

- E11.5 Recycled Concrete Base Course Material
 - E11.5.1 The supplying, placing and compaction of recycled concrete base course material will be measured on a volume basis and paid for at the Contract Unit Price per cubic metre for the "Supplying and Placing Base Course Material" as specified in accordance with CW 3110.
 - E11.5.2 No measurement or payment will be made for material placed as a levelling course under miscellaneous concrete slabs and sidewalks where the costs are included in accordance with CW 3235 and CW 3325.

E11.5.3 No measurement or payment will be made for materials rejected by the Contract Administrator.

E12. 150 MM DEPTH SIDEWALK

DESCRIPTION

E12.1.1 General

- (a) This specification shall cover all operations relating to constructing sidewalk 150 mm thick through private asphalt approaches.

E12.1.2 Referenced Standard Construction Specifications

- (a) CW 3235-R5 – Renewal of Existing Miscellaneous Concrete Slabs

MATERIALS

E12.1.3 Concrete materials as per CW 3310-R9.

CONSTRUCTION METHODS

E12.1.4 Install concrete sidewalks 150 mm deep in accordance with SD-228A and SD-228B at the locations shown on the Contract drawings.

MEASUREMENT AND PAYMENT

E12.1.5 150 mm Depth Sidewalk

- (a) 150 mm Depth Sidewalk will be measured on an area basis and paid for at the Contract Unit Price per square metre for "Sidewalk (150 mm Depth)". The area to be paid for will be the total number of square metres of sidewalk that are placed in accordance with this specification, accepted and measured by the Contract Administrator.

E13. SUPPLY AND INSTALLATION OF MOISTURE BARRIER/STRESS ABSORPTION GEOTEXTILE FABRIC

DESCRIPTION

E13.1 General

E13.1.1 This specification covers the supply and installation of Moisture Barrier/Stress Absorption Geotextile.

E13.1.2 Referenced Standard Construction Specifications

- (a) CW 3130-R1 – Supply and Installation of Geotextile Fabrics.
(b) CW 3410-R6 – Asphaltic Concrete Pavement Works.

MATERIALS

E13.2 Mill Certificate and Bill of Lading

E13.2.1 Provide mill certificate and bill of lading in accordance with Section 2 of CW 3130-R1.

E13.3 Storage and Handling

E13.3.1 Store and handle material in accordance with Section 2 of CW 3130-R1.

E13.4 Moisture Barrier/Stress Absorption Geotextile Fabric

E13.4.1 Geotextile fabric will be non-woven.

E13.4.2 All physical property requirements are minimum average roll values determined in accordance with ASTM 4759. The moisture barrier/stress absorption geotextile fabric will meet or exceed the standards as follows:

PROPERTY	STANDARD	TEST METHOD
Grab Tensile Strength	0.40 kN	ASTM D4632
Grab Elongation	50%	ASTM D4632
Mullen Burst	1240 kPa	ASTM D3786

E13.4.3 Acceptable products will be Amoco-Petromat 4599, MIRAFAI MIRAPAVE 400, NILEX-9W99 or an approved equal.

E13.5 Tack Coat

E13.5.1 Tack coat will be 150 – 200 asphalt cement supplied in accordance with Clause 5.4.2 of CW 3410-R6.

CONSTRUCTION METHODS

E13.6 General

E13.6.1 Install moisture barrier/stress absorption geotextile fabric at the locations as shown on the Drawings or as directed by the Contract Administrator.

E13.6.2 Proceed with installation upon completion and acceptance of the asphalt scratch course.

E13.6.3 Ensure pavement surface is clean and free of all dirt, water, oil or foreign materials.

E13.6.4 Apply tack coat with a distribution truck in accordance with manufacturer's specifications and recommendations. Ensure uniform coverage of entire pavement surface.

E13.6.5 Install geotextile fabric in accordance with the manufacturer's specifications and recommendations.

E13.6.6 Only construction equipment required to place the final asphalt surface course will be allowed to travel on the exposed geotextile fabric.

E13.6.7 Replace damaged or improperly placed geotextile fabric.

E13.6.8 All fabric installed must be covered with asphalt the same day.

E13.6.9 Commence placement of asphalt material after the fabric has been placed over the full width of the pavement surface and accepted by the Contract Administrator.

E13.6.10 Ensure temperature of asphalt material does not exceed the melting point of the fabric.

MEASUREMENT AND PAYMENT

E13.7 Moisture Barrier/Stress Absorption Geotextile Fabric

E13.7.1 Supply and installation of Moisture Barrier/Stress Absorption Geotextile Fabric will be measured on an area basis and paid for at the Contract Unit Price per square metre for "Moisture Barrier/Stress Absorption Geotextile Fabric". The area to be paid for will be the

total number of square metres of geotextile fabric supplied and installed in accordance with this specification, accepted and measured by the Contract Administrator.

