



THE CITY OF WINNIPEG

TENDER

TENDER NO. 69-2023

**DOWNTOWN PAVEMENT RENEWALS PROJECT – 2023 PAVEMENT RENEWALS:
EASTBOUND BROADWAY**

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PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

B1.1 Downtown Pavement Renewals Project – 2023 Pavement Renewals: Eastbound Broadway

B2. SUBMISSION DEADLINE

B2.1 The Submission Deadline is 12:00 noon Winnipeg time, March 10, 2023.

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 D4.1.

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.
- B5.4 The Bidder is responsible for ensuring that they have 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 D4.

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 their 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 they wish 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 their 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 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.
- B7.3 The Bid shall be submitted electronically through MERX at www.merx.com.
- B7.3.1 Bids will **only** be accepted electronically through MERX.
- B7.4 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 their own name, their 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 their 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 their 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 their duly authorized officer or officers;

- (d) if the Bidder is carrying on business under a name other than their 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 D36. Any such costs shall be determined in accordance with D36.

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, Part 2 of the Work and Part 3 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, Part 2 and Part 3.

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 their 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 their 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 their 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 their 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 their 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 their sole discretion:

- (a) disqualify a Bidder that fails to disclose a perceived, potential or actual Conflict of Interest of the Bidder or any of their 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 their 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 their 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 their 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);
- (d) have completed the Accessible Customer Service online training required by the Accessibility for Manitobans Act (AMA) (see B12.5 and D7).

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 COR 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 Further to B12.3(d), the Bidder acknowledges they and all Subcontractors have obtained training required by the Accessibility for Manitobans Act (AMA) available at <http://www.accessibilitymb.ca/training.html> for anyone that may have any interaction with the public on behalf of the City of Winnipeg.

- B12.6 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.
- B12.7 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 their 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.
- 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.

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 their 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, Part 2 and Part 3 may be determined to be non-responsive and rejected by the Award Authority in their 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 their Bid or in other information required to be submitted, that they are 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 Further to B17.1(a), in the event that a unit price is not provided on Form B: Prices, the City may determine the unit price by dividing the Amount (extended price) by the approximate quantity, for the purposes of evaluation and payment.

B17.4.2 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 their 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 2023 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 D36 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 their Bid upon written request to the Contract Administrator.
- B18.6 As noted in D3 and identified in Form B: Prices, the Work of Part 1 will be contingent upon the Federal Government approving funding for the Work. If sufficient funding for Part 1 Work is not approved by the Federal Government the City shall have the right to eliminate all or any portion of Part 1 Work in accordance with D2.
- B18.7 As noted in D3 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
- 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. FORM OF CONTRACT DOCUMENTS

D2.1 Notwithstanding C4.1(c) and C4.4, the Contract Documents will be provided to the Contractor electronically and there will be no requirement for execution and return to the City by the Contractor. Accordingly, the provisions under C4.4(a) and C4.4(b) are no longer applicable.

D3. SCOPE OF WORK

D3.1 The Work to be done under the Contract shall consist of three parts:

- (a) Part 1 – Federal Government Funded Work
- (b) Part 2 – Manitoba Hydro Funded Work
- (c) Part 3 – City Funded Work

Part 1 – Federal Government Funded Work

D3.2 Part 1 – Federal Government Funded Work shall consist of:

- (a) Structural Soil Cells and Related Forestry Work
 - (i) South side of Broadway from Osborne Street to Main Street

Part 2 – Manitoba Hydro Funded Work

D3.3 Part 2 – Manitoba Hydro Funded Work shall consist of:

- (a) Street Lighting and Associated Works
 - (i) South side of Broadway from Osborne Street to Main Street

Part 3 – City Funded Work

D3.4 Part 3 – City Funded Work shall consist of:

- (a) Pavement Rehabilitation
 - (i) Eastbound Broadway from Osborne Street to Main Street
- (b) Water and Waste Work
 - (i) Broadway (MH70055014) - Manhole Repair
 - (ii) Broadway (MH20012944) - Manhole Repair
 - (iii) Broadway (MH70038689) – Manhole Repair
 - (iv) Broadway (MH20012770) – Manhole Repair
 - (v) Broadway (MH70051680) – Manhole Repair
 - (vi) Broadway (MH70051679) – Manhole Repair
 - (vii) Broadway (MH20012792) – Manhole Repair
 - (viii) Broadway (MH70054996) – Abandon Manhole
 - (ix) Broadway (MH70054995) – Abandon Manhole
 - (x) Broadway (MH70054993) – Abandon Manhole
 - (xi) Broadway (MH70054992) – Abandon Manhole
 - (xii) Broadway (MH70054994) – Abandon Manhole

- (xiii) Broadway (MH1) – Manhole Inspection
- (xiv) Broadway (MA70114137) – Sewer Inspection
- (c) Traffic Signals Work – North and South side of Broadway
 - (i) Traffic Signals – Broadway and Osborne Street
 - (ii) Traffic Signals – Broadway and Memorial Boulevard
 - (iii) Traffic Signals – Broadway and Kennedy Street
 - (iv) Traffic Signals – Broadway and Edmonton Street
 - (v) Traffic Signals – Broadway and Carlton Street
 - (vi) Traffic Signals – Broadway and Hargrave Street
 - (vii) Traffic Signals – Broadway and Donald Street
 - (viii) Traffic Signals – Broadway and Smith Street
 - (ix) Traffic Signals – Broadway and Garry Street
 - (x) Traffic Signals – Broadway and Fort Street
 - (xi) Traffic Signals – Broadway and Main Street
- D3.5 The City currently has no approved funding in the Capital Budget for Part 1 of the Work. Part 1 of the Work is contingent upon the Federal Government approving sufficient funding.
- D3.5.1 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 1, and the Contract Price will be reduced accordingly.
- D3.5.2 Further to C7.5, C7.5.1, and C7.6, a reduction in the Contract Price pursuant to D3.5.1 shall not be considered in calculating the aggregate reduction in the Contract Price for purposes of C7.5.
- D3.5.3 If all or any portion of Part 1 is eliminated pursuant to D3.5.1, the time periods stipulated in D25 for Substantial Performance of the Work and in D26 for Total Performance of the Work will be reduced proportionally by the Contract Administrator acting reasonably.
- D3.6 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 during the Award Period. Part 2 of the Work is contingent upon Manitoba Hydro approving sufficient funding.
- D3.6.1 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.
- D3.6.2 Further to C7.5, C7.5.1, and C7.6, a reduction in the Contract Price pursuant to D3.6.1 shall not be considered in calculating the aggregate reduction in the Contract Price for purposes of C7.5.
- D3.6.3 If all or any portion of Part 2 is eliminated pursuant to D3.6.1, the time periods stipulated in D25 for Substantial Performance of the Work and in D26 for Total Performance of the Work will be reduced proportionally by the Contract Administrator acting reasonably.
- D3.7 The major components of the Work are as follows:
 - (a) Pavement Rehabilitation
 - (i) Installation of Traffic Signals infrastructure
 - (ii) Complete manhole and sewer Work (sewer inspections as required)
 - (iii) Planing existing asphalt pavement
 - (iv) Full depth concrete repairs of existing joints and slabs
 - (v) Connection to existing sewer
 - (vi) Connection to existing manholes and existing services
 - (vii) Replacement of existing catch basins and catch basin leads
 - (viii) Adjustment of catch basins, sewer manholes, appurtenances, and utility manholes
 - (ix) Removal of existing sidewalk

- (x) Installation of street light bases, conduit, new light standards and street light cable
- (xi) Insulation of water services (as required)
- (xii) Installation of Structural Soil Cells including catchbasins, subdrain, distribution pipe, transfer pipe, three Manitoba Hydro conduits and all other related items
- (xiii) Connection and Installation of conduit and cabling for Winnipeg Transit Heated Shelters
- (xiv) Renewal of existing curbs
- (xv) Installation of detectable warning tiles
- (xvi) Construct new 175 mm reinforced concrete sidewalk c/w paving stone band
- (xvii) Construction of concrete Winnipeg Transit shelter bases and power pedestal bases
- (xviii) Placement of asphalt overlay (Type 1A, average thickness 85 mm)
- (xix) Supply and placement of paving stones
- (xx) Installation of Downtown Biz amenities (bike racks and street furniture)
- (xxi) Boulevard restoration

D4. SITE INVESTIGATION DUE DILIGENCE AND RISK

D4.1 Notwithstanding C3.1, the Contractor acknowledges that the site investigation reports and other site information included in this Tender have been provided to it and may be relied upon by the Contractor to the extent that the Contractor uses Good Industry Practice in interpreting such report(s) and site information and carries out the Work in accordance with Good Industry Practice based upon such report(s) and the information contained in them and such other site information. In the event that a site condition related to:

- (a) the location of any utility which can be determined from the records or other information available at the offices of any public authority or person, including a municipal corporation and any board or commission thereof, having jurisdiction or control over the utility;
- (b) the Site conditions, including but not limited to subsurface hazardous materials or other concealed physical conditions;
- (c) the location, nature, quality or quantity of the materials to be removed or to be employed in the performance of the Work;
- (d) the nature, quality or quantity of the Plant needed to perform the Work;
- (e) all matters concerning access to the Site, power supplies, location of existing services, utilities or materials necessary for the completion of the Work; and
- (f) all other matters which could in any way affect the performance of the Work;

that could not have been “properly inferable”, “readily apparent” and readily discoverable” using Good Industry Practice by the Contractor, results in additional Work which is a direct result of this newly discovered site condition, such additional Work will be considered by the City under Changes in Work.

D5. CONTRACT ADMINISTRATOR

D5.1 The Contract Administrator is AECOM Canada Ltd., represented by:

Thomas Findlay
Project Manager
Telephone No. 204 390-1464
Email Address Thomas.Findlay@aecom.com

D5.2 At the pre-construction meeting, Thomas Findlay will identify additional personnel representing the Contract Administrator and their respective roles and responsibilities for the Work.

D6. CONTRACTOR'S SUPERVISOR

- D6.1 At the pre-construction meeting, the Contractor shall identify their designated supervisor and any additional personnel representing the Contractor and their respective roles and responsibilities for the Work.
- D6.2 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 D6.1 or an alternate can be contacted twenty-four (24) hours a day to respond to an emergency.

D7. ACCESSIBLE CUSTOMER SERVICE REQUIREMENTS

- D7.1 The Accessibility for Manitobans Act (AMA) imposes obligations on The City of Winnipeg to provide accessible customer service to all persons in accordance with the Customer Service Standard Regulation ("CSSR") to ensure inclusive access and participation for all people who live, work or visit Winnipeg regardless of their abilities.
- D7.1.1 The Contractor agrees to comply with the accessible customer service obligations under the CSSR and further agrees that when providing the Goods or Services or otherwise acting on the City of Winnipeg's behalf, shall comply with all obligations under the AMA applicable to public sector bodies.
- D7.1.2 The accessible customer service obligations include, but are not limited to:
- (a) providing barrier-free access to goods and services;
 - (b) providing reasonable accommodations;
 - (c) reasonably accommodating assistive devices, support persons, and support animals;
 - (d) providing accessibility features e.g. ramps, wide aisles, accessible washrooms, power doors and elevators;
 - (e) inform the public when accessibility features are not available;
 - (f) providing a mechanism or process for receiving and responding to public feedback on the accessibility of all goods and services; and
 - (g) providing adequate training of staff and documentation of same.

D8. UNFAIR LABOUR PRACTICES

- D8.1 Further to C3.2, the Contractor declares that in bidding for the Work and in entering into this Contract, the Contractor and any proposed Subcontractor(s) conduct their respective business in accordance with established international codes embodied in United Nations Universal Declaration of Human Rights (UDHR) <https://www.un.org/en/about-us/universal-declaration-of-human-rights> International Labour Organization (ILO) [https://www.ilo.org/global/lang--en/index.htm](https://www.ilo.org/global/lang-en/index.htm) conventions as ratified by Canada.
- D8.2 The City of Winnipeg is committed and requires its Contractors and their Subcontractors, to be committed to upholding and promoting international human and labour rights, including fundamental principles and rights at work covered by ILO eight (8) fundamental conventions and the United Nations Universal Declaration of Human Rights which includes child and forced labour.
- D8.3 Upon request from the Contract Administrator, the Contractor shall provide disclosure of the sources (by company and country) of the raw materials used in the Work and a description of the manufacturing environment or processes (labour unions, minimum wages, safety, etc.).
- D8.4 Failure to provide the evidence required under D8.3, may be determined to be an event of default in accordance with C18.

- D8.5 In the event that the City, in its sole discretion, determines the Contractor to have violated the requirements of this section, it will be considered a fundamental breach of the Contract and the Contractor shall pay to the City a sum specified by the Contract Administrator in writing (“Unfair Labour Practice Penalty”). Such a violation shall also be considered an Event of Default, and shall entitle the City to pursue all other remedies it is entitled to in connection with same pursuant to the Contract.
- D8.5.1 The Unfair Labour Practice Penalty shall be such a sum as determined appropriate by the City, having due regard to the gravity of the Contractor’s violation of the above requirements, any cost of obtaining replacement goods/ services or rectification of the breach, and the impact upon the City’s reputation in the eyes of the public as a result of same.
- D8.5.2 The Contractor shall pay the Unfair Labour Practice Penalty to the City within thirty (30) Calendar Days of receiving a demand for same in accordance with clause D8.5. The City may also hold back the amount of the Unfair Labour Practice Penalty from payment for any amount it owes the Contractor.
- D8.5.3 The obligations and rights conveyed by this clause survive the expiry or termination of this Contract, and may be exercised by the City following the performance of the Work, should the City determine, that a violation by the Contractor of the above clauses has occurred following same. In no instance shall the Unfair Labour Practice Penalty exceed the total of twice the Contract value.

D9. FURNISHING OF DOCUMENTS

- D9.1 Upon award of the Contract, the Contractor will be provided with ‘issued for construction’ Contract Documents electronically, including Drawings in PDF format only.

SUBMISSIONS

D10. AUTHORITY TO CARRY ON BUSINESS

- D10.1 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.

D11. SAFE WORK PLAN

- D11.1 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.
- D11.2 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>
- D11.3 Notwithstanding B12.4 at any time during the term of the Contract, the City may, at their 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.

D12. INSURANCE

D12.1 The Contractor shall provide and maintain the following insurance coverage:

- (a) commercial general liability insurance, in the amount of at least five million dollars (\$5,000,000.00) inclusive, with The City of Winnipeg and Manitoba and its Ministers, officers, employees and agents to be added as an additional insureds, with a cross-liability clause, such liability policy to also contain contractual liability, unlicensed motor vehicle liability, non-owned automobile liability, sudden and accidental pollution liability, broad form property damage cover and products and completed operations, to remain in place at all times during the performance of the Work and throughout the warranty period;
- (b) Automobile Liability Insurance 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 \$5,000,000 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.
- (d) Property insurance for all mobile offices, portable toilets, machinery and equipment

D12.2 Deductibles shall be borne by the Contractor.

D12.3 All Subcontractors performing Work on the Project shall provide the Contractor with evidence of insurance as outlined in D11.1 (a) and D11.1 (b) above and be registered with Workers Compensation Board of Manitoba and maintain insurance and workers compensation coverage throughout the performance of the Work, the Contractor shall provide the Contract Administrator with evidence of the same prior to the commencement of any Work by the Subcontractor.

D12.4 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.

D12.5 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.

D13. CONTRACT SECURITY

D13.1 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.

D13.1.1 Where the contract security is a performance bond, it may be submitted in hard copy or digital format. If submitted in digital format the contract security must meet the following criteria:

- (a) the version submitted by the Contractor must have valid digital signatures and seals;
- (b) the version submitted by the Contractor 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 D13.1(b).

D13.1.2 Digital bonds failing the verification process will not be considered to be valid and may be determined to be an event of default in accordance with C18.1. If a digital bond fails the verification process, the Contractor may provide a replacement bond (in hard copy or digital format) within seven (7) Calendar Days of the City's request or within such greater period of time as the City in their discretion, exercised reasonably, allows.

D13.1.3 Digital bonds passing the verification process will be treated as original and authentic.

D13.2 The Contractor shall provide the Contract Administrator identified in D4 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.

D13.3 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 D13.1(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.

D14. SUBCONTRACTOR LIST

D14.1 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.

D15. DETAILED WORK SCHEDULE

D15.1 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.

