



**THE CITY OF WINNIPEG**

# **TENDER**

**TENDER NO. 108-2020**

**2020 LOCAL STREET RENEWAL PROGRAM: BLACKWATER BAY, DRAKE  
BOULEVARD AND VARIOUS OTHER LOCATIONS**

## TABLE OF CONTENTS

### PART A - BID SUBMISSION

- Form A: Bid/Proposal
- Form B: Prices
- Form G1: Bid Bond and Agreement to Bond

### PART B - BIDDING PROCEDURES

B1. Contract Title	1
B2. Submission Deadline	1
B3. Enquiries	1
B4. Confidentiality	1
B5. Addenda	1
B6. Substitutes	2
B7. Bid Components	3
B8. Bid	3
B9. Prices	4
B10. Disclosure	4
B11. Conflict of Interest and Good Faith	4
B12. Qualification	6
B13. Bid Security	7
B14. Opening of Bids and Release of Information	7
B15. Irrevocable Bid	8
B16. Withdrawal of Bids	8
B17. Evaluation of Bids	8
B18. Award of Contract	8

### PART C - GENERAL CONDITIONS

C0. General Conditions	1
------------------------	---

### PART D - SUPPLEMENTAL CONDITIONS

#### General

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

#### Submissions

D7. Authority to Carry on Business	4
D8. Safe Work Plan	4
D9. Insurance	4
D10. Contract Security	4
D11. Subcontractor List	5
D12. Detailed Work Schedule	5

#### Schedule of Work

D13. Commencement	6
D14. Working Days	6
D15. Restricted Work Hours	6
D16. Work By Others	7
D17. Sequence of Work	7
D18. Substantial Performance	7
D19. Total Performance	8
D20. Liquidated Damages	8
D21. COVID-19 Schedule Delays	8
D22. Scheduled Maintenance	9

**Control of Work**

D23. Job Meetings	9
D24. Prime Contractor – The Workplace Safety and Health Act (Manitoba)	9
D25. The Workplace Safety and Health Act (Manitoba) – Qualifications	9

**Measurement and Payment**

D26. Payment	9
--------------	---

**Warranty**

D27. Warranty	10
---------------	----

**Third Party Agreements**

D28. Funding and/or Contribution Agreement Obligations	10
Form H1: Performance Bond	12
Form H2: Labour and Material Payment Bond	14
Form J: Subcontractor List	16

**PART E - SPECIFICATIONS**

**General**

E1. Applicable Specifications and Drawings	1
E2. Mobilization and Demobilization Payment	2
E3. Geotechnical Report	3
E4. Protection Of Existing Trees	3
E5. Tree Removal	4
E6. Traffic Control	4
E7. Traffic Management	5
E8. Refuse and Recycling Collection	5
E9. Pedestrian Safety	6
E10. Water Obtained From the City	7
E11. Surface Restorations	7
E12. Infrastructure Signs	7
E13. Supply and Installation of Pavement Repair Fabric	7
E14. Partial Depth Patching of Existing Joints	11
E15. Adjustment of Sprinkler Heads and/or Drainage Pipe	12
E16. Hydro Excavation	13
E17. Soft Excavation to Expose Underground Utilities	14
E18. Supply and Install Watermain and Water Service Insulation	14
E19. Installation of Street Lighting and Associated Works	15
E20. Landscaping Curb	30
E21. Construction of Barrier Curb for Asphalt Pavement	30

**APPENDIX 'A' – GEOTECHNICAL REPORT**

**APPENDIX 'B' – MANITOBA HYDRO STREET LIGHTING STANDARDS**

**APPENDIX 'C' – SAFE EXCAVATION AND SAFETY WATCH GUIDELINES**

**APPENDIX 'D' – MANITOBA HYDRO GELCAP KIT**

**APPENDIX 'E' – ELECTRICAL AND/OR NATURAL GAS FACILITIES LOCATE**

**APPENDIX 'F' – MANITOBA HYDRO JOB PLAN**

**APPENDIX 'G' – NETWORK COMMISSIONING REPORT**

## **PART B - BIDDING PROCEDURES**

### **B1. CONTRACT TITLE**

B1.1 2020 LOCAL STREET RENEWAL PROGRAM: BLACKWATER BAY, DRAKE BOULEVARD AND VARIOUS OTHER

### **B2. SUBMISSION DEADLINE**

- B2.1 The Submission Deadline is 12:00 noon Winnipeg time, April 17, 2020.
- B2.2 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 Tender, 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 Tender 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 Tender 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.
- B3.6 Any enquiries concerning submitting through MERX should be addressed to:  
MERX Customer Support  
Phone: 1-800-964-6379  
Email: merx@merx.com

### **B4. CONFIDENTIALITY**

- B4.1 Information provided to a Bidder by the City or acquired by a Bidder by way of further enquiries or through investigation is confidential. Such information shall not be used or disclosed in any way without the prior written authorization of the Contract Administrator. The use and disclosure of the confidential information shall not apply to information which:
- (a) was known to the Bidder before receipt hereof; or
  - (b) becomes publicly known other than through the Bidder; or
  - (c) is disclosed pursuant to the requirements of a governmental authority or judicial order.
- B4.2 The Bidder shall not make any statement of fact or opinion regarding any aspect of the Tender to the media or any member of the public without the prior written authorization of the Contract Administrator.

### **B5. ADDENDA**

- B5.1 The Contract Administrator may, at any time prior to the Submission deadline, issue addenda correcting errors, discrepancies or omissions in the Tender, or clarifying the meaning or intent of any provision therein.

- B5.2 The Contract Administrator will issue each addendum at least two (2) Business Days prior to the Submission Deadline, or provide at least two (2) Business Days by extending the Submission Deadline.
- B5.3 Addenda will be available on the MERX website at [www.merx.com](http://www.merx.com).
- B5.4 The Bidder is responsible for ensuring that he/she has received all addenda and is advised to check the MERX website for addenda regularly and shortly before the Submission Deadline, as may be amended by addendum.
- B5.5 The Bidder shall acknowledge receipt of each addendum in Paragraph 10 of Form A: Bid/Proposal. Failure to acknowledge receipt of an addendum may render a Bid non-responsive.
- B5.6 Notwithstanding B3, enquiries related to an Addendum may be directed to the Contract Administrator indicated in D3.

## **B6. SUBSTITUTES**

- B6.1 The Work is based on the Plant, Materials and methods specified in the Tender.
- B6.2 Substitutions shall not be allowed unless application has been made to and prior approval has been granted by the Contract Administrator in writing.
- B6.3 Requests for approval of a substitute will not be considered unless received in writing by the Contract Administrator at least five (5) Business Days prior to the Submission Deadline.
- B6.4 The Bidder shall ensure that any and all requests for approval of a substitute:
- (a) provide sufficient information and details to enable the Contract Administrator to determine the acceptability of the Plant, Material or method as either an approved equal or alternative;
  - (b) identify any and all changes required in the applicable Work, and all changes to any other Work, which would become necessary to accommodate the substitute;
  - (c) identify any anticipated cost or time savings that may be associated with the substitute;
  - (d) certify that, in the case of a request for approval as an approved equal, the substitute will fully perform the functions called for by the general design, be of equal or superior substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule and the dates specified in the Supplemental Conditions for Substantial Performance and Total Performance;
  - (e) certify that, in the case of a request for approval as an approved alternative, the substitute will adequately perform the functions called for by the general design, be similar in substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule and the dates specified in the Supplemental Conditions for Substantial Performance and Total Performance.
- B6.5 The Contract Administrator, after assessing the request for approval of a substitute, may in his/her sole discretion grant approval for the use of a substitute as an “approved equal” or as an “approved alternative”, or may refuse to grant approval of the substitute.
- B6.6 The Contract Administrator will provide a response in writing, at least two (2) Business Days prior to the Submission Deadline, to the Bidder who requested approval of the substitute.
- B6.6.1 The Contract Administrator will issue an Addendum, disclosing the approved materials, equipment, methods and products to all potential Bidders. The Bidder requesting and obtaining the approval of a substitute shall be responsible for disseminating information regarding the approval to any person or persons he/she wishes to inform.

- B6.7 If the Contract Administrator approves a substitute as an “approved equal”, any Bidder may use the approved equal in place of the specified item.
- B6.8 If the Contract Administrator approves a substitute as an “approved alternative”, any Bidder bidding that approved alternative may base his/her 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 B17.
- B6.9 No later claim by the Contractor for an addition to the Total Bid Price because of any other changes in the Work necessitated by the use of an approved equal or an approved alternative will be considered.

## **B7. BID COMPONENTS**

- B7.1 The Bid shall consist of the following components:
- (a) Form A: Bid;
  - (b) Form B: Prices;
  - (c) Form G1: Bid Bond and Agreement to Bond.
- B7.2 Further to B7.1, the Bidder should include the written correspondence from the Contract Administrator approving a substitute in accordance with B6.
- B7.3 All components of the Bid shall be fully completed or provided, and submitted by the Bidder no later than the Submission Deadline, with all required entries made clearly and completely.
- B7.4 The Bid shall be submitted electronically through MERX at [www.merx.com](http://www.merx.com).
- B7.4.1 Bids will **only** be accepted electronically through MERX.
- B7.5 Bidders are advised that inclusion of terms and conditions inconsistent with the Tender document, including the General Conditions, will be evaluated in accordance with B17.1(a).

## **B8. BID**

- B8.1 The Bidder shall complete Form A: Bid/Proposal, making all required entries.
- B8.2 Paragraph 2 of Form A: Bid/Proposal shall be completed in accordance with the following requirements:
- (a) if the Bidder is a sole proprietor carrying on business in his/her own name, his/her 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/her own, the business name and the name of every partner or corporation who is the owner of such business name shall be inserted.
- B8.2.1 If a Bid is submitted jointly by two or more persons, each and all such persons shall identify themselves in accordance with B8.2.
- B8.3 In Paragraph 3 of Form A: Bid/Proposal, the Bidder shall identify a contact person who is authorized to represent the Bidder for purposes of the Bid.
- B8.4 Paragraph 13 of Form A: Bid/Proposal shall be signed in accordance with the following requirements:
- (a) if the Bidder is a sole proprietor carrying on business in his/her own name, it shall be signed by the Bidder;

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

B8.4.1 The name and official capacity of all individuals signing Form A: Bid/Proposal should be entered below such signatures.

B8.5 If a Bid is submitted jointly by two or more persons, the word "Bidder" shall mean each and all such persons, and the undertakings, covenants and obligations of such joint Bidders in the Bid and the Contract, when awarded, shall be both joint and several.

## **B9. PRICES**

B9.1 The Bidder shall state a price in Canadian funds for each item of the Work identified on Form B: Prices.

B9.1.1 Prices stated on Form B: Prices shall not include any costs which may be incurred by the Contractor with respect to any applicable funding agreement obligations as outlined in D28. Any such costs shall be determined in accordance with D28.

B9.2 The quantities listed on Form B: Prices are to be considered approximate only. The City will use said quantities for the purpose of comparing Bids.

B9.3 The quantities for which payment will be made to the Contractor are to be determined by the Work actually performed and completed by the Contractor, to be measured as specified in the applicable Specifications.

B9.4 Payments to Non-Resident Contractors are subject to Non-Resident Withholding Tax pursuant to the Income Tax Act (Canada).

B9.5 The Bidder shall enter the Total Bid Price from Form B: Prices into the Total Bid Price field in MERX.

B9.5.1 Bidders are advised that the calculation indicated in B17.4 will prevail over the Total Bid Price entered in MERX.

B9.6 Form B: Prices is organized into Parts: Part 1 of the Work and Part 2 of the Work. Bidders shall provide a total price for each Part and, on the summary sheet, a Total Bid Price consisting of the sum of prices for Part 1 and Part 2.

## **B10. DISCLOSURE**

B10.1 Various Persons provided information or services with respect to this Work. In the City's opinion, this relationship or association does not create a conflict of interest because of this full disclosure. Where applicable, additional material available as a result of contact with these Persons is listed below.

B10.2 The Persons are:

- (a) N/A

## **B11. CONFLICT OF INTEREST AND GOOD FAITH**

B11.1 Further to C3.2, Bidders, by responding to this Tender, declare that no Conflict of Interest currently exists, or is reasonably expected to exist in the future.

B11.2 Conflict of Interest means any situation or circumstance where a Bidder or employee of the Bidder proposed for the Work has:

- (a) other commitments;
- (b) relationships;
- (c) financial interests; or
- (d) involvement in ongoing litigation;

that could or would be seen to:

- (i) exercise an improper influence over the objective, unbiased and impartial exercise of the independent judgment of the City with respect to the evaluation of Bids or award of the Contract; or
  - (ii) compromise, impair or be incompatible with the effective performance of a Bidder's obligations under the Contract;
- (e) has contractual or other obligations to the City that could or would be seen to have been compromised or impaired as a result of its participation in the Tender process or the Work; or
  - (f) has knowledge of confidential information (other than confidential information disclosed by the City in the normal course of the Tender process) of strategic and/or material relevance to the Tender process or to the Work that is not available to other bidders and that could or would be seen to give that Bidder an unfair competitive advantage.

B11.3 In connection with its Bid, each entity identified in B11.2 shall:

- (a) avoid any perceived, potential or actual Conflict of Interest in relation to the procurement process and the Work;
- (b) upon discovering any perceived, potential or actual Conflict of Interest at any time during the Tender process, promptly disclose a detailed description of the Conflict of Interest to the City in a written statement to the Contract Administrator; and
- (c) provide the City with the proposed means to avoid or mitigate, to the greatest extent practicable, any perceived, potential or actual Conflict of Interest and shall submit any additional information to the City that the City considers necessary to properly assess the perceived, potential or actual Conflict of Interest.

B11.4 Without limiting B11.3, the City may, in its sole discretion, waive any and all perceived, potential or actual Conflicts of Interest. The City's waiver may be based upon such terms and conditions as the City, in its sole discretion, requires to satisfy itself that the Conflict of Interest has been appropriately avoided or mitigated, including requiring the Bidder to put into place such policies, procedures, measures and other safeguards as may be required by and be acceptable to the City, in its sole discretion, to avoid or mitigate the impact of such Conflict of Interest.

B11.5 Without limiting B11.3, and in addition to all contractual or other rights or rights at law or in equity or legislation that may be available to the City, the City may, in its sole discretion:

- (a) disqualify a Bidder that fails to disclose a perceived, potential or actual Conflict of Interest of the Bidder or any of its employees proposed for the Work;
- (b) require the removal or replacement of any employees proposed for the Work that has a perceived, actual or potential Conflict of Interest that the City, in its sole discretion, determines cannot be avoided or mitigated;
- (c) disqualify a Bidder or employees proposed for the Work that fails to comply with any requirements prescribed by the City pursuant to B11.4 to avoid or mitigate a Conflict of Interest; and
- (d) disqualify a Bidder if the Bidder, or one of its employees proposed for the Work, has a perceived, potential or actual Conflict of Interest that, in the City's sole discretion, cannot be avoided or mitigated, or otherwise resolved.



B11.6 The final determination of whether a perceived, potential or actual Conflict of Interest exists shall be made by the City, in its sole discretion.

## **B12. QUALIFICATION**

B12.1 The Bidder shall:

- (a) undertake to be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba; and
- (b) be financially capable of carrying out the terms of the Contract; and
- (c) have all the necessary experience, capital, organization, and equipment to perform the Work in strict accordance with the terms and provisions of the Contract.

B12.2 The Bidder and any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:

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

B12.3 The Bidder and/or any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:

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

B12.4 Further to B12.3(c), the Bidder shall, within five (5) Business Days of a request by the Contract Administrator, provide proof satisfactory to the Contract Administrator that the Bidder/Subcontractor has a workplace safety and health program meeting the requirements of The Workplace Safety and Health Act (Manitoba), by providing:

- (a) Written confirmation of a safety and health certification meeting SAFE Work Manitoba's SAFE Work Certified Standard (e.g., COR™ and SECOR™) in the form of:
  - (i) a copy of their valid Manitoba COR1 certificate and Letter of Good Standing (or Manitoba equivalency) as issued under the Certificate of Recognition (COR) Program administered by the Construction Safety Association of Manitoba or by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ Program; or
  - (ii) a copy of their valid Manitoba SECOR™ certificate and Letter of Good Standing (or Manitoba equivalency) as issued under the Small Employer Certificate of Recognition Program (SECOR™) administered by the Construction Safety Association of Manitoba or by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ Program; or
- (b) a report or letter to that effect from an independent reviewer acceptable to the City. (A list of acceptable reviewers and the review template are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/>).

B12.5 The Bidder shall submit, within three (3) Business Days of a request by the Contract Administrator, proof satisfactory to the Contract Administrator of the qualifications of the Bidder and of any proposed Subcontractor.

B12.6 The Bidder shall provide, on the request of the Contract Administrator, full access to any of the Bidder's equipment and facilities to confirm, to the Contract Administrator's satisfaction, that the Bidder's equipment and facilities are adequate to perform the Work.

### **B13. BID SECURITY**

- B13.1 The Bidder shall include in its Bid Submission bid security in the form of a digital 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 Form G1: Bid Bond and Agreement to Bond, available on The City of Winnipeg, Corporate Finance, Materials Management Division website at <https://www.winnipeg.ca/MatMgt/templates/files/eBidsecurity.pdf>.
- B13.2 Bid security shall be submitted in a digital format meeting the following criteria:
- (a) The version submitted by the Bidder must have valid digital signatures and seals;
  - (b) The version submitted by the Bidder must be verifiable by the City with respect to the totality and wholeness of the bond form, including: the content; all digital signatures and digital seals; with the surety company, or an approved verification service provider of the surety company.
  - (c) The version submitted must be viewable, printable and storable in standard electronic file formats compatible with the City, and in a single file. Allowable formats include pdf.
  - (d) The verification may be conducted by the City immediately or at any time during the life of the bond and at the discretion of the City with no requirement for passwords or fees.
  - (e) The results of the verification must provide a clear, immediate and printable indication of pass or fail regarding B13.2(a).
- B13.3 Bonds failing the verification process will not be considered to be valid and the bid shall be determined to be non-responsive in accordance with B17.1(a).
- B13.4 Bonds passing the verification process will be treated as original and authentic.
- B13.4.1 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.
- B13.5 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 formed with the successful Bidder and the contract securities are furnished as provided herein. The bid securities of all other Bidders will be released when a Contract is awarded.
- B13.6 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 Tender.

### **B14. OPENING OF BIDS AND RELEASE OF INFORMATION**

- B14.1 Bids will not be opened publicly.
- B14.2 Following the submission deadline, the names of the Bidders and their Total Bid Prices (unevaluated, and pending review and verification of conformance with requirements) will be available on the MERX website at [www.merx.com](http://www.merx.com).
- B14.3 After award of Contract, the name(s) of the successful Bidder(s) and their Contract amount(s) will be available on the MERX website at [www.merx.com](http://www.merx.com).
- B14.4 The Bidder is advised that any information contained in any Bid may be released if required by The Freedom of Information and Protection of Privacy Act (Manitoba), by other authorities having jurisdiction, or by law or by City policy or procedures (which may include access by members of City Council).
- B14.4.1 To the extent permitted, the City shall treat as confidential information, those aspects of a Bid Submission identified by the Bidder as such in accordance with and by reference to Part 2, Section 17 or Section 18 or Section 26 of The Freedom of Information and Protection of Privacy Act (Manitoba), as amended.