- E13.7.2 The supply and application of the tack coat will be included in the payment for "Moisture Barrier/Stress Absorption Geotextile Fabric".

E14. PARTIAL-DEPTH PATCHING OF EXISTING JOINTS

DESCRIPTION

E14.1 General

- E14.1.1 Partial Depth Joint Patching – The planing of concrete pavement along a joint to the specified depth and width and filling the planed area with asphalt.
- E14.1.2 This specification shall cover all operations relating to Partial-Depth Patching of Existing Joints.

E14.2 Referenced Standard Construction Specifications

- E14.2.1 CW 3130 – Supply and Installation of Geotextile Fabrics.
- E14.2.2 CW 3230 – Full-Depth Patching of Existing Slabs and Joints
- E14.2.3 CW 3410 – Asphaltic Concrete Pavement Works
- E14.2.4 CW 3450 – Planing of Pavement

MATERIALS

E14.3 Asphalt Materials

- E14.3.1 Type IA asphalt material as per CW 3410, Clause 5 and 6.
- E14.3.2 Equipment as per CW 3410, Clause 8 and CW 3450, Clause 3.

E14.4 Pavement Repair Fabric

- E14.4.1 Store and handle material in accordance with Section 2 of CW 3130.
- E14.4.2 Pavement repair fabric will be PetroGrid 4582 (Propex Fabrics, formerly Amoco) or approved equal.
- E14.4.3 Install fabric in accordance with these specifications and the manufacturer specifications.

CONSTRUCTION METHODS

- E14.5 Concrete joints identified for partial-depth patching shall be planed from 400 mm to 600 mm wide on each side of the joint, or as specified by the Contract Administrator. The finished edges of the planed sections shall be constructed with a minimum 20 mm cut to eliminate feathering of the asphaltic concrete fill material. The depth of the planing along the centre line of the joint shall be a minimum of 50 mm and a maximum of 65 mm into the concrete pavement as directed by the Contract Administrator. Areas planed beyond the horizontal limits specified shall not be measured for payment. Where the joint is over planed to a depth greater than 65 mm, the joint, for the full width or length of the slab shall be renewed in accordance with CW 3230 as a full-depth joint repair but at the cost of the specified partial-depth joint patch.
- E14.6 All cuttings shall be disposed of at a legal disposal site.

- E14.7 Immediately prior to placing the first lift of asphalt in the patch, the planed joint must be dry and shall be blown clean of all loose material and debris. A uniform application of tack coat shall be applied sufficiently to wet the concrete pavement surface on which the asphalt will be placed.
- E14.8 The planed joint area shall then have a thin levelling course of asphalt placed by hand in accordance with Clause 9.4 of CW 3410, approximately 20 mm thick.
- E14.9 Immediately following the placement of the levelling course, it shall be compacted with a walk behind vibratory compactor.
- E14.10 The area shall then be tacked again in preparation for the placement of the pavement repair fabric.
- E14.11 The fabric shall be cut 1000 mm wide and placed in the patch area.
- E14.12 A final lift of asphalt approximately 30 to 45 mm thick shall then be placed and compacted over the fabric to be flush with the surrounding pavement surface.
- E14.13 Immediately following the placement of the asphalt, it shall be compacted with a vibratory plate compactor or a walk behind vibratory roller compactor.
- E14.14 No traffic or construction equipment shall be allowed over the joint until the asphalt has cooled to atmospheric temperature.
- E14.15 Replace damaged or improperly placed fabric.
- E14.16 Ensure temperature of the asphalt material does not exceed the melting point of the fabric.

MEASUREMENT AND PAYMENT

- E14.16.1 Partial-Depth Patching of Existing Joints
- (a) Partial Depth Patching of Existing Joints will be measured on an area basis and paid for at the Contract Unit Price per square metre for the "Items of Work" listed below. The area to be paid for will be the total number of square metres of joints that are planed, filled with asphalt, and a pavement repair fabric in accordance with this specification, accepted and measured by the Contract Administrator.

Items of Work:

Partial Depth Patching of Existing Joints

- (i) Asphalt Partial Depth Patch
- (ii) Asphalt and Pavement Repair Fabric Partial Depth Patch

E15. ASPHALT PATCHING OVER FULL DEPTH CONCRETE REPAIRS

DESCRIPTION

- E15.1 General
- E15.1.1 This specification covers placing asphalt over full depth concrete repairs to match the grade of the remaining adjacent asphalt overlay prior to placing the asphalt scratch course. The patching is necessary to prevent transverse rutting from sudden depth changes where the existing overlay is removed over a concrete repair.
- E15.1.2 Referenced Standard Construction Specifications
- (a) CW 3410-R6 – Asphaltic Concrete Pavement Works.