D15.2 If, prior to submitting the Detailed Work Schedule, the Contractor does not receive notification pursuant to D17.4 that all or some portion of Part 1 or Part 2 of the Work may be commenced, they shall complete the Detailed Work Schedule for only Part 3 of the Work assuming that, if all of Part 1 or Part 2 is eliminated, the time periods stipulated in D25 for Substantial Performance of the Work and in D26 for Total Performance of the Work will be reduced by Twenty-Five (25) Working Days for Part 1 and Five (5) Working Days for Part 2.

D15.3 If, after submitting the Detailed Work Schedule, the Contractor receives notification that all or any portion of Part 1 or Part 2 of the Work may be commenced, they shall submit a revised Detailed Work Schedule no later than two (2) Business Days from receipt of the notification.

D15.4 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.

- D15.5 Further to D15.4(a), the C.P.M. schedule shall clearly identify the start and completion dates of all of the following activities/tasks making up the Work as well as showing those activities/tasks on the critical path:
- (a) Commencement Date;
 - (b) Substantial Performance Date;
 - (c) Total Performance Date;
 - (d) Milestone Dates for Critical Stages of the Work;
 - (e) Interim Milestone Dates for Commencement and Completion of the Various Construction Phases and Locations;
 - (f) Work by Others;
 - (g) Part 1 of the Work; and
 - (h) Part 2 of the Work.

- D15.6 Further to D15.4(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.

D16. REQUIREMENTS FOR SITE ACCESSIBILITY PLAN

- D16.1 The Contractor shall provide the Contract Administrator with an Accessibility 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.
- D16.2 The Accessibility Plan shall demonstrate how the Contractor will accommodate the safe passage of pedestrians and cyclists in accordance with the Manual of Temporary Traffic Control, the Contract Drawings, Staging Plans, and Streets By-Law No. 1481/77 at all times for the duration of the Construction. Unless noted in the Contract, the Accessibility Plan must include a written plan for the following:
- (a) How the Contractor will maintain at least one crossing in each direction for each intersection (one north/south crosswalk and one east/west crosswalk).
 - (b) How the Contractor will maintain access to bus stops within the site.
 - (c) How the Contractor will maintain access to pedestrian corridors and half signals.
 - (d) How the Contractor will maintain cycling facilities.
 - (e) How the Contractor will maintain access to residents and businesses unless otherwise noted in the Contract.
 - (f) Any required detour signage at adjacent crossings to facilitate sidewalk or active transportation pathway closures.
- D16.3 The Accessibility Plan may also include figures, sketches, or drawings to demonstrate the proposed plan.
- D16.4 The Accessibility Plan shall include written details on how the Contractor intends to review, maintain, and document all items related to the Accessibility Plan on-site during Construction, including, but not limited to:
- (a) Signage
 - (b) Temporary Ramping
 - (c) Transit Stops
 - (d) Detour Signage.

- D16.5 At minimum, the Contractor shall review the site conditions on a daily basis to ensure that all features related to the Accessibility Plan are in place. The site review is intended to correct deficiencies as a result of unforeseen events such as wind, traffic, or the general public. Deficiencies that are direct result of the Contractors actions must be corrected immediately.
- D16.6 Any changes to the Accessibility Plan must be approved by the Contract Administrator.
- D16.7 Upon request from the Contract Administrator, the Contractor shall provide records demonstrating that the site has been maintained.
- D16.8 Deficiencies as a direct result of actions by the Contractor that are not immediately corrected and/or failure to produce records that demonstrate that the site was maintained in compliance with the Accessibility Plan may result in a pay adjustment via the monthly Progress Payment. The rate of pay adjustment will be as per the following schedule:
- (a) First Offence – A warning will be issued and documented in the weekly or bi-weekly site meeting.
 - (b) Second Offence – A field instruction to immediately correct the site will be issued by the Contract Administrator.
 - (c) Third and subsequent Offences – A pay reduction will be issued in the amount of \$250.00 per instance and per day.

SCHEDULE OF WORK

D17. COMMENCEMENT

- D17.1 The Contractor shall not commence any Work until they are in receipt of an award letter from the Award Authority authorizing the commencement of the Work.
- D17.2 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 D10;
 - (ii) evidence of the workers compensation coverage specified in C6.15;
 - (iii) the twenty-four (24) hour emergency response phone number specified in D6.2.
 - (iv) the Safe Work Plan specified in D11;
 - (v) evidence of the insurance specified in D12;
 - (vi) the contract security specified in D13;
 - (vii) the subcontractor list specified in D14;
 - (viii) the detailed Work schedule specified in D15;
 - (ix) the Requirements for Site Accessibility Plan specified in D16; and
 - (x) the direct deposit application form specified in D33.
 - (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.
- D17.3 The Contractor shall commence the Work on the Site May 1, 2023 or within seven (7) Working Days of the Contract Administrator determining that seasonal conditions are satisfactory for construction to commence.
- D17.4 The Contractor shall not commence Part 1 of the Work or Part 2 of the Work as described in D3 and identified in Form B: Prices, unless prior to the Award Letter, they have received notification from the Contract Administrator that the City has received notice of sufficient funding from the Province.
- D17.5 The City intends to award this Contract by April 21, 2023.

D17.5.1 If the actual date of award is later than the intended date, the dates specified for Critical Stages, Substantial Performance, and Total Performance will be adjusted by the difference between the aforementioned intended and actual dates.

D18. WORKING DAYS

D18.1 Further to C1.1(tt);

D18.1.1 The Contract Administrator will determine daily if a Working Day has elapsed and will record their 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 they agree with the Contract Administrator's determination of the Working Days assessed for the report period.

D18.1.2 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.

D18.1.3 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.

D19. RESTRICTED WORK HOURS

D19.1 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.

D20. WORK BY OTHERS

D20.1 Further to C6.25, the Contractor's attention is directed to the fact that other Contractors, the personnel of Utilities and the staff of the City may be working within the project limit, approach roadway, adjacent roadways or right-of-way. The activities of these agencies may coincide with the Contractor's execution of Work and it will be the Contractor's responsibility to cooperate to the fullest extent with other personnel working in the area, and such cooperation is an obligation of the Contractor under the terms of Contract.

D20.2 Work by others on or near the Site will include but not necessarily be limited to:

- (a) Winnipeg Transit – removal and reinstallation of bus shelters; operation of bus routes;
- (b) City of Winnipeg Traffic Signals – Traffic Signals Branch will be responsible for all cabling and erection of above ground plant. The Contractor is responsible for co-ordinating removal of above ground plant and cabling to facilitate the installation of the underground plant. The Contractor must coordinate with Traffic Signals such that the signal operations at the intersection are maintained except where permitted by Contract Administrator and Traffic Signals Branch. This may result in the Work being completed in multiple stages.
- (c) Manitoba Hydro Gas Division – lowering and/or rock wrapping of underground main and services as required; adjustment of impacted gas valves.
- (d) Manitoba Hydro Underground Power – repairs or upgrades required for existing vaults or ductlines within the project limits; direction for adjustment of manhole(s) frames and covers as required.
- (e) Manitoba Hydro – electrical supply and inspection of new street lighting hardware (to be installed by Contractor) and energizing of the new street lighting.
- (f) BellMTS – adjustment of manhole(s) frames as required.
- (g) Telus – adjustment of manhole(s) frames as required.
- (h) Zayo – adjustment of manhole(s) frames as required.

- (i) Shaw – adjustment of manhole(s) frames as required.
- (j) City of Winnipeg Traffic Services – instructions for installation of traffic signage locations (in accordance with E6) and required line painting.
- (k) City of Winnipeg Water and Waste – Investigation of condition of curb stops and watermain valves. Potential emergency repairs to Water and Waste Infrastructure.
- (l) City of Winnipeg Geomatics Branch – various Works on survey monuments.
- (m) Winnipeg Parking Authority – removal and reinstallation of parking pay stations.
- (n) Benchmark Advertising – removal and replacement of garbage and recycling containers.
- (o) Canada Post – removal and replacement of mailboxes.
- (p) Transit Plus – pick up and drop off customers.
- (q) Winnipeg Forestry – Removal and installation of trees. Long term maintenance and watering of plant material.

D20.3 Further to D20.1 the Contractor shall cooperate and coordinate all activities with all parties performing required Work by Others. The Contractor must include and accommodate Work by Others identified in D20.2 or additional parties, in their construction schedule as per D15 and accommodate the necessary area on Site required for the Work by Others to complete the Work.

D21. CO-OPERATION WITH OTHERS

D21.1 The Contractor's attention is directed to the fact that other Contractors, the personnel of Utilities and the staff of the City may be working within the project limits, approach roadways, adjacent roadways or rights-of-way. The activities of these agencies may coincide with the Contractor's execution of the Work, and it will be the Contractor's responsibility to co-operate to the fullest extent with the other personnel working in the area, and such co-operation is an obligation of the Contractor under the terms of the Contract.

D22. DOWNTOWN EVENTS

D22.1 The Contractor's attention is directed to the fact that several events will be taking place within and adjacent to the project limits, approach roadways, adjacent roadways or rights-of way. The schedule of these events may coincide with the Contractor's execution of the Work, and it will be the Contractor's responsibility to cooperate to the fullest extent and ensure the safety of pedestrians and vehicles within the project area. Such co-operation and attention to safety is an obligation of the Contractor under the terms of the Contract. Due to the uncertainty surrounding Covid-19, these events may not take place. Dates for these events are not yet public. The list of events includes, but is not limited to:

- (a) Whiteout Events – Donald Street between St. Mary Avenue and Portage Avenue; Graham Avenue between Hargrave Street and Smith Street;
- (b) Pride Vigil – Broadway between Osborne Street and Kennedy Street;
- (c) Pride Parade – Broadway between Osborne Street and Kennedy Street;
- (d) Downtown Winnipeg Farmers' Market – Edmonton Street between Graham Avenue and Portage Avenue;
- (e) Folklorama Kickoff – Memorial Park (Memorial Boulevard between Broadway and St. Mary Avenue);
- (f) Manyfest – Broadway between Osborne Street and Edmonton Street; and
- (g) World Police & Fire Games – Memorial Boulevard between York Avenue and Broadway.

D23. SEQUENCE OF WORK

D23.1 Further to C6.1, the sequence of Work shall be as follows:

- D23.1.1 The Work shall be divided into 5 Stages. Stages are further subdivided into major items of Work.
- (a) Working Days for the Contract will commence on May 1, 2023 with the commencement of the Traffic Signals related Work and the associated underground Work as per D17.3, D24.1(b), D25 and D26.
 - (b) **Traffic Signals Stage** – Traffic Signals and related installations – Broadway from Osborne Street to Carlton Street as noted in D3.
 - (i) Prior to commencing the Pavement Rehabilitation Work identified in D3.7, all Traffic Signals related installations shall be completed, including the installation of required items by the Contractor. The Contractor co-ordinating the removal of above ground plant and cabling to facilitate the installation of the underground plant, and Traffic Signals Branch completing all cabling and erection of above ground plant to the satisfaction of the Contract Administrator. The Contractor must coordinate with Traffic Signals such that the signal operations at the intersection are maintained except where permitted by the Contract Administrator and Traffic Signals Branch. This may result in the Work being completed in multiple stages.
 - (c) **Stage 1** – Concrete Pavement Rehabilitations – South half eastbound Broadway including sidewalk Work and structural soil cell construction from Osborne Street to Carlton Street as noted in D3.
 - (i) Work on the Stage 1 - South half of eastbound Broadway from Osborne Street to Carlton Street shall commence on May 22, 2023 or once the Contract Administrator has determined that all required Traffic Signals Work on Broadway between Osborne Street and Carlton Street has been completed.
 - (ii) Prior to commencing Stage 1, all manhole repairs, manhole replacements, sewer repairs, sewer connections, catchbasin lead repairs, catchbasin or catchpit installations and all other associated underground Work within Broadway from Osborne Street to Carlton Street must be completed to the satisfaction of the Contract Administrator. All associated Underground Work may commence on May 1, 2023 along with the Traffic Signals related installations, pending approval of the Contractor's proposed lane closures by the Contract Administrator and Traffic Management.
 - (iii) Asphalt milling of the intersections of Broadway/Osborne, Broadway/Memorial, Broadway/Kennedy, Broadway/Edmonton, Broadway/Carlton, Broadway/Hargrave and Broadway/Donald to occur no more than 72 hours prior to final paving of rest of Broadway. Milling and placing of asphalt Work to take place during off-peak weekday hours or evenings/overnights/weekends. Further time and schedule restrictions may be specified by City of Winnipeg Traffic Management.
 - (iv) Staging to occur as per CT-02 and CT-03. Stage 1 to be completed prior to commencing Stage 2.
 - (d) **Stage 2** – Concrete Pavement Rehabilitations – North half eastbound Broadway including median Work from Osborne Street to Carlton Street as noted in D3.
 - (i) Work on the Stage 2 shall commence once the Contract Administrator has determined that Stage 1 has been completed.
 - (ii) Asphalt milling of the intersections of Broadway/Osborne, Broadway/Memorial, Broadway/Kennedy, Broadway/Edmonton, Broadway/Carlton, Broadway/Hargrave and Broadway/Donald to occur no more than 72 hours prior to final paving of rest of Broadway. Milling and placing of asphalt Work to take place during off-peak weekday hours or evenings/overnights/weekends. Further time and schedule restrictions may be specified by City of Winnipeg Traffic Management.
 - (iii) Staging to occur as per CT-04 and CT-05. Stage 2 to be completed prior to commencing Stage 3.
 - (iv) Specified site furniture to be installed at the completion of Stage 2.

- (e) **Stage 3 – Concrete Pavement Rehabilitations – South half eastbound Broadway** including sidewalk Work and structural soil cell construction from Carlton Street to Main Street as noted in D3.
 - (i) Work on the Stage 3 - South half of eastbound Broadway from Carlton Street to Main Street shall commence once the Contract Administrator has determined that Stage 2 and all required Traffic Signals Work on Broadway between Carlton Street and Main Street have been completed.
 - (ii) Prior to commencing Stage 3, all manhole repairs, manhole replacements, sewer repairs, sewer connections, catchbasin lead repairs, catchbasin or catchpit installations and all other associated underground Work within Broadway from Carlton Street to Main Street must be completed to the satisfaction of the Contract Administrator.
 - (iii) Asphalt milling of the intersections of Broadway/Donald, Broadway/Smith, Broadway/Garry, Broadway/Fort and Broadway/Main to occur no more than 72 hours prior to final paving of rest of Broadway. Milling and placing of asphalt Work to take place during off-peak weekday hours or evenings/overnights/weekends. Further time and schedule restrictions may be specified by City of Winnipeg Traffic Management.
 - (iv) Staging to occur as per CT-06 and CT-07. Stage 3 to be completed prior to commencing Stage 4.
- (f) **Stage 4 – Concrete Pavement Rehabilitations – North half eastbound Broadway** including median Work from Carlton Street to Main Street as noted in D3.
 - (i) Work on the Stage 4 shall commence once the Contract Administrator has determined that Stage 3 has been completed.
 - (ii) Asphalt milling of the intersections of Broadway/Donald, Broadway/Smith, Broadway/Garry, Broadway/Fort and Broadway/Main to occur no more than 72 hours prior to final paving of rest of Broadway. Milling and placing of asphalt Work to take place during off-peak weekday hours or evenings/overnights/weekends. Further time and schedule restrictions may be specified by City of Winnipeg Traffic Management.
 - (iii) Staging to occur as per CT-08 and CT-09.
 - (iv) Specified site furniture to be installed at the completion of Stage 4.

D23.1.2 Immediately following the completion of the asphaltic concrete Works, the Contractor shall clean up the Site and remove all plant, surplus material, waste and debris other than that left by the City or other Contractors.

D23.1.3 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.

D24. CRITICAL STAGES

D24.1 The Contractor shall achieve critical stages of the Work in accordance with the following requirements:

- (a) Traffic Signals installations as described in D3 and D20 shall be totally performed within twenty five (25) consecutive Working Days of the commencement of the Work as specified in D17 and B18. Work on this critical stage shall commence on May 1, 2023 or within seven (7) Working Days of the Contract Administrator determining that seasonal conditions are satisfactory for construction to commence, as per D17.
- (b) Concrete Pavement Rehabilitation – Eastbound Broadway from Osborne Street to Carlton Street as described in D3 and D23 shall be totally performed within Fifty (50) consecutive Working Days of the commencement of the Concrete Pavement Rehabilitation – Eastbound Broadway from Osborne Street to Carlton Street Critical Stage as specified in D17 and B18. Work on this critical stage shall commence on May 22, 2023 or once the

Contract Administrator has determined that all required Traffic Signals Work within the project has been completed.