## **B15. IRREVOCABLE BID**

- B15.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 11 of Form A: Bid/Proposal.
- B15.2 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 formed and the contract securities have been 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/Proposal.

## **B16. WITHDRAWAL OF BIDS**

- B16.1 A Bidder may withdraw his/her Bid without penalty prior to the Submission Deadline.

## **B17. EVALUATION OF BIDS**

- B17.1 Award of the Contract shall be based on the following bid evaluation criteria:
- (a) compliance by the Bidder with the requirements of the Tender, or acceptable deviation therefrom (pass/fail);
  - (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B12 (pass/fail);
  - (c) Total Bid Price;
  - (d) economic analysis of any approved alternative pursuant to B6.
- B17.2 Further to B17.1(a), the Award Authority may reject a Bid as being non-responsive if the Bid is incomplete, obscure or conditional, or contains additions, deletions, alterations or other irregularities. The Award Authority may reject all or any part of any Bid, or waive technical requirements or minor informalities or irregularities, if the interests of the City so require.
- B17.2.1 Any bid with an apparent imbalance between the unit prices in Part 1 and Part 2 may be determined to be non-responsive and rejected by the Award Authority in its sole discretion, acting reasonably.
- B17.3 Further to B17.1(b), the Award Authority shall reject any Bid submitted by a Bidder who does not demonstrate, in his/her Bid or in other information required to be submitted, that he/she is qualified.
- B17.4 Further to B17.1(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.
- B17.4.1 Bidders are advised that the calculation indicated in B17.4 will prevail over the Total Bid Price entered in MERX.

## **B18. AWARD OF CONTRACT**

- B18.1 The City will give notice of the award of the Contract or will give notice that no award will be made.
- B18.2 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 qualified, and the Bids are determined to be responsive.
- B18.2.1 Without limiting the generality of B18.2, 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.

- B18.3 The Work of this Contract is contingent upon Council approval of sufficient funding in the 2020 Capital Budget. If the Capital Budget approved by Council does not include sufficient funding for the Work, the City will have no obligation to award a Contract.
- B18.4 If funding for the Work is provided to the City of Winnipeg by the Government of Manitoba and/or the Government of Canada, Bidders are advised that the terms of D28 shall immediately take effect upon confirmation of such funding, regardless of when funding is confirmed.
- B18.5 Where an award of Contract is made by the City, the award shall be made to the qualified Bidder submitting the lowest evaluated responsive Bid, in accordance with B17.
- B18.5.1 Following the award of contract, a Bidder will be provided with information related to the evaluation of his/her Bid upon written request to the Contract Administrator.
- B18.6 As noted in D2 and identified in Form B: Prices, the Work of Part 2 will be contingent upon Manitoba Hydro approving funding for the Work. If sufficient funding for Part 2 Work is not approved by Manitoba Hydro the City shall have the right to eliminate all or any portion of Part 2 Work in accordance with D2.

## PART C - GENERAL CONDITIONS

### C0. GENERAL CONDITIONS

- C0.1 The *General Conditions for Construction* (Revision 2020-01-31) are applicable to the Work of the Contract.
- C0.1.1 The *General Conditions for Construction* are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at [http://www.winnipeg.ca/matmgt/gen\\_cond.stm](http://www.winnipeg.ca/matmgt/gen_cond.stm)
- C0.2 A reference in the Tender to a section, clause or subclause with the prefix “C” designates a section, clause or subclause in the *General Conditions for Construction*.

## **PART D - SUPPLEMENTAL CONDITIONS**

### **GENERAL**

#### **D1. GENERAL CONDITIONS**

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

#### **D2. SCOPE OF WORK**

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

- (a) Part 1 – City Funded Work
- (b) Part 2 – Manitoba Hydro Funded Work

##### **Part 1 – City Funded Work**

D2.2 Part 1 – City Funded Work shall consist of:

- (a) Asphalt Pavement Reconstruction
  - (i) Blackwater Bay from Charing Cross Crescent to Blackwater Bay
  - (ii) Fleury Place from Fontaine Crescent to Fontaine Crescent
  - (iii) Rosewarne Avenue from Kingston Row to St. Mary's Road
  - (iv) Kingston Row from Rosewarne Avenue to Kingston Row
- (b) Pavement Rehabilitation
  - (i) Blackwater Bay from Charing Cross Crescent to cul de sac end
  - (ii) Drake Boulevard from Cottonwood Road to Autumnwood Drive
  - (iii) Oakridge Bay from Metz Street to Metz Street

##### **Part 2 –Manitoba Hydro Funded Work**

D2.3 Part 2 – Manitoba Hydro Funded Work shall consist of:

- (a) Street Lighting and Associated Works
  - (i) Blackwater Bay from Charing Cross Crescent to Blackwater Bay
  - (ii) Fleury Place from Fontaine Crescent to Fontaine Crescent
  - (iii) Rosewarne Avenue from Kingston Row to St. Mary's Road

D2.4 The City currently has no approved funding in the Capital Budget for Part 2 of the Work, but is anticipating receiving notification about funding from Manitoba Hydro by the Award Date. Part 2 of the Work is contingent upon Manitoba Hydro approving sufficient funding.

D2.4.1 Further to C7.1, if notice of sufficient funding is not received, the City shall have the right to eliminate all or any portion of Part 2, and the Contract Price will be reduced accordingly.

D2.4.2 Further to C7.5, C7.5.1, and C7.6, a reduction in the Contract Price pursuant to D2.4.1 shall not be considered in calculating the aggregate reduction in the Contract Price for purposes of C7.5.

D2.4.3 If all or any portion of Part 2 is eliminated pursuant to D2.4.1, the time periods stipulated in D19 for Substantial Performance of the Work and in D20 for Total Performance of the Work will be reduced proportionally by the Contract Administrator acting reasonably.

D2.5 The major components of the Work are as follows:

- (a) Asphalt Pavement Reconstruction:
  - (i) Pavement Removal;
  - (ii) Excavation;

- (iii) Placement of suitable site sub base material as required
  - (iv) Placement of geotextile fabric;
  - (v) Placement of geogrid;
  - (vi) Insulation of water services;
  - (vii) Subgrade compaction;
  - (viii) Placement of sub-base and base course material;
  - (ix) Installation of Catch Basin and connecting pipes;
  - (x) Installation of subdrains;
  - (xi) Construction of barrier curb for asphalt pavements – A utilizing slip form paving equipment for Blackwater Bay and Fleury Place;
  - (xii) Construction of barrier curb for asphalt pavements – A utilizing slip form paving equipment for Kingston Row and Rosewarne Avenue;
  - (xiii) Construction of modified barrier for asphalt pavements;
  - (xiv) Construction of lip curb for asphalt pavements;
  - (xv) Construction of ramp curb for asphalt pavements;
  - (xvi) Placement and compaction of 50mm sub-base material as backfill behind barrier curb for asphalt pavement within excavated area;
  - (xvii) Placement and compaction of suitable site material as backfill behind barrier curb for asphalt pavement within excavated area;
  - (xviii) Installation of 150mm reinforced approach;
  - (xix) Sidewalk Renewal;
  - (xx) Installation of detectable warning surface tiles;
  - (xxi) Adjustment of precast sidewalk blocks
  - (xxii) Placement of asphalt pavement (Type III, 70mm thickness);
  - (xxiii) Placement of asphalt pavement (Type 1A, 50mm thickness);
  - (xxiv) Adjustment of existing catch basins, manholes and appurtenances;
  - (xxv) Boulevard restoration and sod;
  - (xxvi) Street lighting improvement and associated works.
- (b) Rehabilitation:
- (i) Planing of existing asphalt as required;
  - (ii) Renewal of existing sidewalk as required;
  - (iii) Construction of concrete sidewalk;
  - (iv) Installation of detectable warning surface tiles;
  - (v) Milling of existing lip curb (Blackwater Bay);
  - (vi) Installation of catch basin/catch pits and connection pipe;
  - (vii) Abandon existing drainage inlets;
  - (viii) Installation of catch pits and drainage connection pipes;
  - (ix) Full-depth concrete repairs of existing joints and slabs;
  - (x) Renewal of existing curb as required;
  - (xi) Construction of modified barrier curb;
  - (xii) Adjustment of precast sidewalk blocks;
  - (xiii) Adjustment of existing catch basins, manholes and appurtenances;
  - (xiv) Placement of pavement repair fabric as required;
  - (xv) Placement of asphalt overlay;
    - Drake Boulevard from Autumnwood Road to Cottonwood Road (average thickness 85mm)
    - Blackwater Bay from Charing Cross Crescent to cul de sac end (average thickness 80mm)

- Oakridge Bay from Metz Street to Metz Street (average thickness 80mm)
- (xvi) Boulevard restoration and sod.

**D3. CONTRACT ADMINISTRATOR**

D3.1 The Contract Administrator is WSP Canada Group Limited, represented by:

Richard Hawkins, CET  
Senior Engineering Technologist, Transportation Engineering, Manitoba  
Telephone No. 204-295-1566  
Email Address Richard.Hawkins@wsp.com

D3.2 At the pre-construction meeting, Richard Hawkins, CET 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/her designated supervisor and any additional personnel representing the Contractor and their respective roles and responsibilities for the Work.

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

**D5. NOTICES**

D5.1 Except as provided for in C22.4, 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/Proposal.

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 or elsewhere in the Contract, shall be sent to the attention of the Contract Administrator identified in D3.

D5.3 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 facsimile number:

The City of Winnipeg  
Legal Services Department  
Attn: Director of Legal Services  
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 Tender. If the Contractor requires additional sets of the Tender, they will be supplied to him/her at cost.



## **SUBMISSIONS**

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

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

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

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

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

D8.3 Notwithstanding B12.4 at any time during the term of the Contract, the City may, at its sole discretion and acting reasonably, require an updated COR Certificate or Annual Letter of good Standing. A Contractor, who fails to provide a satisfactory COR Certificate or Annual Letter of good Standing, will not be permitted to continue to perform any Work.

### **D9. INSURANCE**

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

- (a) commercial general liability insurance, in the amount of at least two million dollars (\$2,000,000.00) inclusive, with The City of Winnipeg added as an additional insured, with a cross-liability clause, such liability policy to also contain contractual liability, unlicensed motor vehicle liability, non-owned automobile liability, broad form property damage cover and products and completed operations, to remain in place at all times during the performance of the Work and throughout the warranty period;
- (b) if applicable, Automobile Liability Insurance covering all motor vehicles, owned and operated and used or to be used by the Contractor directly or indirectly in the performance of the Work. The Limit of Liability shall not be less than \$2,000,000 inclusive for loss or damage including personal injuries and death resulting from any one accident or occurrence;
- (c) an all risks Installation Floater carrying adequate limits to cover all machinery, equipment, supplies and/or materials intended to enter into and form part of any installation.

D9.2 Deductibles shall be borne by the Contractor.

D9.3 The Contractor shall provide the City Solicitor with a certificate(s) of insurance, in a form satisfactory to the City Solicitor, at least two (2) Business Days prior to the commencement of any Work but in no event later than the date specified in the C4.1 for the return of the executed Contract Documents, as applicable.

D9.4 The Contractor shall not cancel, materially alter, or cause each policy to lapse without providing at least thirty (30) Calendar Days prior written notice to the Contract Administrator.

### **D10. CONTRACT SECURITY**

D10.1 The Contractor shall provide and maintain the performance bond and the labour and material payment bond 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; and
- (b) a labour and material payment bond of a company registered to conduct the business of a surety in Manitoba, in the form attached to these Supplemental Conditions (Form H2: Labour and Material Payment Bond), in an amount equal to fifty percent (50%) of the Contract Price.

D10.2 The Contractor shall provide the City Solicitor with the required performance and labour and material payment bonds within seven (7) Calendar Days of notification of the award of the Contract by way of an award letter and prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract Documents, if applicable.

D10.3 The Contractor shall, as soon as practicable after entering into a contract with a Subcontractor:

- (a) give the Subcontractor written notice of the existence of the labour and material payment bond in D10.1(b); and
- (b) post a notice of the bond and/or a copy of that bond in a conspicuous location at the Site of the Work.

#### **D11. SUBCONTRACTOR LIST**

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

#### **D12. DETAILED WORK SCHEDULE**

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

D12.2 If, prior to submitting the Detailed Work Schedule, the Contractor does not receive notification pursuant to D13.4 that all or some portion of Part 2 of the Work may be commenced, he/she shall complete the Detailed Work Schedule for only Part 1 of the Work assuming that, if all of Part 2 is eliminated, the time periods stipulated in D18 for Substantial Performance of the Work and in D19 for Total Performance of the Work will be reduced by five (5) Working Days

D12.3 If, after submitting the Detailed Work Schedule, the Contractor receives notification that all or any portion of Part 2 of the Work may be commenced, he/she shall submit a revised Detailed Work Schedule no later than two (2) Business Days from receipt of the notification.

D12.4 The detailed work schedule shall consist of the following:

- (a) a critical path method (C.P.M.) schedule for the Work;
  - (b) a Gantt chart for the Work based on the C.P.M. schedule;
- all acceptable to the Contract Administrator.

D12.5 Further to D12.4(b), the Gantt chart shall show the time on a weekly basis, required to carry out the Work of each trade, or specification division. The time shall be on the horizontal axis, and the type of trade shall be on the vertical axis.

## **SCHEDULE OF WORK**

### **D13. COMMENCEMENT**

- D13.1 The Contractor shall not commence any Work until he/she is in receipt of an award letter from the Award Authority authorizing the commencement of the Work.
- D13.2 The Contractor shall not commence any Work on the Site until:
- (a) the Contract Administrator has confirmed receipt and approval of:
    - (i) evidence of authority to carry on business specified in D7;
    - (ii) evidence of the workers compensation coverage specified in C6.15;
    - (iii) the twenty-four (24) hour emergency response phone number specified in D4.2.
    - (iv) the Safe Work Plan specified in D8;
    - (v) evidence of the insurance specified in D9;
    - (vi) the contract security specified in D10;
    - (vii) the subcontractor list specified in D11; and
    - (viii) the detailed work schedule specified in D12.
  - (b) the Contractor has attended a pre-construction meeting with the Contract Administrator, or the Contract Administrator has waived the requirement for a pre-construction meeting.
- D13.3 The Contractor shall commence the Work on the Site within seven (7) Working Days of receipt of the award letter or within seven (7) working days of the Contract Administrator determining that the seasonal conditions are satisfactory for construction to commence.
- D13.4 The Contractor shall not commence Part 2 of the Work as described in D2 and identified in Form B: Prices, unless prior to award, he/she has received notification from the Contract Administrator that the City has received notice of sufficient funding from Manitoba Hydro.
- D13.5 The City intends to award this Contract by May 15, 2020.
- D13.5.1 If the actual date of award is later than the intended date, the dates specified for Substantial Performance and Total Performance will be adjusted by the difference between the aforementioned intended and actual dates.

### **D14. WORKING DAYS**

- D14.1 Further to C1.1(tt);
- D14.1.1 The Contract Administrator will determine daily if a Working Day has elapsed and will record his/her 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/she agrees with the Contract Administrator's determination of the Working Days assessed for the report period.
- D14.1.2 Work done to restore the Site to a condition suitable for Work, shall not be considered "work" as defined in the definition of a Working Day.
- D14.1.3 When the Work includes two or more major types of Work that can be performed under different atmospheric conditions, the Contract Administrator shall consider all major types of Work in determining whether the Contractor was able to work in assessing Working Days.

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

- D15.1 Further to clause 3.10 of CW 1130, the Contractor shall require written permission forty-eight (48) hours in advance from the Contract Administrator for any work to be performed between

2000 hours and 0700 hours, or on Saturdays, Sundays, Statutory Holidays and or Civic Holidays.

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

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

- (a) City of Winnipeg geomatics branch – various works survey monuments
- (b) BELLMTS – adjusting BELLMTS manhole frame at Rosewarne Avenue alley
- (c) Manitoba Hydro – electrical supply and inspection of new street lighting hardware (to be installed by the Contractor) and de-energizing and energizing of new street lights plant on Blackwater Bay, Fleury Place, and Rosewarne Avenue.
- (d) City of Winnipeg – 2020 Water Main Renewal - Rosewarne Avenue, expected completion by July 24<sup>th</sup>, 2020, weather permitting.

#### **D17. SEQUENCE OF WORK**

D17.1 Further to C6.1, the sequence of work shall comply with the following:

- D17.1.1 Providing that the Work on each street is completed in a similar order to the order that the Work was commenced in, the Contractor will be permitted to have a maximum of three (3) streets under construction at any one time. Completion of a street means that all of the necessary concrete, asphalt including approaches and landscaping Work is completed to the satisfaction of the Contract Administrator.
- D17.1.2 Where the Contractor utilizes two (2) or more crews that work independently on the same major component of the Work as identified in D2, the Contract Administrator may approve an increase to the maximum number of streets under construction at any time.
- D17.1.3 Placing the topsoil and finished grading of all boulevard and median areas shall be completed prior to commencing construction of asphaltic concrete overlays, including scratch courses.
- D17.1.4 Immediately following the completion of asphaltic concrete works, the Contractor shall clean up the site and remove all plant, surplus material, waste and debris, other than that left behind by the city or other contractors.
- D17.1.5 Construction activity on Rosewarne Avenue from Kingston Row to St Mary's shall not commence until construction of the watermain renewal is complete. The Contract Administrator for this work is Rob Sherlock at 204-478-8993 with Stantec and construction is expected to be completed by July 24, 2020, weather permitting.

#### **D18. SUBSTANTIAL PERFORMANCE**

- D18.1 The Contractor shall achieve Substantial Performance within sixty-five (65) consecutive Working Days of the commencement of the Work as specified in D13.
- D18.2 When the Contractor considers the Work to be substantially performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Substantial Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be re-inspected.
- D18.3 The date on which the Work has been certified by the Contract Administrator as being substantially performed to the requirements of the Contract through the issue of a certificate of Substantial Performance is the date on which Substantial Performance has been achieved.

## **D19. TOTAL PERFORMANCE**

- D19.1 The Contractor shall achieve Total Performance within seventy (70) consecutive Working Days of the commencement of the Work as specified in D13.
- D19.2 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.
- D19.3 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.