(b) CW 3450-R3 – Planing of Pavement.

MATERIALS

E15.2 Asphalt Material

E15.2.1 Asphalt material will be Type 1A and will be supplied in accordance with Sections 5 and 6 of CW 3410-R6.

CONSTRUCTION METHODS

E15.3 General

E15.3.1 Asphalt patch to be placed where there is a minimum of 35 millimetres of remaining asphalt overlay immediately adjacent to a full depth concrete repair in accordance with Paragraph 3 of Clause 9.1.2 (a) of CW 3410-R6

E15.3.2 Place tack coat in patch area by hand, hand sprayer, or broom as necessary in accordance with Clause 9.2 of CW 3410-R6.

E15.3.3 Place and compact using mechanical rollers. Place the asphalt material to a compacted depth matching the top of the existing asphalt overlay. Compact to an average of 95% percent of the 75 Blow Marshall Density of the paving mixture with no individual test being less than 90% percent.

MEASUREMENT AND PAYMENT

E15.4 Asphalt Patching over Full Depth Concrete Repairs

E15.4.1 Asphalt Patching over Full Depth Concrete Repairs will be measured on a weight basis and paid for at the Contract Unit Price per tonne for "Asphalt Patching over Full Depth Concrete Repairs". The weight to be paid for will be the total number of tonnes of asphalt placed and compacted in accordance with this specification, as measured on a certified weigh scale, and accepted by the Contract Administrator.

E16. MEDIAN TREE PLANTING CURBS

DESCRIPTION

E16.1 General

E16.1.1 This specification covers the installation of concrete curbs around trees, specifically in grassed medians.

E16.1.2 Referenced Standard Construction Specifications

(a) CW 3110-R7 – Sub-Grade, Sub-Base and Base Course Construction.

(b) CW 3310-R9 – Portland Cement Concrete Pavement Works.

MATERIALS

E16.2 Concrete Materials

E16.2.1 Concrete for curbs to be Type 2 in accordance with Clause 6.2b) of 3310-R9, commonly known as 30 MPa sidewalk mix. Reinforcing steel in accordance with Clause 5.4.4 of 3310-R9.

E16.3 Base Course

- E16.3.1 Base Course underlying concrete curb to be in accordance with Clause 2.2 of 3110-R7. Recycled concrete pavement base course not permitted. Limestone base course acceptable.

CONSTRUCTION METHODS

E16.4 General

- E16.4.1 Refer to construction drawings for locations and details of curb construction.
- E16.4.2 Place a levelling course of base material to a minimum depth of 50 millimetres. Compact to 90% Standard Proctor Density.
- E16.4.3 Construct forms, place reinforcing steel, and place concrete in accordance with Cause 9 of CW 3310-R9 and the construction drawings.

MEASUREMENT AND PAYMENT

E16.5 Median Tree Planting Curbs

- E16.5.1 Median Tree Planting Curbs will be measured on a length basis and paid for at the Contract Unit Price per lineal metre for "Median Tree Planting Curbs". The length to be paid for will be the total length of curbs placed in accordance with this specification and the Contract drawings, as measured and accepted by the Contract Administrator.

E17. TREE PLANTING

DESCRIPTION

E17.1 General

- E17.1.1 This specification shall cover the supply and planting of trees in accordance with the working drawings and the Contract documents on all properties that are owned by the City of Winnipeg.
- E17.1.2 Maintenance of New Tree Plantings shall form an integral part to all Work described herein
- E17.1.3 Experienced personnel, under the direction of a skilled supervisor, shall execute all of the work. The supervisor shall be on site at all times during working the project construction.
- E17.1.4 Referenced Standard Construction Specifications
- (a) CW 1130-R1 – Site Requirements.
- E17.1.5 Applicable Related References
- (a) Canadian Nursery Landscape Association Canadian Standards for Nursery Stock – latest Edition.
- (b) ANSI A300 standard entitled, "Tree, Shrub and other Woody Plant Maintenance – Standard Practices.

MATERIALS

E17.2 General

- E17.2.1 The Contractor shall be responsible for the supply, safe storage and handling of all materials set forth in this Specification. All materials supplied under this Specification shall be subject to random inspection and testing by the Contract Administrator. There shall be no charge to the City for any materials taken for testing by the Contract Administrator.

