THE CITY OF WINNIPEG

TENDER

TENDER NO. 28-2026

2026 LOCAL STREET RENEWAL PROGRAM – BRADFORD STREET AND VARIOUS OTHER LOCATIONS

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PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

B1.1 2026 Local Street Renewal Program – Bradford Street and Various Other Locations

B2. SUBMISSION DEADLINE

B2.1 The Submission Deadline is 12:00 noon Winnipeg time, March 27, 2026.

B2.2 The Contract Administrator or the Manager of Purchasing may extend the Submission Deadline by issuing an addendum at any time prior to the time and date specified in B2.1.

B3. ENQUIRIES

B3.1 All enquiries shall be directed to the Contract Administrator identified in D3.1.

B3.2 If the Bidder finds errors, discrepancies or omissions in the Tender, or is unsure of the meaning or intent of any provision therein, the Bidder shall notify the Contract Administrator of the error, discrepancy or omission, or request a clarification as to the meaning or intent of the provision at least five (5) Business Days prior to the Submission Deadline.

B3.3 Responses to enquiries which, in the sole judgment of the Contract Administrator, require a correction to or a clarification of the Tender will be provided by the Contract Administrator to all Bidders by issuing an addendum.

B3.4 Responses to enquiries which, in the sole judgment of the Contract Administrator, do not require a correction to or a clarification of the Tender will be provided by the Contract Administrator only to the Bidder who made the enquiry.

B3.5 The Bidder shall not be entitled to rely on any response or interpretation received pursuant to B3 unless that response or interpretation is provided by the Contract Administrator in writing.

B3.6 Any enquiries concerning submitting through MERX should be addressed to:
MERX Customer Support
Phone: 1-800-964-6379
Email: merx@merx.com

B4. CONFIDENTIALITY

B4.1 Information provided to a Bidder by the City or acquired by a Bidder by way of further enquiries or through investigation is confidential. Such information shall not be used or disclosed in any way without the prior written authorization of the Contract Administrator. The use and disclosure of the confidential information shall not apply to information which:

(a) was known to the Bidder before receipt hereof; or

(b) becomes publicly known other than through the Bidder; or

(c) is disclosed pursuant to the requirements of a governmental authority or judicial order.

B4.2 The Bidder shall not make any statement of fact or opinion regarding any aspect of the Tender to the media or any member of the public without the prior written authorization of the Contract Administrator.

B5. ADDENDA

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

B5.2 The Contract Administrator will issue each addendum at least two (2) Business Days prior to the Submission Deadline, or provide at least two (2) Business Days by extending the Submission Deadline.

B5.3 Addenda will be available on the MERX website at www.merx.com.

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 D3.

B6. SUBSTITUTES

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

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

B6.3 Requests for approval of a substitute will not be considered unless received in writing by the Contract Administrator at least five (5) Business Days prior to the Submission Deadline.

B6.4 The Bidder shall ensure that any and all requests for approval of a substitute:

(a) provide sufficient information and details to enable the Contract Administrator to determine the acceptability of the Plant, Material or method as either an approved equal or alternative;

(b) identify any and all changes required in the applicable Work, and all changes to any other Work, which would become necessary to accommodate the substitute;

(c) identify any anticipated cost or time savings that may be associated with the substitute;

(d) certify that, in the case of a request for approval as an approved equal, the substitute will fully perform the functions called for by the general design, be of equal or superior substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule and the dates specified in the Supplemental Conditions for Substantial Performance and Total Performance;

(e) certify that, in the case of a request for approval as an approved alternative, the substitute will adequately perform the functions called for by the general design, be similar in substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule and the dates specified in the Supplemental Conditions for Substantial Performance and Total Performance.

B6.5 The Contract Administrator, after assessing the request for approval of a substitute, may in 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 C24. Any such costs shall be determined in accordance with C24.

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, Part 2, Part 3 and Part 4 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, Part 3, and Part 4.

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 C3.3, 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, Purchasing 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 C6.19).

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 at https://www.winnipeg.ca/matmgt/Safety/safety_consultant.stm.

B12.5 Further to B12.3(d), the Bidder acknowledges that they and all Subcontractors have obtained training required by the Accessibility for Manitobans Act (AMA) available at https://accessibilitymb.ca/resources-events-and-training/online-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 at: https://www.winnipeg.ca/media/4929/.

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, Part 3 and Part 4 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 Where MRST is shown on Form B as a separate line item, if that Line item is not completed, the MRST shall be considered to be included in the Total Bid Price.

B17.4.3 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 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 C24 shall immediately take effect upon confirmation of such funding, regardless of when funding is confirmed.

B18.4 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.

B18.4.1 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.

B18.5 As noted in D2 and identified in Form B: Prices, the Work of Part 2, Part 3 and Part 4 will be contingent upon Winnipeg Transit, the City of Winnipeg Water and Waste Department and Manitoba Hydro respectively approving funding for the Work. If sufficient funding for Part 2, Part 3 and Part 4 Work is not approved by Winnipeg Transit, the City of Winnipeg Water and Waste Department and Manitoba Hydro the City shall have the right to eliminate all or any portion of Part 2, Part 3 and Part 4 Work in accordance with D2.

PART C - GENERAL CONDITIONS

C0. GENERAL CONDITIONS

C0.1 The *General Conditions for Construction* (Revision 2025-11-01) 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, Purchasing 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. SCOPE OF WORK

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

(a) Part 1 – City Funded Work

(b) Part 2 – Transit Improvements

(c) Part 3 – Water and Waste Work

(d) Part 4 – Manitoba Hydro Funded Work

Part 1 – City Funded Work

D2.2 City Funded Work shall consist of:

(a) Concrete Reconstruction
  (i) Bradford Street from Wellington Avenue to Saskatchewan Avenue

(b) Asphalt Reconstruction
  (i) Goulding Street from St. Matthews Avenue to Ellice Avenue
  (ii) Goulding Street from Ellice Avenue to Sargent Avenue
  (iii) Westview Park Road from Wellington Avenue to 85m to the North (Asphalt Overlay)

(c) Asphalt Resurfacing
  (i) Westview Park Road from 85m North of Wellington Avenue to End

(d) Thin Bituminous Overlay
  (i) Goulding Street from Portage Avenue to Wolever Avenue

(e) Alley Asphalt Reconstruction
  (i) Minto Street and Downing Street Alley from Ellice Avenue to Sargent Avenue
  (ii) Portage Avenue and Picardy Place Alley from Canora Street to Broadway

(f) Alley Rehabilitation
  (i) Kensington Street and Madison Street Alley from Silver Avenue to 460 Madison Street
  (ii) Alley West of Strathcona Street from Wolever Avenue to St Matthews Avenue

Part 2 – Winnipeg Transit Funded Work

D2.3 Winnipeg Transit Funded Work shall consist of:

(a) Transit Improvements
  (i) Erin Street 100m North of Portage Avenue
  (ii) Erin Street and Wolever Avenue
  (iii) Sherwin Road and Stevenson Road
  (iv) Sherwin Road and Notre Dame Avenue
  (v) Notre Dame Avenue and King Edward Street
  (vi) Notre Dame Avenue and St. James Street
  (vii) Portage Avenue and Tylehurst Street

Part 3 – Water and Waste Funded Work

D2.4 Water and Waste Funded Work shall consist of:

(a) Manhole Repairs
  (i) Goulding St – Manhole Repair (MH20008657)
  (ii) Goulding St – Manhole Repair (MH20008656)
  (iii) Goulding St – Manhole Repair (MH20008645)
  (iv) Goulding St – Manhole Repair (MH20008721)

(b) Sewer Repairs
  (i) Goulding St – Sewer Repair (MA20009422)

Part 4 – Manitoba Hydro Funded Work

D2.5 Manitoba Hydro Funded Work shall consist of:

(a) Street Lighting Installation and Associated Work
  (i) Goulding Street from St. Matthews Avenue to Sargent Avenue

D2.6 The City currently has no approved funding in the Capital Budget for Part 2, Part 3 and Part 4 of the Work, but is anticipating receiving notification about funding from Winnipeg Transit, the City of Winnipeg Water and Waste Department and Manitoba Hydro by late May 2026. Part 2, Part 3 and Part 4 of the Work is contingent upon Winnipeg Transit, the City of Winnipeg Water and Waste Department and Manitoba Hydro approving sufficient funding.

D2.6.1 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, Part 3 and Part 4 and the Contract Price will be reduced accordingly.

D2.6.2 Further to C7.5, C7.5.1, and C7.6, a reduction in the Contract Price pursuant to D2.6.1 shall not be considered in calculating the aggregate reduction in the Contract Price for purposes of C7.5.

D2.6.3 If all or any portion of Part 2, Part 3 and Part 4 is eliminated pursuant to D2.6.1, the time periods stipulated in D19 for Substantial Performance of the Work and in D20 for Total Performance of the Work will be reduced proportionally by the Contract Administrator acting reasonably.

D2.7 The major components of the Work are as follows:

(a) Concrete Street Reconstruction (Bradford Street)
  (i) Install catch basins c/w subdrains and sewer service pipe
  (ii) Removal of existing concrete pavement
  (iii) Excavation and subgrade preparation
  (iv) Insulate water services
  (v) Place separation/filtration geotextile fabric and geogrid
  (vi) Place limestone sub-base and base course granular layers
  (vii) Construct 250mm plain dowelled concrete pavement (slip-form and hand placement)
  (viii) Construct 200mm reinforced concrete approaches with type “A” bar mat
  (ix) Construct modified barrier curb
  (x) Construct monolithic curb and sidewalk with block outs
  (xi) Construct 100mm sidewalk c/w detectable warning tiles as required
  (xii) Construct asphalt tie-ins
  (xiii) Boulevard grading and sodding

(b) Asphalt Reconstruction (Goulding Street from St. Matthews Avenue to Sargent Avenue, Minto Street and Downing Street Alley and Portage Avenue and Picardy Place Alley)
  (i) Complete required sewer and manhole repairs (Goulding Street)
  (ii) Install catch basins c/w subdrains and sewer service pipe
  (iii) Remove existing asphalt/concrete pavement
  (iv) Excavation and subgrade preparation
  (v) Insulate water services (Goulding Street)
  (vi) Place separation/filtration geotextile fabric and geogrid
  (vii) Place recycled concrete granular sub-base layer
  (viii) Place limestone granular base course layer
  (ix) Construct reversed curb and gutter with 180mm barrier curb (Goulding Street)
  (x) Construct asphalt pavement
  (xi) Construct asphalt tie-ins
  (xii) Construct 40-120mm concrete lip curb (Minto Street and Downing Street Alley and Portage Avenue and Picardy Place Alley)
  (xiii) Renewal of existing sidewalk c/w detectable warning tiles as required
  (xiv) Boulevard grading and sodding