## **D20. LIQUIDATED DAMAGES**

- D20.1 If the Contractor fails to achieve Substantial Performance or Total Performance in accordance with the Contract by the days fixed herein for same, the Contractor shall pay the City the following amounts per Working Day for each and every Working Day following the days fixed herein for same during which such failure continues:
- (a) Substantial Performance – Three Thousand Five Hundred dollars (\$3,500.00);
  - (b) Total Performance – Two Thousand dollars (\$2,000.00).
- D20.2 The amounts specified for liquidated damages in D20.1 are based on a genuine pre-estimate of the City's losses in the event that the Contractor does not achieve Substantial Performance or Total Performance by the days fixed herein for same.
- D20.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

## **D21. COVID-19 SCHEDULE DELAYS**

- D21.1 The City acknowledges that the schedule for this Contract may be impacted by the COVID-19 pandemic. Commencement and progress of the Work shall be performed by the Contractor with due consideration to the health and safety of workers and the public and directives from health authorities and various levels of government, and in close consultation with the Contract Administrator.
- D21.2 If the Contractor is delayed in the performance of the Work by reason of the COVID-19 pandemic, the Work schedule may be adjusted by a period of time equal to the time lost due to such delay and costs related to such delay will be determined as identified herein.
- D21.3 A minimum of seven (7) Calendar Days prior to the commencement of Work, the Contractor shall declare whether COVID-19 will affect the start date. If the Contractor declares that COVID-19 will affect the start date, the Contractor shall provide sufficient evidence that the delay is directly related to COVID-19, including but not limited to evidence related to availability of staff, availability of Material or work by others.
- D21.4 For any delay related to COVID-19 and identified after Work has commenced, the Contractor shall within seven (7) Calendar Days of becoming aware of the anticipated delay declare the additional delay and shall provide sufficient evidence as indicated in D23.3. Failure to provide this notice will result in no additional time delays being considered by the City.
- D21.5 The Work schedule, including the durations identified in D18 and D19 where applicable, will be adjusted to reflect delays accepted by the Contract Administrator. No additional payment will be made for adjustment of schedules except where seasonal work, not previously identified in the Contract, is carried over to the following construction season.

D21.6 Where Work not previously identified is being carried over solely as a result of delays related to COVID-19, as confirmed by the Contract Administrator, the cost of temporary works to maintain the Work in a safe manner until Work recommences, will be considered by the Contract Administrator. Where the Work is carried over only partially due to COVID-19, a partial consideration of the cost of temporary works will be considered by the Contract Administrator.

D21.7 Any time or cost implications as a result of COVID-19 and in accordance with the above, as confirmed by the Contract Administrator, shall be documented in accordance with C7.

## **D22. SCHEDULED MAINTENANCE**

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

- (a) Sod Maintenance as specified in CW 3510-R9
- (b) Reflective Crack Maintenance as specified in CW 3250-R7

D22.2 Determination of Substantial Performance and Total Performance shall be exclusive of scheduled maintenance identified herein. All scheduled maintenance shall be completed prior to the expiration of the warranty period. Where the scheduled maintenance cannot be completed during the warranty period, the warranty period shall be extended for such period of time as it takes the Contractor to complete the scheduled maintenance.

## **CONTROL OF WORK**

### **D23. JOB MEETINGS**

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

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

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

D24.1 Further to C6.26, 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).

### **D25. THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA) – QUALIFICATIONS**

D25.1 Further to B12.4, the Contractor/Subcontractor must, throughout the term of the Contract, have a Workplace Safety and Health Program meeting the requirements of The Workplace Safety and Health Act (Manitoba). At any time during the term of the Contract, the City may, at its sole discretion and acting reasonably, require updated proof of compliance, as set out in B12.4.

## **MEASUREMENT AND PAYMENT**

### **D26. PAYMENT**

D26.1 Further to C12, the City may at its option pay the Contractor by direct deposit to the Contractor's banking institution.

## WARRANTY

### D27. WARRANTY

- D27.1 Notwithstanding C13.2, the warranty period shall begin on the date of Substantial Performance and shall expire one (1) years thereafter for rehabilitation, and two (2) years thereafter for pavement reconstruction works, unless extended pursuant to C13.2.1 or C13.2.2, in which case it shall expire when provided for thereunder.
- D27.2 Notwithstanding C13.2 or D27.1, the Contract Administrator may permit the warranty period for a portion or portions of the Work to begin prior to the date of Substantial Performance if:
- (a) a portion of the Work cannot be completed because of unseasonable weather or other conditions reasonably beyond the control of the Contractor but that portion does not prevent the balance of the Work from being put to its intended use.
- D27.2.1 In such case the date specified by the Contract Administrator for the warranty period to begin shall be substituted for the date specified in C13.2 for the warranty period to begin.

## THIRD PARTY AGREEMENTS

### D28. FUNDING AND/OR CONTRIBUTION AGREEMENT OBLIGATIONS

- D28.1 In the event that funding for the Work of the Contract is provided to the City of Winnipeg by the Government of Manitoba and/or the Government of Canada, the following terms and conditions shall apply, as required by the applicable funding agreements.
- D28.2 Further to D28.1, in the event that the obligations in D28 apply, actual costs legitimately incurred by the Contractor as a direct result of these obligations ("Funding Costs") shall be determined by the actual cost to the Contractor and not by the valuation method(s) outlined in C7.4. In all other respects Funding Costs will be processed in accordance with Changes in Work under C7.
- D28.3 For the purposes of D28:
- (a) "**Government of Canada**" includes the authorized officials, auditors, and representatives of the Government of Canada; and
  - (b) "**Government of Manitoba**" includes the authorized officials, auditors, and representatives of the Government of Manitoba.
- D28.4 Modified Insurance Requirements
- D28.4.1 If not already required under the insurance requirements identified in D9, the Contractor will be required to provide wrap-up liability insurance in an amount of no less than two million dollars (\$2,000,000) inclusive per occurrence. Such policy will be written in the joint names of the City, Contractor, Consultants and all sub-contractors and sub-consultants and include twelve (12) months completed operations. The Government of Manitoba and its Ministers, officers, employees, and agents shall be added as additional insureds.
- D28.4.2 If not already required under the insurance requirements identified in D9, the Contractor will be required to provide builders' risk insurance (including boiler and machinery insurance, as applicable) providing all risks coverage at full replacement cost, or such lower level of insurance that the City may identify on a case-by-case basis, such as an installation floater.
- D28.4.3 The Contractor shall obtain and maintain third party liability insurance with minimum coverage of two million dollars (\$2,000,000.00) per occurrence on all licensed vehicles operated at the Site. In the event that this requirement conflicts with another licensed vehicle insurance requirement in this Contract, then the requirement that provides the higher level of insurance shall apply.

- D28.4.4 Further to D9.3, insurers shall provide satisfactory Certificates of Insurance to the Government of Manitoba prior to commencement of Work as written evidence of the insurance required. The Certificates of Insurance must provide for a minimum of thirty (30) days' prior written notice to the Government of Manitoba in case of insurance cancellation.
- D28.4.5 All policies must be taken out with insurers licensed to carry on business in the Province of Manitoba.
- D28.5 Indemnification By Contractor
- D28.5.1 In addition to the indemnity obligations outlined in C17 of the General Conditions for Construction, the Contractor agrees to indemnify and save harmless the Government of Canada and the Government of Manitoba and each of their respective Ministers, officers, servants, employees, and agents from and against all claims and demands, losses, costs, damages, actions, suit or other proceedings brought or pursued in any manner in respect of any matter caused by the Contractor or arising from this Contract or the Work, or from the goods or services provided or required to be provided by the Contractor, except those resulting from the negligence of any of the Government of Canada's or the Government of Manitoba's Ministers, officers, servants, employees, or agents, as the case may be.
- D28.6 Records Retention and Audits
- D28.6.1 The Contractor shall maintain and preserve accurate and complete records in respect of this Contract and the Work, including all accounting records, financial documents, copies of contracts with other parties and other records relating to this Contract and the Work during the term of the Contract and for at least six (6) years after Total Performance. Those records bearing original signatures or professional seals or stamps must be preserved in paper form; other records may be retained in electronic form.
- D28.6.2 In addition to the record keeping and inspection obligations outlined in C6 of the General Conditions for Construction, the Contractor shall keep available for inspection and audit at all reasonable times while this Contract is in effect and until at least six (6) years after Total Performance, all records, documents, and contracts referred to in D28.6.1 for inspection, copying and audit by the City of Winnipeg, the Government of Manitoba and/or the Government of Canada and their respective representatives and auditors, and to produce them on demand; to provide reasonable facilities for such inspections, copying and audits, to provide copies of and extracts from such records, documents, or contracts upon request by the City of Winnipeg, the Government of Manitoba, and/or the Government of Canada and their respective representatives and auditors, and to promptly provide such other information and explanations as may be reasonably requested by the City of Winnipeg, the Government of Manitoba, and/or the Government of Canada from time-to-time.
- D28.7 Other Obligations
- D28.7.1 The Contractor consents to the City providing a copy of the Contract Documents to the Government of Manitoba and/or the Government of Canada upon request from either entity.
- D28.7.2 If the Lobbyists Registration Act (Manitoba) applies to the Contractor, the Contractor represents and warrants that it has filed a return and is registered and in full compliance with the obligations of that Act, and covenants that it will continue to comply for the duration of this Contract.
- D28.7.3 The Contractor shall comply with all applicable legislation and standards, whether federal, provincial, or municipal, including (without limitation) labour, environmental, and human rights laws, in the course of providing the Work.
- D28.7.4 The Contractor shall properly account for the Work provided under this Contract and payment received in this respect, prepared in accordance with generally accepted accounting principles in effect in Canada, including those principles and standards approved or recommended from time-to-time by the Chartered Professional Accountants of Canada or the Public Sector Accounting Board, as applicable, applied on a consistent basis.



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

KNOW ALL MEN BY THESE PRESENTS THAT

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

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

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

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

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

TENDER NO. 108-2020

2020 LOCAL STREET RENEWAL PROGRAM: BLACKWATER BAY, DRAKE BOULEVARD AND  
VARIOUS OTHER

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

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

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

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

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

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

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

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

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

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

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

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

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

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

**FORM H2: LABOUR AND MATERIAL PAYMENT BOND**  
(See D10)

KNOW ALL MEN BY THESE PRESENTS THAT

\_\_\_\_\_  
his/its heirs, executors, administrators, successors or assigns (hereinafter called the "Principal"), and

\_\_\_\_\_  
his/its heirs, executors, administrators, successors or assigns (hereinafter called the "Surety"), are held and firmly bound unto **THE CITY OF WINNIPEG** (hereinafter called the "Obligee"), for the use and benefit of claimants as herein below defined, in the amount of

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

of lawful money of Canada, for the payment whereof we, the Principal and the Surety jointly and severally bind ourselves firmly by these presents.

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

TENDER NO. 108-2020

2020 LOCAL STREET RENEWAL PROGRAM: BLACKWATER BAY, DRAKE BOULEVARD AND  
VARIOUS OTHER

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 promptly make payment to all claimants as hereinafter defined, for all labour, service and material used or reasonably required for use in the performance of the Contract, then this obligation shall be void, otherwise it shall remain in full force and effect subject, however, to the following conditions:

- (a) A claimant is defined as one having a direct contract with the Principal for labour, service and material, or any of them, used or reasonably required for use in the performance of the contract, labour, service and material being construed to include that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental of equipment (but excluding rent of equipment where the rent pursuant to an agreement is to be applied towards the purchase price thereof) directly applicable to the Contract;
- (b) The above-named Principal and Surety hereby jointly and severally agree with the Obligee that every claimant as herein defined, who has not been paid in full before the expiration of a period of ninety (90) days after the date on which the last of such claimant's work, labour or service was done or performed, or materials were furnished by such claimant, may sue on this bond, prosecute the suit to final judgment for such sum or sums as may be justly due claimant, and have execution thereon;
- (c) No suit or action shall be commenced hereunder by any claimant
  - (i) unless claimant shall have given written notice to the Principal and the Surety above-named, within one hundred and twenty (120) days after such claimant did or performed the last of the work, labour or service, or furnished the last of the materials for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were furnished, or for whom the work, labour or service was done or performed. Such notice shall be served by mailing the same by registered mail to the Principal, and Surety, at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the Province of Manitoba;

- (ii) after the expiration of one (1) year following the date on which Principal ceased work on said Contract; including work performed under the guarantees provided in the Contract;
  - (iii) other than in a court of competent jurisdiction in the Province of Manitoba.
- (d) The amount of this bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder, inclusive of the payment by Surety of mechanics liens which may be filed of record against said improvement, whether or not claim for the amount of such lien be presented under and against this bond.
- (e) The Surety shall not be liable for a greater sum than the specified penalty of this bond.

The Principal and Surety hereby agree that The Guarantors' Liability Act (Manitoba) shall apply to this Bond.

IN TESTIMONY WHEREOF, the Principal has hereunto set its hand affixed its seal, and the Surety has caused these presents to be sealed and with its corporate seal duly attested by the authorized signature of its signing authority this

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

SIGNED AND SEALED  
in the presence of:

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

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

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

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

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

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



## PART E - SPECIFICATIONS

### GENERAL

#### E1. APPLICABLE SPECIFICATIONS AND DRAWINGS

- E1.1 These Specifications shall apply to the Work.
- E1.2 *The City of Winnipeg Standard Construction Specifications* in its entirety, whether or not specifically listed on Form B: Prices, shall apply to the Work.
- E1.2.1 *The City of Winnipeg Standard Construction Specifications* is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/Spec/Default.stm>
- E1.2.2 The version in effect three (3) Business Days before the Submission Deadline shall apply.
- E1.2.3 Further to C2.4(d), Specifications included in the Tender shall govern over *The City of Winnipeg Standard Construction Specifications*.
- E1.3 Bidders are reminded that requests for approval of substitutes as an approved equal or an approved alternative shall be made in accordance with B6. In every instance where a brand name or design specification is used, the City will also consider approved equals and/or approved alternatives in accordance with B6.
- E1.4 The following are applicable to the Work:

<u>Drawing No.</u>	<u>Drawing Name/Title</u>	<u>Drawing (Original) Sheet Size</u>
	Cover Sheet	A1
108-2020_Drawing_19M-01795-00-01-RC	Blackwater Bay – From Charing Cross Cres. to Blackwater Bay, Asphalt Reconstruction, Sta 1+00 to Sta. 1+77.93	A1
108-2020_Drawing_19M-01795-00-02-RC	Blackwater Bay – From Charing Cross Cres. to Blackwater Bay, Pavement Rehabilitation, Sta 1+00 to Sta. 2+10	A1
108-2020_Drawing_19M-01795-00-03-RC	Blackwater Bay – From Charing Cross Cres. to Blackwater Bay, Pavement Rehabilitation, Sta 2+10 to Sta. 3+45	A1
108-2020_Drawing_19M-01795-00-04-RC	Blackwater Bay – From Charing Cross Cres. to Blackwater Bay, Pavement Rehabilitation, Sta 3+45 to Sta. 4+06.95	A1
108-2020_Drawing_19M-01795-00-05-RC	Drake Boulevard – From Cottonwood Rd to Autumnwood Rd, Pavement Rehabilitation, Sta. 1+00 to 1+95	A1
108-2020_Drawing_19M-01795-00-06-RC	Drake Boulevard – From Cottonwood Rd to Autumnwood Rd, Pavement Rehabilitation, Sta. 1+95 to 3+20	A1
108-2020_Drawing_19M-01795-00-07-RC	Drake Boulevard – From Cottonwood Rd to Autumnwood Rd, Pavement Rehabilitation, Sta. 3+20 to 4+40	A1
108-2020_Drawing_19M-01795-00-08-RC	Drake Boulevard – From Cottonwood Rd to Autumnwood Rd, Pavement Rehabilitation, Sta. 4+40 to 5+70	A1
108-2020_Drawing_19M-01795-00-09-RC	Drake Boulevard – From Cottonwood Rd to Autumnwood Rd, Pavement Rehabilitation, Sta. 5+70 to 7+10	A1
108-2020_Drawing_19M-01795-00-10-RC	Drake Boulevard – From Cottonwood Rd to Autumnwood Rd, Pavement Rehabilitation, Sta. 7+10 to 8+24.56	A1
108-2020_Drawing_19M-01795-00-11-RC	Fleury Place – From Fontaine Cr. To Fontaine Cr, Asphalt Reconstruction, Sta. 1+00 to Sta. 2+05	A1
108-2020_Drawing_19M-01795-00-12-RC	Fleury Place – From Fontaine Cr. To Fontaine Cr, Asphalt Reconstruction, Sta. 2+05 to Sta. 3+08.20	A1
108-2020_Drawing_19M-01795-00-13-RC	Oakridge Bay – From Metz St to Metz St, Pavement Rehabilitation, Sta. 1+00 to 2+10	A1
108-2020_Drawing_19M-01795-00-14-RC	Oakridge Bay – From Metz St to Metz St, Pavement Rehabilitation, Sta. 2+10 to 3+20	A1

<u>Drawing No.</u>	<u>Drawing Name/Title</u>	<u>Drawing (Original) Sheet Size</u>
108-2020_Drawing_19M-01795-00-15-RC	Oakridge Bay – From Metz St to Metz St, Pavement Rehabilitation, Sta. 3+20 to 4+30	A1
108-2020_Drawing_19M-01795-00-16-RC	Rosewarne Avenue – From Kingston Row to St. Mary's Rd, Asphalt Reconstruction, Sta. 0+90 to 1+90	A1
108-2020_Drawing_19M-01795-00-17-RC	Rosewarne Avenue – From Kingston Row to St. Mary's Rd, Asphalt Reconstruction, Sta. 1+90 to 3+05	A1
108-2020_Drawing_19M-01795-00-18-RC	Rosewarne Avenue – From Kingston Row to St. Mary's Rd, Asphalt Reconstruction, Sta. 3+05 to 4+20	A1
108-2020_Drawing_19M-01795-00-19-RC	Rosewarne Avenue – From Kingston Row to St. Mary's Rd, Asphalt Reconstruction, Sta. 4+20 to 5+20	A1
108-2020_Drawing_19M-01795-00-20-RC	Rosewarne Avenue – From Kingston Row to St. Mary's Rd, Asphalt Reconstruction, Sta. 5+20 to 5+96.52	A1
108-2020_Drawing_19M-01795-00-21-RC	Kingston Row – From Rosewarne Ave to Kingston Row, Asphalt Reconstruction, Sta. 1+00 to 1+54.42	A1

## **E2. MOBILIZATION AND DEMOBILIZATION PAYMENT**

### DESCRIPTION

- E2.1 This Specification shall cover all operations relating to the mobilization and demobilization of the Contractor to the project location(s).
- E2.2 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies, and all things necessary for and incidental to the satisfactory performance and completion of all Works as hereinafter specified.
- E2.3 The inclusion of a payment item for the Work under this Specification shall not release or reduce the responsibilities of the Contractor under any other specification in this Contract.

### SCOPE OF WORK

- E2.4 Further to C12 of the General Conditions, where Mobilization and Demobilization is included as a bid item, it shall consist of the following, as applicable:
- (a) Mobilization shall include, but not be limited to:
- (i) All activities and associated costs for transportation of the Contractor's personnel, equipment, and operating supplies to the site, and/or sites, and/or between sites;
  - (ii) Establishment of offices, buildings, other necessary general facilities and equipment parking/staging areas for the Contractor's operations at the site or sites;
  - (iii) Premiums paid for performance and payment bonds including coinsurance and reinsurance agreements as applicable;
  - (iv) General cleanup and housekeeping needed maintain a neat and orderly project site and/or sites;
  - (v) Other job related items.
- (b) Demobilization shall include, but not be limited to:
- (i) All activities and costs for transportation of personnel, equipment, and supplies not used in the project from the site, and/or sites, and/or between sites;
  - (ii) Disassembly, removal, and site cleanup and restoration of offices, buildings, and other facilities assembled on the site and/or sites;
  - (iii) Repair of access roads, temporary haul roads, and equipment parking areas leaving the project site in the same or better condition than at the start of the project;

- (iv) General cleanup and housekeeping needed to restore a neat and orderly project site.