E17.3 Plant Material

E17.3.1 Source

- (a) All plant material supplied shall be nursery grown and shall conform to species and sizes as indicated on the drawings and/or in the plant list and/or in the Form B: Prices. All substitutions must be approved, in writing, by the Contract Administrator prior to installation.
- (b) Only trees which have been grown in an Agricultural Canada Plant Hardiness Zone designation of 2 (a or b) or 3 (a or b) will be accepted. Tree quality and referent measurements shall be in accordance with the current edition of the Canadian Nursery Landscape Association's Canadian Standards for Nursery Stock.
- (c) Plant material shall be Balled and Burlapped or container grown stock only. Tree spade material will not be accepted.
- (d) The use of "collected plants" will not be permitted unless prior approval is obtained from the City Forester. Any trees dug from native stands, wood lots, orchards or neglected nurseries and which have not received proper cultural maintenance as advocated by the Canadian Nursery Landscape Association, shall be designated as "collected plants".

E17.3.2 Nomenclature:

- (a) All trees shall be tagged showing both the botanical and common name of plant in accordance with the approved scientific names given in the latest edition of the Standardized Plant Names.

E17.3.3 Quality:

- (a) All trees shall be true to type for the species when grown under proper conditions, structurally sound, possess a well developed, undamaged root system and shall be free of disease, insect infestations, rodent damage, sun scald, frost cracks and other abrasions or scars to the bark.
- (b) All parts of the trees shall be moist and show live, green cambium tissue when cut. Any tree that has come out of a dormant stage and is too far advanced will not be accepted unless prior approval is obtained. Prior approval by the Contract administrator is required for any tree which has been in cold storage.
- (c) Unless otherwise specified as 'multi-stem' it is understood that all trees shall have one, sturdy, reasonably straight and vertical trunk, and a well-branched and well-balanced crown with fully developed leader. Trees having a leader which has developed at a sharp angle to the trunk, as a result of pruning or trunk damage, will not be accepted.
- (d) All evergreens, shall be symmetrically grown and branched from ground level, up.
- (e) Trees exhibiting suppressed, weakly developed branches due to competition from other closely spaced trees in the nursery will not be accepted. Trees exhibiting dead branches will not be accepted.

E17.3.4 Quantity & Size

- (a) The Contractor shall supply plant material at the quantities and sizes (caliper and/or height) identified in the Form B: Prices.
- (b) Plants larger than specified may be used, if prior approval is granted by the Contract Administrator.
- (c) If larger trees are used, the soil ball for balled and burlapped trees and trees in wire baskets are to be increased in proportion to the size of the tree and the Contractor must provide evidence that the trees have been appropriately root pruned.

- (d) Trees are to be measured when the branches are in their normal position. Height dimensions specified are to refer to the main body of the tree and not from branch tip to root base. Where trees have been measured by caliper or diameter, reference is to be made to the diameter of the trunk measure 30 cm above the ground as the tree stands in the nursery prior to lifting.
- (e) For multi-stem trees, the largest stem shall determine the grade of the clump.

E17.4 Planting Soil

- E17.4.1 Planting soil shall consist of black top soil, a fertile friable natural loam containing by volume not less than 4% and no more than 25% of organic matter for clay loams, and not less than 2% and no more than 25% organic matter for sandy loams, with an acidity value ranging from pH 6.0 to 8.0 and capable of sustaining vigorous plant growth. Salinity rating shall be less than 2.5 mmhos/cm.
- E17.4.2 Planting soil is to be free of any mixture of subsoil, clay lumps, roots, grass, weeds, construction material, foreign non-organic objects and stones over 25 mm in diameter and other extraneous matter. It shall not contain couch or crab grass rhizomes.
- E17.4.3 Soil will be subject to tests for nitrate, phosphate, potassium, sulphate, ph, E.C. (salinity) and volume of organic matter, by a testing laboratory designated by the Contract Administrator. Residual pesticide from previous crops is also subject to testing.

E17.5 Root Ball Burlap and Twine

- E17.5.1 Root ball burlap shall be 150 g Hessian burlap, non-treated and 100% biodegradable
- E17.5.2 Twine shall either be biodegradable or must be removed immediately after planting.

E17.6 Wire Baskets

- E17.6.1 Wire baskets are to be a horticulturally accepted product designed to carry the weight and to contain a burlap-covered root ball. Minimum diameter basket size shall conform to the same minimum diameter of the tree root ball for the respective minimum tree calliper size.