(c) Asphalt Reconstruction/Resurfacing (Westview Park Road)
  (i) Remove/transport precast concrete curbs to City of Winnipeg location
  (ii) Remove existing asphalt/concrete pavement
  (iii) Excavation and subgrade preparation
  (iv) Place separation/filtration geotextile fabric and geogrid
  (v) Place recycled concrete granular sub-base layer
  (vi) Clean concrete swale of debris
  (vii) Construct 150mm barrier curb for asphalt pavement c/w drainage curb openings
  (viii) Construct asphalt pavement (reconstruction section)
  (ix) Plane asphalt and place asphalt overlay (resurfacing section)
  (x) Construct asphalt tie-ins
  (xi) Boulevard grading and sodding

(d) Thin Bituminous Overlay (Goulding Street from Portage Avenue to Wolever Avenue)
  (i) Renew miscellaneous concrete pavement slabs (150mm reinforced concrete pavement with type “A” bar mat)
  (ii) Renew existing 150mm barrier curb and gutter
  (iii) Adjust catch basins and manholes
  (iv) Abandon existing catch pit and catch basin
  (v) Install 1200mm catch basin and connect to existing lead
  (i) Construct asphalt overlay
  (ii) Renew existing sidewalk as required
  (iii) Boulevard grading and sodding

(e) Alley Rehabilitation (Strathcona Alley and Madison Alley)
  (i) Renew miscellaneous pavement slabs (150 mm reinforced concrete pavement with type “A” bar mat)
  (ii) Adjust catch basins and manholes
  (iii) Renew existing sidewalks
  (iv) Restore gravel driveways
  (v) Construct asphalt tie-ins

(f) Transit Improvements (Erin Street, Notre Dame Avenue and Sherwin Road)

(i) Construct monolithic curb and sidewalk
(ii) Removal of tree (Notre Dame Avenue West of King Edward Street)

(g) Transit Improvements (Portage Avenue and Tylehurst Street)
(i) Remove barrier curb and paving stones
(ii) Construct 200mm reinforced concrete with type “A” bar mat and 50mm asphalt overlay
(iii) Construct monolithic medians
(iv) Renew existing sidewalks
(v) Install detectable warning tiles

(h) Street Lighting Installation and Associated Work
(i) Installation and removal of temporary overhead spans
(ii) Removal of existing street light poles and bases
(iii) Install new pre-cast concrete bases including luminaires and appurtenances
(iv) Install new street lighting cables in conduit (boring) and street light poles, including cable termination
(v) Install ground rods

D3. CONTRACT ADMINISTRATOR

D3.1 The Contract Administrator is AECOM Canada ULC, represented by:

Blair Cockrell
Project Coordinator

Telephone No. (204) 928-8431
Email Address blair.cockrell@aecom.com

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

D4. CONTRACTOR'S SUPERVISOR

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

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

D5. FURNISHING OF DOCUMENTS

D5.1 Upon award of the Contract, the Contractor will be provided with ‘issued for construction’ Contract Documents electronically, including Drawings in PDF format only.

SUBMISSIONS

D6. AUTHORITY TO CARRY ON BUSINESS

D6.1 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.

D7. SAFE WORK PLAN

D7.1 The Contractor shall provide the Contract Administrator with a Safe Work Plan at least five (5) Business Days prior to the commencement of any Work on the Site.

D7.2 The Safe Work Plan shall be prepared and submitted in the format shown in the City's template which is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Purchasing Division website at http://www.winnipeg.ca/matmgt/safety/default.stm

D7.3 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.

D8. INSURANCE

D8.1 The Contractor shall provide and maintain the 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 Hydro added as additional insureds, with a cross-liability clause, contractual liability, unlicensed motor vehicle liability (contractor's equipment), non-owned automobile liability and products and completed operations endorsement, to remain in place at all times during the performance of the Work and throughout the Warranty period;

(b) Automobile Liability Insurance covering all motor vehicles, owned and operated and used or to be used by the Contractor directly or indirectly in the performance of the Work. The Limit of Liability shall not be less than $2,000,000 inclusive for loss or damage including personal injuries and death resulting from any one accident or occurrence;

(c) all risks Installation Floater carrying adequate limits to cover all 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.

D8.2 Deductibles shall be borne by the Contractor.

D8.3 All policies shall be taken out with insurers licensed to carry on business in the Province of Manitoba.

D8.4 The Contractor shall provide:

(a) The certificate of insurance, in a form satisfactory to the Supervisor of Insurance, to:

The City of Winnipeg
Risk Management
Insurance Section
185 King Street, 3rd Floor
Winnipeg, MB R3B 1J1

(b) The Contract Administrator with a copy of the certificate of insurance.

At least two (2) Business Days of notification of the award of the Contract prior to the commencement of any Work on the Site.

D8.5 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 Supervisor of Insurance.

D9. CONTRACT SECURITY

D9.1 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 amount of fifty percent (50%) of the Contract Price; and

(b) labour and material payment bond of a company registered to conduct the business of a surety in Manitoba, in an amount equal to fifty percent (50%) of the Contract Price.

D9.1.1 Bonds are available at:

(a) Performance Bond https://www.winnipeg.ca//media/4928/

(i) Performance Bond – Schedule A - Form of Notice https://www.winnipeg.ca/media/4831/

(ii) Performance Bond – Schedule B – Surety's Acknowledgement https://www.winnipeg.ca/media/4832/

(iii) Performance Bond – Schedule C – Surety's Position https://www.winnipeg.ca/media/4833/

(b) Labour & Material Payment Bond https://www.winnipeg.ca//media/4930/

(i) L&M Bond – Schedule A – Notice of Claim https://www.winnipeg.ca/media/4834/

(ii) L&M Bond – Schedule B – Acknowledgement of a Notice https://www.winnipeg.ca/media/4835/

(iii) L&M Bond – Schedule C – Surety's Position https://www.winnipeg.ca/media/4836/

D9.1.2 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 D9.1(b).

D9.1.3 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.

D9.1.4 Digital bonds passing the verification process will be treated as original and authentic.

D9.2 The Contractor shall provide:

(a) the required Contract Security to:

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

(b) The Contract Administrator with copies of the required Contract Security.

within seven (7) Calendar Days of notification of the award of the Contract and prior to the commencement of any Work on the Site.

D9.3 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 D9.1(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.

D10. SUBCONTRACTOR LIST

D10.1 The Contractor shall provide the Contract Administrator with a complete list of the Subcontractors whom the Contractor proposes to engage (Form J: Subcontractor List) at or prior to a pre-construction meeting, or at least two (2) Business Days prior to the commencement of any Work on the Site.

D11. DETAILED WORK SCHEDULE

D11.1 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.

D11.2 If, prior to submitting the Detailed Work Schedule, the Contractor does not receive notification pursuant to D13.4 that all or some portion of Part 2, Part 3 and Part 4 of the Work may be commenced, they shall complete the Detailed Work Schedule for only Part 1 of the Work assuming that, if all of Part 2, Part 3 and Part 4 is eliminated, the time periods stipulated in D19 for Substantial Performance of the Work and in D20 for Total Performance of the Work will be reduced by two (2) Working Days per part.

D11.3 If, after submitting the Detailed Work Schedule, the Contractor receives notification that all or any portion of Part 2, Part 3, and Part 4 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.

D11.4 The detailed work schedule shall consist of the following:

(a) a Gantt chart for the Work acceptable to the Contract Administrator

D11.5 Further to D11.4(a), 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.

D12. REQUIREMENTS FOR SITE ACCESSIBILITY PLAN

D12.1 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.

D12.2 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.

D12.3 The Accessibility Plan may also include figures, sketches, or drawings to demonstrate the proposed plan.

D12.4 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

D12.5 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.

D12.6 Any changes to the Accessibility Plan must be approved by the Contract Administrator.

D12.7 Upon request from the Contract Administrator, the Contractor shall provide records demonstrating that the site has been maintained.

D12.8 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

D13. COMMENCEMENT

D13.1 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.

D13.2 The Contractor shall not commence any Work on the Site until:

(a) the Contract Administrator has confirmed receipt and approval of:

(i) evidence of authority to carry on business specified in D6;

(ii) evidence of the workers compensation coverage specified in C6.17;

(iii) the twenty-four (24) hour emergency response phone number specified in D4.2.

(iv) the Safe Work Plan specified in D7;

(v) evidence of the insurance specified in D8;

(vi) evidence of the contract security specified in D9;

(vii) the subcontractor list specified in D10;

(viii) the detailed work schedule specified in D11;

(ix) the Requirements for Site Accessibility Plan specified in D12; and

(x) the direct deposit application form specified in C12.20.

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

D13.3 The Contractor shall not commence the Work on the Site before May 19, 2026, and shall commence the Work on Site no later than May 25, 2026, as directed by the Contract Administrator and weather permitting.

D13.4 The Contractor shall not commence Part 2, Part 3 or Part 4 of the Work as described in D2 and identified in Form B: Prices, unless prior to May 19, 2026 they have received notification from the Contract Administrator that the City has received notice of sufficient funding from Winnipeg Transit, the City of Winnipeg Water and Waste Department and Manitoba Hydro.

D13.5 The City intends to award this Contract by April 30, 2026

D13.5.1 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.

D14. WORKING DAYS

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

D14.1.1 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.

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

D14.1.3 When the Work includes two or more major types of Work that can be performed under different atmospheric conditions, the Contract Administrator shall consider all major types of Work in determining whether the Contractor was able to work in assessing Working Days.

D15. RESTRICTED WORK HOURS

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

D16. WORK BY OTHERS

D16.1 Further to C6.26, 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 Contractors 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.

D16.2 Work by others on or near the Site will include but not necessarily be limited to:

(a) Winnipeg Transit – Operation of regular bus routes and reinstallation of Transit shelters where required;

(b) City of Winnipeg Traffic Services – Temporary removal of parking, restoration of permanent signage and pavement markings;

(c) City of Winnipeg Water and Waste Department – Possible investigation of services, operating water main valves, emergency repairs to Water and Waste Department Infrastructure and advisory of construction operations around feeder mains (Wellington Avenue);

(d) City of Winnipeg Water and Waste Department and Water Main Renewal Contractor – Completion of the water main renewal project on Goulding Street from St. Matthews Avenue to Ellice Avenue;

(e) City of Winnipeg Geomatic Branch – Various works on survey monuments;

(f) City of Winnipeg Traffic Signals Branch – Installation of traffic signal poles and wiring at Portage Avenue and Tylehurst Street;

(g) Manitoba Hydro Gas Division – Lowering and /or rock wrapping of underground main and services as required, and adjustment of impacted gas valves;

(h) Manitoba Hydro Street Lighting Works – Energizing street lights on Goulding Street from St. Matthews Avenue to Sargent Avenue;

(i) Rogers Communications – Installation of conduit at the west end of the Portage Avenue and Picardy Place alley. Installation of conduit on Wellington Avenue at Bradford Street;

(j) Manitoba Hydro – Adjustment of manhole frames in the alley west of Strathcona Street, south of St. Matthews Avenue.