E2.5 Access to the site, equipment parking, and staging areas are limited to that shown on the drawings or as approved by the Contract Administrator.

#### MEASUREMENT AND PAYMENT

E2.6 The lump-sum price for the Mobilization and Demobilization bid item shall not exceed five percent (5.00%) of the total bid price for the Contract.

E2.6.1 Further to B9, B17, C12 and E2.6, should the lump sum price exceed 5% of the Total Bid Price the lump sum price will be reduced to 5% of the Total Bid Price, the Total Bid Price will be determined using the reduced lump sum price and payment will be based on the reduced lump sum price.

E2.7 Payment for Mobilization:

- (a) 60% of the lump-sum price will be paid to the contractor for Mobilization on the first Progress Estimate for the Contract.

E2.8 Payment for Demobilization:

- (a) The remaining 40% of the lump-sum price will be paid upon:
  - (i) Restoration of the site and/or sites to the satisfaction of the Contract Administrator;
  - (ii) Distribution of the Declaration of Total Performance.

E2.9 Mobilization and Demobilization will be paid only once (to a maximum of 100%), regardless of the number of times the Contractor mobilizes to the site and/or sites.

### **E3. GEOTECHNICAL REPORT**

E3.1 Further to C3.1, the geotechnical report is provided to aid the Contractor's evaluation of the pavement structure and/or existing soil conditions. The geotechnical report is contained in Appendix 'A'.

### **E4. PROTECTION OF EXISTING TREES**

E4.1 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 dripline of the trees shall be kept to the minimum required to perform the work required. Equipment shall not be parked, repaired, refuelled; construction materials shall not be stored, and earth materials shall not be stockpiled within the driplines of trees. The dripline of a tree shall be considered to be the ground surface directly beneath the tips of its outermost branches. The Contractor shall ensure that the operations do not cause flooding or sediment deposition on areas where trees are located.
- (e) Work on-site shall be carried out in such a manner so as to minimize damage to existing tree branches. Where damage to branches does occur, they shall be neatly pruned.



- E4.2 All damage to existing trees caused by the Contractor's activities shall be repaired to the requirements and satisfaction of the Contract Administrator and the City Forester or his/her designate.
- E4.3 No separate measurement or payment will be made for the protection of trees.
- E4.4 Except as required in clause E4.1(c) and E4.1(e), Elm trees shall not be pruned at any time between April 1 and July 31.

## **E5. TREE REMOVAL**

- E5.1 This Specification shall cover the removal of existing trees as specified on the Contract drawings. This Specification supplements CW 3010.
- E5.2 Construction Method
- E5.2.1 The Contractor must be licensed Manitoba Arborists, carry appropriate insurance, be covered by Worker's Compensation and provide evidence of an acceptable safety and health program. The contractors must pre-qualify with Urban Forestry before removal trees.
- E5.2.2 The Contractor shall remove trees as directed by the Contract Administrator.
- E5.2.3 The Contractor shall cut down designated trees, grub out the stumps and root balls.
- E5.2.4 The Contractor shall remove and/or dispose of all material resulting from the Work immediately by removing to a landfill site.
- E5.3 Measurement and Payment
- E5.3.1 The removal of trees will be measured on a unit basis and paid for at the Contract Unit Price per tree and associated stump/roots for "Tree Removal". The number to be paid for will be the total number of trees and associated stump/roots removed and disposed of in accordance with this Specification, accepted and measured by the Contract Administrator.

## **E6. TRAFFIC CONTROL**

- E6.1 Further to clauses 3.6, 3.7 and 3.8 of CW 1130:
- (a) Where directed by the Contract Administrator, the Contractor shall construct and maintain temporary asphalt ramps to alleviate vertical pavement obstructions such as manholes and planing drop-offs to the satisfaction of the Contract Administrator. Payment shall be in accordance with CW3410.
- (b) In accordance with the Manual of Temporary Traffic Control on City Streets (MTTC), the Contractor ("Construction Agency" in the manual) shall be responsible for placing, maintaining and removing the appropriate temporary traffic control devices as specified by the MTTC or by the Traffic Management Branch of the City of Winnipeg Public Works Department. The Contractor shall bear all costs associated with the placement of temporary traffic control devices by their own forces or subcontractor.
- E6.2 Notwithstanding E6.1, in accordance with the MTTC, the Contract Administrator shall make arrangements with the **Traffic Services Branch of the City of Winnipeg** to place, maintain, and remove all **regulatory signs** and traffic control devices authorized and/or required by the Traffic Management Branch in the following situations:
- (a) Parking restrictions;
- (b) Stopping restrictions;
- (c) Turn restrictions;
- (d) Diamond lane removal;
- (e) Full or directional closures on a Regional Street;

- (f) Traffic routed across a median;
- (g) Full or directional closure of a non-regional street where there is a requirement for regulatory signs (turn restrictions, bus stop relocations, etc.) to implement the closure; or
- (h) Approved Designated Construction Zones with a temporary posted speed limit reduction. Traffic Services will be responsible for placing all of the advance signs and 'Construction Ends' (TC-4) signs. The Contractor is still responsible for all other temporary traffic control including but not limited to barricades, barrels and tall cones.

E6.2.1 An exception to E6.2 is the 'KEEP RIGHT/KEEP LEFT' sign (RB-25 / RB-25L) which shall be supplied, installed, and maintained by the Contractor at their own expense.

E6.2.2 Further to E6.2, where the Contract Administrator has determined that the services of the Traffic Services Branch are required, the City shall bear the costs associated with the placement of temporary traffic control devices by the Traffic Services Branch of the City of Winnipeg in connection with the works undertaken by the Contractor.

## **E7. TRAFFIC MANAGEMENT**

E7.1 Further to clause 3.7 of CW 1130:

E7.1.1 The Contractor shall schedule construction activities to meet the following:

- (a) Blackwater Bay from Charing Cross Crescent to end of culs-de-sac and Oakridge Bay from Metz Avenue to Metz Avenue at least one lane for local access traffic shall be maintained along each of these streets during construction. At least one intersection on adjacent bays shall be open at a time.
- (b) Drake Boulevard from Cottonwood Road to Autumnwood Drive, southbound local access traffic and bus traffic shall be maintained along this street during construction. Northbound access will be closed to all local traffic and bus traffic during construction.
- (c) Fleury Place from Fontaine Crescent to Fontaine Crescent, Rosewarne Avenue from Kingston Row to St Mary's Avenue and Blackwater Bay from Charing Cross Crescent to Blackwater bay will be closed to all traffic. The Contractor shall sign the street "Road Closed – No Exit" in accordance with the Manual of Temporary Traffic Control.
- (d) Kingston Row (West Bound), will be closed to through traffic. At least one lane of traffic shall be maintained for local access. The contractor shall sign the street "Road Closed – No Exit" in accordance with the Manual of Temporary Traffic Control.

E7.1.2 Should the Contractor be unable to maintain an existing access to a residence or business, he/she 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.

E7.1.3 Pedestrian and ambulance/emergency vehicle access must be maintained at all times.

## **E8. REFUSE AND RECYCLING COLLECTION**

E8.1 While access to refuse and/or recycling collection vehicles is restricted, on collection day(s) the Contractor shall move all of the affected property owners refuse and/or recycling materials to a nearby common area, prior to an established time, in accordance with E8.2 to permit the normal collection vehicles to collect the materials. Immediately following recycling collection the Contractor shall return recycling receptacles to the addresses marked on the receptacles.

E8.2 Collection Schedule:

**Fleury Place from Fontaine Crescent to Fontaine Crescent.**

*Collection Day(s):* **Tuesday**

*Collection Time:* **7:00 a.m.**

*Common Collection Area:* **Contractor to move Refuse/Recycling/Yard Waste to a common collection point.**

**Drake Boulevard from Autumnwood Road to Cottonwood Road.**

*Collection Day(s):* **Tuesday**

*Collection Time:* **7:00 a.m.**

*Common Collection Area:* **Contractor to move Refuse/Recycling/Yard Waste to a common collection point.**

**Blackwater Bay from Charing Cross Crescent to cul de sac end.**

*Collection Day(s):* **Friday**

*Collection Time:* **7:00 a.m.**

*Common Collection Area:* **Collection back lane and Contractor to move Refuse/Recycling/Yard Waste to a common collection point.**

**Blackwater Bay from Charing Cross Crescent to Blackwater Bay**

*Collection Day(s):* **Friday**

*Collection Time:* **7:00 a.m.**

*Common Collection Area:* **Collection back lane and Contractor to move Refuse/Recycling/Yard Waste to a common collection point.**

**Oakridge Bay from Metz Street to Metz Street**

*Collection Day(s):* **Wednesday**

*Collection Time:* **7:00 a.m.**

*Common Collection Area:* **Contractor to move Refuse/Recycling/Yard Waste to a common collection point.**

**Rosewarne Avenue from Kingston Row to St. Mary's Road and Kingston Row**

*Collection Day(s):* **Wednesday**

*Collection Time:* **7:00 a.m.**

*Common Collection Area:* **Collection back lane and Contractor to move Refuse/Recycling/Yard Waste to a common collection point.**

E8.3 No measurement or payment will be made for the work associated with this specification.

**E9. PEDESTRIAN SAFETY**

E9.1 During the project, the Contractor shall ensure that proper signage is in place during sidewalk construction to direct any pedestrians within the construction zone either around the construction or to the sidewalk on the opposite side of the street. The Contractor must also use proper signage, barricades and temporary fencing to protect and keep pedestrians safely away from the construction area and open excavations to the satisfaction of the Contract Administrator. No measurement for payment shall be made for this work.

## **E10. WATER OBTAINED FROM THE CITY**

- E10.1 Further to clause 3.7 of CW 1120, the Contractor shall pay for all costs, including sewer charges, associated with obtaining water from the City in accordance with the Waterworks and Sewer By-laws.

## **E11. SURFACE RESTORATIONS**

- E11.1 Further to clause 3.3 of CW 1130, when Total Performance is not achieved in the year the Contract is commenced, the Contractor shall temporarily repair any Work commenced and not completed to the satisfaction of the Contract Administrator. The Contractor shall maintain the temporary repairs in a safe condition as determined by the Contract Administrator until permanent repairs are completed. The Contractor shall bear all costs associated with temporary repairs and their maintenance.

## **E12. INFRASTRUCTURE SIGNS**

- E12.1 The Contractor shall obtain infrastructure signs from the Traffic Services Sign Shop at 421 Osborne Street. The Contractor shall mount each sign securely to a rigid backing material approved by the Contract Administrator. The Contractor shall fasten each sign to a suitable support and erect and maintain one sign at each street as directed by the Contract Administrator. When the Contract Administrator considers the Work on the street complete, the Contractor shall remove and dispose of the signs and supports. No measurement for payment will be made for performing all operations herein described and all other items incidental to the work described

## **E13. SUPPLY AND INSTALLATION OF PAVEMENT REPAIR FABRIC**

### DESCRIPTION

- E13.1 General
- E13.1.1 This specification covers the supply and installation of pavement repair fabrics for reinforcement of asphalt layers, distribution of loads, and reducing reflective cracking distresses.
- E13.2 Definitions
- E13.2.1 Pavement Repair Fabric composed of fiberglass strands coated with an elastomeric polymer and formed into a grid structure.
- E13.2.2 Minimum Average Roll Value (MARV) is Property value calculated as typical minus two standard deviations. It shall yield a 97.7 percent degree of confidence that any sample taken during quality assurance testing will exceed the value reported.
- E13.2.3 Apertures are the open spaces formed between the interconnected network of longitudinal and transverse ribs of a fabric.
- E13.2.4 Type A Pavement Repair Fabric will be used for full width asphalt reinforcement by allowing asphalt particles to penetrate through the fabric to achieve high interlock and effective bonding of the two asphalt lifts.
- E13.2.5 Type B Pavement Repair Fabric is high strength fabric in the cross-machine direction and will be used for localized repair reinforcement (i.e. at joints and cracks) to minimize both thermal and stress related reflective cracking.
- E13.3 Referenced Standard Construction Specifications
- E13.3.1 CW 3110 – Sub-Grade, Sub-Base and Base Course Construction. Referenced Standard Construction
- E13.3.2 CW 3410 – Asphaltic Concrete Pavement Works

E13.3.3 Approved Products for Surface Works.

E13.4 MATERIALS

E13.5 Approved Products

E13.5.1 Use only those materials listed as Approved Products for Surface Works. The Approved Products are available at the City of Winnipeg, Corporate Finance, Material Management Internet site at:  
[https://www.winnipeg.ca/finance/findata/matmgt/std\\_const\\_spec/current/Docs/Approved\\_Products\\_Surface\\_Works.pdf](https://www.winnipeg.ca/finance/findata/matmgt/std_const_spec/current/Docs/Approved_Products_Surface_Works.pdf) Store and handle material in accordance with Section 2 of CW 3130.

E13.6 Material Identification

E13.6.1 Pavement Repair Fabric shall be labelled in accordance with ASTM D4873/D4873M, and must clearly show the manufacturer name, product style number and roll number. Products without proper identification or labelling, mislabelling, or misrepresentation of materials shall be rejected.

E13.7 Storage and Handling

E13.7.1 Pavement Repair Fabric rolls shall be elevated off the ground and adequately covered to protect them from site construction damage, precipitation, any contamination of dirt or dust and any other deleterious materials.

E13.7.2 Pavement Repair Fabric rolls shall be protected from extended ultraviolet radiation including sunlight, chemicals that are strong acids or strong bases, flames including welding sparks, excess temperatures, and any other environmental conditions that may damage the physical properties of the fabric.

E13.7.3 Store and handle the Pavement Repair Fabric in accordance with the manufacturer's recommendations. Manufacturer's data sheets shall include preparation instructions and recommendations as well as storage and handling requirements and recommendations.

E13.8 Certification

E13.8.1 The Contractor shall provide Manufacturer's Mill Certificate and MARV Roll Data to the Contract Administrator prior to installation. The Certification shall state that the Pavement Repair Fabric meets MARV requirements as evaluated under the Manufacturer's quality control program. The Certification shall be attested to by a person having legal authority to bind the Manufacturer. The Pavement Repair Fabric shall be annually tested by accredited a third party testing facility.

E13.8.2 The Contractor shall provide a letter to the Contract Administrator stating the product name, manufacturer, style number, and other pertinent information to fully describe the Pavement Repair Fabric.

E13.8.3 All testing and data shall be in accordance with approved ASTM standards. Data reported in accordance with other standards will not be accepted.

E13.9 Pavement Repair Fabric Properties

E13.9.1 Pavement Repair Fabric shall consist of a high strength, fiberglass grid custom knitted and coated with an elastomeric polymer and self-adhesive glue with square or rectangular opening configurations.

E13.9.2 The axis with the least strength will be taken as the ultimate strength of the fabric for any given property.

E13.9.3 Type A Pavement Repair Fabric shall meet the requirements in Table CW 3140.1.

Table CW 3140.1 – Type A Pavement Repair Fabric Property Requirements

Physical Property	Machine Direction	Cross-Machine Direction	Test Method
Tensile Strength, Minimum	100 kN/m	100kN/m	ASTM D 6637
Tensile Strength @ 2% Strain, Minimum	80 kN/m	80 kN/m	ASTM D 6637
Secant Stiffness Ea At 2% Strain	4,000 kN/m	4,000 kN/m	ASTM D 6637
Elongation At Break, Maximum	3%		ASTM D 6637
Coating Softening Point, Minimum	150 °C		ASTM D 36
Coating Melting Point, Minimum	350 °C		ASTM D 276
Glass Melting Point, Minimum	820 °C		ASTM D 338
Mass/Unit Area, Minimum	420 g/m <sup>2</sup>		ASTM D 5261

E13.9.4 Type B Pavement Repair Fabric shall meet the requirements in Table CW 3140.2.

Table CW 3140.1 – Type B Pavement Repair Fabric Property Requirements

Physical Property	Machine Direction	Cross-Machine Direction	Test Method
Tensile Strength, Minimum	100 kN/m	200 kN/m	ASTM D 6637
Tensile Strength @ 2% Strain, Minimum	80 kN/m	160 kN/m	ASTM D 6637
Secant Stiffness Ea At 2% Strain	4,000 kN/m	4,000 kN/m	ASTM D 6637
Elongation At Break, Maximum	3%		ASTM D 6637
Coating Softening Point, Minimum	150 °C		ASTM D 36
Coating Melting Point, Minimum	350 °C		ASTM D 276
Glass Melting Point, Minimum	820 °C		ASTM D 338
Mass/Unit Area, Minimum	420 g/m <sup>2</sup>		ASTM D 5261

E13.9.5 All physical property requirements are Minimum Average Roll Values (MARV) determined in accordance with ASTM 4759. Values not labelled as MARV will not be accepted.  
General

E13.9.6 Aperture Sizes shall be as follows:

- (a) Between 10 mm and 14 mm for pavement repair fabric immediately below or within Type 1A asphalt layer.

- (b) Between 19 mm and 25.4 mm for pavement repair fabric immediately below or within Type III asphalt layer.

E13.9.7 If the fabric has a rectangular aperture size, the smaller dimension shall be used to establish the suitable Pavement Repair Fabric.

#### E13.10 CONSTRUCTION METHODS

E13.10.1 Pavement Repair Fabric shall not be placed when weather conditions, in the opinion of the Contract Administrator, are not suitable for installation including heavy rainfall, extreme cold or frost conditions, or extreme heat.

E13.10.2 Make all repairs as required prior to placement of Pavement Repair Fabric. Seal cracks and fill holes using a method that provides a proper level surface. Receiving surface shall be smooth, with the existing cracks pretreated.

E13.10.3 Surfaces shall be mechanically cleaned by sweeping and vacuuming and be free of oil, vegetation, sand, dirt, water, gravel, and other contaminants prior to placement of Pavement Repair Fabric.

E13.10.4 Pavement Repair Fabric placement should not be undertaken if rain is likely to fall prior to covering the fabric with an asphalt mat overlay. Pavement Repair Fabric that is placed and will not adhere due to moisture shall be removed and replaced at the Contractor's expense.

E13.10.5 Pavement Repair Fabric shall be laid out by mechanical means or by hand using sufficient pressure to eliminate ripples. Remove any ripples by pulling the fabric tight. Cutting of the fabric may be permitted on tight radii to prevent ripples.

E13.10.6 Transverse joints shall be overlapped 75 mm or as recommended by the manufacturer, whichever is greater. Longitudinal joints shall be overlapped 37.5 mm or as recommended by the manufacturer, whichever is greater.

E13.10.7 Prior to the asphalt topping placement, the fabric shall be inspected by the Contract Administrator for damage during installation. Damaged fabric shall be removed and replaced at the Contractor's expense.

E13.10.8 Activate self-adhesive glue by rolling with a rubber coated drum roller or a pneumatic tire roller. In no instance shall steel-wheeled or vibratory rollers be used. Rolling shall continue until the adhesive is activated and the fabric is bonded to the leveling course.

E13.10.9 Roller tires shall be kept clean to the satisfaction of the Contract Administrator.

E13.10.10 If bonding of the fabric is not readily achieved, it shall be removed and replaced at the Contractor's expense.

E13.10.11 Pavement Repair Fabric shall be laid and rolled over ironworks (e.g., manhole covers). Once the fabric has been rolled, those portions covering the ironworks shall be removed by cutting the fabric with a utility knife or other methods approved by the Contract Administrator.