E17.7 Water Supply

- E17.7.1 Water shall be free of oils, acids, alkalis, salts and other substances which may be detrimental to plant growth. Water suitable for human consumption shall be acceptable without testing. Water from rivers and streams shall not be used without prior approval of the Contract Administrator.
- E17.7.2 Should the Contract Administrator determine that water quality testing is necessary, an approved testing laboratory shall perform the test at the sole expense of the Contractor.
- E17.7.3 The Contractor, prior to submission of his bid or quotation, shall investigate the type and location of water supply available, so that the Contractor will be cognizant of the watering costs necessary to carry out the Contract watering conditions.

E17.8 Tree Guards

- E17.8.1 Upon completion of the planting operation, the Contractor shall slice open on a 45-degree angle, a 100 mm diameter X 300 mm long section of plastic weeping tile material and place around the base of each tree trunk. These tree guards are to be removed upon completion of the Warranty period.

E17.9 Mulch

- E17.9.1 Where mulch is specified in the construction details, mulch shall be a clean bark or wood chip free of leaves, branches and other extraneous matter. The recommended mulch shall

consist of chips not less than 15 mm nor larger than 75 mm in size and not more than 20 mm thick.

CONSTRUCTION METHODS

E17.10 Shipment & Pre-planting Care of Trees and Root Balls

- E17.10.1 Coordinate shipping of trees and excavation of holes to ensure minimum time lapse between digging and planting.
- E17.10.2 Trees shall be transported with care taken to prevent damage. Tie branches of trees securely, and protect trees against abrasion, exposure and extreme temperature change during transit. Avoid binding of trees with rope or wire that would damage bark, break branches or destroy natural shape of tree. Give full support to root ball of trees during lifting. Points of contact with equipment shall be padded.
- E17.10.3 Trees with broken or abraded trunks or branches are not acceptable. Trees with damaged trunks, however caused, will be rejected. No exceptions will be made in this respect.
- E17.10.4 Root Pruning: All roots shall be cleanly cut; split roots are not acceptable. Remove broken and damaged roots with sharp pruning shears. Make clean cuts, and cover cuts over 10 mm diameter with a tree wound dressing.
- E17.10.5 Keep roots moist and protected from sun and wind. Trees that cannot be planted immediately shall be well protected against damage and drying out; if necessary, trees shall be heeled-in in a shaded area and watered well. All planting shall be completed within 24 hours of the plant material arriving on site.
- E17.10.6 Each balled specimen shall be handled with sufficient care, so that the root balls shall not be broken. Broken root balls or root balls consisting of loose soil will not be accepted and shall be replaced. Broken roots of deciduous stock shall be pruned back prior to planting.

E17.11 Tree Locations & Layout

- E17.11.1 The drawings show the approximate location of the tree plantings. The Contractor shall confirm the tree locations with the Contract Administrator prior to layout and planting.
- E17.11.2 Tree Location Stipulations:
 - (a) Notwithstanding Clause E17.11.1, the trees in the boulevards shall be planted either one metre or two metres from the edge of sidewalk within the right of way, unless otherwise directed by the Contract Administrator or if there are conflicts with underground utilities.
 - (b) Notwithstanding Clause E17.11.1, boulevard trees shall be planted at a minimum distance from above ground structures as indicated below:

(i) Minimum distance from street intersections	6 m
(ii) Minimum distance from light standards	3 m
(iii) Minimum distance from private approaches	2 m
(iv) Minimum distances from hydrants	3 m
(v) Minimum distance from hydro poles	3 m
(vi) Minimum distances from manholes	3 m

E17.12 Planting Period

- E17.12.1 Trees shall not be planted when the ground is in a frozen condition or during periods of extreme heat.
- E17.12.2 Trees shall only be planted when:

- (a) the concrete works adjacent to the boulevard are complete;
- (b) the boulevard has been improved and all underground structures have been installed;
and
- (c) the property or boulevard has been finish graded; and

E17.12.3 The City of Winnipeg reserves the right to refuse acceptance of any or all trees failing to meet the above timing restrictions.

E17.13 Tree Pits

E17.13.1 Tree pits shall be excavated in a circular shape. Edges of the planting hole shall not be vertical, but rather should be shallowly angled, to avoid girdling roots. All holes should be dug to a depth and width amounting to a minimum of 2 times the diameter of the root system for boulevard trees and 3 times the diameter of the root system for park settings. Soil at the sides of the planting hole shall not be glazed, but should be scored to facilitate root penetration. The minimum diameter of tree pit shall be 1500 mm.

E17.13.2 The bottom of the excavation shall be protected against freezing.

E17.13.3 All surplus clay and insitu-material shall be removed from the construction site by the Contractor within 24 hours or as instructed by the Contract Administrator.

E17.13.4 Holes will only be dug for trees to be planted on that working day. No tree pits will be left open at the end of the working day. Tree spades shall not be used to dig tree pits.