D16.3 Further to D16.1 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 D16.2 or additional parties, in their construction schedule as per D11 and accommodate the necessary area on Site required for the Work by Others to complete the Work.

D17. SEQUENCE OF WORK

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

D17.1.1 Providing that the Work on each street is completed in a similar order to the order that the Work was commenced in, the Contractor will be permitted to have a maximum of three (3) streets under construction at any one time. Completion of a street means that all of the necessary concrete, asphalt including approaches and landscaping Work is completed to the satisfaction of the Contract Administrator.

D17.1.2 Where the Contractor utilizes two (2) or more crews that work independently on the same major component of the Work as identified in D2, the Contract Administrator may approve an increase to the maximum number of streets under construction at any time.

D17.1.3 Bradford Street will be completed one side at a time, with staging of approach construction to allow property access for trucks. Excavation and placement of aggregate materials in each stage will be permitted to take place in a continuous operation, provided the Contractor coordinates access with each property. Construction of concrete pavement must be staged, in accordance with the traffic management and construction staging plan.

D17.1.4 The Goulding street water main renewal from St. Matthews Avenue to Ellice Avenue is scheduled to be complete by July 14, 2026 (Trevor Taylor WWD (204) 805-2965). Reconstruction of the Minto Street and Downing Street alley shall be completed concurrently with the water main renewal on Goulding Street. The Goulding Street reconstruction from St. Matthews to Sargent Avenue shall commence only after the completion of the watermain renewal on Goulding Street and substantial completion of the Minto Street and Downing Street Alley.

D17.1.5 Westview Park Road, Goulding Street, the Kensington Street and Madison Street alley, the alley west of Strathcona Street and the Minto Street and Downing Street alley shall be closed during construction.

D17.1.6 The Portage Avenue and Picardy Place alley will be staged to allow access from Broadway in Stage 1 and Canora Street in Stage 2.

D17.1.7 Sidewalk construction is only permitted to occur on one side at a time.

D17.1.8 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.

D18. CRITICAL STAGES

D18.1 The Contractor shall achieve critical stages of the Work in accordance with the following requirements:

(a) Critical Stage 1 – Work on Bradford Street shall be substantially completed within 60 consecutive Working Days.

D18.2 When the Contractor considers the Work associated with Critical Stage 1to 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.

D18.3 The date on which the Critical Stage 1 Work has been accepted by the Contract Administrator as being completed to the requirements of the Contract is the date on which completion of Critical Stage 1 has been achieved.

D19. SUBSTANTIAL PERFORMANCE

D19.1 The Contractor shall achieve Substantial Performance within ninety-five (95) consecutive Working Days of the commencement of the Work as specified in D13.

D19.2 When the Contractor considers the Work to be substantially performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Substantial Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be re-inspected.

D19.3 The date on which the Work has been certified by the Contract Administrator as being substantially performed to the requirements of the Contract through the issue of a certificate of Substantial Performance is the date on which Substantial Performance has been achieved.

D20. TOTAL PERFORMANCE

D20.1 The Contractor shall achieve Total Performance within one hundred (100) consecutive Working Days of the commencement of the Work as specified in D13.

D20.2 When the Contractor or the Contract Administrator considers the Work to be totally performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Total Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be re-inspected.

D20.3 The date on which the Work has been certified by the Contract Administrator as being totally performed to the requirements of the Contract through the issue of a certificate of Total Performance is the date on which Total Performance has been achieved.

D21. LIQUIDATED DAMAGES

D21.1 If the Contractor fails to achieve 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) Critical Stage 1 – Three Thousand Five Hundred Dollars ($3500);

(b) Substantial Performance – Three Thousand Five Hundred Dollars ($3500);

(c) Total Performance – One Thousand Five Hundred Dollars ($1500).

D21.2 The amounts specified for liquidated damages in D21.1 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.

D21.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

D22. SCHEDULED MAINTENANCE

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

(a) Reflective Crack Maintenance as specified in CW3250-R7;

(b) Sod Maintenance as specified in CW3510-R10.

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

CONTROL OF WORK

D23. JOB MEETINGS

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

D23.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever they deem it necessary.

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

D24.1 Further to C6.27, the Contractor shall be the Prime Contractor and shall serve as, and have the duties of the Prime Contractor in accordance with The Workplace Safety and Health Act (Manitoba).

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

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

PAYMENT

D26. FUEL PRICE ADJUSTMENT

D26.1 The Contract is subject to a fuel price adjustment which will be calculated monthly based on eligible Work completed utilizing the following mathematical formulas;

(a) where the price of fuel has increased - ((CFI/BFI)-1.15) x Q x FF; and

(b) where the price of fuel has decreased - ((CFI/BFI)-0.85) x Q x FF; where

(i) BFI = base fuel index

(ii) CFI = current fuel index

(iii) FF = fuel factor

(iv) Q = monetary value of Work applied in the calculation.

D26.1.1 Eligible Work will be determined in accordance with D26.5.

D26.1.2 The base fuel index (BFI) will be the retail price of fuel identified on the Submission Deadline based on latest published "Monthly average retail prices for gasoline and fuel by geography" for Winnipeg, published by Statistics Canada, Table 18-10-0001-01. The BFI is a blended rate based on 15% regular unleaded gasoline at self-service filling stations and 85% diesel fuel at self-service filling stations.

D26.1.3 The current fuel index (CFI) based on the above blended rate will be determined for each monthly progress estimate and applied on the following progress estimate as a change order once rates are published by Statistics Canada.

D26.1.4 A Fuel Factor (FF) rate of the monetary value of all eligible Work completed that month based on the Contract unit prices will be used to calculate the assumed apportioned cost of fuel.

D26.2 Fuel cost adjustments may result in additional payment to the Contractor or credit to the City within the Contract by way of a monthly change order.

D26.3 The fuel escalation or de-escalation adjustment will not be applied if the CFI is within ±15% of the BFI.

D26.4 Fuel escalation adjustments will not be considered beyond the Substantial Performance/Critical Stages except where those dates/Working Days are adjusted by change order. Fuel de-escalation adjustments will apply for Work that extends beyond the dates/Working Days specified for Substantial Performance/Critical Stages.

D26.5 The Fuel Factor (FF) rates will be set as follows:

(a) The Fuel Factor rate shall be set at 2.7% of the monetary value of all Work based on unit prices except for the portions of the Contract identified below;

WARRANTY

D27. WARRANTY

D27.1 Notwithstanding C13.2, the warranty period shall begin on the date of Total Performance and shall expire two (2) years thereafter unless extended pursuant to C13.2.1 or C13.2.2, in which case it shall expire when provided for thereunder.

D27.2 Notwithstanding C13.2 or D27.1, the Contract Administrator may permit the warranty period for a portion or portions of the Work to begin prior to the date of Total Performance if:

(a) a portion of the Work cannot be completed because of unseasonable weather or other conditions reasonably beyond the control of the Contractor but that portion does not prevent the balance of the Work from being put to its intended use.

D27.2.1 In such case the date specified by the Contract Administrator for the warranty period to begin shall be substituted for the date specified in C13.2 for the warranty period to begin.

INDEMNITY

D28. INDEMNITY

D28.1 Indemnity shall be as stated in C17.

FORM J: SUBCONTRACTOR LIST
(See D10)

2026 LOCAL STREET RENEWAL PROGRAM – BRADFORD STREET AND VARIOUS OTHER LOCATIONS

Portion of the Work	Name	Address
SURFACE WORKS:		
Supply of Materials:		
Concrete		
Asphalt		
Base Course & Sub-Base		
Sod		
Separation/Filtration Geotextile Fabric		
Geogrid		
Installation/Placement:		
Concrete		
Asphalt		
Base Course & Sub-Base		
Sod		
Joint Sealant		
Street Lighting		
UNDERGROUND WORKS:		
Supply of Materials:		
Sewer Service Pipe/Drainage Connection Pipe		
Sub Drains		
Catch Basins/Catch Pits		
Frames and Covers		
Installation/Placement:		
Sewer Service Pipe/Drainage Connection Pipe		
Sub Drains		
Catch Basins/Catch Pits		

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, Purchasing 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:

Drawing No.	Drawing Name/Title	Drawing (Original) Sheet Size
CT-00	Cover Sheet and Location Plan	A1
CT-01	Bradford Street – Traffic Management and Construction Staging Plan	A1
CT-02	Goulding Street – Traffic Management and Construction Staging Plan	A1
CT-03	Strathcona Street Alley, Minto St/Downing St Alley and Portage Ave/Picardy Place Alley – Traffic Management and Construction Staging Plan	A1
CT-04	Kensington Street and Madison Street Alley and Westview Park Road – Traffic Management and Construction Staging Plan	A1
CT-05	Bradford Street – Geometric Plan	A1
CT-06	Bradford Street – Wellington Avenue to Station 0+180	A1
CT-07	Bradford Street – Station 0+180 to Station 0+290	A1
CT-08	Bradford Street – Station 0+290 to Station 0+400	A1
CT-09	Bradford Street – Station 0+400 to Station 0+510	A1
CT-10	Bradford Street – Station 0+510 to Saskatchewan Avenue	A1
CT-11	Goulding Street – Portage Avenue to Station 0+205	A1
CT-12	Goulding Street – Station 0+205 to Station 0+335	A1
CT-13	Goulding Street – Station 0+335 to Wolever Avenue	A1
CT-14	Goulding Street – St. Matthews Avenue to Station 0+605	A1
CT-15	Goulding Street – Station 0+605 to Station 0+735	A1
CT-16	Goulding Street – Station 0+735 to Station 0+865	A1
CT-17	Goulding Street – Station 0+865 to Station 0+995	A1
CT-18	Goulding Street – Station 0+995 to Station 1+125	A1
CT-19	Goulding Street – Station 1+125 to Sargent Avenue	A1
CT-20	Westview Park Road – Wellington Avenue to Station 0+080	A1
CT-21	Westview Park Road – Station 0+080 to Station 0+160	A1
CT-22	Westview Park Road – Station 0+160 to Station 0+240	A1
CT-23	Westview Park Road – Station 0+240 to Station 0+320	A1
CT-24	Westview Park Road – Station 0+320 to Station 0+367.5	A1
CT-25	Kensington Street & Madison Street Alley – Silver Avenue to Station 0+206	A1

Drawing No.	Drawing Name/Title	Drawing (Original) Sheet Size
CT-26	Strathcona Street Alley – Wolever Avenue to Station 0+215	A1
CT-27	Strathcona Street Alley – Station 0+215 to Station 0+345	A1
CT-28	Strathcona Street Alley – Station 0+345 to St. Matthews Avenue	A1
CT-29	Minto Street & Downing Street Alley – Ellice Avenue to Station 0+185	A1
CT-30	Minto Street & Downing Street Alley – Station 0+185 to Station 0+295	A1
CT-31	Minto Street & Downing Street Alley – Station 0+295 to Station 0+405	A1
CT-32	Minto Street & Downing Street Alley – Station 0+405 to Sargent Avenue	A1
CT-33	Portage Avenue & Picardy Place Alley – Canora Street to Station 0+165	A1
CT-34	Portage Avenue & Picardy Place Alley – Station 0+165 to Broadway	A1
CT-35	Transit Stop Construction – Various Locations – Plans	A1
CT-36	Transit Improvements – Portage Avenue and Tylehurst Street	A1
N/A	Preliminary Goulding Street Lighting	A1

E1.5 The Preliminary Goulding Street Lighting drawing from St. Matthews Avenue to Sargent Avenue is provided for bidding purposes only. Manitoba Hydro will provide an issued for construction drawing for this street lighting work prior to the commencement of the Contract.