E13.10.12 Protect the Pavement Repair Fabric until placement of the finished asphalt topping.

E13.10.13 Where a tack coat or emulsified asphalt is specified, the approved tack coat/emulsion and dose should be used as recommended by the manufacturer in conjunction with the Pavement Repair Fabric. Tack coat or emulsified asphalts shall not be diluted. Unless otherwise recommended by the manufacturer, apply tack coat or emulsified asphalt at the rate of 0.35 liters per square meter of surface area.

E13.10.14 Where tack coat or emulsified asphalt is placed prior to the fabric, it must fully cure prior to placement of the fabric. Where tack coat or emulsified asphalt is placed after the fabric, it must fully cure prior to construction traffic, including paving, travelling on the surface.

E13.10.15 Prevent spattering of tack coat or emulsified asphalt when placed adjacent to curbs, gutters, structures and other adjacent surfaces. Clean any surfaces where it has been contaminated by the tack coat or emulsified asphalt.

E13.10.16 Leveling course or overlay layer shall be a minimum thickness of 40 mm. Place and compact asphalt over the Pavement Repair Fabric in accordance with CW 3410.

#### E13.11 QUALITY ASSURANCE TESTING

E13.11.1 The Contract Administrator shall test the adhesion for pavement repair fabric in field during construction is as follows:

- (a) Place approximately 1 m<sup>2</sup> of fabric on a prepared surface that is representative of the project conditions.
- (b) Activate self-adhesive glue by rolling with a rubber-tired roller or by applying adequate pressure to fully activate the pressure-sensitive adhesive.
- (c) Use a calibrated spring balance by inserting the hook of the balance under the centre of the fabric and pulling upward until the fabric starts to pull away from the surface.
- (d) A 9 kg pull is required without pulling the grid free or creating ripples in the fabric.

#### E13.12 MEASUREMENT AND PAYMENT

E13.12.1 Supply and installation of Pavement Repair Fabric will be measured on an area basis and paid for at the Contract Unit Price per square metre for "Supply and Install Pavement Repair Fabric". The area to be paid for will be the total number of square metres of Pavement Repair Fabric, supplied and installed in accordance with this specification, accepted and measured by the Contract Administrator.

E13.12.2 Only material placed within the designated limits will be included in the payment for "Supply and Install Pavement Repair Fabric".

E13.12.3 No measurement or payment will be made for Pavement Repair Fabric removed and replaced due to improper installation or damaged materials.

E13.12.4 No measurement or payment will be made for transverse and longitudinal overlap.

### **E14. PARTIAL DEPTH PATCHING OF EXISTING JOINTS**

#### DESCRIPTION

E14.1 General

E14.1.1 This specification covers the Partial Depth Patching of existing concrete pavement joints.

E14.2 Referenced Standard Construction Specifications

- (a) CW 3230 – Full-Depth Patching of Existing Slabs and Joints
- (b) CW 3410 – Asphalt Concrete Pavement Works

#### MATERIALS

E14.3 Asphalt Materials

E14.3.1 Asphalt material will be Type 1A supplied in accordance with Sections 5 and 6 of CW 3410.

E14.4 Tack Coat

E14.4.1 Tack Coat will be undiluted SS-1 emulsified asphalt.

#### CONSTRUCTION METHODS

E14.5 Planing of Joints

E14.5.1 Plane existing joints designated by the Contract Administrator to a minimum depth of 50 mm and a maximum of depth 90 mm to remove ravelled or deteriorated concrete. Width of joint to be planed will vary with depth.



- E14.5.2 Should the depth of joint deterioration exceed the maximum indicated, as determined by the Contract Administrator, the entire joint shall be renewed and paid for in accordance with CW 3230 as a full depth joint repair. Planing completed shall be paid for in accordance with Section E14.7 of this specification.
- E14.5.3 Dispose of material in accordance with Section 3.4 of CW 1130.
- E14.6 Placement of Asphalt Material
- E14.6.1 Prior to placement of asphalt material, the planed joint shall be swept or blow clean of any loose material.
- E14.6.2 Apply Tack Coat uniformly on the entire surface of the planed joint. The application rate shall not exceed 0.23 litres per square metre. The planed joint shall be dry prior to applying the tack coat.
- E14.6.3 Place and compact asphalt material in accordance with Section 9.3 of CW 3410 to the satisfaction of the Contract Administrator. The finished elevation of the patch shall be flush with surrounding pavement surface.
- E14.6.4 Compact the asphalt material to an average 95% of the 75 blow Marshall Density of the paving mixture with no individual test being less than 90 %.
- E14.6.5 Ensure that no traffic is allowed to travel over the patched area until the asphalt has cooled to atmospheric temperature.

#### MEASUREMENT AND PAYMENT

- E14.7 Partial Depth Planing of Existing Joints
- E14.7.1 Partial Depth Planing of Existing Joints will be measured on an area basis and paid for at the Contract Unit Price per square metre for "Partial Depth Planing of Existing Joints". The area to be paid for will be the total number of square metres of joints planed in accordance with this specification, accepted and measured by the Contract Administrator.
- E14.8 Asphalt Patching of Partial Depth Joints
- E14.9 Asphalt Patching of Partial Depth Joints will be measured on an area basis and paid for at the Contract Unit Price per square metre for "Asphalt Patching of Partial Depth Joints". The area to be paid for will be the total number of square metres of joints patched in accordance with this specification, accepted, and measured by the Contract Administrator.

### **E15. ADJUSTMENT OF SPRINKLER HEADS AND/OR DRAINAGE PIPE**

#### DESCRIPTION

- E15.1 Further to CW 3210, this Specification covers the adjustment of existing sprinkler heads and/or drainage pipe within the City of Winnipeg right-of-way to match proposed boulevard grading requirements.

#### MATERIALS

- E15.2 Sprinkler Heads and Irrigation Pipe
- E15.2.1 If, in the opinion of the Contract Administrator new irrigation piping is required it shall be Series 100, High Density Polyethylene pipe and conform to CSA B137.0 and B137.1, CGSB-41-GP-25m and ASTM D-1248-78. Fittings shall be approved brass saddle fittings at head connections and socket-fusion external fittings at pipe connections. All fittings will be sized to fit pipe diameter and of a pressure rating equal to or better than adjacent pipe. Three elbow swing joints shall be unplasticized schedule 80 threaded PVC pipe and schedule 40 fittings.

## CONSTRUCTION METHODS

- E15.3 Contractor to locate and mark existing sprinkler heads and irrigation piping prior to undertaking any excavations of boulevards
- E15.4 Contractor shall verify with Contractor Administrator that existing sprinkler heads and piping are functional prior to any grade adjustments.
- E15.5 Raise or lower existing sprinkler leads and relocate up to 2.0 metres to match finished grade of grassed area. Ensure sprinkler head is plumb and maintain existing sprinkler head direction.
- E15.6 Adjust existing irrigation lines to maintain existing cover requirements. The Contractor may be required to lower or raise irrigation lines or supplement with additional length of pipe. Pipe material to match or exceed existing pipe material.
- E15.7 Contractor is responsible to replace any damaged sprinkler heads or irrigation lines as a result of construction activities.
- E15.8 Upon completion of adjustments after final acceptance of sodded areas, the Contractor shall arrange for the inspection sprinkler heads and irrigation system with the Contract Administrator to ensure proper functioning of system.
- E15.9 Contractor to repair any deficiencies to the satisfaction of the Contract Administrator.

## MEASUREMENT AND PAYMENT

- E15.10 Adjustment of Sprinkler Heads and/or Drainage Pipe
  - E15.10.1 Adjustments of existing sprinkler heads and/or drainage pipe will be measure on a unit basis and paid for at the Contract Unit Price per unit for "Adjustment of Sprinkler Head and/or Drainage Pipe". The number of units to be paid for will be the total number of sprinkler heads and/or drainage pipe adjusted in accordance with this specification, accepted and measured by the Contract Administrator.
- E15.11 Replace Existing Sprinkler Pipe
  - E15.11.1 Replacement of existing sprinkler pipe will be measured on a linear metre basis and paid for at the Contract Unit Price for "Replace Existing Sprinkler Pipe". The length to be paid for shall be the total number of metres of pipe supplied and installed in accordance with this Specification, accepted and measured by the Contract Administrator.

## **E16. HYDRO EXCAVATION**

### DESCRIPTION

- E16.1 This specification shall cover the works and locations as directed by the contract administrator for the removal of earthen material immediately adjacent to underground utilities infrastructure by means of high pressure water spray, and the recovery of excavated material by vacuum type means or equivalent method as approved by the Contract Administrator.

### EQUIPMENT

- E16.2 Hydro-Excavation equipment shall be capable of maintaining a minimum working pressure of 10,000 psi, at a rate of flow of 10 to 12 gallons per minute. The unit should be adjustable, so as to provide adequate pressure to remove earthen material identified by the Contract Administrator.
- E16.3 Spray head shall be equipped with a rotating type nozzle in order to provide a wider path of cut.

### CONSTRUCTION METHODS

- E16.4 Hydro-Removal of Earthen Material

E16.4.1 Earthen material adjacent to utility entity shall be sprayed with high pressure water so as to remove all such material identified by the Contract Administrator.

E16.5 Recovery of Excavated Material

E16.5.1 The recovery of excavated material shall be done using a vacuum type method, or other type method as approved by the Contract Administrator.

E16.5.2 The recovery of material shall follow immediately behind the excavation, to avoid excavated areas from filling with excavated material.

E16.5.3 The use of mechanical sweepers will not be allowed.

E16.5.4 Dispose of material in accordance with Section 3.4 of CW 1130-R2.

**MEASUREMENT AND PAYMENT**

E16.6 Hydro-Excavation

E16.6.1 Hydro-Excavation of earthen material and its recovery and disposal will be paid for at the Contract Unit Price per hour for "Hydro Excavation", which price shall be payment in full for completing all operations herein described and all other items incidental to the work included in this Specification.

**E17. SOFT EXCAVATION TO EXPOSE UNDERGROUND UTILITIES**

E17.1 Description

E17.1.1 This specification covers the soft excavation to expose underground utilities to determine the depth of the underground utility and whether it will interfere with the installation of proposed Works on site.

E17.1.2 These underground utilities include, but are not limited to, Manitoba Hydro cables, MTS cables, CPR, existing sewers, and existing watermains.

E17.2 Materials

E17.2.1 Backfill Material

(a) Backfill material for backfill of shafts after hydro-excavation has been completed shall consist of sand as per City of Winnipeg Standard Construction Specification CW 2030.

E17.3 Construction Methods

E17.3.1 Prior to commencement of any construction works adjacent to underground utilities, the Contractor shall use soft digging or hand excavation to expose the underground utilities.

E17.3.2 Once the elevation of the top of the pipe or duct has been determined the resulting excavation shall be backfilled with bedding sand to the elevation of the existing ground.

E17.4 Measurement and Payment

E17.4.1 Soft excavation to expose underground utilities will be considered incidental to the Work. No measurement and payment will be made within this section.

**E18. SUPPLY AND INSTALL WATERMAIN AND WATER SERVICE INSULATION**

**DESCRIPTION**

E18.1 Notwithstanding 3.12 of CW 2110, this specification covers the supply and installation of insulation in roadway excavations over watermains and water services.

E18.2 Referenced Standard Construction Specifications

(a) CW 2030 – Excavation Bedding and Backfill

(b) CW 3110 – Sub –grade, Sub-base and Base Course Construction

E18.3 Referenced Standard Details

(a) SD-018 - Watermain and Water Service Insulation

**MATERIALS**

E18.4 Acceptable insulation is:

(a) Extruded Polystyrene rigid foam insulation – Type 4, 4” in thickness.

DOW - Roofmate or Highload 40

Owen’s Corning - Foamular 350 or Foamular 400.

2” X 48” X 96”, 2” X 24” X 96”, 4” X 24” X 96”

E18.5 Sand Bedding :

(a) In accordance with CW 2030

**CONSTRUCTION METHODS**

E18.6 Prior to the installation of any sub-base material or geotextile material, locate all existing water services. Further to SD-018, where directed by the Contract Administrator, excavate the sub-grade to allow the top of the insulation to be installed flush with the surrounding sub-grade. Install the insulation on a level surface centered over the located watermain or water service for the full width of the roadway excavation. Install sand bedding if required to level the surface. Stockpile and dispose of excavated material in accordance with CW 3110.

E18.7 Thickness of insulation is 100 mm ( 4”). If using 50 mm ( 2”) panels 2 layers are required. Total width of insulation to be as directed by the Contract Administrator. Place sufficient full width panels to meet or exceed the specified width.

E18.8 Place insulation panels adjacent to each other over the specified area with no gaps between panels and less than 15mm of elevation difference along the adjoined edges. Where 2” thick panels are being used, offset the top layer to prevent the panel joints from aligning with the joints in the lower layer.

E18.9 Use full panels of insulation where possible. Where necessary cut insulation panels to obtain coverage to specified lengths. Insulation pieces shall be a minimum of dimension of 300 mm in width or length.

E18.10 Take appropriate measures to ensure panels are not displaced when installing geotextiles and during backfilling operations.

**MEASUREMENT AND PAYMENT**

E18.11 Watermain and Water Service Insulation shall be measured on an area basis and paid for at the Contract Unit Price per square metre of “Watermain and Water Service Insulation”. The area to be paid for shall be the total square meters of watermain and water service insulation supplied and installed in accordance with this specification, accepted and measured by the Contract Administrator.

(a) Excavation of the roadway subgrade in accordance with CW3110, will not be measured for payment and will be included in the payment for “Watermain and Water Service Insulation”.

**E19. INSTALLATION OF STREET LIGHTING AND ASSOCIATED WORKS**

**E19.1 DEFINITIONS**

LIMITS OF APPROACH means the shortest distance that is permissible between live high voltage (>750 volts) conductors or apparatus and any part of a worker's body, material or tools being handled, or equipment operated.

MANITOBA HYDRO CENTRAL STORES means Manitoba Hydro's Waverley Service and Reclaim Centre - 1840 Chevrier Blvd - Winnipeg, Manitoba

OVERHEAD FEED means an electrical supply via an overhead conductor connected between streetlight standards. Typically strung between standards on a temporary basis.

OVERHEAD SOURCE means an electrical supply from Manitoba Hydro's system. (Typically an overhead conductor from a wooden distribution pole or a DIP/RISER located on a wooden distribution pole.)

RECLAIM material means existing material that has been removed from Manitoba Hydro's system and to be returned to Manitoba Hydro.

SCRAP material means existing material that has been removed from Manitoba Hydro's system and to be recycled/disposed of by the Contractor.

SURPLUS material means new material that has been requisitioned by the Contractor and not incorporated into the work at the end of the Contract.

WORK CLEARANCE means an ELECTRICAL AND/OR NATURAL GAS FACILITIES LOCATE form (see SAMPLE ONLY included as Appendix 'E') issued by each of Manitoba Hydro's Customer Service Centre (CSC) affected to permit work to commence (Permit to work).

## E19.2 DESCRIPTION

E19.2.1 The work shall consist of the supply of all supervision, labour, materials (except as indicated under MATERIAL SUPPLIED BY MANITOBA HYDRO below) insurance, tools, backfill and equipment (and their maintenance), transportation, fuel, oil, meals and lodging, mobilization and de-mobilization, and warranty of workmanship as required to install and remove temporary Overhead Feeds, remove existing street light poles as required, install new street light poles and associated underground cables/conduits, all in accordance with the requirements specified in the tender documents.

## E19.3 WORK LOCATIONS

E19.3.1 The proposed street light installation and removals are shown on construction drawings and are as follows:

- (a) BLACKWATER BAY
- (b) FLEURY PLACE
- (c) ROSEWARNE AVENUE

## E19.4 COORDINATION OF WORK

E19.4.1 The Contractor shall provide a minimum of ten (10) working days notice to Manitoba Hydro prior to the start of construction. The work shall be conducted and coordinated with Manitoba Hydro in a manner to ensure street lighting is maintained at all times for the duration of the work. The construction drawings provide the Proposed Sequence of Construction.

E19.4.2 The Contractor shall obtain Work Clearance from Manitoba Hydro's Customer Service Centre(s) (CSC) affected prior to the work commencing. No additional compensation shall be paid to the Contractor for delays obtaining Work Clearance for any reason.

E19.4.3 Manitoba Hydro's CSC will provide the Limits of Approach applicable to the Contractor on the Work Clearance form.

## E19.5 ORIENTATION

E19.5.1 Prior to the commencement of the proposed work, the Contractor's crew foremen, electricians, and other key personnel shall attend one (1) day of orientation provided by Manitoba Hydro for various operations such as cable handling, cable splicing/termination, installation of street light poles, concrete bases, luminaires and various other construction standards and procedures. The Contractor will be responsible for all costs associated with personnel salaries, travel, sustenance and overheads, etc., during training.

## E19.6 PRE-CONSTRUCTION MEETING

E19.6.1 Prior to the commencement of the work, the Contractor shall attend a pre-construction meeting with Manitoba Hydro. The agenda for this meeting shall include but not be limited to the following:

- (a) Reference the Contractor's Safe work Procedures;
- (b) Prime Contractor;
- (c) materials;
- (d) sequence of construction;
- (e) communication plan;
- (f) any training requirements & qualifications;
- (g) Drawing and Project review;
- (h) a review of the Contractor's proposed work schedule; and
- (i) any and all other topics of clarification that the Contractor and the Contract Administrator may wish to discuss.

E19.6.2 The Contractor's cost to attend this pre-construction meeting shall be incorporated into the unit prices for the work.

## E19.7 QUALIFICATIONS AND CERTIFICATION

E19.7.1 The Contractor's Crew Foreman, installers and other key Contractor's Personnel shall possess the necessary certification, licensing, training, experience and familiarity with safety rules, procedures and hazards relating to the work. Journeyman Power Line Technician (PLT), Journeyman Lineman, Journeyman Cableman or Journeyman Electricians shall be required to perform portions of this work.

E19.7.2 Journeyman Power Line Technician (PLT), Journeyman Cableman and Journeyman Lineman are also required to possess a "Limited Specialized Trade Licence – 'M-P' Licence – Power Line" issued by the Province of Manitoba.

E19.7.3 Manitoba "Safe work" Bulletin M&E010 dated January 5, 2011 regarding Electrician Licenses discusses the requirements for a "Limited Specialized Trade Licence – 'M-P' Licence – Power Line".

For more information contact:  
Manitoba  
Mechanical and Engineering Branch  
500-401 York Avenue  
Winnipeg, Manitoba R3C 0P8  
Tel. 204-945-3373  
Fax 204-948-2309

E19.7.4 Licensed Journeyman Electricians or Journeyman PLT or Journeyman Cableman or Journeyman Lineman ARE REQUIRED for all cable handling operations included but not limited to: disconnecting cables in the handhole, installation and removal of temporary overhead feeds, installation and connection of ground rods, streetlight cable splices, termination of streetlight cables in handholds and at luminaires. The Contractor shall employ sufficient qualified personnel on its crews to conform to the Electrician's Licensing

Act. The Contractor shall be prepared to provide proof of licences to Manitoba Hydro upon request.

E19.7.5 The Contractor shall assess the hazards associated with the work and have documented Safe work Procedures to perform the work. It is the Contractor's responsibility to train employees on these procedures. The Contractor shall be prepared to provide proof of training to Manitoba Hydro upon request.