- D24.2 When the Contractor considers the Work associated with Traffic Signals Installations and/or Concrete Pavement Rehabilitation – Eastbound Broadway from Osborne Street to Carlton Street to be completed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Completion. 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.
- D24.3 The date on which the Traffic Signals Installations and/or Concrete Pavement Rehabilitation – Eastbound Broadway from Osborne Street to Carlton Street Work has been accepted by the Contract Administrator as being completed to the requirements of the Contract is the date on which completion of Traffic Signals Installations and/or Concrete Pavement Rehabilitation – Smith Street from Midtown Bridge to Graham Avenue has been achieved.

D25. SUBSTANTIAL PERFORMANCE

- D25.1 The Contractor shall achieve Substantial Performance within Ninety (90) consecutive Working Days of the commencement of the Work as specified in D17.
- D25.2 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.
- D25.3 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.

D26. TOTAL PERFORMANCE

- D26.1 The Contractor shall achieve Total Performance within Ninety-Five (95) consecutive Working Days of the commencement of the Work as specified in D17.
- D26.2 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.
- D26.3 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.

D27. LIQUIDATED DAMAGES

- D27.1 If the Contractor fails to achieve Critical Stages, 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) Traffic Signals Installations – Two Thousand Five Hundred dollars (\$2,500);
 - (b) Concrete Pavement Rehabilitation – Broadway from Osborne Street to Carlton Street – Five Thousand dollars (\$5,000);
 - (c) Substantial Performance – Five Thousand dollars (\$5,000);
 - (d) Total Performance – One Thousand Five Hundred dollars (\$1,500).

D27.2 The amounts specified for liquidated damages in D27.1 are based on a genuine pre-estimate of the City's losses in the event that the Contractor does not achieve critical stages, Substantial Performance or Total Performance by the days fixed herein for same.

D27.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

D28. COVID-19 SCHEDULE DELAYS

D28.1 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, directives from health authorities and various levels of government and in close consultation with the Contract Administrator.

D28.2 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.

D28.3 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. 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.

D28.4 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 D28.3. Failure to provide this notice will result in no additional time delays being considered by the City.

D28.5 The Work schedule, including the durations identified in D19 to D26 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.

D28.6 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.

D28.7 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.

D29. SCHEDULED MAINTENANCE

D29.1 The Contractor shall perform the following scheduled maintenance in the manner and within the time periods required by the Specifications:

- (a) Reflective Crack Maintenance as specified in CW3250;
- (b) Sod and Seed Maintenance as specified in CW3510.

D29.2 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

D30. JOB MEETINGS

- D30.1 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, one representative of 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.
- D30.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever they deem it necessary.

D31. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)

- D31.1 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).

D32. THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA) – QUALIFICATIONS

- D32.1 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 their sole discretion and acting reasonably, require updated proof of compliance, as set out in B12.4.

MEASUREMENT AND PAYMENT

D33. PAYMENT

- D33.1 Further to C12, the City shall make payments to the Contractor by direct deposit to the Contractor's banking institution, and by no other means. Payments will not be made until the Contractor has made satisfactory direct deposit arrangements with the City. Direct deposit application forms are at https://winnipeg.ca/finance/files/Direct_Deposit_Form.pdf.

WARRANTY

D34. WARRANTY

- D34.1 Notwithstanding C13.2, the warranty period shall begin on the date of Substantial Performance and shall expire two (2) years thereafter for the Structural Soil Cell and Concrete Sidewalk components of the Concrete Pavement Rehabilitation – Broadway from Osborne Street to Main Street Work, unless extended pursuant to C13.2.1 or C13.2.2, in which case it shall expire when provided for thereunder.
- D34.2 Notwithstanding C13.2, the warranty period shall begin on the date of Substantial Performance and shall expire one (1) year thereafter for remainder of the Work related to the Concrete Pavement Rehabilitation – Broadway from Osborne Street to Main Street, unless extended pursuant to C13.2.1 or C13.2.2, in which case it shall expire when provided for thereunder.

DISPUTE RESOLUTION

D35. DISPUTE RESOLUTION

- D35.1 If the Contractor disagrees with any opinion, determination, or decision of the Contract Administrator, the Contractor shall act in accordance with the Contract Administrator's opinion, determination, or decision unless and until same is modified by the process followed by the parties pursuant to D35.
- D35.2 The entire text of C21.4 is deleted, and amended to read: "Intentionally Deleted".
- D35.3 The entire text of C21.5 is deleted, and amended to read:
- (a) If Legal Services has determined that the Disputed Matter may proceed in the Appeal Process, the Contractor must, within ten (10) Business Days of the date of the Legal Services Response Letter, submit their written Appeal Form, in the manner and format set out on the City's Materials Management Website, to the Chief Administrative Officer, and to the Contract Administrator. The Contractor may not raise any other disputes other than the Disputed Matter in their Appeal Form.
- D35.4 Further to C21, prior to the Contract Administrator's issuance of a Final Determination, the following informal dispute resolution process shall be followed where the Contractor disagrees with any opinion, determination, or decision of the Contract Administrator ("Dispute"):
- (a) In the event of a Dispute, attempts shall be made by the Contract Administrator and the Contractor's equivalent representative to resolve Disputes within the normal course of project dealings between the Contract Administrator and the Contractor's equivalent representative.
 - (b) Disputes which in the reasonable opinion of the Contract Administrator or the Contractor's equivalent representative cannot be resolved within the normal course of project dealings as described above shall be referred to a without prejudice escalating negotiation process consisting of, at a minimum, the position levels as shown below and the equivalent Contractor representative levels:
 - (i) The Contract Administrator;
 - (ii) Supervisory level between the Contract Administrator and applicable Department Head;
 - (iii) Department Head.
- D35.4.1 Names and positions of Contractor representatives equivalent to the above City position levels shall be determined by the Contractor and communicated to the City at the pre-commencement or kick off meeting.
- D35.4.2 As these negotiations are not an adjudicative hearing, neither party may have legal counsel present during the negotiations.
- D35.4.3 Both the City and the Contractor agree to make all reasonable efforts to conduct the above escalating negotiation process within twenty (20) Business Days, unless both parties agree, in writing, to extend that period of time.
- D35.4.4 If the Dispute is not resolved to the City and Contractor's mutual satisfaction after discussions have occurred at the final escalated level as described above, or the time period set out in D35.4.3, as extended if applicable, has elapsed, the Contract Administrator will issue a Final Determination as defined in C1.1(v), at which point the parties will be governed by the Dispute Resolution process set out in C21.

THIRD PARTY AGREEMENTS

D36. FUNDING AND/OR CONTRIBUTION AGREEMENT OBLIGATIONS

- D36.1 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.
- D36.2 Further to D36.1, in the event that the obligations in D36 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.
- D36.3 For the purposes of D36:
- (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.
- D36.4 Modified Insurance Requirements
- D36.4.1 If not already required under the insurance requirements identified in D12, 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 their Ministers, officers, employees, and agents shall be added as additional insureds.
- D36.4.2 If not already required under the insurance requirements identified in D12, 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.
- D36.4.3 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.
- D36.4.4 Further to D12.3, 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.
- D36.4.5 All policies must be taken out with insurers licensed to carry on business in the Province of Manitoba.
- D36.5 Indemnification By Contractor
- D36.5.1 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.

- D36.5.2 The Contractor agrees that in no event will Canada or Manitoba, their respective officers, servants, employees or agents be held liable for any damages in contract, tort (including negligence) or otherwise, for:
- (a) any injury to any person, including, but not limited to, death, economic loss or infringement of rights;
 - (b) any damage to or loss or destruction of property of any person; or
 - (c) any obligation of any person, including, but not limited to, any obligation arising from a loan, capital lease or other long term obligation;

in relation to this Contract or the Work.

D36.6 Records Retention and Audits

D36.6.1 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.

D36.6.2 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 D36.6.1 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.

D36.7 Other Obligations

D36.7.1 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.

D36.7.2 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.

D36.7.3 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.

D36.7.4 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.

D36.7.5 The Contractor represents and warrants that no current or former public servant or public office holder, to whom the Value and Ethics Code for the Public Sector, the Policy on Conflict of Interest and Post Employment, or the Conflict of Interest Act applies, shall derive direct benefit from this Contract, including any employment, payments, or gifts,

unless the provision or receipt of such benefits is in compliance with such codes and the legislation.

D36.7.6 The Contractor represents and warrants that no member of the House of Commons or of the Senate of Canada or of the Legislative Assembly of Manitoba is a shareholder, director or officer of the Contractor or of a Subcontractor, and that no such member is entitled to any benefits arising from this Contract or from a contract with the Contractor or a Subcontractor concerning the Work.

FORM H1: PERFORMANCE BOND
(See D13)

KNOW EVERYONE 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. 69-2023

Downtown Pavement Renewals Project – 2023 Pavement Renewals: Eastbound Broadway
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 D13)

KNOW EVERYONE 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. 69-2023

Downtown Pavement Renewals Project – 2023 Pavement Renewals: Eastbound Broadway

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)

FORM J: SUBCONTRACTOR LIST
 (See D14)

Downtown Pavement Renewals Project – 2023 Pavement Renewals: Eastbound Broadway

<u>Portion of the Work</u>	<u>Name</u>	<u>Address</u>
SURFACE WORKS:		
<i>Supply of Materials:</i>		
Concrete		
Asphalt		
Base Course & Sub-Base		
Sod		
<i>Installation/Placement:</i>		
Geotextile Fabrics		
Concrete		
Asphalt		
Base Course & Sub-Base		
Street Lighting		
Sod/Seed		
Silva Cells		
Joint Sealant		
UNDERGROUND WORKS:		
<i>Supply of Materials:</i>		
Sewer Service Pipe/Land Drainage Pipe		
Subdrains		
Catchbasins/Catchpits		

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 their 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>
CT-00	Cover Page and Location Plan	A1
CT-01	General Arrangement and Drawing Index	A1
CT-02	Construction Staging – Broadway Eastbound – Rehabilitation – Station 0+000 to Station 0+265 - Stage 1	A1
CT-03	Construction Staging – Broadway Eastbound – Rehabilitation – Station 0+265 to Station 0+565 - Stage 1	A1
CT-04	Construction Staging – Broadway Eastbound – Rehabilitation – Station 0+000 to Station 0+265 - Stage 2	A1
CT-05	Construction Staging – Broadway Eastbound – Rehabilitation – Station 0+265 to Station 0+565 - Stage 2	A1
CT-06	Construction Staging – Broadway Eastbound – Rehabilitation – Station 0+565 to Station 0+865 - Stage 3	A1
CT-07	Construction Staging – Broadway Eastbound – Rehabilitation – Station 0+865 to Station 1+150 - Stage 3	A1
CT-08	Construction Staging – Broadway Eastbound – Rehabilitation – Station 0+565 to Station 0+865 - Stage 4	A1
CT-09	Construction Staging – Broadway Eastbound – Rehabilitation – Station 0+865 to Station 1+150 - Stage 4	A1
CT-10	Plan/Profile Grading Plan – Broadway Eastbound - Station 0+010 to Station 0+125	A1
CT-11	Plan/Profile Grading Plan – Broadway Eastbound - Station 0+125 to Station 0+235	A1
CT-12	Plan/Profile Grading Plan – Broadway Eastbound - Station 0+235 to Station 0+355	A1
CT-13	Plan/Profile Grading Plan – Broadway Eastbound - Station 0+355 to Station 0+455	A1
CT-14	Plan/Profile Grading Plan – Broadway Eastbound - Station 0+455 to Station 0+565	A1
CT-15	Plan/Profile Grading Plan – Broadway Eastbound - Station 0+565 to Station 0+685	A1

<u>Drawing No.</u>	<u>Drawing Name/Title</u>	<u>Drawing (Original) Sheet Size</u>
CT-16	Plan/Profile Grading Plan – Broadway Eastbound - Station 0+685 to Station 0+805	A1
CT-17	Plan/Profile Grading Plan – Broadway Eastbound - Station 0+805 to Station 0+915	A1
CT-18	Plan/Profile Grading Plan – Broadway Eastbound - Station 0+915 to Station 1+035	A1
CT-19	Plan/Profile Grading Plan – Broadway Eastbound - Station 1+035 to Station 1+140	A1
CT-20	Streetscaping Plan – Broadway Eastbound - Station 0+010 to Station 0+385	A1
CT-21	Streetscaping Plan – Broadway Eastbound - Station 0+385 to Station 0+760	A1
CT-22	Streetscaping Plan – Broadway Eastbound - Station 0+760 to Station 1+135	A1
CT-23	Soil Cell Layout Plan – Broadway Eastbound – Station 0+355 to Station 0+735	A1
CT-24	Soil Cell Layout Plan – Broadway Eastbound – Station 0+735 to Station 1+135	A1
CT-25	Miscellaneous Details and Sections	A1
CT-26	Soil Cell Details and Sections	A1
CT-27	Transit Shelter Details and Section	A1
S-1066	Traffic Signals – Broadway and Osborne	A1
S-1303	Traffic Signals – Broadway and Memorial	A1
S-1271	Traffic Signals – Broadway and Kennedy	A1
S-1371	Traffic Signals – Broadway and Edmonton	A1
S-1273	Traffic Signals – Broadway and Carlton	A1
S-1789	Traffic Signals – Broadway and Hargrave	A1
S-1274	Traffic Signals – Broadway and Donald	A1
S-1275	Traffic Signals – Broadway and Smith	A1
S-1276	Traffic Signals – Broadway and Garry	A1
S-1079	Traffic Signals – Broadway and Fort	A1
S-1266	Traffic Signals – Broadway and Main	A1
1-04707-DE-50000-0453-1/4	Manitoba Hydro – Broadway Streetlighting – Sheet 1	A1
1-04707-DE-50000-0453-2/4	Manitoba Hydro – Broadway Streetlighting – Sheet 2	A1
1-04707-DE-50000-0453-3/4	Manitoba Hydro – Broadway Streetlighting – Sheet 3	A1
1-04707-DE-50000-0453-4/4	Manitoba Hydro – Broadway Streetlighting – Sheet 4	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(s);
 - (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 Pay Reduction for Accessibility Plan
- (a) The Demobilization payment will be reduced by the number of pay adjustments incurred in accordance with D16 and as determined by the Contract Administrator.
- E2.10 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 existing soil conditions. The geotechnical report is contained in Appendix 'G'.

E4. OFFICE FACILITIES

E4.1 The Contractor shall supply office facilities meeting the following requirements:

- (a) The field office shall be for the exclusive use of the Contract Administrator.
- (b) The building shall be conveniently located near the site of the Work.
- (c) The building shall have a minimum floor area of 25 square metres, 2.4m with two windows for cross ventilation and a door entrance with a suitable lock.
- (d) The building shall be suitable for all weather use. It shall be equipped with an electric heater and air conditioner so that the room temperature can be maintained between either 16-18°C or 24-25°C.
- (e) The building shall be adequately lighted with fluorescent fixtures and have a minimum of three wall outlets.
- (f) The building shall be furnished with one desk, table 3m x 1.2m, one stool, and a minimum of 12 chairs.
- (g) A portable toilet shall be located near the field office building. The toilet shall have a locking door and be for the exclusive use of the Contract Administrator and other personnel from the City.
- (h) The field office building and the portable toilet shall be cleaned on a weekly basis immediately prior to each site meeting. The Contract Administrator may request additional cleaning when they deem it necessary.

E4.2 The Contractor shall be responsible for all installation and removal costs, all operating costs, and the general maintenance of the office facilities.

E4.3 The office facilities will be provided from the date of the commencement of the Work to the date of Substantial Performance.

E5. PROTECTION OF EXISTING TREES

E5.1 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.

- E5.2 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 their designate.
- E5.3 No separate measurement or payment will be made for the protection of trees.
- E5.4 Except as required in clause E5.1(c) and E5.1(e), Elm trees shall not be pruned at any time between April 1 and July 31.