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 D12 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 pavement structure and existing soil conditions. The geotechnical report is contained in Appendix 'G'.

E4. PROTECTION OF EXISTING TREES

E4.1 The Contractor shall take the following precautionary steps to prevent damage from construction activities to existing boulevard trees within the limits of the construction area:

(a) The Contractor shall not stockpile materials and soil or park vehicles and equipment on boulevards within 2 metres of trees.

(b) Trees identified to be at risk by the Contract Administrator are to be strapped with 25 x 100 x 2400mm wood planks, or suitably protected as approved by the Contract Administrator.

(c) Excavation shall be performed in a manner that minimizes damage to the existing root systems. Where possible, excavation shall be carried out such that the edge of the excavation shall be a minimum of 1.5 times the diameter (measured in inches), with the outcome read in feet, from the closest edge of the trunk. Where roots must be cut to facilitate excavation, they shall be pruned neatly at the face of excavation.

(d) Operation of equipment within the dripline of the trees shall be kept to the minimum required to perform the work required. Equipment shall not be parked, repaired, refuelled; construction materials shall not be stored, and earth materials shall not be stockpiled within the driplines of trees. The dripline of a tree shall be considered to be the ground surface directly beneath the tips of its outermost branches. The Contractor shall ensure that the operations do not cause flooding or sediment deposition on areas where trees are located.

(e) Work on-site shall be carried out in such a manner so as to minimize damage to existing tree branches. Where damage to branches does occur, they shall be neatly pruned.

E4.2 All damage to existing trees caused by the Contractor's activities shall be repaired to the requirements and satisfaction of the Contract Administrator and the City Forester or their designate.

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

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

E5. TRAFFIC CONTROL

E5.1 Further to 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 planning 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.

E5.2 Upon request from the Contract Administrator, the Contractor shall provide records demonstrating that the site has been maintained.

E5.3 Further to E5.1(c) and E5.1(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.

E5.4 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.

E5.5 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.

E6. TRAFFIC MANAGEMENT

E6.1 Further to 3.7 of CW 1130:

E6.1.1 The Contractor shall schedule construction activities to meet the following:

(a) Bradford Street (Refer to Drawing CT-01) – Construction will be completed one side at a time allowing for one-way traffic in the opposing lane. The Contractor shall coordinate temporary approach closures with each property.

(b) Goulding Street Asphalt Reconstruction (Refer to Drawing CT-02) – The Contractor shall sign the street “Road Closed”. The east or west sidewalk will be maintained at all times for pedestrian access.

(c) Goulding Street TBO (Refer to Drawing CT-02) – The Contractor shall sign the street “Road Closed”. The east or west sidewalk will be maintained at all times for pedestrian access.

(d) Westview Park Road (Refer to Drawing CT-04) – The Contractor shall sign the street “Road Closed”. The Contractor shall supply and install an information sign stating “Westview Park Access via Midland Street”, indicating the expected construction period.

(e) Kensington and Madison Street Alley (Refer to Drawing CT-04)– The Contractor shall sign the street “Road Closed”.

(f) Strathcona Street Alley (Refer to Drawing CT-03) – The Contractor shall sign the street “Road Closed”.

(g) Minto Street and Downing Street Alley (Refer to Drawing CT-03) – The Contractor shall sign the street “Road Closed”.

(h) Portage Avenue and Picardy Place Alley (Refer to Drawing CT-03) – Traffic will be permitted access to the west end of the alley from Canora Street during Stage1. Traffic will be permitted access to the east end of the alley from Broadway Street during Stage 2.

(i) Erin Street and Portage Avenue Transit Stop – The Contractor shall close the west lane of Erin St, maintaining two lanes of southbound traffic at all times.

(j) Erin Steet and Wolever Avenue Transit Stop – The Contractor shall close the west lane of Erin St, maintaining two lanes of southbound traffic at all times.

(k) Sherwin Road and Stevenson Road Transit Stop – The Contractor shall maintain two-way traffic at all times, utilizing a flag person as necessary. The west side multi-use pathway shall be maintained at all times for pedestrians and cyclists.

(l) Sherwin Road and Notre Dame Avenue Transit Stop – The Contractor shall maintain two-way traffic at all times, utilizing a flag person as necessary. The west side multi-use pathway shall be maintained at all times for pedestrians and cyclists.

(m) Notre Dame Avenue and King Edward Street Transit Stop – The Contractor shall close the north gutter lane of Notre Dame Avenue, maintaining one lane of westbound traffic. The north sidewalk shall remain open at all times during construction.

(n) Notre Dame Avenue and St. James Street Transit Stop – The Contractor shall close the south gutter lane of Notre Dame Avenue, maintaining one lane of eastbound traffic. The south sidewalk shall remain open at all times during construction.

(o) Portage Avenue and Tylehurst Street Transit Improvement – The Contractor shall close the north and south gutter lanes of Portage Avenue at Tylehurst Street to facilitate sidewalk work. The Contractor shall close the north and south median lanes of Portage Avenue at Tylehurst Street to facilitate median work. Three lanes of eastbound traffic and three lanes of westbound traffic shall be maintained at all times. East-west and north-south pedestrian access shall be maintained at the intersection at all times.

E6.1.2 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.

E6.1.3 Pedestrian and ambulance/emergency vehicle access must be maintained at all times.

E7. REFUSE AND RECYCLING COLLECTION

E7.1 While access to refuse and/or recycling collection vehicles is restricted, on collection day(s) the Contractor shall move all of the affected property owners refuse and/or recycling materials to a nearby common area, prior to an established time, in accordance with E7.2 to permit the normal collection vehicles to collect the materials. Immediately following recycling collection the Contractor shall return recycling receptacles to the addresses marked on the receptacles.

E7.2 Collection Schedule:

Bradford Street from Saskatchewan Avenue to Wellington Avenue.

Collection Day(s):	**Private Collection**
Collection Time:	**TBD**
Common Collection Area:	**Private Bins, Contractor to coordinate access with each property**

Goulding Street from St. Matthews Avenue to Ellice Avenue.

Collection Day(s):	**Friday Collection**
Collection Time:	**6:00am – 10:00pm**
Common Collection Area:	**Back Lane**

Goulding Street from Ellice Avenue to Sargent Avenue.

Collection Day(s):	**Friday Collection**
Collection Time:	**6:00am – 10:00pm**
Common Collection Area:	**Back Lane**

Goulding Street from Portage Avenue to Wolever Avenue.

Collection Day(s):	**Friday Collection**
Collection Time:	**6:00am – 10:00pm**
Common Collection Area:	**Back Lane**

Westview Park Road from Wellington to End

Collection Day(s):	**No Collection**
Collection Time:	**N/A**
Common Collection Area:	**N/A**

Minto Street and Downing Street Alley from Ellice Avenue to Sargent Avenue

Collection Day(s):	**Friday Collection**
Collection Time:	**6:00am – 10:00pm**
Common Collection Area:	**Front Boulevard**

Additional Information:	**Alley will be closed to traffic during construction. Residents will be advised to place refuse and recycling bins on the front boulevard of either Minto Street or Downing Street.**

Portage Avenue and Picardy Place Alley from Canora Street to Broadway.

Collection Day(s):	**Friday Collection**
Collection Time:	**6:00am – 10:00pm**
Common Collection Area:	**Alley**
Additional Information:	**Alley will be closed to traffic during construction. Residents will be advised to place refuse and recycling bins on the front boulevard of Picardy Place. The Contractor shall coordinate with the north side commercial building manager for full-size bin pickup access near the intersection of the alley with Canora Street.**

Kensington Street and Madison Street Alley from Silver Avenue to 460 Madison Street

Collection Day(s):	**Friday Collection**
Collection Time:	**6:00am – 10:00pm**
Common Collection Area:	**Back Lane**
Additional Information:	**Alley be closed to traffic during construction. Businesses will be advised to place residential refuse and recycling bins on the front boulevard of Kensington Street. The Contractor shall coordinate with each property for pickup of any full-size bins.**

Alley West of Strathcona Street from Wolever Avenue to St. Matthews Avenue

Collection Day(s):	**Friday Collection**
Collection Time:	**6:00am – 10:00pm**
Common Collection Area:	**Back Lane**
Additional Information:	**Back lane will be closed to traffic during construction. Residents will be advised to place refuse and recycling bins on the front boulevard of Strathcona Street.**

E7.3 No measurement or payment will be made for the work associated with this specification.

E8. WATER OBTAINED FROM THE CITY

E8.1 Further to 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.

E9. SURFACE RESTORATIONS

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

E10. INSTALLATION OF EPOXY COATED DOWEL BAR ASSEMBLIES

DESCRIPTION

E10.1 General

E10.1.1 The specification covers the supply and installation of epoxy-coated dowel bar assemblies along transverse pavement joints in 150mm and 200mm reinforced concrete pavement.

E10.1.2 Referenced Standard Construction

(a) CW 3310 – Portland Cement Concrete Pavement Works

MATERIALS

E10.2 Storage and Handling

E10.2.1 Store and handle material in accordance with Section 5 of CW 3310.

E10.3 Epoxy-Coated Dowel Bar Assemblies

E10.3.1 19.1 mm Dowel Bar Assemblies in accordance with CW 3310.

CONSTRUCTION METHODS

E10.4 In addition to CW 3310, the Contractor must remove all reinforcing steel within 300 mm of the transverse joint. The location of the transverse joints will be at a spacing of 5 m or as directed by the Contract Administrator. The Contractor shall place the 19.1 mm dowel bar assemblies across the transverse joint. Dowel bar spacing in assemblies shall be 450 mm O.C.

MEASUREMENT AND PAYMENT

E10.5 Epoxy-Coated Dowel Bars

E10.5.1 All work involved in the supply and installation of the epoxy-coated dowel bar assemblies shall be considered incidental to the items of work listed below.

E10.5.2 Items of Work:

(a) “150 mm Type 2 Concrete Pavement (Reinforced)”

(b) “150 mm Type 4 Concrete Pavement for Early Opening 72 Hour (Reinforced)”

(c) “Construction of 150 mm Type 2 Concrete Pavement (Reinforced)”

(d) “Construction of 200 mm Type 2 Concrete Pavement (Reinforced)”

(e) “Construction of 200 mm Type 3 Concrete Pavement for Early Opening 24 Hour (Reinforced)”

(f) “Construction of 200 mm Type 4 Concrete Pavement for Early Opening 72 Hour (Reinforced)”

E11. ASPHALT SPECIAL PROVISION

DESCRIPTION

E11.1 General

E11.1.1 This specification covers the requirements for the materials, equipment, and processes for proportioning and mixing hot mix asphalt (HMA) including warm mix asphalt (WMA), recycled mixes, and mixes for miscellaneous work in accordance with the Marshall and Superpave methods.