E19.8 REFERENCED STANDARD CONSTRUCTION SPECIFICATIONS

E19.8.1 In addition to these Specifications, the work to be performed by the Contractor relative to the installation and/or replacement of street lighting poles, concrete bases and associated cabling shall be in accordance with the following:

- (a) Manitoba Hydro 66kV and Below Standards;
- (b) CSA C22.3 No. 7 (latest edition);
- (c) Canadian Electrical Code (CEC) Part 1 (latest edition); and
- (d) Any other applicable codes
- (e) (collectively, the "Standards")

E19.8.2 Revisions and updates to the Manitoba Hydro 66kV and Below Standards are issued periodically and the latest issued version of the Standard will apply. For the convenience of the Contractor for bidding purposes, excerpts of the Manitoba Hydro 66kV and Below Standards have been included as Appendix 'B'.

E19.8.3 In some cases, Municipal, Provincial or Federal laws or this Technical Specification may be more stringent than the CSA Standards. Whenever conflict exists, the Contractor shall comply with the most stringent requirements applicable at the place of the work.

E19.9 TOOLS, EQUIPMENT AND MATERIALS

E19.9.1 The Contractor shall be required to provide all tools and equipment required for performing the specified tasks. Equipment shall be in good operating condition, shall be properly maintained using original equipment manufacturer replacement parts and shall be provided with letters of testing/inspection from the manufacturer when requested. Where the equipment is provided as a kit with multiple parts and tools, the kit shall be complete with all parts required to perform the designed task. Contractor fabricated tools or equipment will not be accepted for use.

E19.9.2 The Contractor shall obtain the following specific Electrical Equipment including but not limited to:

- (a) Compression tool or tools and associated dies to perform compressions to a maximum size of 1/0 Al (MD-6 compression tools shall not be used).
- (b) Approved compression tools are:

Manufacture	Type	Model No.	Range
Burndy	In-line, battery	PATMD68-14V	350 Kcmil AL
Cembre	In-line, battery	B54Y (06V081E)	4/0 AWG AL
Burndy	Pistol, battery	BUR PAT60018V	350 Kcmil AL

E19.9.3 Dies shall be of the type shown in Standard CD210-21 and CD 210-24 only, must have identical markings, and compression tool die must match die number stamped on connector.

- (a) Modiewark Model #4444 or Fluke 1AC-II Volt Alert potential Indicator
- (b) Voltage meter – Fluke model #T3C
- (c) Insulated wire cutters – used for cutting cable ends square.

E19.9.4 Alternative equipment manufacturers may be considered upon request by the Contractor and shall be approved for use by Manitoba Hydro prior to use.

E19.9.5 Manitoba Hydro may reject any tools or equipment that do not appear to be in good condition or fail to successfully provide the required function.

#### E19.10 MATERIAL SUPPLIED BY MANITOBA HYDRO

E19.10.1 Manitoba Hydro shall supply all street light poles, concrete bases, breakaway bases, luminaires, street light arms, ground rods, compression sleeves, grommets, nuts, electrical cables, conduits, relays, cable guards, Gel-caps and all other materials noted in the Standards. The Contractor shall sign receipts indicating the location on which the materials are to be used. The material shall be picked up by the contractor from the following locations:

E19.10.2 Manitoba Hydro Central Stores (contact personnel will be provided to the successful contractor).

E19.10.3 Materials requested will be supplied to the Contractor by Manitoba Hydro upon presentation of Manitoba Hydro's Stores Material Order Form. The Contractor shall assume all responsibilities for the loading, unloading, transportation, proper handling, secure storage and working of the materials and shall make replacements at its own expense in case any material is damaged, stolen or lost due to improper handling, storage or poor workmanship.

E19.10.4 The Contractor shall, at the time of materials release, check and confirm the quantity of materials. Shortages, discrepancies, or damages to materials shall be immediately reported in writing to Manitoba Hydro.

E19.10.5 After commencing performance of the work, the Contractor shall continually monitor all material required for the timely completion of the work and shall report additional material requirements to Manitoba Hydro a minimum of 72 hours prior to materials being required to perform the work. No additional compensation shall be paid as a result of delays due to material shortages where additional material requirements were not reported a minimum of 72 hours prior to being required for the work on an active project.

#### E19.11 MATERIAL SUPPLIED BY CONTRACTOR

E19.11.1 The Contractor shall be responsible to furnish gravel, sand, ¾" down limestone, ¼" down limestone, protective hose (i.e. typically 2" fire hose), duct seal and pit-run material for backfilling around street light poles and around cables as per the Standards. The cost of furnishing the above listed materials shall be incorporated into the unit prices for the work.

#### E19.12 SURPLUS, RECLAIM AND SCRAP MATERIAL

E19.12.1 Upon completion of the work, the Contractor shall, at its own expense, deliver to Manitoba Hydro Central Stores, all Surplus materials furnished by Manitoba Hydro and not used in the work, regardless of the location of said material at that time.

E19.12.2 In addition, the Contractor shall, at its own expense, deliver to Manitoba Hydro Central Stores all Reclaim materials from the work specifically HPS luminaires. Manitoba Hydro shall be responsible for the proper disposal of Reclaim HPS luminaires. The HPS bulb shall remain installed and unbroken in the Reclaim luminaire. The Contractor shall handle the Reclaim luminaires with care and shall avoid breaking the bulb or refractor.

E19.12.3 Manitoba Hydro's preference is to recycle as much Scrap Material as practicable. The Contractor is responsible to remove the Scrap Material, transport to the recycler or Manitoba Hydro approved disposal site, pay for any disposal fees and may retain any recycling value.

#### E19.13 DE-ENERGIZATION AND LOCKOUT

E19.13.1 **Manitoba Hydro** - Where a standard is supplied from an Overhead Source, Manitoba Hydro's staff shall be responsible to disconnect and isolate the street light standard or



standards between the standard and Overhead Source. Some street light standards may be temporarily fed from an Overhead Source. This Overhead Source shall be disconnected and removed by Manitoba Hydro staff prior to commencing with the work. The streetlight circuits will not be Locked Out by Manitoba Hydro.

E19.13.2 **The Contractor** - The Contractor shall assess the hazards associated with the work and employ its own Safe Work Procedure for the work to be performed. The Contractor's Safe Work Procedure shall include provisions that the street light circuits will not be Locked Out by Manitoba Hydro. The Contractor's Safe Work Procedure shall achieve Lock Out or techniques equivalent to Lock Out.

E19.13.3 The Contractor shall complete a job planning form (an example is included as Appendix 'F') on a daily basis before any work commences and provide Manitoba Hydro with copies of the job plans if requested.

#### E19.14 TEMPORARY OVERHEAD FEEDS

E19.14.1 Manitoba Hydro in consultation with the Contractor will determine if temporary lighting will be provided by the existing street lights or from the new street lights.

E19.14.2 When using the existing poles for temporary lighting, Manitoba Hydro shall remove an Overhead Source in accordance with DE-ENERGIZATION AND LOCKOUT section above, prior to the Contractor installing a #4 duplex overhead conductor between the existing poles. The #4 duplex overhead conductor will normally be attached to the tenon of the davit arm near the luminaire with a pre-form grip. Older poles may require a spool insulator be attached to the pole using a pre-form grip to support the #4 duplex overhead conductor. A short length of 2C/#12 copper conductor is connected to the terminals of the luminaire brought out and connected to the #4 duplex overhead conductor. The final span to the Overhead Source shall be installed by Manitoba Hydro.

E19.14.3 When using the new poles for temporary lighting, the Contractor shall install the new bases, poles and #4 duplex overhead conductor. The #4 duplex overhead conductor will be attached to the tenon of the davit arm near the luminaire with a pre-form grip. A short length of 2C/#12 copper conductor is connected to the terminals of the luminaire brought out and connected to the #4 duplex overhead conductor. The final span to the Overhead Source shall be installed by Manitoba Hydro.

E19.14.4 All material used to provide the temporary overhead feed shall be returned to Manitoba Hydro. Care shall be taken to coil and tag Reclaim conductor for reuse. If used, insulators shall be handled carefully to prevent breakage.

#### E19.15 SAFE EXCAVATION

E19.15.1 The work shall be performed in accordance with the requirements of Manitoba Hydro's Safe Excavation and Safety Watch Guidelines (latest revision) included as Appendix 'C' and Manitoba Workplace Safety and Health Regulation 217 latest revision.

#### E19.16 SAFE HANDLING

E19.16.1 The Contractor shall apply handling techniques in accordance with Manitoba Workplace Health and Safety Regulation 217 (latest revision).

#### E19.17 ELECTRIC CABLES AND CONDUITS

- (a) The Contractor shall use diligent care and proper equipment in handling of all cables, so as not to injure the jacket and avoid gouging, kinking, scratching or abrading the cables. If any material is damaged to any extent, the Contractor shall repair the damages at its own expense, in a manner approved by Manitoba Hydro or will be charged the full cost of the damaged items.
- (b) Cable reels shall not be dropped and must be handled and placed/stored in an upright position at all times and shall not be laid flat for any purpose or reason. Cable reels shall be adequately supported on hard surface to prevent the reel from sinking into the ground that can cause undue stress on the cables. Cable reels should be inspected for damages prior

to use. If a cable reel is found to be defective, such defect shall be reported immediately to Manitoba Hydro.

- (c) The Contractor shall place all material and string the cables in such a manner as to cause the least interference with normal use of the land, street or roadway. All material shall be unloaded in a manner to preserve its condition, prevent loss and/or theft and permit easy access for Manitoba Hydro's inspection.
- (d) The Contractor shall provide Manitoba Hydro's inspector sufficient opportunity, in the sole discretion of Manitoba Hydro, to inspect the work.

#### E19.18 PRECAST CONCRETE BASES

E19.18.1 The Contractor shall handle, store, transport and unload the precast concrete bases in a manner to prevent damage to the threaded bolts and conduit casing.

E19.18.2 Precast Concrete Bases are extremely heavy. Approximate weight of pre-cast concrete bases are found in the Standards. The Contractor shall only use equipment rated for such weight.

#### E19.19 STREET LIGHT POLES AND ARMS

E19.19.1 The Contractor shall handle, store, transport, and provide proper load securement for the poles and arms in a manner to prevent damage.

#### E19.20 LUMINAIRES

E19.20.1 The Contractor shall handle, store, transport and unload the luminaires in their original packaging and in a manner to prevent damage.

#### E19.21 SMALL MATERIAL

E19.21.1 Photo electric cells, shorting caps, shims, nut covers and associated supplies shall be kept in a suitable warehouse provided by the Contractor at its own expense. Photo electric cells shall be transported and stored in such a manner as to prevent breakage.

#### E19.22 CARE OF MATERIALS

E19.22.1 The Contractor shall assume all responsibilities of all the materials and shall replace, at its own expense, any materials damaged, stolen or lost due to improper handling or poor workmanship.

#### E19.23 WIRE AND CABLE REEL STORAGE

E19.23.1 Cable reels shall be stored with the flanges upright and resting on a hard surface. At temporary storage sites where the soil may be soft, preservative-treated plywood sheets may be used to keep the flanges from sinking into the ground.

E19.23.2 If cable reels must be pancaked or stored on their side in vertical racks, do not lift the reel by the top flange. Spacers (two 2 X 4s placed wide side up) should be placed under the bottom flange and between the reels in order to create a space to insert the forks and lift the reels without damaging the cable.

#### E19.24 REEL HANDLING

E19.24.1 When off-loading reels from a truck, reels shall be lowered using a hydraulic gate, hoist or forklift truck. When a reel is rolled from one point to another, care must be taken to see that the reel does not straddle objects such as rocks, pipes, curbs or wooden blocks which could damage the cable or protective covering. A reel should always be rolled on hard surfaces to avoid sinkage and in the opposite direction to the cable wraps to ensure that the reel is rolled in such a direction as to tighten the cable on the reel.

E19.24.2 When using a hoist, install a mandrel through the reel arbour hole and attach a sling. Use a spreader bar approximately 6 inches longer than the overall reel width placed between the

sling ends just above the reel flanges. This will prevent bending of the reel flanges and damage to the cable.

E19.24.3 If a forklift is used to move a reel, the reel is to be approached from the flange side. Position the forks such that the reel is lifted by both reel flanges. The lift forks shall not contact the cable.

E19.24.4 Returnable reels shall be returned promptly to Manitoba Hydro Central Stores and in no case later than three (3) days after the completion of the work unless otherwise mutually agreed between the Contractor and Manitoba Hydro.

#### E19.25 PRESSURIZED WATER/VACUUM EXCAVATION

E19.25.1 Pressurized water/vacuum excavation (PW/VE) shall be used to daylight all buried utilities and structures where excavation by other mechanical means would be expected to provide a physical risk to that utility or structure.

E19.25.2 The work shall be performed in accordance with the requirements of Manitoba Hydro's Safe Excavation and Safety Watch Guidelines (latest revision) included as Appendix 'C'.

#### E19.26 REMOVAL STREET LIGHT POLE FROM EXISTING BASE

E19.26.1 This shall include all work required to remove a street light pole from an existing base as set forth in this Technical Specification. The pole may be on an existing precast concrete base, steel power installed screw base or poured in place concrete base.

E19.26.2 The Contractor shall furnish all labour, supplies and materials (except as indicated in the Section "MATERIAL SUPPLIED BY MANITOBA HYDRO") necessary for the removal of the street light pole from the existing base. Care shall be taken to preserve the luminaire. The luminaire shall be reinstalled on the new street light pole or returned to Manitoba Hydro's stores as instructed by the Manitoba Hydro.

E19.26.3 The Contractor shall be responsible to transport all Surplus and Reclaim materials to Manitoba Hydro Central Stores and transport and dispose of all Scrap material as set forth in this Specification.

#### E19.27 REMOVAL OF BASE AND DIRECT BURIED STREET LIGHT POLE

E19.27.1 This shall include all excavation, whether by auger, pressurized water/vacuum excavation, by hand, or by other methods which may be necessary to remove a base or direct buried street light pole. The base may be poured in place concrete, steel power installed or precast concrete.

E19.27.2 The Contractor shall be responsible to transport all Surplus and Reclaim materials to Manitoba Hydro Central Stores and transport and dispose of all Scrap material as set forth in this Specification.

E19.27.3 The Contractor is responsible to supply all backfill material as specified in the Standards and carry out all backfill, compacting and leveling of all excavations and voids for removed bases and direct buried street light poles so as to be ready for top soil and seed or sod or as directed by Manitoba Hydro.

#### E19.28 INSTALLATION OF FOUNDATION - CONCRETE BASE

E19.28.1 This shall include all excavation, whether by auger, pressurized water/vacuum excavation, by hand, or by other methods which may be necessary to replace or install a concrete base as set forth in this Specification.

E19.28.2 The Contractor shall furnish all labour, supplies and material (except as indicated in the Section "MATERIAL SUPPLIED BY MANITOBA HYDRO") necessary to install a new or replace a concrete base. Excavation for the precast concrete base shall be to a diameter and depth specified in Standard CD 300-6. All excess material is to be removed by the Contractor.

- E19.28.3 The concrete base shall be set on a bed of  $\frac{3}{4}$ " down limestone. The concrete base backfill material shall be compacted in lifts no more than 150 mm. Backfill material shall be  $\frac{3}{4}$ " down limestone. Compacting of backfill material shall be done using a hydraulic tamper. Alternative tamping methods shall be approved by Manitoba Hydro. Underground cables entering the concrete base shall be protected by a length of protective hose supplied by the Contractor and a layer of sand surrounding the cables to protect it from the limestone. The concrete base shall be installed level in all 4 directions. Final grade must be established prior to installing the concrete bases.
- E19.28.4 The completed backfill shall be at least equal in compaction to undisturbed soil, as required by the Municipal authorities or elsewhere in this Specification. The Contractor shall level all excavations.
- E19.28.5 Should settlement occur in the excavation and cause a depression in the surface, the Contractor shall repair the surface. Placing of additional backfill material due to settlement shall be at the Contractor's expense.
- E19.28.6 The concrete base shall be oriented in the proper direction to allow the easy entrance of the underground cables into the plastic pipe preinstalled in the concrete base. Care shall be taken to prevent damage to the insulation or jacket of the conductors. The cable shall be left long enough to extend one (1) metre beyond the top of the hand hole.
- E19.29 BASE MOUNTED STREET LIGHT POLES**
- E19.29.1 This shall include all work required to install the street light pole on the concrete base as set forth in this Specification.
- E19.29.2 The Contractor shall furnish all labour, supplies and material (except as indicated in the Section "MATERIAL SUPPLIED BY MANITOBA HYDRO") necessary for the installation of the pole (straight shaft or davit) on the concrete base.
- E19.29.3 Unless otherwise specified on the construction drawings, the Contractor shall orient the poles so that the hand hole is on the left side of the pole when viewed from the road. A worker should be able to see oncoming traffic when working in the hand hole.
- E19.29.4 The Contractor shall level the street light pole in all 4 directions. Leveling shims may be used.
- E19.29.5 Tightening of bolts shall be performed in a manner that brings the surfaces up evenly. All nuts shall be tightened and torqued in accordance with Standard CD 300-9. The Contractor shall install the nut covers included with the pole.
- E19.29.6 Unless otherwise specified, excess underground cable and 2C-12 wire shall be left inside the hand hole with the hand hole cover loosely installed.
- E19.29.7 Existing street light poles may have street signs attached. The Contractor shall remove the signs from the existing pole and temporarily reattach the signs to the new pole. The Contractor shall notify Manitoba Hydro of the location where the signs have been removed.
- E19.30 LUMINAIRES AND ASSOCIATED WIRING**
- E19.30.1 The Contractor shall furnish labour, supplies and material (except as indicated in the Section "MATERIAL SUPPLIED BY MANITOBA HYDRO") necessary to install the luminaire and associated wiring. Unless otherwise specified, the luminaire shall be installed with a tilt of zero (0) degrees. The Contractor shall install a length of 2 conductor No. 12 gauge (2C-12) wire from the terminals of the luminaire, through the arm (if applicable), down the pole to the hand hole. One (1) metre of 2C-12 wire shall be left at the hand hole. Impact equipment (air or electric) shall not be used to tighten luminaire mounting bolts. The Contractor shall be liable for damage due to over tightening.
- E19.30.2 The Contractor shall verify the luminaire voltage matches the source voltage as shown on the construction drawings. If luminaire voltage does not match the source voltage, the Contractor shall re-wire the luminaire in accordance with the wiring diagram provided.  
NOTE: Not applicable for LED luminaires.

- E19.30.3 As specified on the construction drawings, the luminaire will require either a photo electric cell (PEC) or shorting cap installed. When installing the PEC the eye shall be oriented north. The Contractor shall also install the appropriate wattage bulb in the luminaire.  
NOTE: Bulb installation not applicable for LED luminaires.

#### E19.31 BREAK AWAY BASES

- E19.31.1 Break away bases shall be installed in accordance with Standard CD 300-10. The height of the concrete base above grade shall not exceed 50mm. The surface of the concrete base shall be flat and level. A reaction plate shall be installed between the concrete base and the break-away base.
- E19.31.2 The Contractor shall torque the couplers in accordance with Standard CD 300-10. Impact tools shall not be used to tighten or torque couplers or nuts associated with a break away base.