E17.13.5 All planting areas shall be levelled, raked and edged to give a neat appearance

E17.14 Planting

E17.14.1 All trees shall be set plumb and shall be placed in the centre of the tree pit.

E17.14.2 Trees shall be planted on unexcavated soil to a depth equal to the depth they were originally growing at, in the nursery.

E17.14.3 Once the tree has been set in the final position, burlap and twine on the rootball shall be folded back and down at the top and sides: if a wire basket has been used, it shall be cut off from the top and sides of the root ball.

E17.14.4 After the root ball is prepared, fill tree pit with planting soil as per clause E17.4, in layers of 150 mm depth and compact the independent layers of topsoil by tamping. When 2/3 of topsoil has been placed around tree, fill the hole with water. Allow the water to penetrate into the soil and complete the backfilling of the soil. Tamp topsoil around root system to eliminate air voids. Grade the area around the tree according to the drainage type.

E17.15 Site Clean Up

E17.15.1 During both the planting and maintenance operations, all sidewalks, streets, approaches, driveways and properties near or about the planting operations shall be kept clean at all times by the Contractor. Upon completion of the project, the Contractor shall immediately remove all excess material and debris from the Work Site and shall leave the site in a clean and orderly manor.

E17.16 Acceptance to Commence the Maintenance Period

E17.16.1 It is understood that the Contractor shall be responsible for all maintenance from date of planting to date of Commencement of Maintenance Period as outlined in E18.

E17.16.2 After completion of planting operations to the satisfaction of the Contract Administrator, the Contractor shall be responsible for maintenance of the plant material during the establishment period until accepted. Plant material shall be accepted to start warranty

when installation in accordance with the drawings and specifications is complete and there is no sign of wilting or chlorosis, pest infection, transplant shock, or any conditions deleterious to longevity and appearance.

- E17.16.3 Replace any dead or damaged plant material during maintenance period including replacement of vandalized material.

MEASUREMENT AND PAYMENT

E17.17 Tree Planting

- E17.17.1 Trees of each species, variety and size will be measured separately on a per unit basis and paid for at the Contract Unit Price per tree for the "Items of Work" listed below. The units to be paid for will be the total number of trees supplied, planted, and accepted to commence the maintenance period in accordance with this specification, the drawings, as measured and accepted by the Contract Administrator.

Items of Work:

Tree Planting

- (i) Roseybloom Crabapple, (Malus Roseybloom, Selkirk var.) – (65 mm)

- E17.17.2 Trees replaced due to non-Contractor accident or vandalism by others will be paid for as per E17.17.1.

E18. MAINTENANCE OF NEW TREE PLANTINGS

DESCRIPTION

E18.1 General

- E18.1.1 This specification shall cover the ongoing care and maintenance that the Contractor shall provide following acceptance of the plant material and for the period of time outlined below.

- E18.1.2 Maintenance shall be understood to be, but shall not be limited to the following items;

- (a) Mulching
- (b) Watering
- (c) Weed Control
- (d) Pest and Disease Control
- (e) Pruning
- (f) Winter Preparation
- (g) Related Work

- E18.1.3 Applicable Related References

- (a) Canadian Nursery Landscape Association Canadian Standards for Nursery Stock – latest Edition.
- (b) ANSI A300 standard entitled, "Tree, Shrub and other Woody Plant Maintenance – Standard Practices.
- (c) E17 - Tree Planting

- E18.1.4 Tree Planting in Section E17 shall form an integral part to all Work described herein.