E11.1.2 This Specification covers the preparation of hot/warm-mixed, hot/warm-laid, asphalt paving mixes for, and all placing operations relating to, the construction of asphalt pavements, overlays and other related pavement works.

E11.1.3 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all work as hereinafter specified.

E11.2 Definitions

E11.2.1 Hot Mix Asphalt (HMA) means hot mixed, hot laid asphalt. The terms are used interchangeably. HMA may include recycled or specialty mixes.

E11.2.2 Warm Mix Asphalt (WMA) means warm mixed, warm laid asphalt produced using technologies that allow for the mixing, handling, and compaction of the asphalt concrete mixture at a temperature typically lower than conventional hot mix asphalt.

E11.2.3 Lift means the compacted thickness of asphalt material laid in a single application.

E11.2.4 Base Course means the layer of material between the sub-base and the pavement wearing surface.

E11.2.5 SP1 means dense-graded asphalt mix using Superpave mix design for surface course. SP1 is intended for the reconstruction of expressways, major arterials, and minor arterials, industrial/commercial collectors, residential major collectors, as well as the paving of bridge decks. SP1 can also be used for asphalt overlay of expressways, major arterials, and minor arterials, where specified in the Contract Documents.

E11.2.6 SP2 means dense-graded asphalt mix using Superpave mix design for intermediate and bottom lifts. SP2 is intended for the reconstruction of high traffic volume streets, including expressways, major arterials, minor arterials, industrial/commercial collectors as well as the paving of bridge decks.

E11.2.7 MS1 means dense-graded asphalt mix using Marshall mix design for surface course. MS1 is intended for the reconstruction of intermediate and low volume streets including residential minor collectors, residential local, public lanes, asphalt pathways and associated approaches. MS1 is also intended for asphalt overlay of all street classifications and the reconstruction or asphalt overlay of all approaches except where otherwise specified in the Contract Documents.

E11.2.8 MS2 means dense-graded asphalt mix using Marshall mix design for intermediate and bottom lifts. MS2 is intended for intermediate and low volume streets including residential major or minor collectors, residential local, public lanes, asphalt pathways and associated approaches.

E11.2.9 MS3 means a fine-graded asphalt mix using Marshall mix design intended for thin asphalt overlays and specialized surfaces such as basketball courts, tennis courts, driveways, sidewalks, boulevards, and other narrow or constrained paving areas.

E11.2.10 Reclaimed asphalt pavement (RAP) means the processed HMA or WMA material that is recovered by partial or full depth removal.

E11.2.11 Deleterious Material means soft or friable material that would decay or disintegrate from weathering including ironstone, porcelain, vegetation, organic material, wood, glass, alkali, plastic, metal, reinforcing steel, building rubble, brick, shale, mica, coal, clay lumps, and loam or other deleterious substances.

E11.2.12 Job-Mix Formula (JMF) means the percentage passing on each designated sieve of the total mass of aggregate and the amount of asphalt cement as a percentage by mass of the mixture that are based on specified mix design procedures, and when mixed results in a paving mixture in accordance with this specification.

E11.2.13 Mix Design means the design of the proportions of aggregates, asphalt cement, and additives that when uniformly mixed results in an acceptable asphalt mix in accordance with the specified method.

E11.2.14 Performance Graded Asphalt Cement (PGAC) means an asphalt binder that is asphalt-based cement produced from petroleum residue, either with or without the addition of non-particulate modifiers, in accordance with AASHTO M320.

E11.2.15 Superpave means the method for specifying material components and asphalt mix design using the Superpave Gyratory Compactor (SGC).

E11.2.16 Effective Asphalt Cement is the portion of asphalt binder in hot and warm asphalt mixes that remains effective (available) to coat aggregate particles and provide binding after subtracting the asphalt absorbed into the aggregate.

E11.2.17 Joint means a vertical contact between a new asphalt pavement course and any existing asphalt pavement or any rigid object that exists at the time the HMA is laid.

E11.2.18 Prime Coat means application of emulsified asphalt cement on a granular surface.

E11.2.19 Tack Coat means application of emulsified asphalt cement on existing asphalt or portland cement concrete pavement prior to overlay, or between layers of new bituminous pavement.

E11.2.20 Prime coat has cured when water has totally separated from the emulsified asphalt. Prime coat is required to fully set and not remain tacky before placing asphalt.

E11.2.21 Tack coat break is when water has separated enough from the emulsified asphalt to show a color change from brown to black and remain tacky. Tack coat is not required to fully cure; however, asphalt placement shall not proceed until the emulsion has broken and sufficient bond can be achieved without pickup or tracking.

E11.2.22 Segregation means a condition of the pavement characterized by areas with comparatively coarser texture than that of the surrounding pavement.

E11.2.23 Lot means a specific quantity of material, approximately 150 tonnes or less, from a single source and produced by the same process within a single operational day. Actual size of Lot may vary based on scaled quantities delivered to the road.

MATERIALS

E11.3 Handling and Storage of Materials

E11.3.1 All asphalt constituent materials shall be stored in a manner that will prevent contamination or deterioration. Access to the storage facilities shall be provided for inspection by the Contract Administrator.

E11.3.2 All fabricated and incidental materials, such as anti-stripping, prime coat, tack coat, etc., shall be stored in accordance with the manufacturer's instructions.

E11.3.3 The Contract Administrator shall approve all materials before any construction is undertaken. If, in the opinion of the Contract Administrator, such materials, in whole or in part, do not conform to this Specification or are found to be defective in manufacture or have become damaged in transit, storage or handling operations, then such material shall be rejected by the Contract Administrator and replaced by the Contractor at his own expense. There shall be no charge to the City for any materials taken for testing purposes.

E11.4 Aggregate

E11.4.1 Aggregate shall consist of crushed stone or gravel or a combination of these materials conforming to the requirements of this Specification.

(a) Each of the fine- and coarse-fractions of the combined aggregate shall meet all the requirements of this Specification and shall be handled and weighed separately to maintain uniformity. The supplier shall provide the City of Winnipeg, Research and Standards Engineer with test data demonstrating that the material will produce asphalt mixes of acceptable quality that meet all the requirements of this Specification.

(b) Aggregates shall be hard and durable fragments with a maximum of 2% deleterious materials in both coarse and fine aggregates in accordance with ASTM Standard

C142, Standard Test Method for Clay Lumps and Friable Particles in Aggregate and ASTM C123/C123M - Standard Test Method for Lightweight Particles in Aggregate by Washing as well as visual inspection of aggregates to identify deleterious materials.

(c) The combined aggregate gradation and physical properties shall comply with the requirements in Table CW 3410.1.

TABLE CW 3410.1 - Combined Aggregate Gradation and Physical Properties Limits

	Test Method	SP1	SP2	MS 1	MS 2	MS 3
Sieve Size, mm		Percent of Total Dry Weight Passing Each Sieve				
19.0 16.0 12.5 9.5 4.75 2.36 1.18 0.60 0.15 0.075	ASTMC 136 or ASTM D5444 (Note 1)	-- 100% 90% - 100% 75% - 90% 48% - 70% 28% - 58% 19% - 40% 13% - 30% 4% - 15% 2% - 8%	100% 90% - 100% 70% - 90% 60% - 80% 40% - 62% 23% - 50% 15% - 35% 10% - 22% 4% - 14% 2% - 8%	-- 100% 90% - 100% 75% - 90% 48% - 70% 28% - 58% 19% - 40% 13% - 30% 4% - 15% 2% - 8%	100% 90% - 100% 75% - 95% 70% - 90% 55% - 70% 35% - 55% 28% - 46% 17% - 32% 4% - 12% 3% - 10%	-- -- -- 100% 90% - 95% 74% - 80% 55% - 64% 35% - 46% 11% - 30% 5% - 11%
Fine Aggregate Angularity, %min (Note 2)	ASTM C1252 – Method A	45%	45%	40%	40%	40%
Clay Content (Sand Equivalency), %min (Note 3)	ASTM D2419	45%	45%	45%	40%	40%
Crush Count, %min (2 Fractured Faces) (Note 4)	ASTM D5821	95%	80%	80%	80%	80%
Flat and Elongated Particles, % Max	ASTM D4791	6%	10%	--	--	--
Absorption, %max	ASTM C127	2%	2%	2%	2%	2%
Abrasion, %max (Note 4)	ASTM C131	35%	35%	35%	35%	35%
Micro-Deval, %max (Note 4)	ASTM D6928	15%	15%	15%	17%	15%
Soundness (Note 5)	ASTM C88	Note 3	Note 3	Note 3	--	--
Lightweight Particles Content, %max (Note 6)	ASTM C123	3%	5%	3%	5%	3%

- Note 1: ASTM C136 shall be used for determining the particle size distribution of fine and coarse virgin aggregates while ASTM D5444 shall be used for determining the particle size distribution of extracted aggregates from bituminous mixtures.
- Note 2: Test criteria shall apply for fine aggregates passing 4.75mm sieve. Test results shall be based on combined aggregates prior to the addition of RAP. Fine Aggregate Angularity (FAA) of 43% is acceptable, provided the mix complies with all other specified requirements.
- Note 3: Test results shall be conducted on the combined aggregate mix before the addition of Reclaimed Asphalt Pavement (RAP).
- Note 4: Test criteria shall apply for coarse aggregates retained on 4.75 mm sieve.
- Note 5: Soundness - Coarse aggregate when subjected to five cycles of the soundness test shall have a weighted loss of not more than twelve (12) percent when sodium sulphate is used or not more than eighteen (18) percent when magnesium sulphate is used in accordance with ASTM Standard C88, Test for Soundness of Aggregates by Use of Sodium Sulphate or Magnesium Sulphate.

- Note 6: The lightweight particle content is the percentage of lightweight particles by weight of all particles retained on 4.75mm sieve.

(d) Quarried limestone and dolomite shall not be acceptable as asphalt aggregate materials for Superpave mixes and MS1 surface lifts.

E11.5 Asphalt Cement

E11.5.1 Asphalt cement shall be performance graded asphalt cement in accordance with AASHTO M 320 unless otherwise specified in the Contract Documents.

(a) Use only those materials listed as Approved Products for Surface Works. The Approved Products are available in Adobe Acrobat (.pdf) format at the City of Winnipeg, Corporate Finance, Material Management Internet site at: https://legacy.winnipeg.ca/matmgt/spec/default.stm

E11.5.2 The PGAC shall be homogeneous, free of water and any contamination, and shall not foam when heated to the temperatures specified by the manufacturer for the safe handling and use of the product. It shall be shipped, used, and always handled in accordance with the manufacturer's specifications.