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, the Contract Drawings, Staging Plans and Traffic Management Plans 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.
 - (c) In addition, the Contractor shall be responsible for **supplying**, removing, placing and maintaining all regulatory signing including but not limited to:
 - (i) Parking restrictions;
 - (ii) Stopping restrictions;
 - (iii) Turn restrictions;
 - (iv) Diamond lane removal;
 - (v) Full or directional closures on a Regional Street;
 - (vi) Traffic routed across a median;
 - (vii) 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.
 - (d) The Contractor shall remove and stockpile any regulatory signage not required during construction such as, but not limited to, parking restrictions, turn restrictions and loading restrictions.
- E6.2 Upon request from the Contract Administrator, the Contractor shall provide records demonstrating that the site has been maintained.
- E6.3 Further to E6.1(c) and E6.1(d) the Contractor shall make arrangements with the Traffic Services Branch of the City of Winnipeg to reinstall the permanent regulatory signs after the Contract Work is complete. The Contractor shall make arrangements to drop off the stockpiled materials to Traffic Services at 495 Archibald Street.
- E6.4 Any changes to the approved Traffic Management Plan must be submitted to the Contract Administrator a minimum of five (5) Working Days prior to the required change for approval.
- E6.5 If the Contract Administrator determines that the Contractor is not performing Traffic Control in accordance with this specification, Traffic Services may be engaged to perform the Traffic Control. In this event the Contractor shall bear costs charged to the project by the Traffic Services Branch of the City of Winnipeg in connection with the required Works.

E7. TRAFFIC MANAGEMENT

E7.1 Further to clause 3.7 of CW 1130:

- (a) Single lane closures on intersecting and/or adjoining Regional Streets shall only be permitted during non-peak periods when required for construction activities when approved by the Traffic Management Branch. Storage/parking of materials, equipment or vehicles is not permitted on Regional Streets at any time unless approved by the Contract Administrator, in consultation with the Traffic Management Branch.

E7.1.1 Stage 1 and 2 Pavement Rehabilitation – Broadway from Osborne Street to Carlton Street

- (a) Prior to commencing any other Work all Traffic Signals related installations within the Osborne Street to Carlton Street limits must be completed including the installation of required items by the Contractor, the Contractor coordinating the removal of above ground plant and cabling to facilitate the installation of the underground plant, and Traffic Signals Branch completing all cabling and erection of above ground plant. The Contractor must coordinate with Traffic Signals such that the signal operations at the intersection are maintained except when permitted by Contract Administrator and Traffic Signals Branch. This may result in the Work being completed in multiple stages. During this Work maintain a minimum of one lane of eastbound and two lanes of westbound traffic, Traffic Management may specify that two lanes of eastbound traffic will need to be maintained during peak hours. When no Work is being performed on site, non-essential lane closures will not be permitted. During this Work, Parking and Loading Zones will only be restricted if necessary.
- (b) Prior to commencing Stage 1 all Underground Works within the Osborne Street to Carlton Street limits are to be completed. During this Work maintain a minimum of one lane of eastbound and two lanes of westbound traffic, Traffic Management may specify that two lanes of eastbound traffic will need to be maintained during peak hours. When no Work is being performed on site, non-essential lane closures will not be permitted. During this Work, Parking and Loading Zones will only be restricted if necessary.
- (c) The required Work during Stage 1 includes but is not limited to planning of existing asphalt material, concrete joint/slab repairs, replacement of existing catch basins and catch basin leads, adjustments of manholes/appurtenances, renewal of existing curbs, construction of structural soil cells c/w all related Work, construction of sidewalk c/w paving stone band, installation of detectable warning tiles and placement of asphalt overlay. During Stage 1 the Work will take place in the eastbound south gutter and half of the adjacent middle lane. The Contractor shall maintain one lane of eastbound traffic as per the staging drawings. Parking and Loading Zones will be restricted to complete this Work. See drawing CT-02 and CT-03 for additional staging details.
 - (i) During Stage 1 the Contractor shall maintain bus stops in the existing locations, as per MTTC the stops must be fully accessible throughout construction through the use of loading ramps.
 - (ii) During Soil Cell and sidewalk construction in Stage 1 the pedestrian traffic shall be maintained on the closed lanes of Broadway. The Contractor shall install working bridges with safety railings across soil cell construction to maintain pedestrian access to buildings and businesses at all times.
- (d) The required Work during Stage 2 includes but is not limited to planning of existing asphalt material, concrete joint/slab repairs, replacement of existing catch basins and catch basin leads, adjustments of manholes/appurtenances, renewal of existing curbs/splash strip, installation of detectable warning tiles and placement of asphalt overlay. During Stage 2 the Work will take place in the eastbound north median lane and half of the adjacent middle lane. The Contractor shall maintain one lane of eastbound traffic as per the staging drawings. Parking and Loading Zones will be restricted to complete this Work. See drawing CT-04 and CT-05 for additional staging details.
 - (i) During Stage 2 the Contractor shall maintain bus stops in the existing locations along the east curb.

- (e) Stage 1 and Stage 2 additional traffic management requirements:
- (i) The Contractor shall install and maintain proper advance warning and lane closure signage upstream of the Osborne Street limit for Stage 1 and 2.
 - (ii) The Contractor shall stage construction in the Broadway/Osborne intersection to maintain all lanes of through traffic on Osborne Street. Install signage to indicate “No Right Turns for Trucks” in the northbound direction during Stage 1. Otherwise, all turning movements through the intersection shall be maintained.
 - (iii) The Contractor shall stage construction in the Broadway/Memorial intersection to maintain one lane of through traffic in both northbound and southbound directions at all times. All turning movements through the intersection shall be maintained.
 - (iv) The Contractor shall stage construction in the Broadway/Kennedy intersection to maintain one lane of southbound through traffic on Kennedy Street at all times. Install signage to indicate “No Left Turns for Trucks” in the southbound direction during Stage 2. Otherwise, all turning movements through the intersection shall be maintained at all times.
 - (v) The Contractor shall stage construction in the Broadway/Edmonton intersection to maintain one lane of northbound through traffic on Edmonton Street at all times. Install signage to indicate “No Right Turns for Trucks” in the northbound direction during Stage 1. Otherwise, all turning movements through the intersection shall be maintained.
 - (vi) The Contractor shall stage construction in the Broadway/Carlton intersection to maintain one lane of through traffic in the southbound direction on Carlton Street at all times. Install signage to indicate “No Left Turns for Trucks” in the southbound direction during Stage 2. Otherwise, all turning movements through the intersection shall be maintained.

E7.1.2 Stage 3 and 4 Pavement Rehabilitation – Broadway from Carlton Street to Main Street

- (a) Prior to commencing any other Work all Traffic Signals related installations within the Carlton Street to Main Street limits must be completed including the installation of required items by the Contractor, the Contractor coordinating the removal of above ground plant and cabling to facilitate the installation of the underground plant, and Traffic Signals Branch completing all cabling and erection of above ground plant. The Contractor must coordinate with Traffic Signals such that the signal operations at the intersection are maintained except where permitted by Contract Administrator and Traffic Signals Branch. This may result in the Work being completed in multiple stages. During this Work maintain a minimum of one lane of eastbound and two lanes of westbound traffic, Traffic Management may specify that two lanes of eastbound traffic will need to be maintained during peak hours. When no Work is being performed on site, non-essential lane closures will not be permitted. During this Work, Parking and Loading Zones will only be restricted if necessary.
- (b) Prior to commencing Stage 3 all Underground Works within the Carlton Street to Main Street limits are to be completed. During this Work maintain a minimum of one lane of eastbound and two lanes of westbound traffic, Traffic Management may specify that two lanes of eastbound traffic will need to be maintained during peak hours. When no Work is being performed on site, non-essential lane closures will not be permitted. During this Work, Parking and Loading Zones will only be restricted if necessary.
- (c) The required Work during Stage 3 includes but is not limited to planning of existing asphalt material, concrete joint/slab repairs, replacement of existing catch basins and catch basin leads, adjustments of manholes/appurtenances, renewal of existing curbs, construction of structural soil cells c/w all related Work, construction of sidewalk c/w paving stone band, installation of detectable warning tiles and placement of asphalt overlay. During Stage 3 the Work will take place in the eastbound south gutter and half of the adjacent middle lane. The Contractor shall maintain one lane of eastbound traffic as per the staging drawings. Parking and Loading Zones will be restricted to complete this Work. See drawing CT-06 and CT-07 for additional staging details.

- (i) During Stage 3 the Contractor shall maintain bus stops in the existing locations, as per MTTC the stops must be fully accessible throughout construction through the use of loading ramps.
 - (ii) During Soil Cell and sidewalk construction in Stage 3 the pedestrian traffic shall be maintained on the closed lanes of Broadway. The Contractor shall install working bridges with safety railings across soil cell construction to maintain pedestrian access to buildings and businesses at all times.
 - (d) The required Work during Stage 4 includes but is not limited to planning of existing asphalt material, concrete joint/slab repairs, replacement of existing catch basins and catch basin leads, adjustments of manholes/appurtenances, renewal of existing curbs/splash strip, installation of detectable warning tiles and placement of asphalt overlay. During Stage 4 the Work will take place in the eastbound north median lane and half of the adjacent middle lane. The Contractor shall maintain one lane of eastbound traffic as per the staging drawings. Parking and Loading Zones will be restricted to complete this Work. See drawing CT-08 and CT-09 for additional staging details.
 - (i) During Stage 2 the Contractor shall maintain bus stops in the existing locations along the east curb.
 - (e) Stage 3 and Stage 4 additional traffic management requirements:
 - (i) The Contractor shall install and maintain proper advance warning and lane closure signage upstream of the Carlton Street limit for Stage 3 and 4.
 - (ii) The Contractor shall stage construction in the Broadway/Hargrave intersection to maintain one lane of northbound through traffic on Hargrave Street at all times. Install signage to indicate “No Right Turns for Trucks” in the northbound direction during Stage 3. Otherwise, all turning movements through the intersection shall be maintained.
 - (iii) The Contractor shall stage construction in the Broadway/Donald intersection to maintain two lanes of southbound through traffic on Donald Street at all times. Install signage to indicate “No Left Turns for Trucks” in the southbound direction during Stage 4. Otherwise, all turning movements through the intersection shall be maintained.
 - (iv) No lane closures are anticipated in the Broadway/Smith intersection. Install signage to indicate “No Right Turns for Trucks” in the northbound direction during Stage 3
 - (v) The Contractor shall stage construction in the Broadway/Garry intersection to maintain one lane of southbound through traffic on Garry Street at all times. Install signage to indicate “No Left Turns for Trucks” in the southbound direction during Stage 4. Otherwise, all turning movements through the intersection shall be maintained.
 - (vi) The Contractor shall stage construction in the Broadway/Fort intersection to maintain one lane of Northbound through traffic on Fort Street at all times. Install signage to indicate “No Right Turns for Trucks” in the northbound direction during Stage 3. Otherwise, all turning movements through the intersection shall be maintained at all times.
 - (vii) No lane closures are anticipated on Main Street, any required closures to be reviewed and approved by the Contract Administrator.
- E7.1.3 During all stages, Winnipeg Transit bus movements need to be maintained. Any disruptions will require the approval of Winnipeg Transit and the Contract Administrator. The Contractor shall accommodate the area necessary for Winnipeg Transit operate their regular routes, any required Work that interferes with Transit bus movements shall be completed over a weekend.
- E7.1.4 Contractor shall maintain access to all pedestrian building entrances during installation of soil cells through the use of temporary bridges or detoured access.

- E7.1.5 Contractor shall maintain turns on to the maximum extent possible as directed by the Contract Administrator.
- E7.1.6 The Contractor shall maintain access to all side streets, lanes and private approaches at all times, any disruptions require approval from the contract administrator and the Contractor must advise the property owner.
- E7.1.7 The Contractor shall maintain pedestrian crossings at the current locations or with temporary asphalt ramps at all side streets beyond the construction limits.
- E7.1.8 The Contractor shall maintain longitudinal pedestrian access along both sides of Broadway at all times.
- E7.1.9 The Contractor shall have flag persons upstream at all side street intersections during asphalt paving and when moving any construction vehicle in or out of traffic.
- E7.1.10 The Contractor shall install and maintain signage in accordance with the Manual of Temporary Traffic Control and as per the Staging drawings.
- E7.1.11 Private approach construction shall be staged to maintain access to private lots and businesses at all times. Should the Contractor be unable to maintain pedestrian or vehicular 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.
- E7.1.12 The Contractor shall have flag persons necessary to maintain the flow of traffic during certain Work operations.
- E7.1.13 Should the Contractor be unable to maintain an existing access to a residence or business, they 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.
- E7.1.14 Pedestrian and ambulance/emergency vehicle access must be maintained at all times.

E8. REFUSE AND RECYCLING COLLECTION

- E8.1 Contractor shall maintain back lane and private lot access and coordinate with private refuse and/or recycling collection vehicles. If 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, 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 No measurement or payment will be made for the Work associated with this specification.

E9. PEDESTRIAN SAFETY

- E9.1 During the project, structural soil cells will be installed within sidewalk limits, and a temporary snow fence shall be installed along the edge of the excavation. The Contractor shall be responsible for maintaining the snow fence in a proper working condition. No measurement for payment shall be made for this Work.

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 complete all surface restorations required to restore the facility to its design and restore full capacity of the facility 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 Work is completed. The Contractor shall bear all costs associated with temporary repairs and their maintenance. The costs may include but shall not be limited to temporary paving Work, temporary roads, sidewalks, active transportation/cycling facilities, Winnipeg Parking Authority charges related to loss of parking revenue and all traffic signing costs including those of Traffic Services.

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. PORTLAND CEMENT CONCRETE SIDEWALK WITH BLOCK OUTS FOR INDICATOR SURFACES

DESCRIPTION

E13.1 This specification shall supplement CW 3325-R5 "Portland Cement Concrete Sidewalks".

CONSTRUCTION METHODS

E13.2 Add the following to section 9 :

E13.2.1 As shown on the drawings and as directed by the Contract Administrator, construct sidewalk with block outs and/or monolithic curb and sidewalk with block outs, to allow for the installation of indicator surfaces.

E13.2.2 Verify dimensions of paving stones (indicator surface) prior to construction of the block-outs. Gaps between paving stones and concrete pavement shall not exceed five (5) millimetres.

E13.2.3 Concrete curbs for monolithic curb and sidewalk with block outs shall be constructed in accordance with CW 3240.

MEASUREMENT AND PAYMENT

E13.3 Add the following to section 12 :

E13.3.1 Construction of concrete sidewalks with block outs for indicator surfaces will be measured on surface area basis. The surface area to be paid for shall be the number of square metres constructed in accordance with this specification and accepted by the Contract Administrator, as computed by measurements made by the Contract Administrator.

BASIS OF PAYMENT

E13.4 Add the following to section 13 :

E13.4.1 Construction of concrete sidewalks with block outs for indicator surfaces will be paid for at the Contract Unit Price per square meter for the "Items of Work" listed here below,

measured as specified herein, which price shall be payment in full for supplying all materials and for performing all operations herein described and all other items incidental to the Work included in this specification.

E13.4.2 Items of Work:

(a) 125 mm Sidewalk with Block Outs

E13.4.3 Concrete thickness greater than the specified sidewalk thickness as a result of shaping the base material to accommodate the block outs is incidental to the listed Items of Work.

E14. PAVING STONES FOR INDICATOR SURFACES

DESCRIPTION

E14.1 This specification shall supplement CW 3330-R5 "Installation of Interlocking Paving Stones"

MATERIALS

E14.2 Add the following to section 5 :

E14.2.1 Paving Stones for indicator surfaces shall be as shown on the drawings.

E14.2.2 Paving Stones for indicator surfaces shall be :

Barkman Concrete paving stones -
Charcoal Holland Paver (60mm X 210 mm X 210 mm)
<https://www.barkmanconcrete.com/>

CONSTRUCTION METHODS

E14.3 Add the following to section 9.2 "Preparation of Sub-grade, Sub-base and Sand-base" :

E14.3.1 Preparation of Sand-Base for Paving Stones in Sidewalk Block Outs.

E14.3.2 Place a 15mm layer of bedding sand in the blocked out sidewalk areas.

E14.3.3 The bedding sand shall be spread and levelled so that the paving stones when installed are 5 mm higher than the finished grade.

E14.3.4 No more sand shall be spread than can be covered in with paving stone on the same day.