#### E19.32 SPLICING/CONNECTING CABLES

- E19.32.1 The electric cable shall be spliced/terminated as per Standards CD 215-12, CD 215-13, CD 310-1, CD 310-4, CD 310-9 and CD 310-10 with the exception that the Contractor will use a GELCAP-SL-2/0 splice kit (See Appendix 'D'). Termination in the hand hole may include the installation of an inline fuse holder.
- E19.32.2 The Contractor shall furnish all labour, supplies and material (except as indicated in the Section "MATERIAL SUPPLIED BY MANITOBA HYDRO") necessary to splice/terminate the street light conductor(s).

#### E19.33 EXCAVATION

- E19.33.1 The Contractor shall furnish all labour, supplies and material (except as indicated in the Section "MATERIAL SUPPLIED BY MANITOBA HYDRO") necessary for the completion and maintenance of grade and line of the street light cables and conduit including water control if found to be necessary. The trench shall be graded to conform to the street light cables and conduit so that the street light cables and conduit rest firmly on a smooth surface throughout its length. All stones or other objects which, in the opinion of Manitoba Hydro might damage the street light cable jacket and conduit shall be removed. Where the presence of rock or other condition prevent a satisfactory bed for the cables, 150 mm of well-tamped, clean soil or ¼" down crushed limestone shall be placed in the bottom of the trench. In this case, the spoil bank from trenching operations shall not be allowed to fall into the trench or mix with the soil to be used in backfilling the trench. Loose debris or foreign matter and the spoil bank shall be placed so as not to hinder drainage, damage property, or obstruct traffic.
- E19.33.2 Trenches shall be dug to such a depth that will provide a minimum cover of 600 mm from final grade in sodded areas and 1000 mm in roadways in accordance with Standard CD 305-1.

#### E19.34 LAYING CABLES

- E19.34.1 Cables are to be lowered in the trench in an orderly fashion so as to maintain a consistent path and straight alignment. All cables shall be lowered in a continuous run (NO SPLICING) and in accordance with the construction drawings; and shall maintain the necessary separation, where required. All cables shall be of continuous runs and capped and sealed if they are not being installed in the pole at that time. Cables shall not be dragged over paved surfaces.
- E19.34.2 Once a cable is cut its ends must be sealed immediately with an approved and appropriately sized, heat shrink or cold shrink sealing cap to prevent moisture ingress unless the cable is being installed in the pole at that time.
- E19.34.3 During the removal of the cable, the reels shall be placed on jacks, stands or trailers with a bar through the arbour holes which will allow the reel to be turned easily, and the cable to be paid out. Cables can be paid out from the bottom or the top of the reel. Cable in coils

shall be handled in a similar manner. This can be achieved by supporting the coil in a vertical plane and rotating it by hand as the cable is carefully uncoiled. The cable shall never be pulled over the flange of a reel, or pulled off the side of a coil, since this will introduce a twist in the cable.

E19.34.4 During installation, under no circumstance is the cable to be subjected to a bending radius tighter than that detailed in the Standards.

E19.34.5 Where specified in the Standards or on the construction drawings, the Contractor shall install the street light cable in a conduit.

#### E19.35 INSTALLING CONDUIT AND CABLE BY BORING (HORIZONTAL DIRECTIONAL DRILLING)

E19.35.1 The Contractor shall dig the approaches and openings necessary to install boring equipment, and the boring equipment used shall be of such a nature as to minimize the opening size required. The boring equipment shall produce a straight hole without unnecessary dips or bends. The bore hole shall be only slightly larger than the outside diameter of the conduits or cables to minimize possible settlement. Cables and conduits shall be pulled in with pulling eyes or using a killum grip in a manner so as to guard against damage.

E19.35.2 During construction as the drill bit crosses each existing facility a lookout shall be assigned by the Contractor to visually confirm the drill bit is maintaining a minimum 300 mm clearance from the existing facility all in accordance with Manitoba Hydro Safe Excavation and Safety Watch Guidelines (latest revision) included as Appendix 'C'. Maximum pulling tensions on any streetlight cable shall be limited to 2.9 kN/0.65 kips.

E19.35.3 Drilling fluids and associated waste materials shall be disposed of in a manner that minimizes environmental effects.

E19.35.4 The Contractor shall properly compact the backfill material and will be responsible for placing additional material should settlement occur for the duration of the warranty period.

#### E19.36 BURIED UTILITY CROSSINGS

E19.36.1 All buried obstructions are not necessarily shown on the reference drawings and the locations of those indicated are approximate only.

E19.36.2 The Contractor shall determine the location of all buried obstructions and shall notify the appropriate authorities and obtain all necessary permits prior to excavation, trenching and directional drilling near or across such obstructions. All buried obstructions where the new buried cable route crosses other utilities including but not limited to gas, water, sewer, telephone and electric lines shall be exposed as per each utilities guidelines by the Contractor, including the use of Pressurized Water/Vacuum Equipment (PW/VE) where necessary. Should any damage occur to such lines during the course of the work, the Contractor shall be responsible for the damage and the costs of repairs to buried obstructions caused by its operations and shall fully indemnify the City of Winnipeg and Manitoba Hydro from and against all claims arising out of such damage. Manitoba Hydro Safe Excavation and Safety Watch Guidelines (latest revision) included as Appendix 'C' shall be followed when crossing natural gas pipelines and electrical cables by the directional boring method.

E19.36.3 The PW/VE technique, used to expose underground plant in certain conditions, must be performed in accordance with each utility's requirements, including but not limited to Manitoba Hydro, Manitoba Telecom Services, Shaw Cable, etc. PW/VE costs that the Contractor will incur during the work must be factored into the Contractor's bid prices. The Contractor shall not be entitled to extra compensation for the use of PW/VE on the work.

E19.36.4 The Contractor shall be responsible to supply all backfill material and carry out all backfill, compacting and leveling of all excavations so as to be ready for topsoil and seed or sod or as directed by Manitoba Hydro.

## E19.37 BENDING CABLES/CONDUITS AND INSTALLATION INTO STANDARDS

- E19.37.1 It is desired to reduce to a minimum the required number of bends and to lay the cables/conduits to conform to the contour of the ground and maintain a normal covering. This shall be accomplished by cutting the trench slightly deeper in approaches to road crossings and drainage ditches. It is intended that the Contractor shall eliminate unnecessary bending by operating the trenching machine at various depths rather than by finishing grading the trench by hand whenever practical.
- E19.37.2 Sharp bends of the cables/conduits shall be avoided at all times. All bends shall meet the requirements set out in this Specification. If excessive bending was exerted on any cable, the cable shall be replaced at the Contractor's cost. During installation, under no circumstance is the cable to be subjected to a bending radius tighter than that detailed in the Standards. At street light poles the Contractor shall install the ends of the cables into the plastic pipe preinstalled in the concrete base. Care shall be taken to prevent damage to the insulation or jacket of the conductors. Underground cables entering the concrete base shall be protected by a length of protective hose supplied by the Contractor and by a layer of sand surrounding the cables to protect it from the limestone. The cable shall be left long enough to extend one (1) metre beyond the hand hole. The street light cable in the trench shall be installed in conduit for mechanical protection and the ends sealed with duct seal supplied by the Contractor. Care shall be taken to prevent damaging the cable where it exits the conduit. The conduit shall only be installed into the concrete base if conduit sizes make it practicable.
- E19.37.3 Unless otherwise directed, excess underground cable and 2C-12 wire shall be left inside the hand hole with the hand hole cover loosely installed.

## E19.38 BACKFILL

- E19.38.1 All backfilling material within 300 mm of the cables/conduits shall be clean, free of sod, vegetation, organic material, stones or other debris, and of a consistency as to not create significant voids or air spaces around the cables/conduits. Other backfilling material shall be free of stones greater than 150 mm on their maximum dimension. Where cinders or very acid soil are encountered or where gravel or incompressible fill is required by Municipal authorities, ¼" down crushed limestone shall be placed all around the cables for a depth of at least 300 mm. The completed backfill shall be at least equal in compaction to undisturbed soil or as directed by Manitoba Hydro. Backfill material is to be placed and compacted in lifts not exceeding 300 mm. All excess material is to be removed by the Contractor.
- E19.38.2 Tamping or flushing methods must be used where necessary to give the required compaction. Where tamping is used, hand tampers shall be used to at least 300 mm above the cable before machine tamping may be used. The Contractor shall level all excavations so as to be ready for topsoil and seed or sod or as directed by the Manitoba Hydro. Should settlement occur in the excavation and cause a depression in the surface, the Contractor shall repair the surface to the satisfaction of the Manitoba Hydro at the Contractor's cost.
- E19.38.3 Excavations remaining where poles have been removed shall be backfilled with spoil, pit run gravel or ¾" down limestone and compacted in lifts of 150mm as directed by Manitoba Hydro. The top 300 mm of the excavation shall be backfilled with topsoil.
- E19.38.4 Excavations remaining where utility crossings have been exposed shall be backfilled with sand or clean spoil and compacted in lifts of 150mm. The top 300 mm of the excavation shall be backfilled with topsoil.
- E19.38.5 Backfill of all excavations shall be in accordance with City of Winnipeg Standard Construction Specification CW 2030 (latest revision), to the satisfaction of the authority having jurisdiction and Manitoba Hydro.

## E19.39 DEFECTIVE WORK & WARRANTY

- E19.39.1 If any portion of the work fails to comply with the requirements of this Specification, fails within the Warranty period, or if the final tests prove or indicate the existence of any fault or

defect in the work, or any part thereof, Manitoba Hydro may forthwith re-execute or make good the faulty or defective work or alter the same to make it comply with requirements of the Specification at the Contractor's expense. Manitoba Hydro shall give the Contractor notice together with particulars of such failure, fault or defect, Manitoba Hydro's cost to re-execute or make good the faulty or defective work and the Cost shall be deducted from the Contract.

E19.39.2 At the completion of the work for each location, Manitoba Hydro shall prepare and issue a Network Commissioning Report, a sample of which is included as Appendix 'G', to the Contractor. The Network Commissioning Report shall be dated indicating the commencement of the Warranty period for the work performed at the location.

#### E19.40 AS-BUILT DRAWING

E19.40.1 The Contractor shall provide an as-built drawing or mark-up drawing to Manitoba Hydro which accurately displays the "as-built" location of the buried street light cables, conduits and street light poles.

#### E19.41 MEASUREMENT AND PAYMENT

E19.41.1 Removal of 25' to 35' street light pole and precast, poured in place concrete, steel power installed base or direct buried including davit arm, luminaire and appurtenances

(a) This pay item will be measured on a unit basis and paid for at the Contract Unit Price per unit for "Removal of 25' to 35' street light pole and precast, poured in place concrete, steel power installed base or direct buried including davit arm, luminaire and appurtenances". The number of units to be paid for at the Contract Unit Price shall be verified and accepted by Manitoba Hydro. The Price shall be payment in full for performing all operations herein described including removal of the pole, base, luminaire, appurtenances, use of pressurized water/vacuum excavation, transportation of Reclaim, Surplus and Scrap material, payment of associated disposal fees and all other items incidental to the work included in the Specification.

E19.41.2 Removal of 45' street light pole and precast, poured in place concrete, steel power installed base or direct buried including davit arm, luminaire and appurtenances

(a) This pay item will be measured on a unit basis and paid for at the Contract Unit Price per unit for "Removal of 45' street light pole and precast, poured in place concrete, steel power installed base or direct buried including davit arm, luminaire and appurtenances". The number of units to be paid for at the Contract Unit Price shall be verified and accepted by Manitoba Hydro. The Price shall be payment in full for performing all operations herein described including removal of the pole, base, luminaire, appurtenances, use of pressurized water/vacuum excavation, transportation of Reclaim, Surplus and Scrap material, payment of associated disposal fees and all other items incidental to the work included in the Specification.

E19.41.3 Installation of Conduit and #4 AL C/N or 1/0 AL Triplex Streetlight Cable in Conduit by Open Trench Method

(a) This pay item will be measured on a linear metre basis and paid for at the Contract Unit Price per linear metre for "Installation of Conduit and #4 AL C/N or 1/0 AL Triplex streetlight cable in Conduit by open trench method." The number of meters to be paid for at the Contract Unit Price shall be measured and accepted by Manitoba Hydro. The Price shall be payment in full for performing all operations herein described including installation of the conduit, pulling cable into the conduit, backfilling the trench, buried utility crossings, use of pressurized water/vacuum excavation and all other items incidental to the work included in the Specification.

E19.41.4 Installation of 50 mm Conduit by Boring Method complete with Cable Insertion (#4 AL C/N or 1/0 AL Triplex)

(a) This pay item will be measured on a linear metre basis and paid for at the Contract Unit Price per linear metre for "Installation of 50 mm conduit or conduits by boring method complete with cable insertion (#4 AL C/N or 1/0 AL Triplex)." The number of



meters to be paid for at the Contract Unit Price shall be measured and accepted by Manitoba Hydro. The Price shall be payment in full for performing all operations herein described including installation of 50mm conduit or conduits by boring method, inserting the #4 AL C/N or 1/0 AL Triplex streetlight cable into the conduit(s), buried utility crossings, use of pressurized water/vacuum excavation and all other items incidental to the work included in the Specification.

- E19.41.5 Installation of cable (#4 AL C/N or 1/0 AL Triplex) by boring method.
- (a) This pay item will be measured on a linear metre basis and paid for at the Contract Unit Price per linear metre for "Installation of cable(s) (#4 AL C/N or 1/0 AL Triplex) by boring method." The number of meters to be paid for at the Contract Unit Price shall be measured and accepted by Manitoba Hydro. The Price shall be payment in full for performing all operations herein described including installation of the cable or cables by boring method, buried utility crossings, use of pressurized water/vacuum excavation and all other items incidental to the work included in the Specification.
- E19.41.6 Installation of 25'/35' Pole, Davit Arm and Precast Concrete Base Including Luminaire and Appurtenances
- (a) This pay item will be measured on a unit basis and paid for at the Contract Unit Price per unit for "Installation of 25'/35' pole, davit arm and precast concrete base including luminaire and appurtenances." The number of units to be paid for at the Contract Unit Price shall be verified and accepted by Manitoba Hydro. The Price shall be payment in full for performing all operations herein described including installation of the pole, davit arm, base, luminaire, appurtenances, placing the cable(s) into the base, use of pressurized water/vacuum excavation and all other items incidental to the work included in the Specification.
- E19.41.7 Installation of 45' Pole, Davit Arm and Precast Concrete Base Including Luminaire and Appurtenances
- (a) This pay item will be measured on a unit basis and paid for at the Contract Unit Price per unit for "Installation of 45' pole, davit arm and precast concrete base including luminaire and appurtenances." The number of units to be paid for at the Contract Unit Price shall be verified and accepted by Manitoba Hydro. The Price shall be payment in full for performing all operations herein described including installation of the pole, davit arm, base, luminaire, appurtenances, placing the cable(s) into the base, use of pressurized water/vacuum excavation and all other items incidental to the work included in the Specification.
- E19.41.8 Installation of One (1) 10' Ground Rod at Every Third Street Light, at the End of a Street Light Circuit or Anywhere Else as Shown on the Design Drawings. Trench #4 Ground Wire up to 1 m From Rod Location to New Street Light and Connect (Hammerlock) to Top of Ground Rod
- (a) This pay item will be measured on a unit basis and paid for at the Contract Unit Price per unit for "Installation of one (1) 10' ground rod at every third street light, at the end of a street light circuit or anywhere else as shown on the design drawings. Trench #4 ground wire up to 1 m from rod location to new street light and connect (hammerlock) to top of the ground rod." The number of units to be paid for at the Contract Unit Price shall be verified and accepted by Manitoba Hydro. The Price shall be payment in full for performing all operations herein described including install one (1) 10' ground rod, trench the #4 ground wire to the new streetlight pole, connect (hammerlock) ground wire to rod and all other items incidental to the work included in the Specification.
- E19.41.9 Installation of Lower 3 m of Cable Guard, Ground Lug, Cable Up Pole, and First 3 M Section of Ground Rod Per Standard CD 315-5
- (a) This pay item will be measured on a unit basis and paid for at the Contract Unit Price per unit for "Install/lower 3 m of Cable Guard, ground lug, cable up pole, and first 3 m section of ground rod per Standard CD 315-5". The number of units to be paid for at the Contract Unit Price shall be verified and accepted by Manitoba Hydro. The Price shall be payment in full for performing all operations herein described including

installing the lower section of cable guard, ground lug, ground rod, coiling cable(s) up the pole and all other items incidental to the work included in the Specification.

- E19.41.10 Installation and Connection of Externally-Mounted Relay and PEC Per Standards CD 315-12 and CD 315-13
- (a) This pay item will be measured on a unit basis and paid for at the Contract Unit Price per unit for "Installation and connection of externally-mounted relay and PEC per Standards CD 315-12 and CD 315-13". The number of units to be paid for at the Contract Unit Price shall be verified and accepted by Manitoba Hydro. The Price shall be payment in full for performing all operations herein described including mounting the relay, PEC, wiring as per the schematic and all other items incidental to the work included in the Specification.
- E19.41.11 Termination of 2/C #12 Copper Conductor to Street Light Cables Per Standard CD310-4, CD310-9 or CD310-10
- (a) This pay item will be measured on a unit basis and paid for at the Contract Unit Price per unit for "Terminate 2/C #12 copper conductor to street light cables per Standard CD310-4, CD310-9 or CD310-10". The number of units to be paid for at the Contract Unit Price shall be verified and accepted by Manitoba Hydro. The Price shall be payment in full for performing all operations herein described including connection of the 2/C # 12 copper conductor to the #4 C/N or 1/0 Al Triplex cable(s) using a GELCAP-SL-2/0 splice kit and all other items incidental to the work included in the Specification.
- E19.41.12 Splicing #4 AL C/N or 2 Single Conductor Street Light Cables
- (a) This pay item will be measured on a unit basis and paid for at the Contract Unit Price per unit for "Splicing #4 Al C/N or 2 single conductor street light cables". The number of units to be paid for at the Contract Unit Price shall be verified and accepted by Manitoba Hydro. The Price shall be payment in full for performing all operations herein described including splicing the #4 AL C/N or 2 single conductor cables in accordance with Standard CD 215-12 and CD 215-13 and all other items incidental to the work included in the Specification.
- E19.41.13 Splicing 1/0 AL Triplex Cable or 3 Single Conductor Street Light Cables
- (a) This pay item will be measured on a unit basis and paid for at the Contract Unit Price per unit for "Splicing 1/0 AL triplex cable or 3 single conductor street light cables". The number of units to be paid for at the Contract Unit Price shall be verified and accepted by Manitoba Hydro. The Price shall be payment in full for performing all operations herein described including splicing the 1/0 Al triplex cable or set of 3 single conductor cables in accordance with Standard CD 215-12 and CD 215-13 and all other items incidental to the work included in the Specification.
- E19.41.14 Installation of Break-Away Base and Reaction Plate on Base-Mounted Poles up to 35'
- (a) This pay item will be measured on a unit basis and paid for at the Contract Unit Price per unit for "Installation of break-away base and reaction plate on base mounted poles up to 35'". The number of units to be paid for at the Contract Unit Price shall be verified and accepted by Manitoba Hydro. The Price shall be payment in full for performing all operations herein described including installation of the reaction plate, break-away base and all other items incidental to the work included in the Specification.
- E19.41.15 Installation of Overhead Span of #4 Duplex Between New or Existing Streetlight Poles and Connect Luminaire to Provide Temporary Overhead Feed
- (a) This pay item will be measured on per span basis and paid for at the Contract Unit Price per span for "Installation of Overhead Span of #4 duplex Between New or Existing Streetlight Poles and Connect Luminaire to Provide Temporary Overhead Feed". The number of units to be paid for at the Contract Unit Price shall be verified and accepted by Manitoba Hydro. The Price shall be payment in full for performing all operations herein described including attachment of the #4 duplex overhead

conductor using a perform grip (c/w spool insulator(s) to davit arm if necessary), sagging conductor, connection of luminaire using 2C#12 copper conductor and all other items incidental to the work included in the Specification.