E11.5.3 All PGAC shall be in accordance with AASHTO M 320 when tested using the methods designated in AASHTO R29, Test Procedure for Grading an Unknown Asphalt Binder and continuous grading temperatures and reported continuous grading temperatures rounded to the nearest 0.1 °C.

E11.5.4 Grades shall be tested at a temperature of 58 °C to determine the average percent recovery at 3.2 kPa ($R_{3.2}$) in accordance with the requirements of AASHTO T350 Multiple Stress Creep Recovery (MSCR) Test using a Dynamic Shear Rheometer. The minimum MSCR Elastic Recovery shall be 25%.

E11.5.5 The PGAC performance grading test result requirements shall be

- Equal to or above XX* and equal to or below -YY*; or
- ≤ 0.5 °C below XX and ≤ 0.5 °C above -YY

Where *XX is the specified high temperature performance grade and design maximum pavement temperature and -YY is the specified low temperature performance grade and design minimum pavement temperature.

E11.5.6 The PGAC shall comply with the performance grading requirements in Table CW 3410.2.

Table CW 3410.2: Categories for PGAC

Asphalt Type		Specified Standard Grade*
Top lift	SP1	PG 64-34P
	MS1	PG 58-34
	MS3	PG 58-34
Other lifts	SP2	PG 58-34P
	MS2	PG 58-34

E11.6 Mineral Filler

E11.6.1 Mineral filler, when required, shall consist of finely divided mineral matter such as rock dust, slag dust, hydrated lime, hydraulic cement, fly ash, loess or other suitable mineral matter, and shall conform to the requirements of ASTM Standard D242, Standard Specification for Mineral Filler for Bituminous Paving Mixtures. Mineral filler shall be free from organic matter and shall be non-plastic when tested in accordance with ASTM D2974 Standard Test Methods for Determining the Water (Moisture) Content, Ash Content, and Organic Material of Peat and Other Organic Soils.

E11.7 Incidental Materials

E11.7.1 Prime Coat

(a) Prime coat shall consist of an emulsified asphalt. Method of application shall conform to the manufacturer's recommendations.

(b) Use only those materials listed as Approved Products for Surface Works. The Approved Products are available in Adobe Acrobat (.pdf) format at the City of Winnipeg, Corporate Finance, Material Management Internet site at: https://legacy.winnipeg.ca/matmgt/spec/default.stm

E11.7.2 Tack Coat

(a) Tack coat shall consist of emulsified asphalt. Method of application shall conform to the manufacturer's recommendations.

(b) Use only those materials listed as Approved Products for Surface Works. The Approved Products are available in Adobe Acrobat (.pdf) format at the City of Winnipeg, Corporate Finance, Material Management Internet site at: https://legacy.winnipeg.ca/matmgt/spec/default.stm

E11.7.3 Reclaimed Asphalt Pavement (RAP)

(a) Reclaimed asphalt pavement shall consist of sound durable particles produced by crushing and screening.

(b) RAP is not permitted in Superpave mixes.

(c) Up to 10% by mass of RAP is permitted in MS1 where used as a surface course.

(d) Up to 15% by mass of RAP is permitted in MS1, MS2, and SP2 where used in lifts other than surface course.

(e) RAP shall be blended during production of the asphalt and the mix produced shall consist of a uniform blend of all materials.

(f) All physical requirements and combined aggregate gradation limits shall meet the requirements of Table CW 3410.1.

E11.7.4 Recycled Asphalt Shingles (RAS)

(a) RAS shall be blended during production of the asphalt and the mix produced shall consist of a uniform blend of all materials.

(b) RAS shall consist of sound durable particles produced from recovered organic asphalt, shingles, asphalt caps and asphalt rolled roofing. Fiberglass shingles are not permitted.

(c) RAS material can be incorporated to a maximum 3% by weight of the total mix into MS1, MS2, and SP2 where used in lifts other than surface course.

(d) RAS particles shall be a maximum size of 10mm and shall otherwise meet the gradation requirements in Table CW 3410.1.

(e) RAS shall be free of chemical contaminants. Deleterious substances shall be a maximum of 3% of RAS by weight. Deleterious substances include fiberglass shingles, metal, glass, rubber, nails, soil, brick, tars and asbestos.

DESIGN REQUIREMENTS FOR ASPHALT PAVING MIX

E11.8 Testing Laboratories

E11.8.1 The City of Winnipeg, Research and Standards Engineer will maintain a list of approved Testing Laboratories. To obtain approval, Testing Laboratories must submit the following information to the Research and Standards Engineer annually prior to April 1st:

(a) Valid Category “B” Asphalt laboratory certification or higher by Canadian Council of Independent Laboratories (CCIL);

(b) A complete list of the certified testing; and,

(c) List of the field personnel and their qualifications.

E11.9 Asphalt Suppliers

E11.9.1 Asphalt suppliers must submit the following information to the Research and Standards Engineer three weeks prior to paving:

(a) Asphalt suppliers Approval Guidelines and Application is available at the City of Winnipeg, Corporate Finance, Material Management Division website at; https://legacy.winnipeg.ca/matmgt/spec/default.stm

(b) Names of suppliers and sources for all materials and admixtures;

(c) Asphalt mix designs. The mix design shall be completed by an approved laboratory with CCIL Type “A” certification based on the asphalt type;

(d) Copies of valid scale calibration reports for the asphalt batch plant;

(e) Test data for aggregates (in accordance with Clause E11.4);

(f) Sieve analysis test reports for the individual aggregates and the combined aggregate gradations to be used in the asphalt. The sieve analysis test reports shall be representative of the material to be used during asphalt production;

(g) Test data for asphalt cement (in accordance with Clause E11.5) and the following items shall be submitted:

(i) The PGAC supplier and location that the product shall be supplied from;

(ii) All documentation from the PGAC supplier confirming the grade of PGAC;

(iii) Applicable mixing and compaction temperatures for the product;

(iv) The minimum temperature of the mix immediately after spreading as recommended by the PGAC supplier; and,

(v) Documentation of construction, storage, and handling requirements, including the material safety data sheet, recompaction temperature, and mix discharge temperature.

(h) Performance data from trial batches prior to construction to demonstrate the asphalt mix will achieve the performance criteria in Table CW 3410.4 and Table CW 3410.5. Three (3) separate sets of test results from a trial batch will be required for approval of the corrected mix design statement;

(i) Quality control program for all materials, including a proposed sampling and testing plan in accordance with Clause E11.11;

(j) The supplier shall hold a valid development license issued in accordance with the Manitoba Environment Act for the operation of the Bituminous Mix plant. The plant shall be located and operated in accordance with the terms and conditions of the license; and,

(k) The supplier shall control dust at the plant site in accordance with health, safety and environmental requirements.

E11.9.2 The City of Winnipeg, Research and Standards Engineer will conduct inspections at least once a year during production. Samples of materials may be taken and tested.

E11.9.3 Testing for qualification or acceptance purposes shall be done in accordance with this Specification and applicable test procedures and standard practices. There shall be no charge for any materials taken for testing purposes.

E11.9.4 Changes in the source of any asphalt constituent materials will not be permitted without approval of the City of Winnipeg, Research and Standards Engineer. For new sources, all materials shall be tested.

E11.9.5 Once approved, all asphalt shall be supplied in accordance with the approved Mix Design Statement. No changes in the asphalt mix designs will be permitted without written permission from the City of Winnipeg, Research and Standards Engineer.

E11.9.6 Any change in the constituent materials of the asphalt shall require a new asphalt mix design.

E11.9.7 No asphalt supply or placement shall proceed until the asphalt cement submittal, mix design and Job Mix Formula are approved.

E11.10 Asphalt Mix Design and Job Mix Formula

E11.10.1 The Mix Design Statements for all asphalt types shall be submitted to the City of Winnipeg, Research and Standards Engineer for approval. The mix shall be proportioned to produce asphalt in accordance with the requirements of Table CW 3410.3 or Table CW 3410.4.

Table CW 3410.3: Marshall Mix Requirements

Mix Properties	**MS1**	**MS2**	**MS3**
Asphalt Cement, % total sample weight	5.3% to 6.5%	5.0% to 6.0%	5.5% to 6.5%
Effective Asphalt Cement, %min	4.8%	4.5%	4.8%
Voids in Mineral Aggregate, %min	14%	13%	16%
Voids Filled with Asphalt (%)	67% to 78%	67% to 75%	67% to 78%
Air Voids	3.0% to 5.0%	3.0% to 5.0%	3.0% to 5.0%
Marshall Stability, kN at 60°C	8 min.	8 min.	5 min.
Flow Index, units of 250 µm	8.0 to 14.0	8.0 to 16.0	8.0 to 16.0

Table CW 3410.4: Superpave Mix Requirements

Mix Properties			SP1	SP2
% of Theoretical Maximum Specific Gravity		Mix Gyratory Compaction Requirements		
	$N_{initial}$	8	≤ 89.0	≤ 90.5
	N_{design}	100	96.0	96.0
	N_{max}	160	≤ 98.0	≤ 98.0
Voids in Mineral Aggregate, %min			14	13
Voids Filled with Asphalt, %			67 – 75	65 – 75
Air Voids, %			3.8 – 4.2	3.8 – 4.2
Dust to Binder Ratio			0.6 – 1.2	0.6 – 1.2
Minimum Tensile Strength Ratio (TSR), % (AASHTO T283)*			80%	70%
Asphalt Cement, %min total sample weight			4.8%	4.6%
Effective Asphalt Cement, %min			4.5%	4.3%

* If the specified TSR is not met, an approved anti-stripping additive shall be incorporated into the mix at a rate recommended by the anti-strip manufacturer and approved by the City of Winnipeg, Research and Standards Engineer.

E11.10.2 If the deviation between QA results and JMF exceeds those identified in Table CW 3410.5, the asphalt supplier shall submit new Mix Design(s) to the City of Winnipeg, Research and Standards Engineer for approval.

Table CW 3410.5: Maximum Deviation from JMF

Mix Properties	**Maximum Deviation Between the QA Results and JMF, %**

Asphalt Cement	± 0.3
Effective Asphalt Cement	± 0.3
RAP	± 5
Passing 16.0 mm, 12.5 mm, 9.5 mm sieves	5.0
Passing 4.75 mm, 2.36 mm, 1.18 mm, 0.6 mm, 0.15 mm sieves	3.0
Passing 0.075 mm sieve	1.0

E11.10.3 The mix design shall be valid for a maximum of twelve (12) months from when the mix design was developed. To extend use of the mix design beyond the initial twelve (12) months, a minimum of one test of each property listed in E11.8 to E11.11 shall be submitted to the City of Winnipeg, Research and Standards Engineer for approval. A full mix design shall be submitted every three years.