E14.3.5 The bedding sand shall not be compacted or disturbed prior to laying the paving stones.

E14.4 Add the following to section 9.3 "Installation of Paving Stones" :

E14.4.1 For indicator surface paving stones, commence installation of paving stones against the long edge of the block out to obtain the straightest possible course of installation.

MEASUREMENT AND PAYMENT

E14.5 Add the following to section 12 :

E14.6 Supply and Installation of Paving Stones for Indicator Surfaces

E14.6.1 Paving stones for indicator surfaces will be measured on surface area basis. The surface area to be paid for shall be the number of square metres constructed in accordance with this specification and accepted by the Contract Administrator, as computed by measurements made by the contract Administrator.

BASIS OF PAYMENT

E14.7 Add the following to section 13 :

E14.7.1 The supply and installation of paving stones for indicator surfaces will be paid for at the Contract Unit Price per square meter for "Paving Stone Indicator Surface", measured as

specified herein, which price shall be payment in full for supplying all materials and for performing all operations herein described and all other items incidental to the Work included in this specification.

- E14.7.2 Concrete thickness greater than the specified sidewalk thickness as a result of shaping the base material to accommodate the block outs is incidental to the listed Items of Work.

E15. SUPPLY AND INSTALL WATERMAIN AND WATER SERVICE INSULATION

DESCRIPTION

- E15.1 Notwithstanding 3.12 of CW 2110, this specification covers the supply and installation of insulation in roadway excavations over watermains and water services.
- E15.2 Referenced Standard Construction Specifications
- (a) CW 2030 – Excavation Bedding and Backfill
 - (b) CW 3110 – Sub –grade, Sub-base and Base Course Construction
- E15.3 Referenced Standard Details
- (a) SD-018 - Watermain and Water Service Insulation

MATERIALS

- E15.4 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"
- E15.5 Sand Bedding:
- (a) In accordance with CW 2030

CONSTRUCTION METHODS

- E15.6 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.
- E15.7 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.
- E15.8 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.
- E15.9 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.
- E15.10 Take appropriate measures to ensure panels are not displaced when installing geotextiles and during backfilling operations.

MEASUREMENT AND PAYMENT

- E15.11 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 E15.6 will not be measured for payment and will be included in the payment for "Watermain and Water Service Insulation".

E16. INSULATION OF EXISTING WATERMAINS AT CATCH PITS AND CATCHBASINS

DESCRIPTION

- E16.1 General
- E16.1.1 This Specification covers all operations relating to the insulation of watermains where a catch pit and/or catchbasins will be installed in the vicinity of existing watermain.
- E16.1.2 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.

CONSTRUCTION METHODS

- E16.2 Further to CW 2110-R11 and SD-018, the Contractor shall modify the insulation to accommodate the installation of the catch pits and/or catchbasins in the vicinity of existing watermains as per the details shown on the Drawings.

MEASUREMENT AND PAYMENT

- E16.3 Catch Pit Insulation
- E16.3.1 Catch Pit/Catchbasin Insulation will be measured on a unit basis and paid for at the Contract Unit Price per each for "Catch Pit and Catchbasin Insulation", which price shall be payment in full for the supplying all materials and for completing all operations herein described and all other items incidental to the Work included in this Specification, accepted and measured by the Contract Administrator.

E17. EXISTING STREET CAR TRACK BEDDING

DESCRIPTION

- E17.1 General
- E17.1.1 This Specification covers the potential removal of existing street car track bedding including rails from the centerline of Broadway within the project limits, records indicate track bedding may be present, if discovered it shall be removed in accordance with this specification.
- E17.2 Definitions
- E17.2.1 Street Car Track Bedding – The concrete bedding, including wooden ties and rails, for the street car tracks previously located down Broadway. The concrete bedding is estimated to be approximately 2.7 metres wide by 0.6 metres thick.
- E17.3 Referenced Standard Construction Specifications
- E17.3.1 CW 1130 – Work Site Requirements.

CONSTRUCTION METHODS

E17.4 Removal of Existing Street Car Track Bedding

- E17.4.1 Remove the existing concrete bedding by demolishing, loading, hauling and disposing of the existing concrete bedding, including rails and ties and any other materials encountered from the site.
- E17.4.2 Dispose of the removed bedding in accordance with Section 3.4 of CW 1130.

MEASUREMENT AND PAYMENT

E17.5 Removal of Existing Street Car Track Bedding

- E17.5.1 Removal of Existing Street Car Track Bedding shall be measured on a cubic metre basis. basis and paid for at the Contract Unit Price for "Removal of Existing Street Car Track bedding", 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, accepted and measured by the Contract Administrator.

E18. HYDRO EXCAVATION

DESCRIPTION

E18.1 General

- E18.1.1 This specification shall cover the removal of earthen material immediately adjacent to existing trees to be protected, underground utilities infrastructure such as gas lines, gas services and areaways by means of high pressure water spray, and the recovery of evacuated material by vacuum type means or equivalent method as approved by the Contract Administrator.
- E18.1.2 This specification shall also cover Hydro excavation around existing trees in tree pit applications.

E18.2 Equipment

- E18.2.1 Hydro excavation unit 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. Unit should be adjustable, so as to provide adequate pressure to remove earthen material identified by the Contract Administrator.
- E18.2.2 Spray head shall be equipped with a rotating type nozzle, in order to provide a wider path of cut.

CONSTRUCTION METHODS

E18.3 Hydro-Removal of Earthen Material

- E18.3.1 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.
- E18.3.2 Earthen material adjacent to tree roots for tree well construction shall be sprayed with controlled pressure water so as to not cause damage to the tree. The Contractor must make arrangements to have personnel for City Forestry present during Hydro Excavation for tree well construction.

E18.4 Recovery of Excavated Material

- E18.4.1 The recovery of excavated material shall be done using vacuum type method, or other type method as approved by the Contract Administrator.
- E18.4.2 The recovery of material shall follow immediately behind the excavation, to avoid excavated areas from filling with excavated material.
- E18.4.3 The use of mechanical sweepers will not be allowed.

E18.4.4 Dispose of material in accordance with Section 3.4 of CW 1130.

E18.5 Backfill of Hydro Excavated Hole

E18.5.1 The Contractor shall be responsible for the backfill of the hydro excavated hole upon the completion of the Work described herein, to the approval of the Contract Administrator.

MEASUREMENT AND PAYMENT

E18.6 Hydro Excavation

E18.6.1 Hydro Excavation of earthen material will be measured on an hourly basis and paid for at the Contract Unit Price per hour for "Hydro Excavation". Hydro Excavation as a pay item is to be paid only when directed by the Contract Administrator for site investigation purposes only. It is not to be paid for the Contractor's execution of normal contract requirements. For example, required to complete excavations and for safety watch requirements and all other Work identified in the tender documents and drawings. The hours to be paid for will be the total number of hours of Hydro Excavation in accordance with this specification, accepted and measured by the Contract Administrator. Travel to and from the Site will not be accounted for in the payment of this item.

E19. SAWCUTTING

DESCRIPTION

E19.1 Further to CW 3240, the Contractor will be required to sawcut the existing concrete sidewalk full depth as follows:

E19.1.1 At the back of sidewalk along the face of the existing buildings so as not to damage the face of the buildings during removal.

E19.1.2 The Contractor shall exercise extreme caution when sawcutting sidewalks to avoid damage to any underlying areaways as per E31.

E19.1.3 In the event of damage to any buildings by the Contractor, the Contractor shall immediately notify the Contract Administrator and make all repairs or replacements necessary, at his own expense, to the satisfaction of the Contract Administrator and the Owner of the building.

MEASUREMENT AND PAYMENT

E19.2 All costs in connection with the above sawcutting are incidental and shall be included in the Contract Unit Price for "Miscellaneous Concrete Slab Removal, i) 125 mm Sidewalk (includes paving stone)".

E20. ADJUSTMENT OF UTILITY MANHOLE FRAMES

DESCRIPTION

E20.1 General

E20.1.1 This specification covers the adjustment of utility manhole frames which Works include but are not limited to picking up the materials, removing the existing frame, making any required changes to the structure to accommodate new frame installation, reinstalling the existing frame or installing a new frame/cover, installing supplied lifter rings and constructing any required temporary asphalt ramps.

E20.1.2 Utility manhole frames to be adjusted include but are not limited to Manitoba Hydro and BellMTS.

E20.1.3 Pavement removal and replacement will be in accordance with Specifications CW 3100 and CW 3230. Pavement isolations surrounding utility manhole frames must be reinforced with 15m bars for isolation in the roadway and 10m bars for isolations in sidewalk.

- E20.1.4 The Contractor is to provide a minimum 48 hour notice to the utility and the Contract Administrator prior to undertaking any of the proposed Works on the utility manholes.
- E20.1.5 The Contractor to make arrangements through the utility for watch personnel to be present during construction of the required Works to the utility manholes.
- E20.1.6 Referenced Standard Construction Specifications
 - (a) CW 3110 – Sub-Grade, Sub-Base and Base Course Construction;
 - (b) CW 3230 – Full-Depth Patching of Existing Slabs and Joints.

MATERIALS

- E20.2 Manhole Frames, Covers and Riser Rings
 - E20.2.1 Utility manhole frames and covers shall be provided by the utility. The Contractor shall arrange to pick up materials from the particular utility's storage yard.

CONSTRUCTION METHODS

- E20.3 Removal of Existing Pavement
 - E20.3.1 Remove complete concrete slab surrounding utility manhole in accordance with Specification CW 3110.
 - E20.3.2 Removal procedures to be done in a manor not to damage utility manhole structure.
- E20.4 Removal of Manhole Frame and Cover
 - E20.4.1 Remove the required concrete embedding the frame and remove the frame and cover. Utility Watch personnel to approve construction method prior to proceeding. The Contractor is to provide opportunity for the utility to collect the old frame and cover if applicable, otherwise the old frame and covers are to be disposed of off-site as directed by the Contract Administrator.
- E20.5 Removal and Installation of New Frame and Cover
 - E20.5.1 Install new or existing frame and cover as specified herein and or on the drawings, if applicable. Existing frames identified as being in good condition are to be reused.
 - E20.5.2 The Contractor shall set the frame and cover to the proposed grade utilizing shims and a form inside the manhole frame to prevent concrete from spilling into the interior of the manhole and produce a neat finished surface inside the frame. The Contractor shall then pour concrete around the outside of the frame to secure it to the manhole.
- E20.6 Installation of Lifter Rings
 - E20.6.1 Install new lifter rings as specified herein and or on the drawings, if applicable.
 - E20.6.2 The Contractor shall check prior to installation to ensure that the riser ring will fit into the existing frame, if existing frame does not accommodate the proposed riser ring, then a new frame and cover will be installed.
 - E20.6.3 The Contractor shall remove the existing cover, clean the existing frame, install required riser ring and reinstall the cover.
- E20.7 Construct Temporary Asphalt Ramp
 - E20.7.1 Where required for re-opening lane to traffic, construct temporary asphalt ramp to the grades as noted on the drawings and as directed by the Contract Administrator.

MEASUREMENT AND PAYMENT

- E20.8 Removal and Installation of Utility Frame and Cover

E20.8.1 Removal and Installation of Utility Frame and Covers will be measured on a unit basis and paid for at the Contract Unit Price per unit for "Removal and Installation of Utility Frame and Covers". The number of units to be paid for will be the total number of manhole frames and covers installed in accordance with this specification, accepted and measured by the Contract Administrator.

E20.9 Installation of Utility Manhole Riser Rings

E20.9.1 Installation of Utility Manhole Riser Rings will be measured on a unit basis and paid for at the Contract Unit Price per unit for "Installation of Utility Manhole Riser Rings". The number of units to be paid for will be the total number of riser rings installed in accordance with this specification, accepted and measured by the Contract Administrator.

E20.10 Concrete Pavement removal and replacement will be measured and paid for in accordance with Specification CW 3230.

E21. SIDEWALK REMOVAL AT AREAWAYS

E21.1 Further to CW 3235 the Contractor is advised that potentially throughout the project there are sections of building basements called "Areaways" that extend into the City right of way, or may be present behind back of sidewalk. AECOM has located "areaways" using historical as-built drawings, and hydro excavation to confirm location as much as possible. There are no known areaways within the project limits, however there may be additional areaways below the sidewalks for which no record information exists. As a result, the Contractor shall exercise extreme caution when removing all sidewalks and will use methods for removal to prevent damage to any underlying areaways. All costs associated with additional effort required to remove sidewalk shall be included in "Miscellaneous Concrete Slab Removal, i) 100mm Concrete Sidewalk (includes paving stone)" and no additional payment shall be made.

E21.2 Should the Contractor damage an areaway roof during sidewalk removal, the repair and restoration of the areaway roof shall be completed at the Contractor's expense.

E22. BUSINESS INFORMATION SIGNS

E22.1 Further to Specification E11.1, the Contractor is advised that they will be required to supply and install business information signs on Broadway, prior to starting any Work at the upstream end of each block under construction, that identify the names of each of the business within that block. The Contractor must erect the business signs prior to starting construction. Signs shall be supplied and installed for each side of the street under construction with the names of business on that side of the street.

E22.2 The signs shall be a minimum of 1.22m x 2.44 m (4 feet x 4 feet) mounted with the longest dimension vertical with sufficient support and ballast so as not to be blown over. The signs shall have a white background, with each business name stenciled in black lettering of sufficient size to be read at a distance of 10m.

E22.3 The supply, erection, removal and disposal of the signs shall be incidental to the supply and installation of temporary construction signage and no further measurement or payment shall be made.

E23. MISCELLANEOUS CONCRETE SLAB REMOVAL (CONCRETE SIDEWALK INCLUDING PAVING STONE)

DESCRIPTION

E23.1 This specification shall supplement CW 3235 "Renewal of Existing Miscellaneous Concrete Slabs".

CONSTRUCTION METHODS

E23.2 Add the following to section 3.1:

- E23.2.1 As shown on the drawings and as directed by the Contract Administrator, remove miscellaneous concrete slabs complete with any paving stones within the removal limits.
- E23.2.2 Any paving stones that are to be reused shall be done so in accordance with E24 – “Removal and Stockpiling of Existing Paving Stones”.
- E23.2.3 As directed by the Contract Administrator, any Paving Stones deemed unusable shall be disposed of.

MEASUREMENT AND PAYMENT

E23.2.4 Removal and stockpiling of existing interlocking paving stones will be measured on an area basis and paid for at the Contract Unit Price per square metre for “Removal and Stockpiling of Existing Paving Stones”. The area to be paid will be the total number of square metres removed and stockpiled in accordance with this specification, accepted and measured by the Contract Administrator.

E23.3 Add the following to section 4.1:

- (a) Removal of miscellaneous concrete slabs will be measured on an area basis and paid for at the Contract Unit Price per square metre for the “Items of Work” listed here below. The area to be paid for will be the total number of square metres of existing miscellaneous concrete slabs removed in accordance with this specification, accepted and measured by the Contract Administrator.

Items of Work:

Miscellaneous Concrete Slab Removal

- i) 100mm Sidewalk (includes Paving Stones)

E24. REMOVAL AND STOCKPILING OF EXISTING INTERLOCKING PAVING STONES

DESCRIPTION

E24.1 General

E24.1.1 This specification shall supplement the City of Winnipeg Standard Construction Specification CW 3330 and shall cover all operations related to the removal and stockpiling of existing interlocking paving stones for reinstallation.

CONSTRUCTION METHODS

E24.2 Removal of existing interlocking paving stones (concrete pavers and clay pavers) for stockpiling shall include: removal of paving stones and base course material as required; disposal of base course material and unusable paving stones; and stockpiling of paving stones in an area approved by the Contract Administrator.

MEASUREMENT AND PAYMENT

E24.2.1 Removal and stockpiling of existing interlocking paving stones will be measured on an area basis and paid for at the Contract Unit Price per square metre for “Removal and Stockpiling of Existing Paving Stones”. The area to be paid will be the total number of square metres removed and stockpiled in accordance with this specification, accepted and measured by the Contract Administrator.

E25. INSTALLATION OF WINNIPEG BIZ SITE FURNITURE

DESCRIPTION

E25.1 General

- E25.1.1 This Specification covers all operations relating to the installation of site furniture supplied by the Winnipeg BIZ along the south side of Broadway.
- E25.1.2 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.