E18.2 Maintenance Period

- E18.2.1 Tree maintenance shall be carried out for a period of two (2) years, the specifics of which are outlined below.
- E18.2.2 Commencement of Maintenance Period shall refer to the date upon which the trees are accepted to begin the Contracted maintenance work.
- (a) It is understood that the Contractor shall be responsible for all maintenance from date of planting to date of Commencement of Maintenance Period.
 - (b) Thirty days after the planting installation has been completed in accordance with E17, the Contractor shall arrange for an inspection of the trees. The inspection shall include the Contract Administrator and City Forester who will determine if the Work is acceptable to start the maintenance period. Planting must be in accordance with E17, the Drawings, be complete and have no sign of wilting, chlorosis, pest infestation, transplant shock or any conditions deleterious to longevity and appearance. If the trees are found to be in good health, the maintenance period shall commence.
 - (c) When a portion or portions of the total tree plantings are completed, the Contract Administrator may allow multiple commencements of the maintenance period. This may occur when trees are planted in Phase I of the project earlier than those in Phase II.
 - (d) In situations where Commencement of the Maintenance Period is not granted before the end of a growing season (or October 15 which ever comes first), the Maintenance Period will commence on May 15 of the following year or such date as is mutually agreed upon by all parties.
- E18.2.3 Termination of Maintenance (Final Acceptance): shall be achieved when all conditions of the maintenance have been accepted and approved for all trees.
- (a) The Contract Administrator will arrange for annual inspections in order to satisfy the conditions of the Termination of Maintenance in accordance with E18.3.2.
 - (b) Note that trees not acceptable within the last year of maintenance shall be replaced and an additional year of maintenance added until the tree is accepted by the Contract Administrator.
- E18.3 Maintenance of Trees
- E18.3.1 Immediately after the commencement of the maintenance period, the Contractor shall commence and undertake regular maintenance of the planting area until the criteria specified for Termination of the Maintenance Period has been met.
- E18.3.2 The Contract Administrator will call one or more annual plant material inspections to identify plant material that requires replacement, extended warranty or final acceptance. For final acceptance of trees after two years, trees should show sufficient leaf development and growth to ensure their future survival.
- E18.3.3 During the Maintenance Period, the Contractor shall agree and guarantee to replace and replant, free of charge, any nursery stock found dead or in poor condition. "Poor condition" shall be interpreted as meaning nursery stock on which branches are dead or dying, or have not shown satisfactory growth of leaves. All required replacements shall be by plants of at least the same size and species, as specified, and shall be supplied and planted in accordance with the drawings and specifications.
- E18.3.4 When plants are replaced, the Contractor will be required to provide additional one year maintenance on that particular plant.
- E18.3.5 If a second replacement for the same location becomes necessary, the Contract Administrator shall decide if the plant will be replaced again at the Contractor's expense or deleted from the plan.

- E18.3.6 Trees damaged by non-Contract accidental causes or vandalism shall be replaced and paid for in accordance with E17.17.1.

MATERIALS

E18.4 General

- E18.4.1 Materials shall conform to the requirements of E17- Tree Planting and shall be supplemented by the clauses below.

E18.5 Watering:

- E18.5.1 To determine the need for watering, make a soil test weekly with a one-inch auger. Take a test sample from both the planting soil and from the root ball by drilling to a minimum depth of 600 mm. The soil shall contain enough moisture to hold together when compressed in the hand, but not be muddy.

E18.6 Pesticide for Pest & Disease Control:

- E18.6.1 Spray trees to control insect pests and diseases. Use horticulturally recommended compounds specific for the problem to be contained. Do not use DDT or sprays prohibited by Agriculture Canada.

CONSTRUCTION METHODS

E18.7 General

- E18.7.1 Program timing of operations to growth, weather conditions and use of the site
- E18.7.2 Do each operation continuously and complete within reasonable time period
- E18.7.3 Store equipment and materials off-site
- E18.7.4 Collect and dispose of debris or excess material on a daily basis.

E18.8 Mulching

- E18.8.1 Add additional mulch as required to maintain minimum consistent depth of mulch.

E18.9 Watering

- E18.9.1 Trees shall be watered once every two weeks during the maintenance period, or as frequently as necessary to keep ground continually in a moist condition from the top surface to a 300mm depth. The recognized standard for tree watering is 10 times per season with a minimum of 30 gallons per tree.
- E18.9.2 Use a deep root feeder or low pressure open flow nozzle and hose. The water stream must not gouge out a hole in the soil and mulch.

E18.10 Weed Control

- E18.10.1 Tree wells shall be hand weeded during the watering process.
- E18.10.2 Maintain surface of tree pit free of weeds. Do not allow weeds to establish for a period longer than one (1) week
- E18.10.3 Obtain written approval of Contract Administrator prior to using any herbicide.
- E18.10.4 Do not use dicamba and picloram solutions near trees.

E18.11 Pest & Disease Control

- E18.11.1 Obtain written approval of Contract Administrator prior to using any pesticide.
- E18.11.2 The Contractor shall obtain and maintain a Pesticide Applicator's Licence and a Pesticide Use permit for pesticide applications related to the specification.
- E18.11.3 Control pests and disease through pruning or application of pesticides Use species specific pesticide where possible. Use only pesticides of low mammalian toxicity. Strictly follow manufacturers written instructions.