E11.11 Plant Quality Control

E11.11.1 The asphalt supplier shall be responsible for quality control of the plant to ensure all materials meet the approved mix designs. This information shall be submitted monthly and will be monitored by the City of Winnipeg, Research and Standards Engineer. Failure to submit the quality control results shall be cause for immediate suspension of the asphalt supplier.

E11.11.2 Quality Control testing shall be conducted by a laboratory certified in accordance with the requirements of Clause E11.8 and approved by the City of Winnipeg, Research and Standards Engineer.

E11.11.3 The quality control program shall include all testing in accordance with Sections E11.3 to E11.11 of this Specification. A minimum of one test for aggregate gradation and asphalt materials shall be provided monthly during production.

E11.11.4 Testing of any asphalt constituent materials may be undertaken by a testing laboratory designated by the City of Winnipeg, Research and Standards Engineer. The asphalt supplier shall be equipped with suitable means or a device for obtaining a representative sample of the asphalt cement. Any material which fails to comply with the requirements of this specification will be rejected. Material that has been rejected must be removed immediately by the asphalt supplier.

SUPPLY OF MATERIALS

E11.12 General

E11.12.1 All asphalt suppliers shall be approved by the City of Winnipeg, Research and Standards Engineer. A list of approved asphalt suppliers is available at the City of Winnipeg, Corporate Finance, Material Management Division website at:
https://legacy.winnipeg.ca/matmgt/spec/default.stm

E11.12.2 Unless otherwise specified, only use of stationary asphalt mixing plants will be permitted.

E11.13 Aggregate

E11.13.1 The different sizes of aggregate used shall be kept separate and adequate provision shall be made to keep them from becoming mixed or otherwise contaminated.

E11.13.2 Where blending of materials from one or more sources and/or sizes, each material shall be placed in separate stockpiles.

E11.13.3 Separate aggregate feeds capable of delivering a uniform flow of material to the dryer shall be provided for each separate stockpile of aggregate, RAP, supplementary material and VMA additive used to produce the asphalt mix.

E11.13.4 The aggregates shall be dried at a minimum temperature of 135°C before mixing with the asphalt.

E11.14 Asphalt Cement

E11.14.1 The asphalt cement shall be heated in a storage tank to a temperature that falls within the mixing temperature range recommended by the asphalt cement manufacturer. The mixing temperature shall be based on the temperature-viscosity curve for the asphalt cement and shall be sufficient to produce a uniform and homogeneous mixture in which all particles of the aggregate are thoroughly and uniformly coated. All information related to the asphalt cement shall be made available to the Contract Administrator upon request.

E11.14.2 The asphalt cement shall be heated at the plant to a maximum temperature of 160°C before mixing with the aggregates. In no case shall the temperature of the asphalt and aggregates differ by more than 15°C when placed in the mixing drum.

E11.15 Transportation of Asphalt Paving Mix

E11.15.1 The mixture shall be transported from the plant to the site in trucks with metal bottoms previously cleaned of all foreign materials. If required, truck boxes shall be lightly coated with a uniform application of a non-petroleum-based asphalt release agent. The release agent shall conform to the Manufacturer's specifications and approved by the Contract Administrator. Excess lubricants shall be removed before trucks are loaded with asphalt. Release agents that adversely affect the quality or performance of the asphalt mix shall not be used.

E11.15.2 The trucks shall be suitably insulated, as required. Each vehicle shall be equipped with a tarpaulin or other suitable covering material of sufficient size to overhang the truck box on three sides when the vehicle is fully loaded. Such tarpaulins shall be on the truck at all times and shall be used to cover the mixture completely as directed by the Contract Administrator.

EQUIPMENT

E11.16 General

E11.16.1 All equipment shall be of a type approved by the Contract Administrator. The equipment shall be in good working condition for the duration of the Contract.

E11.17 Prime/Tack Coat Distributors

E11.17.1 For main lane paving, prime/tack coat shall be applied using self-propelled or tow-along pressure distributors capable of applying the product at the specified rate and in a continuous and uniform manner both longitudinally and transversely for the full lane width.

E11.17.2 The distributors shall be equipped with a volume metering system of sufficient sensitivity to measure the quantity of tack/prime coat. The metering system shall be calibrated annually and all the certifications shall be made available to the Contract Administrator upon request. The distributors shall contain a thermometer for measuring the temperature of the tank contents.

E11.17.3 All nozzles shall be set in the spray bar such that the nozzle slots make an angle between 15° to 30° with the longitudinal axis of the spray bar. Clogged nozzles shall be removed and cleaned with solvent before being used.

E11.17.4 The use of a hand-held pressure applicator is acceptable only for prime/tack coating of small or irregularly shaped areas such as cuts, approaches, etc.

E11.18 Mechanical Pavers

E11.18.1 Asphalt pavers shall be self-propelled and capable of laying a consistent lift which is true to the specified geometrics, cross-section and alignment. Pavers shall be equipped with hoppers and distributing screws capable of placing the hot mix evenly in front of the screeds.

E11.18.2 Asphalt pavers shall be equipped with automatic longitudinal and transverse grade and slope controls which are capable of being operated from either side of the paver. The

longitudinal grade control shall be readily adjustable for lift thickness in small increments without the necessity of stopping the paver.

E11.18.3 The use of any paver that is experiencing difficulty in achieving a consistent and smooth lift in conformance with this Specification shall be discontinued until the Contractor demonstrates suitable corrective measures.

E11.19 Rollers

E11.19.1 A rolling pattern shall be established and submitted by the Contractor to the Contract Administrator for approval before paving. The Contract Administrator shall approve any deviation from the rolling pattern during construction.

E11.19.2 The Contract Administrator shall be provided with the mass of the rollers and may require they be weighed.

E11.19.3 Rollers shall be classified into categories in accordance with Table CW 3410.6.

Table CW 3410.6: Roller Classifications

Type	Description	Classification	Minimum Mass, tonnes
Class S	Self-propelled steel-drum roller	S1	7
		S2	9
Class R	Self-propelled pneumatic-tired rollers Or Self-propelled combination roller	R1	8
		R2	15
Class V	Self-propelled vibratory roller	V1	4
		V2	5.2
		V3	5.8

E11.19.4 Rollers shall be equipped with an automatic device that prevents the drum from vibrating unless the roller is moving and shall automatically halt vibration before coming to a stop. Frequency of vibration shall not be less than 2200 per minute. Vibration should not be used where there is potential to damage services and structures, or cause nuisance complaints as directed by the Contract Administrator.

CONSTRUCTION METHODS

E11.20 General

E11.20.1 All construction methods shall conform to this Specification, except as otherwise approved by the Contract Administrator.

E11.21 Preparation of Base Course for Asphalt Pavement

E11.21.1 General

(a) Placing of the asphalt mixture shall not commence until the construction of the sub-grade, sub-base and Base Course has been completed in accordance with the requirements of Specification CW 3110, and the installation of pavement and boule-vard structures and appurtenances has been completed to the satisfaction of the Contract Administrator.

(b) Where Base Course has raveled, the loose material shall be removed or recompacted to a uniform surface.

E11.21.2 Prime Coat

(a) Application of prime coat shall consist of flushing the final accepted Base Course layer with diluted emulsified asphalt. Use an equal volume of water to dilute the emulsified asphalt unless otherwise specified by the Contract Administrator. Surfaces to be

prime coated shall be free of standing water and contamination, such as mud, loose aggregate, or debris.

(b) The application rate of undiluted prime shall be between 0.5 to 1.0 L/m^2 and shall be approved by the Contract Administrator.

(c) Prime coat shall be placed with sufficient time to cure prior to paving. Asphalt mix shall not be placed on prime coated areas until the prime coat is fully cured for a minimum of eight (8) hours or until prime coat cannot be tracked by foot traffic and tires. Paving and construction equipment shall not be permitted onto the prime coat until it has fully cured and set. Traffic shall not be permitted on the prime coat.

(d) Prime coat shall be visually uniform. Prime coat shall be reapplied to areas of insufficient or non-uniform coverage. A hand spray can be used to apply prime coat to areas missed or inaccessible by the distributor. When prime coating is performed using hand spray, the visual appearance of such areas shall be consistent with the adjacent areas.

(e) Prime coat shall not be applied when the weather is foggy or rainy or when the ambient temperature is less than 0°C. If the ambient temperature is less than 0°C as forecast by the nearest official meteorological office, the product used for prime coat shall be approved by the Contract Administrator.

(f) Before applying the prime coat, the surface shall be flushed with water to create optimal conditions for adhesion, absorption control, and overall effectiveness of the prime coat and shall be approved by the Contract Administrator.

(g) After curing, if any excess primer remains on the surface, the Contractor shall apply an approved sand where necessary to blot up the excess prime. The sand cover, where used, shall consist of clean, granular, mineral material approved by the Contract Administrator, all of which shall pass a 4.75 mm sieve. Only sufficient sand shall be spread to blot up excess prime and such areas shall be broomed to remove the excess sand prior to paving.

(h) Prime coat shall be inspected and approved by the Contract Administrator before any asphalt is placed. Otherwise the asphalt shall be rejected by the Contract Administrator and shall be removed by the Contractor at his own expense.

(i) When traffic flow must be maintained, prime coat shall be applied to one direction of the roadway at a time. No prime coat shall be applied to the other direction of the roadway until the first direction has cured to accommodate vehicular traffic.

E11.22 Preparation of Asphalt or Portland Cement Concrete Pavement for Asphalt Overlay

E11.22.1 Asphalt Surface Pavement

(a) A layer of the existing asphalt surface course shall be removed to such depth as is specified on the Drawings or as directed by the Contract Administrator. This work will be done and paid for in accordance with Specification CW 3450.

(b) If the entire existing asphalt overlay is removed to the existing portland cement concrete pavement, the preparation of the existing Portland cement concrete pavement for asphalt overlay shall be in accordance with Section 6.4 of this Specification.

(c) If the surface remaining after the removal of the specified layer of asphalt surface course is asphalt, the Contractor shall proceed to fill any remaining holes and depressions with asphalt paving mixture and compact these areas with a steel wheel roller before paving. The asphalt surface upon which the asphalt overlay is to be placed shall be approved by the Contract Administrator prior to placing asphalt.

(d) At the locations designated on the Drawings and at any other locations designated by the Contract Administrator, the Contractor shall adjust existing structures and appurtenances, reconstruct sections of curb, seal all cracks and do other repair works as required. The adjustment of existing structures and appurtenances shall be done and paid for in accordance with Specification CW 3210, and the curb renewal, crack

sealing and other repair works shall be done and paid for in accordance with Specifications CW 3230, CW 3240, and CW 3250.

E11.22.2 Portland Cement Concrete Pavement Surface

(a) At the locations designated on the Drawings and at any other locations designated by the Contract Administrator, the Contractor shall adjust existing structures and appurtenances, reconstruct sections of concrete pavement, reconstruct sections of curb, seal all joints and cracks and do other repair works as required. The adjustment of existing structures and appurtenances shall be done and paid for in accordance with Specification CW 3210, and the pavement reconstruction, curb renewal, joint and crack sealing and other repair works shall be done and paid for in accordance with Specifications CW 3230, CW 3240, and CW 3250.