MATERIALS

- E25.2 General
- E25.2.1 Site furniture will be provided by the Winnipeg BIZ. The Contractor will be responsible for obtaining the site furniture from the Winnipeg BIZ. The Contractor shall be responsible for the safe storage, handling and installation of all materials set forth in this Specification. All materials supplied under this Specification shall be subject to inspection and acceptance by the Contract Administrator.
- E25.2.2 Contactor to supply all necessary mounting hardware.
- E25.3 Site Amenities and Accessories:
- E25.3.1 Site Furniture
- (a) Waste Receptacle
 - (b) Multi-Hoop Bike Rack
 - (c) Single Hoop Bike Rack
 - (d) Backless Bench
 - (e) Backed Bench
 - (f) Long Back Bench
- E25.3.2 Accessories
- (a) Stainless steel tamper resistant concrete wedge anchors to ASTM F593-1, suitable for the intended use.

CONSTRUCTION METHODS

- E25.4 Installation of Winnipeg BIZ Site Furniture
- E25.4.1 Install various piece of site furniture at the locations shown in the drawings in Appendix J to the satisfaction of the Contract Administrator.
- E25.4.2 Only site furniture on the south side of Broadway is to be installed with the 69-2023 contract.

MEASUREMENT AND PAYMENT

- E25.5 Installation of Winnipeg BIZ Site Furniture
- E25.5.1 The Installation of Winnipeg BIZ Site Furniture shall be measured on a unit basis and paid for at the Contract Unit Price for "Installation of Winnipeg BIZ Site Furniture", which payment shall be considered compensation in full for performing of all operations necessary to complete the Work as specified including any items incidental to the Work of this specification

E26. REMOVE AND REINSTALL BIKE HOOPS

DESCRIPTION

- E26.1 General

- E26.1.1 This specification covers the removal, salvaging and re-installation of existing bicycle hoops along Broadway.

CONSTRUCTION METHODS

E26.2 Removal and Salvage of Bicycle Hoops

- E26.2.1 Existing bicycle hoops designated for removal to facilitate construction shall be carefully removed and salvaged. All components and all hardware shall be salvaged for reuse and stockpiled at locations designated by the Contractor Administrator.

- E26.2.2 In the event of damage to any materials by the Contractor, the Contractor shall immediately notify the Contract Administrator and make all repairs or replacements necessary, at his own expense, to the satisfaction of the Contract Administrator. In no case shall the Contractor reinstall a damaged component.

E26.3 Re-Installation of Salvaged Bicycle Hoops

- E26.3.1 Re-Install salvaged bicycle hoops to the satisfaction of the Contract Administrator.

MEASUREMENT AND PAYMENT

E26.4 Remove and Reinstall Salvaged Bicycle Hoops

- E26.4.1 The removal and reinstall of bicycle hoops shall be measured on a unit basis and paid for at the Contract Unit Price for "Salvage and Reinstall Bicycle Hoop", which payment shall be considered compensation in full for performing of all operations necessary to complete the Work as specified including any items incidental to the Work of this specification.

E27. WORK NEAR HIGH PRESSURE GAS MAIN AND OTHER MANITOBA HYDRO INFRASTRUCTURE

- E27.1 The Contractor shall complete all Works in accordance with typical utility requirements.
E27.2 No further measurement or payment shall be made for meeting Manitoba Hydro requirements.

E28. INSTALLATION OF TRAFFIC SERVICES SIGN CLAMPS

DESCRIPTION

E28.1 General

- E28.1.1 This Specification covers all operations relating to the Installation of Traffic Services Sign Clamps.
E28.1.2 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labor, equipment, tools, supplies, and all things necessary for and incidental to the satisfactory performance and completion of all Works as hereinafter specified.

MATERIALS

E28.2 Traffic Services Sign Clamps

- E28.2.1 The Contract Administrator will arrange for Traffic Service to have the sign clamps delivered to site. The Contractor is to store the Sign Clamps in a secure location until the material is ready for installation.

CONSTRUCTION METHODS

E28.3 Installation

- E28.3.1 Installation of Traffic Services Sign Clamps is to be done in conjunction with the Installation of the 125mm Concrete Sidewalk and placed into the fresh concrete at locations determine by Traffic Services. The Base Course material is to be prepared at each location to accommodate the Installation of Traffic Services Sign Clamps.

MEASUREMENT AND PAYMENT

- E28.3.2 Installation of Traffic Services Sign Clamps will be incidental to the "Installation of 125mm Sidewalk with Block Outs." No measurement and payment will be made for these Items of Work.

E29. PROTECTION OF FORT GARRY HOTEL INFRASTRUCTURE

DESCRIPTION

- E29.1 This Specification covers the protection of the Fort Garry Hotel infrastructure during construction.
- E29.2 Contractor to contact Darrell Pakosh (204) 792-4985 for information regarding glycol and electrical lines in the construction area. Any damages to infrastructure shall be at the Contractors expense
- E29.3 Metal on existing curb is to be salvaged and returned to the Fort Garry Hotel, contact Darrell Pakosh (204) 792-4985

MEASUREMENT AND PAYMENT

- E29.4 Protection of Fort Garry Hotel infrastructure and salvaging of existing curb metal will be incidental to the Work. No measurement and payment will be made for these Items of Work.

E30. CRUSHED BLACK GRANITE

DESCRIPTION

- E30.1 This Specification covers the installation of black crushed granite mulch around existing trees indicated on the drawings.

SUBMITTALS

- E30.2 Prior to construction, submit the following to the Contract Administrator;
- E30.2.1 Mulch samples to the Contract Administrator for approval prior to installation.
(a) A Black Crushed Granite sample. Minimum sample size to be 2.5 kg.

MATERIALS

- E30.3 Non-woven geotextile to CW 3120.
- E30.4 Black Granite Mulch: shall be 20 to 40 mm granite mulch, black in colour. The material shall be free of organic and inorganic debris.

CONSTRUCTION METHODS

- E30.5 Hydro-excavate around existing tree to accommodate the required 75mm thickness. The Contractor is to make arrangements for City of Winnipeg Forestry personnel to be on site during hydro-excavation to ensure exposure of tree roots is acceptable.
- E30.6 Clear excavation of all construction debris, trash, rubble and any foreign material. Excavate and remove oil spills and other soil contamination sufficiently to remove the harmful material.
- E30.7 All excavated material shall be disposed of offsite in accordance with CW 1130.

E30.8 Crushed Black Granite: supply and install 75 mm deep crushed black granite in tree well locations and levels as shown on the Construction Drawings.

MEASUREMENT AND PAYMENT

E30.9 Crush Black Granite

E30.9.1 Supply and installation of "Crushed Black Granite" shall be made on a unit basis and paid for at the Contract Unit Price per square metre placed at the specified depth. In which payment shall be considered compensation in full for the supply of all materials and the performing of all operations necessary to complete the Work as specified including any items incidental to the Work of this specification.

E31. TREE REMOVAL

E31.1 City of Winnipeg Forestry Department will complete all required tree removals on the project. Contractor to notify Contact Administrator 10 Working Days prior to required removals.

E31.2 The Contractor shall identify trees that may be affected by Work and inform the Contract Administrator of trees that need to be removed. No trees shall be removed from the project without written approval from the Contract Administrator.

E32. SOIL CELLS

DESCRIPTION

E32.1 Soil Cell system for planting and paving, including Soil Cell assemblies and related accessories. Provide all labour, materials, methods, equipment and accessories for the supply and installation of Soil Cells and related excavation, geotextile, geogrid, aggregate sub-base, aggregate base, Type 1 Backfill, root barrier, transfer pipe, distribution pipe, cleanouts, Manitoba Hydro conduits and structural soil cell system.

PRECONSTRUCTION REQUIREMENTS

E32.2 Preinstallation Meeting: Prior to installation of the Soil Cell system and associated Work, meet with the Contractor, Soil Cell system installer and their field supervisor, the owner, the Contract Administrator, and other entities concerned with the Soil Cell system performance. The manufacturer's technical representative maybe be present at the meeting if available.

- (a) Provide at least 3 weeks advance notice to participants prior to convening preinstallation conference.
- (b) Introduce and provide a roster of individuals in attendance with contact information.
- (c) The preinstallation conference agenda will include, but is not limited to the review of:
 - (i) Required submittals both completed and yet to be completed.
 - (ii) The sequence of installation and the construction schedule.
 - (iii) Coordination with other trades.
 - (iv) Details, materials and methods of installation.
 - (i) Review requirements for substrate conditions, special details, if any, installation procedures.
 - (ii) Installation layout, procedures, means and methods.

E32.3 Sequencing and Scheduling:

- (a) General: Prior to beginning Work of this Section, prepare a detailed schedule of the Work involved for coordination with other trades.
- (b) Schedule utility installations prior to beginning Work of this Section.

- (c) Where possible, schedule the installation of the Soil Cell system after the area is no longer required for use by other trades and Work. Where necessary to prevent damage, protect installed system if Work must occur over or adjacent to the installed Soil Cell system.

MATERIALS

- E32.4 Further to Geotextile to CW3130. Geotextile composed of high tenacity polypropylene yarns which are woven into a network such that the yarns retain their relative position and is inert to biological degradation and resistant to naturally encountered chemicals, alkalis, and acids.
- (a) Tensile strength at ultimate (ASTM D4595):
 - (i) 4800 lbs/ft (70.0 KN/m) MD minimum
 - (ii) 4800 lbs/ft (70.0 KN/m) CD minimum
 - (b) Tensile strength at 5% strain (ASTM D4595)
 - (i) 2400 lbs/ft (35.0 KN/m) MD minimum
 - (ii) 3000 lbs/ft (43.8 KN/m) CD minimum
 - (c) Flow rate (ASTM D4491):
 - (i) 30 gal/min/ft² (2648 l/min/m²) minimum
 - (d) Apparent opening size (ASTM D4751):
 - (i) 30 sieve (0.60 mm)
 - (e) UV Resistance (at 500 hours):
 - (i) 80 percent strength retained
 - (f) Products meeting this specification:
 - (i) Mirafi HP570; <http://www.tencate.com>
 - (ii) Geolon PP40; <http://www.tencate.com>
 - (iii) Nilex Woven 2044 (Nilex); <http://www.nilex.com>
- E32.5 Further to Geogrid to CW3135. Geogrid: Net-shaped woven polyester fabric with PVC coating, uniaxial or biaxial geogrid, inert to biological degradation, resistant to naturally occurring chemicals, alkalis, and acids; used to provide a stabilizing force within soil structure as the fill interlocks with the grid.
- (a) Tensile strength at ultimate (ASTM D6637):
 - (i) 1850 lbs/ft (27.0 kN/m) minimum
 - (b) Creep reduced strength (ASTM D5262):
 - (i) 1000 lbs/ft (14.6 kN/m) minimum
 - (c) Long term allowable design load (GRI GG-4):
 - (i) 950 lbs/ft (13.9 kN/m) minimum
 - (d) Grid aperture size (MD):
 - (i) 0.8 inch (20 mm) minimum
 - (e) Grid aperture size (CD):
 - (i) 1.28 inch (32 mm) maximum
 - (f) Roll size: 6-foot (1.8-m) width is preferred, up to 18-foot (5.4-m).
 - (g) Products meeting this specification:
 - (i) Stratagrid SG 150; <http://www.geogrid.com>
 - (ii) Miragrid 2XT; <http://www.tencate.com>
 - (iii) Fortrac 35 Geogrid; (<http://www.hueskerinc.com>)
 - (iv) SF 20 Biaxial Geogrid; <http://www.synteen.com>
- E32.6 Plastic Cable Ties: A tensioning device or tool used to tie similar or different materials together with a specific degree of tension.

- E32.7 Aggregate sub-base to CW3110.
- E32.8 Aggregate base to CW3110.
- E32.9 Type 1 Material to CW2030
- E32.10 Root Barrier
- (a) Root Barrier: Recyclable, black, injection molded panels manufactured with a minimum 50 percent post-consumer recycled polypropylene plastic with UV inhibitors, and integrated zipper joining system which allows instant assembly by sliding one panel into another; for redirecting tree roots down and away from hardscapes. No. UB18-2: 24 inches long by 18 inches deep by 0.080 inches thick (61 cm long by 46 cm deep by 2.03 mm thick); for use with 2x and 3x systems, and for pavement profiles 12 inches or more in depth.
 - (b) DeepRoot Tree Root Barrier (DeepRoot Green Infrastructure, LLC) or approved equivalent.
- E32.11 Transfer Pipe
- (a) 150 mm PVC pipe suitable for burial and water transfer.
- E32.12 Distribution Pipe
- (a) 150 mm PVC pipe suitable for burial and water distribution c/w 20-30mm holes 300-500mm oc, wrapped in geotextile to prevent material infiltration.
- E32.13 Cleanouts
- (a) Cleanout pipes connected to distribution/transfer/subdrain pipe to terminate in precast box at surface of sidewalk. Precast box to be suitable to accommodate typical sidewalk vehicle loadings.
 - (b) Subdrain Pipe, Transfer Pipe and Distribution pipe to share precast box when possible and be appropriately labelled.
 - (c) Products meeting this specification:
 - (i) Channell – Grade Level Box Bulk 3 Series (17" by 30" by 12") Shield X Cover or approved equivalent.
- E32.14 Manitoba Hydro Conduits
- (a) Supplied by Manitoba Hydro
 - (b) X-Section of Soil Cell to contain:
 - (i) One 50mm conduit
 - (ii) Two 125mm conduit
- E32.15 Soil Cell System
- E32.15.1 3x Silva Cell System
- (a) Components: one base, six 3x posts (a combination of six 1x posts and six 2x posts) and one deck.
 - (b) Assembled dimensions (each cell) 1200mm long by 600mm wide by 1092mm high or approved equivalent.
 - (c) Silva cell system available from DeepRoot Canada Corp. ph.: 604-687-0899. Contact: Mike James.
- E32.15.2 Pins, per silva cell specifications.

CONSTRUCTION METHOD

- E32.16 Installations shall be as per Manufacturer's specifications available at <https://www.deeproot.com/products/silva-cell/resources/> .

- E32.17 Soil cell modules must be transported and stored on manufacturers pallets with pallet wrap intact until ready for installation. Pallets should be positioned on firm level base, so as not to impede traffic or Work flow.
- E32.18 The Contractor must ensure that all buried utilities and services are located and if necessary, protected and exposed prior to any excavation in accordance with specification CW1120.
- E32.19 Do not proceed with Work when subgrades, soils and planting soils are in a wet, muddy or frozen condition.
- E32.20 Excavate and confirm to the dimensions and depth shown on the Drawings, including provision for drainage and base course layer, allowing 200mm (8") additional clearance in length and width. Side walls of excavated pit to be clean, straight, and within 15° of vertical. Soft dig / day lighting process to be used in area of existing underground utilities. Ensure subgrade slopes to subdrain trench toward perforated drainage pipe system (min 2.0% slope).
- E32.21 Clear excavation of all construction debris, trash, rubble and any foreign material. Excavate and remove oil spills and other soil contamination sufficiently to remove the harmful material. Fill over excavations with approved fill and compact to the required subgrade compaction.
- E32.22 All excavated material shall be disposed of off-site in accordance with specification CW1130.
- E32.23 Compact sub-grade in accordance with specification CW3110. Do not exceed 10 percent slope for subgrade profile in any one direction. If the 10 percent slope is exceeded, contact manufacturer's representative for directions on how to proceed.
- E32.24 Install reinforcement geotextile fabric in accordance with CW3130. Lay geotextile flat with no folds or creases. Install the geotextile with a minimum joint overlap of 18 inches (450 mm).
- E32.25 Install perforated drainage pipe (Subdrain) in trench in accordance with specification CW3120, and as shown on the Drawings.
- E32.26 Install aggregate sub-base below soil cell system to the depths indicated in the Drawings and compact to a minimum of 95% of maximum dry density at optimum moisture content, in accordance with ASTM D 698 Standard Proctor Method.
- E32.27 Rough layout for the soil cells is contained in the drawing package. This layout will be revised and adjusted based on site conditions.
- E32.28 Assemble and install soil cell system in accordance with manufacturers specifications. Contract Administrator to Provide layout and elevation during installation of the soil Cell system to ensure that layout and elevations are in accordance with the Drawings and site conditions.
- (a) Establish the location of the tree openings in accordance with the Drawings. Once the trees are located, mark the inside dimensions of the tree openings on the prepared subbase.
 - (b) Locate and mark other Project features located within the Soil Cell layout (e.g. light pole bases, utility pipes). Apply marking to identify the extent of the Soil Cell layout around these features.
 - (c) Follow the layout as shown on the Drawings and Contract Administrator layout to ensure proper spacing of the Soil Cell bases. Refer to the Drawings for offsets between these features and the Soil Cells.
 - (d) Place the soil Cell bases on the compacted aggregate subbase. Start at the tree opening and place soil Cell bases around the tree openings as shown on the Drawings.
 - (e) Working from tree opening to tree opening, place soil Cell bases to fill in the area between tree openings. Maintain spacing no less than 1 inch (25 mm) and no more than 6 inches (150 mm) apart.
 - (f) Follow the soil Cell layout plan as shown on the Drawings and as instructed by the Contract Administrator. Install soil Cell bases around, over, or under existing or proposed

utility lines, as indicated on the Drawings. Level each soil Cell base as needed to provide full contact with subbase. Adjust subbase material, including larger pieces of aggregate, so each base sits solidly on the surface of the subbase. soil Cell bases that rock or bend over any stone or other obstruction protruding above the surface of the subbase material are not allowed. soil Cell bases which bend into dips in the subbase material are not allowed. The maximum tolerance for deviations in the plane of the subbase material under the bottom of the horizontal beams of each soil Cell base is 1/4 inch in 4 feet (6 mm in 1200 mm).