E18.12 Pruning

- E18.12.1 The Contractor shall provide a person with a valid Manitoba Tree Pruners (or Arborist) Licence for each work crew or work site.
- E18.12.2 Prune trees after planting to compensate for loss of roots suffered during transplanting. Postpone pruning of those trees where heavy bleeding may occur, until in full leaf.
- E18.12.3 Prune only as necessary. All pruning shall be done in accordance with the ANSI A300 standard entitled, "Tree, Shrub and other Woody Plant Maintenance – Standard Practices".
- E18.12.4 Employ sharp tools and make cuts flush with main and secondary branch collars, smooth and sloping as to prevent accumulation of water.
- E18.12.5 Remove projected stumps on trunk or main branches. Remove dead and injured branches and branches that rub causing damage to bark. Trim out crown of trees without changing their natural shape. Do not damage lead branches or remove smaller twigs along main branches

E18.13 Staking

- E18.13.1 Where a tree requires staking during the maintenance period, the Contractor must remove the stake prior to the final acceptance inspection.

E18.14 Winter Preparation

- E18.14.1 Ensure adequate moisture in the root zones prior to freeze-up.

E18.15 Damage to Property

- E18.15.1 The Contractor shall take every precaution not to damage, injure or mark any existing structures or landscaping on the street allowance or adjacent properties. Should any damage be caused by the Contractor, his employees or equipment, including as a result of correcting deficiencies, it shall be restored or replaced at the Contractor's expense and to the satisfaction of the Contract Administrator.

E18.16 Spring Clean-Up

- E18.16.1 The City of Winnipeg will perform typical boulevard cleaning in the Spring.
- E18.16.2 The Contractor is responsible for cleaning over and above the typical clean-up performed by the City of Winnipeg. This shall include the cleaning and removal of all dead vegetation, leaves, debris, snow mold, or other deleterious matter, and any sand or gravel resulting from winter sanding/de-icing operations from the base of the tree areas to encourage healthy and uniform tree growth.

MEASUREMENT AND PAYMENT

E18.17 Maintenance of New Tree Plantings

- E18.17.1 Tree Maintenance will be measured on a per unit basis and paid for at the Contract Unit Price per tree for "Tree Maintenance. The units to be paid for will be the total number of

trees maintained and accepted at the termination of the specified maintenance period in accordance with this specification, as measured and accepted by the Contract Administrator.

E18.17.2 The number of units includes trees damaged/removed by vandalism and non-Contract related accidents.

E18.17.3 If a tree is replaced during the maintenance period and is subject to an extension of maintenance on that particular tree, the Contract Administrator may elect to pay a mutually agreeable partial payment on that unit. The remainder of the payment will be made when the tree is accepted at the end of its extended maintenance period.

E19. WORK PRACTICES ON ASBESTOS-CEMENT PIPE

E19.1 Further to GC.6.28(d), the Contractor's attention is directed to the possible health dangers associated with working with asbestos cement pipe and all work associated with the existing AC watermains shall conform to the following publications:

E19.1.1 "Work Practices for Asbestos-Cement Pipe", AWWA No. M16, published by the American Water Works Association.

E19.1.2 "Recommended Work Practices for AC Pipe", 1977, published by the AC Pipe producers Association.

E20. ASBESTOS CEMENT PIPE SAMPLES AND BEDDING SAMPLES

E20.1 Take a bedding sample and remove existing asbestos cement (AC) pipe sample in accordance with the following at each location where the new watermain connects to an existing AC watermain.

E20.1.1 Select a minimum 1.5 metre length of AC pipe that is undamaged and has not been tapped for service connections as approved by the Contract Administrator.

E20.1.2 Expose the AC pipe down to the bedding using manual methods and equipment. Take precautions to not damage the AC pipe when exposing.

E20.1.3 Collect an uncontaminated bedding sample from as close as possible to the existing AC pipe before removing the AC pipe sample. Place the bedding sample into a plastic sample bag provided by the Contract Administrator.

E20.1.4 Indicate the top of the AC pipe as it is in place by making a readily visible scratch mark at one end of the sample.

E20.1.5 Cut the ends of the AC pipe sample as square as possible to the axis of the pipe.

E20.1.6 When cutting AC pipe follow "Work Practices for Asbestos-Cement Pipe", published by the American Water Works Association, "Recommended Work Practices for AC Pipe", published by the AC Pipe producers Association and all applicable Workplace, Safety and Health regulations.

E20.1.7 Rinse all dirt and cutting debris from the AC pipe sample before removing it from the excavation.

E20.1.8 Immediately wrap the AC pipe sample in at least 2 layers of minimum 6 mil thick clear polyethylene sheeting. While wrapping the pipe sample insert a warning label provided by the Contract Administrator inside the polyethylene sheeting such that it can be easily be read through the wrapping.

E20.1.9 Deliver the AC pipe sample to a storage location as directed by the Contract Administrator within 24 hours of removing the sample from the excavation.

E20.1.10 Offload the pipe sample as directed.

E20.2 No separate measurement or payment shall be made for providing AC pipe samples and bedding samples