E19.41.16 Removal of Overhead Span of #4 Duplex Between New or Existing Streetlight Poles to Remove Temporary Overhead Feed

- (a) This pay item will be measured on a per span basis and paid for at the Contract Unit Price per span for "Removal of Overhead Span of #4 duplex Between New or Existing Streetlight Poles to Remove Temporary Overhead Feed". The number of units to be paid for at the Contract Unit Price shall be verified and accepted by the Manitoba Hydro. The Price shall be payment in full for performing all operations herein described including removal of the #4 duplex overhead conductor, spool insulator(s) and all other items incidental to the work included in the Specification.

E19.41.17 Expose Underground Cable Entrance of Existing Streetlight Pole and Install New Streetlight Cable(s).

- (a) This pay item will be measured on a unit basis and paid for at the Contract Unit Price per unit for "Expose Underground Cable Entrance of Existing Streetlight Pole and Install New Streetlight Cable(s)". The number of units to be paid for at the Contract Unit Price shall be verified and accepted by Manitoba Hydro. The Price shall be payment in full for performing all operations herein described including excavation and exposure of the underground cable entrance by any means necessary including use of pressurized water/vacuum excavation, installation of the new streetlight cables(s), backfill, compaction and all other items incidental to the work included in the Specification.

## **E20. LANDSCAPING CURB**

### DESCRIPTION

E20.1 This specification shall cover the supply and installation of concrete landscaping curb, as noted on the Drawings or as directed by the Contract Administrator.

### MATERIAL & CONSTRUCTION METHOD

E20.2 Supply and install curb in accordance with CW 3310 – Portland Cement Concrete Pavement Works and SD-204.

E20.3 Construct 150 mm reveal concrete landscaping curb integral with the monolithic curb and sidewalk.

### MEASUREMENT AND PAYMENT

E20.4 Supply and installation of concrete landscaping curb will be measured on a length basis and paid for at the Contract Unit Price for "Landscaping Curb (150 mm reveal ht)", supplied and installed in accordance with the Specification and accepted and measured by the Contract Administrator.

## **E21. CONSTRUCTION OF BARRIER CURB FOR ASPHALT PAVEMENT**

### DESCRIPTION

E21.1 This Specification covers the construction of Barrier Curb for Asphalt Pavement-A and Barrier Curb for Asphalt Pavement-B on Blackwater Bay, Fleury Place, Rosewarne Avenue and Kingston Row

### GENERAL

E21.2 Referenced Standard Construction Specifications and Standard Detail Drawings:

- (a) CW 3110 – Sub-grade, Sub-base and Base Course Construction
- (b) CW 3310 – Portland Cement Concrete Pavement Works
- (c) CW 3240 – Renewal of Existing Curbs
- (d) Standard Detail Drawings SD-200A and SD-200B

CONSTRUCTION METHODS

E21.3 Further to CW 3310, the contractor shall construct the Barrier Curb for Asphalt Pavement as per Standard Detail Drawing SD-200A and SD-200B.

E21.4 Construction of Barrier Curb for Asphalt Pavement- A – Standard Detail Drawing SD-200A

E21.4.1 Place and compact 50mm sub-base material for roadway in accordance with the Standard Detail Drawing SD-200A and Specification CW 3110.

E21.4.2 Supply and install 20M tie-bars into sub-base material as shown on the Standard Detail Drawing SD-200A

E21.4.3 Supply and install 2-10M longitudinal deformed bars for reinforcement as shown on the Standard Detail Drawing SD-200A.

E21.4.4 Supply and install 2-19.1mm dowels at transverse joints every 6.0 meters as shown on the Standard Detail Drawing SD-200A. All dowels shall be thoroughly lubricated with asphaltic cut-back.

E21.4.5 Provide a minimum of 40mm cover between reinforcing steel and the finished concrete surface.

E21.5 Construction of Modified Barrier Curb for Asphalt Pavement-A – Standard Detail Drawing SD-200A and SD-203B

E21.5.1 Place and compact 50mm sub-base material for roadway in accordance with the Standard Detail Drawing SD-200B and Specification CW 3110.

E21.5.2 Supply and install 2-10M longitudinal deformed bars for reinforcement as shown on the Standard Detail Drawing SD-200A.

E21.5.3 Supply and install 20M tie-bars into sub-base material as shown on the Standard Detail Drawing SD-200B.

E21.5.4 Modified Barrier Curb for Asphalt Pavement A to be finished in accordance with Standard Detail Drawing SD-203B

E21.5.5 Provide a minimum of 40mm cover between reinforcing steel and the finished concrete surface.

E21.6 Transverse joints will be saw cut every 3.0 meters. Transverse joints are to be saw cut to a maximum depth of 25mm, so as to not saw cut into the 10M longitudinal deformed bars and 19.1mm dowels.

E21.7 Construct lip curb for asphalt pavement (40mm ht) at private approaches in accordance with Standard Detail Drawing SD-202B. 1-10M longitudinal deformed bar for reinforcement and 1-19.1mm dowel only required for lip curb for asphalt pavement at transverse joint.

E21.8 Place concrete utilizing slip-form paving equipment in accordance with Specification CW 3310 unless otherwise directed by the Contract Administrator.

E21.9 Place and compact 50mm sub-base material as backfill behind barrier curb for asphalt pavement within excavated area approximately 150mm deep or as directed by the Contract Administrator. Place and compact suitable site material as backfill behind barrier curb to allow for 100mm of topsoil and sod below top of barrier curb. Care must be taken so as to not disturb

the new Barrier curb for asphalt pavement during placing and compaction of 50mm sub-base material and suitable site material.

- E21.10 Construction of Barrier Curb for Asphalt Pavement-B – Standard Detail Drawing SD-200B
- E21.10.1 Place and compact 50mm sub-base material for roadway in accordance with the Standard Detail Drawing SD-200B and Specification CW 3110.
- E21.10.2 Supply and install 20M tie-bars into sub-base material as shown on the Standard Detail Drawing SD-200B.
- E21.10.3 Supply and install 2-19.1mm dowels at transverse joints every 3.0 meters as shown on the Standard Detail Drawing SD-200B. All dowels shall be thoroughly lubricated with asphaltic cut-back.
- E21.10.4 Provide a minimum of 40mm cover between reinforcing steel and the finished concrete surface.
- E21.11 Construction of Modified Barrier Curb for Asphalt Pavement-B – Standard Detail Drawing SD-200B and SD-203B
- E21.11.1 Place and compact 50mm sub-base material for roadway in accordance with the Standard Detail Drawing SD-200B and Specification CW 3110.
- E21.11.2 Supply and install 20M tie-bars into sub-base material as shown on the Standard Detail Drawing SD-200B.
- E21.11.3 Supply and install 2-19.1mm dowels at transverse joints every 3.0 meters as shown on the Standard Detail Drawing SD-200B. All dowels shall be thoroughly lubricated with asphaltic cut-back.
- E21.11.4 Modified Barrier Curb for Asphalt Pavement B to be finished in accordance with Standard Detail Drawing SD-203B
- E21.11.5 Provide a minimum of 40mm cover between reinforcing steel and the finished concrete surface.
- E21.12 Transverse joints will be saw cut every 3.0 meters. Transverse joints are to be saw cut to a maximum depth of 25mm, so as to not saw cut into the 19.1mm dowels.
- E21.13 Construct lip curb for asphalt pavement(40mm ht) at private approaches in accordance with Standard Detail Drawing SD-202B. 1-19.1mm dowel only required for lip curb for asphalt pavement at transverse joints.
- E21.14 Construct curb ramp for asphalt pavement in accordance with Standard Detail Drawing SD-229C and SD-229E. 1-19.1mm dowel only required for curb ramp for asphalt pavement at transverse joint.
- E21.15 Place concrete utilizing slip-form paving equipment in accordance with Specification CW 3310 unless otherwise directed by the Contract Administrator.
- E21.16 Place and compact 50mm sub-base material as backfill behind barrier curb for asphalt pavement within excavated area approximately 150mm deep or as directed by the Contract Administrator. Place and compact suitable site material as backfill behind barrier curb to allow for 100mm of topsoil and sod below top of barrier curb. Care must be taken so as to not disturb the new Barrier curb for asphalt pavement during placing and compaction of 50mm sub-base material and suitable site material.

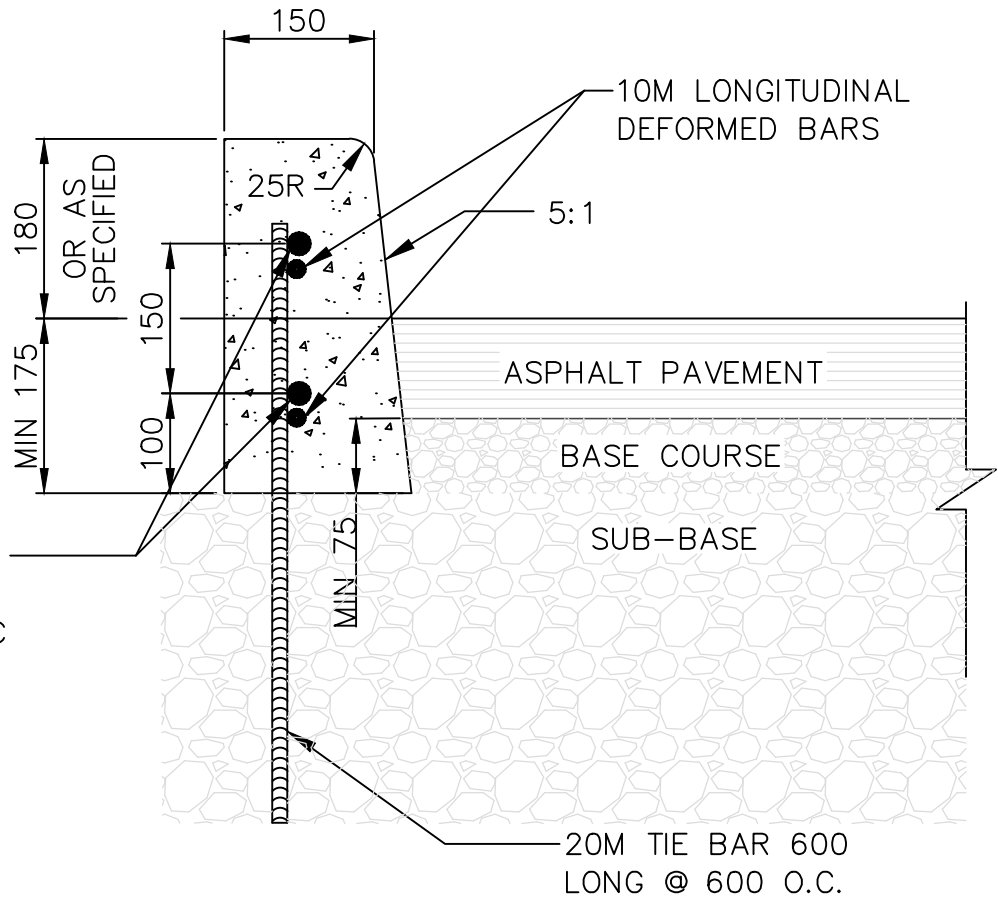
#### MEASUREMENT AND PAYMENT

- E21.17 Construction of barrier curb for asphalt pavement-A shall be measured on a length basis and paid for at the Contract Unit Price per metre of “Construction of Barrier Curb for Asphalt Pavement-A”. The length to be paid for shall be the total number of meters supplied and

installed in accordance with this Specification, accepted and measured by the Contract Administrator.

- E21.18 Construction of modified barrier curb for asphalt pavement-A shall be measured on a length basis and paid for at the Contract Unit Price per metre of "Construction of Modified Barrier Curb for Asphalt Pavement-A". The length to be paid for shall be the total number of meters supplied and installed in accordance with this Specification, accepted and measured by the Contract Administrator.
- E21.19 Construction of lip curb for asphalt pavement-A shall be measured on a length basis and paid for at the Contract Unit Price per metre of "Construction of Lip Curb for Asphalt Pavement-A". The length to be paid for shall be the total number of meters supplied and installed in accordance with this Specification, accepted and measured by the Contract Administrator.
- E21.20 Construction of barrier curb for asphalt pavement-B shall be measured on a length basis and paid for at the Contract Unit Price per metre of "Construction of Barrier Curb for Asphalt Pavement-B". The length to be paid for shall be the total number of meters supplied and installed in accordance with this Specification, accepted and measured by the Contract Administrator.
- E21.21 Construction of modified barrier curb for asphalt pavement-B shall be measured on a length basis and paid for at the Contract Unit Price per metre of "Construction of Modified Barrier Curb for Asphalt Pavement-B". The length to be paid for shall be the total number of meters supplied and installed in accordance with this Specification, accepted and measured by the Contract Administrator.
- E21.22 Construction of lip curb for asphalt pavement-B shall be measured on a length basis and paid for at the Contract Unit Price per metre of "Construction of Lip Curb for Asphalt Pavement-B". The length to be paid for shall be the total number of meters supplied and installed in accordance with this Specification, accepted and measured by the Contract Administrator.
- E21.23 Construction of curb ramp for asphalt pavement-B shall be measured on a length basis and paid for at the Contract Unit Price per metre of "Construction of Curb Ramp for Asphalt Pavement-B". The length to be paid for shall be the total number of meters supplied and installed in accordance with this Specification, accepted and measured by the Contract Administrator.
- E21.24 The supply and installation of 20M tie-bars, 10M longitudinal deformed bars and 19.1mm dowels is incidental to "Construction of Barrier Curb for Asphalt Pavement-A", "Construction of Modified Barrier Curb for Asphalt Pavement-A", "Construction of Lip Curb for Asphalt Pavement-A", "Construction of Barrier Curb for Asphalt Pavement-B", "Construction of Modified Barrier Curb for Asphalt Pavement-B", "Construction of Lip Curb for Asphalt Pavement-B" and "Construction of Curb Ramp for Asphalt Pavement-B" and no measurement or payment will be made.
- E21.25 Supply and placement of 50mm sub-base material for backfill to be paid for as per payment item "50mm Granular B".
- E21.26 Supply and placement of suitable site material for backfill to be paid for as per payment item "Placing Suitable Site Material".

Standard Detail Drawings SD-200A and SD-200B



FOR CONSTRUCTION JOINTS:  
19.1mm DOWELS 450 LONG;  
LUBRICATED WITH ASPHALTIC  
CUT-BACK.



THE CITY OF WINNIPEG  
PUBLIC WORKS DEPARTMENT

Reference Spec. No.  
CW 3240

DIMENSIONS ARE IN MILLIMETRES

BARRIER CURB FOR ASPHALT  
PAVEMENT

Designed By:  
A.G.

Drawn By:

Scale :  
N.T.S.

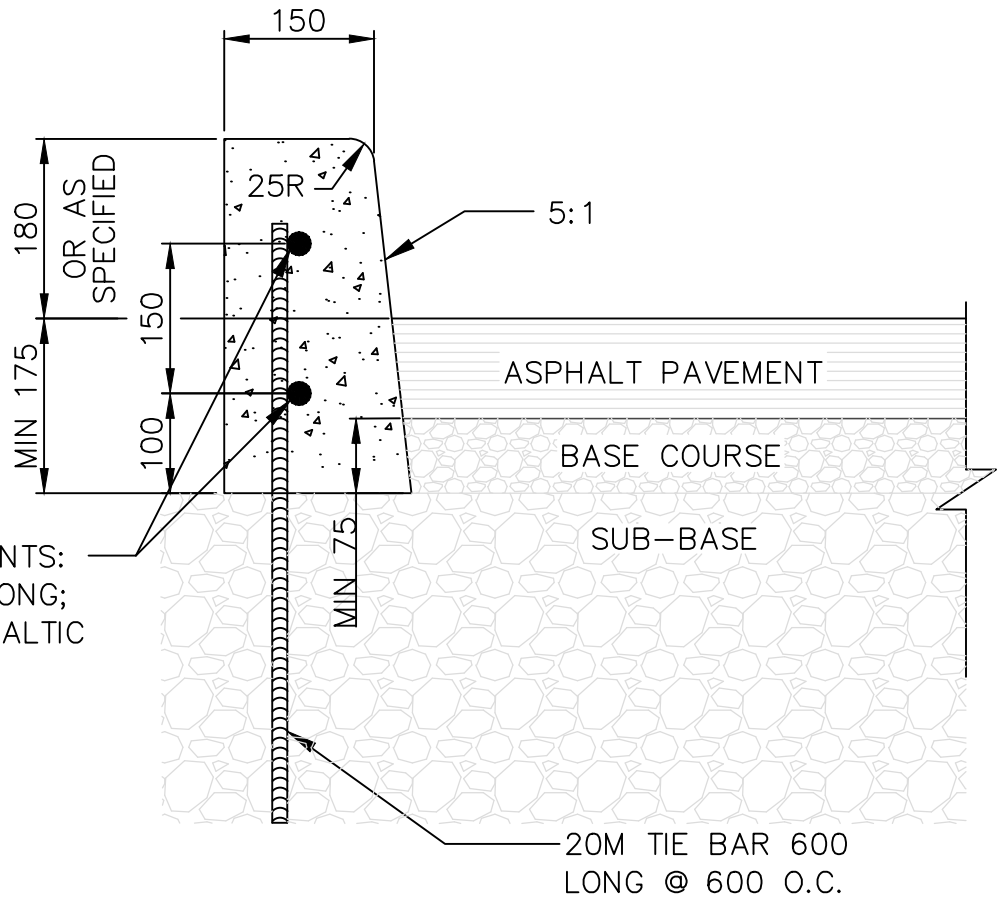
Checked By:  
B.K.

Date:  
29-11-29

Drawing No.  
SD-200A

Approved:  
ASSET MANAGEMENT BRANCH

DRAFT



FOR CONSTRUCTION JOINTS:  
19.1mm DOWELS 450 LONG;  
LUBRICATED WITH ASPHALTIC  
CUT-BACK.



THE CITY OF WINNIPEG  
PUBLIC WORKS DEPARTMENT

Reference Spec. No.  
CW 3240

DIMENSIONS ARE IN MILLIMETRES

BARRIER CURB FOR ASPHALT  
PAVEMENT

Designed By:  
A.G.

Drawn By:

Scale :  
N.T.S.

Checked By:  
B.K.

Date:  
29-11-29

Drawing No.  
SD-200B

Approved:  
ASSET MANAGEMENT BRANCH

DRAFT