- (g) Anchor soil Cell base with 2 anchoring spikes per base.
- (h) Attach 2x posts to the installed soil Cell base. Each base will receive six 2x posts. Place the end of the post with tabs into the base. Rotate post clockwise to snap in place. A 2x post, used in combination with a 1x post is considered a 3x post assembly. System will be modified to accommodate existing obstacles and utilities by adjusting between 1x, 2x and 3x systems.
- (i) Install strongbacks on top of the soil Cell posts by snapping into place over installed posts prior to installing planting soil and backfill.
 - (i) Strongbacks are required only during the placement and compaction of the planting soil and backfill.
 - (ii) Move strongbacks as the Work progresses across the installation.
 - (iii) Remove strongbacks prior to the installation of the soil Cell decks.
- (j) Install geogrid around the perimeter of the soil Cell system where the compacted backfill and planting soil interface. Do not place geogrid between the edge of the soil Cells and adjacent planting areas. Cut the geogrid to allow for a 6-inch (150-mm) overlap at the soil Cell base and a 12-inch (300-mm) overlap at the soil Cell deck. Provide a minimum 12-inch (300-mm) overlap between adjacent sheets of geogrid. Secure geogrid with cable ties below the top of the posts, along the post ridges.
- (k) Place the lift of backfill material loosely around the perimeter of the soil Cell system, between the geogrid and the sides of the excavation. Place backfill to approximately the midpoint of the soil Cell post. Do not compact. Place the first lift of planting soil in the soil Cell system to approximately the midpoint of the soil Cell post. Level the planting soil throughout the system. Walk-through the placed planting soil to remove air pockets and settle the soil. Lightly compact soils by walking through the soil following placement. Walk through compaction shall result in 75-85 percent of maximum dry density in accordance with ASTM D698, Standard Proctor Method. Do not exceed root limiting compaction for the given soil type. Compact the first lift of backfill material, previously spread, to 95 percent of maximum dry density in accordance with ASTM D698, Standard Proctor Method or in accordance with Project Specifications for hardscape areas, whichever is greater. Add and compact additional backfill material so that the final finished elevation is at approximately the same level of the placed planting soil within the soil Cells. Maintain the geogrid between the soil Cell system and the backfill material at all times. Place the second lift of backfill material loosely around the perimeter of the soil Cell system, between the geogrid and the sides of the excavation so that the material is 2 to 3 inches below the top of the posts. Do not compact. Place the second lift of planting soil inside of the soil Cell to the bottom of the strongbacks. Walk through compact.
- (l) Remove strongbacks, place one 1x posts into each of the previously-installed 2x posts. Rotate clockwise to snap in place, forming a 3x post assembly. Immediately reinstall strongbacks on top of the post assembly. Repeat process of alternately placing backfill and planting soil so that elevation of the compacted backfill and the walked-through compacted planting soil are just below the level of the strongbacks.
- (m) Install Transfer Pipe, Distribution pipe and Manitoba Hydro Conduit in accordance with the Drawings and Specifications. Remove only the minimum number of strongbacks needed to accommodate the Work and reinstall them immediately upon completion to maintain alignment of posts.
- (n) Obtain final approval by the Contract Administrator of planting soil installation prior to installation of the soil Cell decks.

- (o) Remove strongbacks, level out the planting soil, and immediately install decks over the posts below. Place deck over the top of the posts. Push decks down until the deck clips lock into the posts, snapping the deck into place. Fold the 12 inches (300 mm) of geogrid onto the top of the decks. Ensure geotextile meets the specifications.
- (p) Install sub drain cleanouts complete with Precast service boxes installed as per manufactures recommendations.
- (q) Soil under tree root ball within the planting pit shall be compacted to 90% proctor density.
- (r) Place geotextile over the top of the deck and extend to the edge of the excavation. Overlap joints a minimum of 18 inches (450 mm). Leave enough slack in the geotextile for the aggregate base course to push the geotextile down in the gaps in between the decks.
- (s) Install the aggregate base course over the geotextile immediately after completing the installation of the fabrics. Work the aggregate from one side of the layout to the other so that the fabric and aggregate conform to the soil Cell deck contours.
- (t) Maintain equipment used to place aggregate base course completely outside the limits of the soil Cell excavation area to prevent damage to the installed system. For large or confined areas, where aggregate cannot easily be placed from the edges of the excavated area, obtain approval for the installation procedure and types of equipment to be used in the installation from the soil Cell manufacturer.
- (u) Compact aggregate base course(s) to 95 percent of maximum dry density in accordance with ASTM D698, Standard Proctor Method. Utilize a vibration or plate compactor with a maximum weight of 800 lbs (362.87 kg). Do not drive vehicles or operate equipment over the completed aggregate base course.
- (v) Place concrete curbs along planting areas and tree openings as shown on the Drawings to retain the aggregate base course from migrating into the planting soil. When staking concrete forms (e.g. curbs around the tree openings), prevent stakes from penetrating the soil Cell decks. Turn down edge of concrete paving to the soil Cell deck along the edges of tree openings or planting areas to retain the aggregate base course material. When paving type is a unit paver or other flexible material, provide a concrete curb under the paving at the edge of the soil Cell deck to retain the aggregate base course material at the tree opening. Place paving material over soil Cell system in accordance with the Drawings. The soil Cell system does not fully meet loading strength until the final paving is installed. Do not operate construction equipment on top of the soil Cell system until paving installation has been completed. Use care when placing paving or other backfill on top of soil Cell system to prevent damage to the soil Cell system or its components.
- (w) Install root barrier in accordance with manufacturer's installation instructions.
- (x) Remove rubble, debris, dust and silt from the top of the planting soil within the tree opening that may have accumulated after the initial installation of the planting soil within the soil Cells. Install additional planting soil within the tree openings, to the depths indicated on the Drawings. Use the same soil used within the soil Cells for planting soil within the tree openings. Compact planting soil under the tree root ball as needed to prevent settlement of the root ball. Place trees in accordance with the Drawings.
- (y) Keep construction traffic away from the limits of the soil Cells until the final pavement profile is in place. The soil Cell system does not fully meet loading strength until the final paving is installed. Do not operate equipment directly on top of the soil Cell system until paving installation has been completed. Provide fencing and other barriers to prevent vehicles from entering into the soil Cell area. When the soil Cell installation is completed and the permanent pavement is in place, limit traffic and construction related activities to only loads less than the design loads.
- (z) Place Geotextile and Crushed Granite in tree openings as indicated on drawings.
- (aa) Perform clean up during installation and upon completion of the Work. Maintain the site free of soil, sediment, trash and debris. Remove excess soil materials, debris, and equipment from the site following completion of the Work of this Section. Repair damage to adjacent materials and surfaces resulting from installation of this Work using mechanics skilled in remedial Work of the construction type and trades affected.

MEASUREMENT AND PAYMENT

- E32.29 The construction of soil cells shall be measured on a volume basis and paid for at the Contract Unit Price per cubic metre as "Installation of Structural Soil Cells". The volume to be paid for shall be the total cubic metre area installed in accordance with this specification, accepted and measured by the Contract Administrator. Costs related to excavation, subgrade compaction, aggregate base, aggregate sub-base, type 1 backfill, root barrier, geotextile, geogrid, planting medium and the structural soil cell system shall be considered incidental to the costs for "Structural Soil Cells". Over-excavation will not be paid.
- E32.30 The installation of the Subdrain shall be measured on a length basis and paid for at the Contract Unit Price per metre as "Installation of Subdrains". The amount to be paid for shall be the total length installed in accordance with this specification, accepted and measured by the Contract Administrator. Costs related to excavation and geotextile shall be considered incidental to the costs for "Subdrain".
- E32.31 The installation of the Transfer Pipe shall be measured on a length basis and paid for at the Contract Unit Price per metre as "Installation of Transfer Pipe". The amount to be paid for shall be the total length installed in accordance with this specification, accepted and measured by the Contract.
- E32.32 The installation of the Distribution Pipe shall be measured on a length basis and paid for at the Contract Unit Price per metre as "Installation of Distribution Pipe". The amount to be paid for shall be the total length installed in accordance with this specification, accepted and measured by the Contract.
- E32.33 The installation of the Impervious Liner shall be measured on an area basis and paid for at the Contract Unit Price per metre squared as "Installation of Impervious Liner". The amount to be paid for shall be the total area installed in accordance with this specification, accepted and measured by the Contract.
- E32.34 The installation of the Subdrain Cleanout shall be measured on a per item basis and paid for at the Contract Unit Price per item as "Installation of Subdrain Cleanout". The amount to be paid for shall be the total installed in accordance with this specification, accepted and measured by the Contract.
- E32.35 The installation of the Transfer/Distribution Pipe Cleanout shall be measured on a per item basis and paid for at the Contract Unit Price per item as "Installation of Transfer/Distribution Pipe Cleanout". The amount to be paid for shall be the total installed in accordance with this specification, accepted and measured by the Contract.
- E32.36 The Installation of Precast vault for Cleanouts shall be measured on a per item basis and paid for at the Contract Unit Price per item as "Installation of Precast vault for Cleanouts". The amount to be paid for shall be the total installed in accordance with this specification, accepted and measured by the Contract.

E33. PLANTING MEDIUM & FINISHED GRADING

DESCRIPTION

- E33.1 This Specification covers the supply and installation of planting medium for trees.

REFERENCES

- E33.2 Agriculture and Agri-Food Canada
- E33.2.1 The Canadian System of Soil Classification, Third Edition, 1998.
- E33.3 Canadian Council of Ministers of the Environment (CCME) Guidelines.
- E33.4 The City of Winnipeg Standard Construction Specifications CW 1130 and CW 3540.

SUBMITTALS

- E33.5 Submit 0.5kg sample of topsoil to National Testing Laboratory, or approved alternate, and indicate present use and intended use. Prepare and ship sample in accordance with Provincial regulations and testing laboratory requirements.
- E33.6 Submit two (2) copies of soil analysis and recommendations for corrections to Contract Administrator.

QUALITY ASSURANCE

- E33.7 Testing of planting medium to be carried out and paid for by Contractor. Prepare and ship planting medium samples to approved laboratory in accordance with Provincial regulations and laboratory requirements, indicating intended use on each sample.
- E33.8 Test planting medium for nutrients N, P, K, micronutrients, soluble salt content, pH value and OM (organic matter).
- E33.9 Acceptance of planting medium is subject to an inspection of material and confirmation of test results. Do not commence soft landscaping Work until Contract Administrator has accepted planting medium.

DELIVERY, STORAGE AND HANDLING

- E33.10 Store materials in a dry area, protected from freezing, sedimentation and contamination.
- E33.11 Deliver and store fertilizer in waterproof bags labeled with weight, analysis and name of manufacturer.

MATERIALS

E33.12 Planting Medium Soil Mix

- E33.12.1 Planting Medium: In accordance with CW 3540 for topsoil except organic matter to be in the range of 5-10%.
- E33.12.2 Peatmoss: deliver from partially decomposed fibrous or cellular stems and leaves of species of sphagnum mosses. Elastic and homogeneous, brown in colour. Free of wood and deleterious material that could prohibit growth. Shredded particle minimum size: 5 mm.
- E33.12.3 Sand: hard fine silica sand, well washed and free of impurities, chemical or organic matter, coarse texture, and to the following gradation.

<u>Particle Size (mm)</u>	<u>% Passing through Screen</u>
2.0	100%
1.0	95 to 100%
0.5	80 to 100%
0.25	0 to 30%
0.15	0 to 8%
0.75	0 to 1%

CONSTRUCTION METHODS

E33.13 Excavation

- E33.13.1 Excavate as per soil cell specification E34.
- E33.13.2 Planting Medium Placement
- (a) Place planting medium in uniform layers over approved, unfrozen sub-grade, to the depth indicated on the Drawings.
 - (b) Eliminate rough spots and low areas. Prepare a loose, friable bed, boot firm and level.
- E33.13.3 Finished Grading

- (a) Per CW3540.
- (b) Fine grade entire soil area to elevations as indicated on the Drawings. Eliminate rough spots and low areas. Leave surfaces smooth, uniform and firm against foot printing with a fine loose texture.

SURPLUS MATERIAL

- E33.14 Dispose of unused planting medium off Site in accordance with CW1130.

CLEANING

- E33.15 Perform cleaning to remove accumulated environmental dirt from all paved surfaces of building faces. Remove surplus materials, rubbish, tools and equipment barriers.

MEASUREMENT AND PAYMENT

- E33.16 Supply and installation of planting medium and all other items shall be considered incidental to the item "Installation of Soil Cells" included in this Specification, accepted and measured by the Contract Administrator.

E34. PLANT MATERIAL

DESCRIPTION

- E34.1 This specification covers all operations relating to the supply and installation of nursery-grown trees in areas indicated on the Drawings, including preparation, digging, transport and planting, and maintenance.
- E34.2 The Work to be done under this Specification shall be completed by the City of Winnipeg Forestry department. Contractor to notify Contract Administrator ten (10) Working Days prior to required Work.

E35. LONG TERM SCHEDULED MAINTENANCE OF PLANT MATERIAL

DESCRIPTION

- E35.1 This specification covers all operations relating to the maintenance of plant material following acceptance of the Work by the Contract Administrator.
- E35.2 The Work to be done under this Specification shall be completed by the City of Winnipeg Forestry department.

E36. BIKE RACKS

DESCRIPTION

- E36.1 This Specification covers all operations relating to the supply and installation of bicycle racks.
- E36.2 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.

SUBMITTALS

- E36.3 Contractor shall submit shop drawing for review by the Contract Administrator prior to purchase and installation.

MATERIALS

E36.4 General

E36.4.1 The Contractor shall be responsible for the supply, safe storage, handling and installation of all materials set forth in this Specification. All materials supplied under this Specification shall be subject to inspection and acceptance by the Contract Administrator.

E36.5 Site Amenities and Accessories

E36.5.1 Bicycle Rack

(a) Bicycle rack to be Hoop Bike Rack AL-HOOP-CLR – 800 mm (34”) height, finish to be Brushed Aluminum, clear coated, as manufactured by Rackworks, or equal as approved by the Contract Administrator.

Rackworks (Woodcock Cycle Works)
433 St. Mary's Road, Winnipeg, MB R2M 3K7
Ph: 204-955-5221

E36.5.2 Accessories

(a) All mounting accessories to be stainless steel and tamper proof.

CONSTRUCTION METHODS

E36.6 Bicycle Rack

E36.6.1 Surface mount bicycle rack on concrete pad as indicated on the Construction Drawings. Follow manufacturer's instructions for surface mounting of bicycle racks.

MEASUREMENT AND PAYMENT

E36.7 Bicycle Rack

E36.7.1 Bicycle racks will be measured on a unit basis and paid for at the Contract Unit Prices per each for “Supply and Install Bicycle Rack”, which price shall be payment in full for supplying and installing all materials and for completing all operations herein described and all other items incidental to the Work included in this specification, accepted and measured by the Contract Administrator.

E37. SPLICING OF TRAFFIC SIGNALS CONDUIT

E37.1 Materials

E37.1.1 In addition to CW 3620 3.11.12, Joining of conduit will not be allowed except:

(a) Where joining of conduit is required for Convenience of Road Construction Sequencing with a maximum of one (1) joint per conduit.

E37.1.2 In place of CW 3620 3.11.13, Joining of conduit shall use an approved oversize coupler to connect nominal size 1.5” or 2” LDPE pipe, IPEX Series 75, installation to follow manufacture's recommendations.

(a) Approved Products:

- (i) Plasson Universal Slip Repair Coupler 60-64, Product Code: 176100060064 for use with nominal 2” LDPE.
- (ii) Plasson Universal Slip Repair Coupler 48-51, Product Code: 176100048051 for use with nominal 1.5” LDPE.

(b) Substitutes will not be allowed except:

- (i) Where application has been made to and approval has been provided by Traffic Signals. The Contractor shall provide sufficient information and details to enable the Traffic Signals to determine acceptability.

- E37.1.3 As per CW 3620 4.11.5, No measurement or payment shall be made for Joining of Conduit.
- E37.1.4 Removal of CW 3620 2.10.1 (b) Conduit coupling pipe and gear clamps.

E38. TRAFFIC SIGNALS – SERVICE BOX PRE-CAST

DESCRIPTION

- E38.1 This specification covers the use and installation of a service box pre-cast 17" x 30"x 18" and 13" x 24" x 18".

MATERIALS

- E38.2 Materials shall be as per Section 2 of CW 3620.

CONSTRUCTION METHODS

- E38.3 Install Pre-Cast Service Box in grass boulevards/medians, and hard surfaced medians or as shown on the Drawings or as directed by the Contract Administrator.
- E38.4 Fill bottom of excavation with compacted limestone base course material to set precast surface box to grade.
- E38.5 Install Pre-Cast Service Box on top of the compacted granular fill material to pavement, sidewalk or boulevard finished grade.
- E38.6 All conduits must be bundled into a group in the centre of the Pre-Cast Service Box. Install plastic plugs prior to backfill.
- E38.7 Backfill around Pre-Cast Service Box exterior. Backfill shall conform to requirements of SD-342.
- E38.8 Pre-Cast Service Box shall meet the grade of the sidewalk or boulevard provided by the Contract Administrator.

E39. TRAFFIC SIGNALS – INSTALLATION OF EARLY OPEN CONCRETE BASES

DESCRIPTION

- E39.1 This specification shall cover the installation of Early Open Concrete Bases.

MATERIALS

- E39.2 Supply concrete for bases in accordance with CW 2160, Table CW 2160.1 Design Requirements for Concrete Used for Underground Structures, for Type A Structures (monolithic sewers and reinforced structures).
- E39.3 Further to E39.2, the supplied concrete shall achieve a minimum compressive strength of 22 MPa at 48 hours.

CONSTRUCTION METHODS

- E39.4 Construction methods for the installation of Early Open Concrete Bases shall be as per Section 3.7 of CW 3620.

E40. TRAFFIC SIGNALS – INSTALLATION OF PRE-CAST TYPE PM BASES

- E40.1 Pre-Cast Type PM concrete bases shall be supplied by the Contractor including anchor bolts.
- E40.2 Fabrication and installation shall be in accordance with SD-315.A.

E41. TRAFFIC SIGNALS – ANCHOR BOLT PROJECTIONS FOR CONCRETE BASES

E41.1 Further to Section 3.7 of CW 3620 Concrete Bases Type A, Type G, Type OD and Type J bases shall have an anchor bolt projection as specified below.

E41.1.1 The following projections shall override what has been specified on SD-310, SD-313 and SD-314.

Concrete Base Type	Anchor Bolt Projection (mm)	Tolerance
Type A	76.0	(71.0 – 76.0)
Type G	89.0	(84.0 – 89.0)
Type OD	50.8	(45.8 – 50.8)
Type J	150.0	(145.0 – 150.0)

E42. WINNIPEG TRANSIT – INSTALLATION OF BUS SHELTER INFRASTRUCTURE AND CONNECTION TO POWER SOURCE FOR HEATED BUS SHELTERS

DESCRIPTION

E42.1 General

E42.1.1 This Specification covers all operations relating to the installation of bus shelter infrastructure and connection to power source for heated bus shelters.

E42.1.2 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labor, equipment, tools, supplies, and all things necessary for and incidental to the satisfactory performance and completion of all Works as hereinafter specified.

MATERIALS

E42.2 Shall be as per City of Winnipeg Construction Specifications

SUBMITTALS

E42.3 Contractor shall provide drawing for conduit installation to Underground Structures for approvals. Sketches for proposed conduit location and potential connection point detail in Appendix H.

CONSTRUCTION METHODS

E42.4 Supply and install flat rate dip with Joint-Use Agreement permit/commercial service agreement, including disconnect. See Appendix H for related sketch.

E42.5 Trench/directional drill from pole to location of heated bus shelter and install conduit.

E42.6 Supply and install power pedestal including:

- (a) City of Winnipeg Electrical Permit
- (b) 240V
- (c) Single Phase
- (d) 100 A
- (e) Pedestal shall also include:
 - (i) 24 single-pole breakers
 - (ii) Photocell control
 - (iii) Override switch
 - (iv) Convenience plug
 - (v) Meter and meter socket
- (f) Wire and Connect bus stop for heat and lights

- (g) Electrical line assignment drawings to underground structure and as-built once Work is complete.

E42.7 Install Cast in Place Concrete Shelter Base and Power Pedestal including electrical supply and reinforcement as per CT-27.

MEASUREMENT AND PAYMENT

E42.8 Construction of Winnipeg Transit Shelter Base (8x15)

- (a) Construction of Winnipeg Transit Shelter Base (8x15) will be measured on a unit basis and paid for at the Contract Unit Prices per each for "Construction of Winnipeg Transit Shelter Base (8x15)", which price shall be payment in full for supplying and installing all materials and for completing all operations herein described and all other items incidental to the Work included in this specification, accepted and measured by the Contract Administrator.

E42.9 Construction of Winnipeg Transit Power Pedestal Base

- (a) Construction of Winnipeg Transit Power Pedestal Base will be measured on a unit basis and paid for at the Contract Unit Prices per each for "Construction of Winnipeg Transit Power Pedestal Base", which price shall be payment in full for supplying and installing all materials and for completing all operations herein described and all other items incidental to the Work included in this specification, accepted and measured by the Contract Administrator.

E42.10 Supply and Installation of Conduit to Connect Winnipeg Transit Heated Shelter to Power Source

- (a) Supply and Installation of Conduit to Connect Winnipeg Transit Heated Shelter to Power Source will be measured on a length basis and paid for at the Contract Unit Prices per meter for "Supply and Installation of Conduit to Connect Winnipeg Transit Heated Shelter to Power Source", which price shall be payment in full for supplying and installing all materials and for completing all operations herein described and all other items incidental to the Work included in this specification, accepted and measured by the Contract Administrator.

E42.11 Supply and Install Flat Rate Dip

- (a) Supply and Install Flat Rate Dip will be measured on a unit basis and paid for at the Contract Unit Prices per each for "Supply and Install Flat Rate Dip", which price shall be payment in full for supplying and installing all materials and for completing all operations herein described and all other items incidental to the Work included in this specification, accepted and measured by the Contract Administrator.

E43. INSTALLATION OF STREET LIGHTING AND ASSOCIATED WORKS

E43.1 Definitions

- (a) 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.
- (b) MANITOBA HYDRO CENTRAL STORES means Manitoba Hydro's Waverley Service and Reclaim Centre - 1840 Chevrier Blvd - Winnipeg, Manitoba.
- (c) OVERHEAD FEED means an electrical supply via an overhead conductor connected between streetlight standards. Typically strung between standards on a temporary basis.
- (d) 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).
- (e) RECLAIM material means existing material that has been removed from Manitoba Hydro's system and to be returned to Manitoba Hydro.

- (f) SCRAP material means existing material that has been removed from Manitoba Hydro's system and to be recycled/disposed of by the Contractor.
- (g) SURPLUS material means new material that has been requisitioned by the Contractor and not incorporated into the Work at the end of the Contract.
- (h) WORK CLEARANCE means an ELECTRICAL AND/OR NATURAL GAS FACILITIES LOCATE form (see SAMPLE ONLY included as Appendix D) issued by each of Manitoba Hydro's Customer Service Centre (CSC) affected to permit Work to commence (Permit to Work).

E43.2 Description

E43.2.1 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.

E43.3 Work Locations

E43.3.1 The proposed street light installation and removals are shown on construction drawings and are as follows:

- (a) Broadway from Osborne Street to Main Street

E43.4 Co-ordination of Work

E43.4.1 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.

E43.4.2 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.

E43.4.3 Manitoba Hydro's CSC will provide the Limits of Approach applicable to the Contractor on the Work Clearance form.

E43.5 Orientation

E43.5.1 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.

E43.6 Pre-Construction Meeting

E43.6.1 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.

E43.6.2 The Contractor's cost to attend this pre-construction meeting shall be incorporated into the unit prices for the Work.

E43.7 Qualifications and Certification

E43.7.1 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.

E43.7.2 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.

E43.7.3 Office of the Fire Commissioner Bulletin OFC 18 – 002 dated May 23, 2018 regarding Electrician Licenses discusses the requirements for a "Limited Specialized Trade Licence – 'M-P' Licence – Power Line".

For more information contact:
Office of the Fire Commissioner
500-401 York Avenue
Winnipeg, Manitoba R3C 0P8
Tel. 204-945-3373
Fax 204-948-2089
Toll Free: 1-800-282-8069
firecomm@gov.mb.ca

E43.7.4 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.

E43.7.5 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.

E43.8 Referenced Standard Construction Specifications

E43.8.1 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")

E43.8.2 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 A.

E43.8.3 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.

E43.9 Tools, Equipment and Materials

E43.9.1 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.

E43.9.2 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

E43.9.3 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.

E43.9.4 Alternative equipment manufacturers may be considered upon request by the Contractor and shall be approved for use by Manitoba Hydro prior to use.

E43.9.5 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.

E43.10 Material Supplied by Manitoba Hydro

E43.10.1 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:

E43.10.2 Manitoba Hydro Central Stores (contact personnel will be provided to the successful Contractor).

E43.10.3 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.

- E43.10.4 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.
- E43.10.5 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.
- E43.11 Material Supplied by Contractor
- E43.11.1 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.
- E43.12 Surplus, Reclaim and Scrap Material
- E43.12.1 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.
- E43.12.2 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.
- E43.12.3 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.
- E43.13 De-energization and Lockout
- E43.13.1 **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.
- E43.13.2 **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.
- E43.13.3 The Contractor shall complete a job planning form (an example is included as Appendix E) on a daily basis before any Work commences and provide Manitoba Hydro with copies of the job plans if requested.
- E43.14 Temporary Overhead Feeds
- E43.14.1 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.
- E43.14.2 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 #6 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 #6 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.

- E43.14.3 When using the new poles for temporary lighting, the Contractor shall install the new bases, poles and #6 duplex overhead conductor. The #6 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.
- E43.14.4 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.
- E43.15 Safe Excavation
- E43.15.1 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 B and Manitoba Workplace Safety and Health Regulation 217 latest revision.
- E43.16 Safe Handling
- E43.16.1 The Contractor shall apply handling techniques in accordance with Manitoba Workplace Health and Safety Regulation 217 (latest revision).
- E43.17 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.
- E43.18 Precast Concrete Bases
- E43.18.1 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.
- E43.18.2 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.

E43.19 Street Light Poles and Arms

E43.19.1 The Contractor shall handle, store, transport, and provide proper load securement for the poles and arms in a manner to prevent damage.

E43.20 Luminaires

E43.20.1 The Contractor shall handle, store, transport and unload the luminaires in their original packaging and in a manner to prevent damage.

E43.21 Small Material

E43.21.1 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.

E43.22 Care of Materials

E43.22.1 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.

E43.23 Wire and Cable Reel Storage

E43.23.1 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.

E43.23.2 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.

E43.24 Reel Handling

E43.24.1 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.

E43.24.2 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.

E43.24.3 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.

E43.24.4 Returnable reels shall be returned promptly to Manitoba Hydro Central Stores and in no case later than three (3) Working Days after the completion of the Work unless otherwise mutually agreed between the Contractor and Manitoba Hydro.

E43.25 Pressurized Water/Vacuum Excavation

E43.25.1 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.

E43.25.2 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 B.

E43.26 Removal of Street Light Pole from Existing Base

- E43.26.1 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.
- E43.26.2 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.
- E43.26.3 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.

E43.27 Removal of Base and Direct Buried Street Light Pole

- E43.27.1 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.
- E43.27.2 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.
- E43.27.3 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.

E43.28 Installation of Foundation – Concrete Base

- E43.28.1 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.
- E43.28.2 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.
- E43.28.3 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.
- E43.28.4 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.
- E43.28.5 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.
- E43.28.6 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.

E43.29 Base Mounted Street Light Poles

- E43.29.1 This shall include all Work required to install the street light pole on the concrete base as set forth in this Specification.
- E43.29.2 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.
- E43.29.3 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.
- E43.29.4 The Contractor shall level the street light pole in all 4 directions. Leveling shims may be used.
- E43.29.5 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.
- E43.29.6 Unless otherwise specified, excess underground cable and 2C-12 wire shall be left inside the hand hole with the hand hole cover loosely installed.
- E43.29.7 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.

E43.30 Luminaires and Associated Wiring

- E43.30.1 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.
- E43.30.2 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.
- E43.30.3 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.

E43.31 Break Away Bases

- E43.31.1 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.
- E43.31.2 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.

E43.32 Splicing/Connecting Cables

- E43.32.1 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 C). Termination in the hand hole may include the installation of an inline fuse holder.
- E43.32.2 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).

E43.33 Excavation

- E43.33.1 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 1/4" 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.
- E43.33.2 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.

E43.34 Laying Cables

- E43.34.1 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.
- E43.34.2 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.
- E43.34.3 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.
- E43.34.4 During installation, under no circumstance is the cable to be subjected to a bending radius tighter than that detailed in the Standards.
- E43.34.5 Where specified in the Standards or on the construction drawings, the Contractor shall install the street light cable in a conduit.

E43.35 Installing Conduit and Cable by Boring (Horizontal Directional Drilling)

- E43.35.1 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 kellum grip in a manner so as to guard against damage.

E43.35.2 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 B. Maximum pulling tensions on any streetlight cable shall be limited to 2.9 kN/0.65 kips.

E43.35.3 Drilling fluids and associated waste materials shall be disposed of in a manner that minimizes environmental effects.

E43.35.4 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.

E43.36 Buried Utility Crossings

E43.36.1 All buried obstructions are not necessarily shown on the reference drawings and the locations of those indicated are approximate only.

E43.36.2 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 B shall be followed when crossing natural gas pipelines and electrical cables by the directional boring method.

E43.36.3 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.

E43.36.4 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.

E43.37 Bending Cables/Conduits and Installation into Standards

E43.37.1 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.

E43.37.2 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.

E43.37.3 Unless otherwise directed, excess underground cable and 2C-12 wire shall be left inside the hand hole with the hand hole cover loosely installed.

E43.38 Backfill

E43.38.1 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.

E43.38.2 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.

E43.38.3 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.

E43.38.4 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.

E43.38.5 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.

E43.39 Defective Work & Warranty

E43.39.1 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.

E43.39.2 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 F, to the Contractor. The Network Commissioning Report shall be dated indicating the commencement of the Warranty period for the Work performed at the location.

E43.40 As-Built Drawing

E43.40.1 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.

E43.41 Measurement and Payment

- E43.41.1 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.
- E43.41.2 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.
- E43.41.3 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.
- E43.41.4 Installation of 50 mm and 125 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 and 125 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 and 125 mm 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.
- E43.41.5 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.

- E43.41.6 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.
- E43.41.7 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.
- E43.41.8 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.
- E43.41.9 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.
- E43.41.10 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.
- E43.41.11 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.

E43.41.12 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.

E43.41.13 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.

E43.41.14 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.

E43.41.15 Installation of Overhead Span of #6 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 #6 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 #6 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.

E43.41.16 Removal of Overhead Span of #6 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 #6 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.

E43.41.17 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.