E11.22.3 Tack Coat

(a) Application of tack coat shall consist of flushing the final accepted surface with undiluted emulsified asphalt. Surfaces to be tack coated shall be free of standing water and contamination, such as mud, loose aggregate, or debris.

(b) Tack coat shall be required between layers of asphalt material and the application rate shall be in accordance with Table CW 3410.7, unless otherwise specified by the Contract Administrator.

Table CW 3410.7: Application Rate for Tack Coat

Surface Type	Application Rate, L/m^2	Max Allowable Tolerance, L/m^2
New Asphaltic pavement	0.25	0.03
Old Asphaltic pavement, Portland Cement Concrete, Milled Surface	0.35	0.05

(c) Tack coat shall be placed with sufficient time to break prior to paving. Asphalt mix shall not be placed on tack coated areas until the tack coat is broken for a minimum of three (3) hours or until tack coat cannot be entirely tracked by foot traffic and tires. If trackless tack is used, the breaking time can be reduced in accordance with the manufacturer's specifications unless otherwise specified by the Contract Administrator. Paving and construction equipment shall not be permitted onto the tack coat until it has broken. Traffic shall not be permitted on the tack coat.

(d) Tack coat shall be visually uniform. Areas of insufficient or non-uniform tack coat coverage shall be re-sprayed. Hand spray can be used to apply tack material to areas missed or inaccessible by the distributor including curb areas attached to the asphalt. When tack coating is performed using hand spray, the visual appearance of such areas shall be consistent with the adjacent areas of machine applied material.

(e) Tack coat shall not be applied when the weather is foggy or rainy or when the ambient temperature is less than 5°C. If the ambient temperature is less than 5°C as forecast by the nearest official meteorological office, the product used for tack coat shall be approved by the Contract Administrator.

(f) Tack coat shall be inspected and approved by the Contract Administrator before any asphalt is placed. Otherwise the asphalt shall be rejected by the Contract Administrator and shall be removed by the Contractor at his own expense.

E11.23 Placing Asphalt Paving Mixture

E11.23.1 General

(a) The Contract Administrator shall approve the surface upon which new asphalt is to be placed before paving operations may begin.

(b) The mixture shall be delivered to the job and placed at a temperature that allows for proper compaction, taking into consideration the weather conditions, the temperature of the surface on which the mixture is to be placed, and the thickness of the lift. In no

case shall the asphalt mixture be placed at a temperature lower than the values specified in Table CW 3410.8.

Table CW 3410.8: Limits for Asphalt Mixes Temperatures

Asphalt Type	Temperature for Asphalt before Placing, °C		Minimum Temperature During Rolling, °C
	Minimum	Maximum	
HMA	125	160	90
WMA	115	155	80

(c) Unless otherwise permitted by the Contract Administrator, the mixture shall be spread by means of a mechanical self-powered paver capable of spreading the mixture true to the line, grade and crown required.

(d) Pavers shall be equipped with hoppers and distributing screws of the reversing type to place the mixture evenly in front of adjustable screeds. The mixture shall be dumped in the centre of the hoppers and care exercised to avoid overloading and slopping over of the mixture upon the base.

(e) When laying the mixture, pavers shall operate so as to provide as continuous an operation as possible at a speed of between three meters and six meters per minute. They shall be equipped with a quick and efficient steering device and shall have forward and reverse travelling speeds of not less than 25 meters per minute.

(f) Pavers shall be capable of spreading the mixture, without segregation, in thicknesses as specified on the Drawings or approved by the Contract Administrator. Placement widths shall vary from a minimum of 1.5 meters to a maximum of 4.5 meters unless approved by the Contract Administrator. They shall be equipped with blending or joint levelling devices for smoothing and adjusting all longitudinal joints between strips or courses of the same thickness. Pavers shall be equipped with screeds.

(g) The term screed includes any strike-off device operated at workable temperature without tearing, shoving or gouging the finished surface.

(h) The minimum and maximum thickness of a compacted lift for reconstruction shall be in accordance with Table CW 3410.9, unless otherwise specified by the Contract Administrator.

Table CW 3410.9: Lift Thicknesses

Mix Type	Thickness, mm	
	Minimum	Maximum
MS1	35	55
MS2	50	75
MS3	25	40
SP1	35	55
SP2	50	75

(i) No construction traffic shall travel on the finished surface until the surface has cooled to a temperature of 60°C or less.

E11.23.2 Main Line Paving

(a) Main line paving shall include the placement of bottom and top lifts for asphalt pavements and overlays utilizing mechanical pavers with automatic grade control for:

(i) All through and parallel turning lanes greater than 15.0 meters in length;

(ii) Other lanes greater than 15.0 metres in length; and,

(iii) Intersections through which the main line continues.

(b) Main line paving with mechanical pavers shall utilize automatic grade control, except for:

(i) Intersections through which the main line continues and where traffic must be maintained; and,

(ii) The side of the paver adjacent active traffic.

(c) Hand placement shall be minimized. Hand placed asphalt shall be spread and compacted to match the finished grade to the satisfaction of the Contract Administrator.

E11.23.3 Tie-Ins and Approaches

(a) Tie-Ins and approaches shall include the placement of leveling and surface courses for pavements and overlays for all areas other than main line paving lanes. This includes intersecting side streets to the main road under construction except as noted in Section E11.23.2 of this specification, intersection turnouts, right turn cut-offs, median openings, and private approaches. Tie-ins include miscellaneous asphalt for temporary ramping, sidewalk in-fill and isolations.

(b) Tie-Ins and approaches shall utilize mechanical pavers where possible with or without automatic grade control, or hand methods as approved by the Contract Administrator.

(c) Hand placement shall be minimized. Hand placed asphalt materials shall be spread and compacted to match the finished grade to the satisfaction of the Contract Administrator.

E11.23.4 Weather Limitations

(a) Asphalt shall be laid upon a surface which is dry, clean and free from standing water, and only when weather conditions are suitable in accordance with Table CW 3410.10.

Table CW 3410.10: Minimum Placement Temperature for Asphalt

Asphalt Type	Location	Lift Thickness, mm	Temperature*, C°	
			Wind Speed, km/hr > 10	Wind Speed, km/hr ≤ 10
HMA	Top Lift	< 50	10°C	6°C
		≥ 50	8°C	6°C
	Other than top lift	> 50	2°C	2°C
WMA	Top Lift	< 50	4°C	0°C
		≥ 50	2°C	0°C
	Other than top lift	> 50	0°C	-2°C

*Temperature shall be based on the nearest official meteorological office. The Contract Administrator may confirm the temperature by measuring the temperature in the shade and 150 mm above the surface.

(b) Asphalt shall be placed on unfrozen material, free of water, snow, and ice. Frozen material will be identified by measuring the surface temperature using infrared thermometers or similar devices. If the surface temperature is less than or equal to 0°C, the material will be considered frozen. The Contractor shall use suitable heating methods to maintain the surface temperature above 0°C. Salt shall not be used to thaw ice, snow, or frost.

(c) Paving shall not be permitted while there is frost within 750 mm of the surface upon which the asphalt is to be placed. Asphalt shall only be laid under conditions that the Contract Administrator determines to be conducive to obtaining the specified results.

(d) Notwithstanding the above, when weather conditions are unfavourable, or are likely to become unfavourable, paving operations shall be suspended.

E11.24 Joints

E11.24.1 General

(a) Joints shall be smooth, well bonded and tightly sealed. Joints shall conform smoothly and accurately to adjacent pavement surfaces such that when tested with a 3-metre straight edge placed across the joint the distance between the straight edge and the surface of the pavement shall not exceed 5 mm at any point.

(b) When matching a compacted joint, the depth of the uncompacted lift shall be set to allow for compaction. The paver screed shall overlap the adjoining lift by no more than 25 mm.

(c) On straight sections the joint line shall not deviate from a straight line by more than 75 mm at any point. On curved or tapered sections, the joint shall be shaped so as to be as smooth as possible. Jagged, stepped or wandering edges shall be reshaped to a smooth line, to the satisfaction of the Contract Administrator, before the adjacent lift is laid.

E11.24.2 Location of Joints

(a) The location of joints shall be subject to the approval of the Contract Administrator and shall conform to the following requirements:

(i) Longitudinal joints shall not be located within 150 mm of a longitudinal joint in any underlying pavement structure.

(ii) Transverse joints shall not be located within two (2) meters of any other transverse joint in the same paving course or within one (1) meter of a transverse joint in any underlying pavement structure.

(b) Longitudinal cold joints are to be avoided wherever possible. Transverse joints shall be established with sufficient frequency to allow the full width of the paving course to be placed in a single shift. No paving lane shall progress more than 500 m beyond the end of an adjacent paving lane in the same course without the prior approval of the Contract Administrator.

E11.24.3 Preparation of Joints

(a) Hot Joints

(i) Hot joints shall be considered to be those longitudinal joints between adjacent mats in which the previously laid lift retains sufficient heat, above 90 °C for HMA and 75 °C for WMA, to facilitate good bonding and sealing of the joint. The edge of the previously laid lift shall be inspected prior to laying the new mat. Any areas not conforming to line and grade or having a rounded-off top corner shall be cut out to the full depth of the lift to a minimum width of 100 mm and replaced with fresh material and compacted when laying the new mat.

(ii) If the previously laid lift temperature is below 90 °C for HMA and 75 °C for WMA but higher than 60 °C, then the joints shall be painted with a thin uniform tack coat before the new asphalt is placed against it.

(b) Cold Joints

(i) Cold joints shall be considered to be those longitudinal and transverse joints where the existing adjacent pavement lift is at or below 90 °C. Transverse joints shall be cut back to a straight line for the full depth and width of the mat. The transverse joint shall be cut back to a location such that the pavement immediately before the joint, where checked with a 3-metre straight edge, exhibits no tapering or rounding.

(ii) Longitudinal edges of existing mats shall be inspected before laying the new mat. Any areas not conforming to line and grade shall be cut out full depth to a minimum width of 150 mm and replaced with fresh material and compacted when laying the new mat. Any areas with a rounded corner shall be cut back to the full depth of the lift to form a vertical face with a square corner.

(iii) Joints against existing asphalt pavements shall be prepared by saw cutting, cold planning or other method(s) approved by the Contract Administrator, such that the face of the existing pavement is vertical with a square corner.

(iv) All contact surfaces of cold joints shall be painted with a uniform coat of tack before the new asphalt is placed against them.

E11.24.4 Construction of Joints

(a) Fresh asphalt shall not be placed against the existing lift until the joint preparation has been completed in accordance with E11.24.3 and is approved by the Contract Administrator.

(b) For asphalt reconstructions, longitudinal joints shall be prepared in accordance with Section E11.24.3(b) unless the Contractor maintains joint temperatures that meet the requirements of Clause E11.24.3(a)(i) at the time the adjacent mat is placed. Acceptable methods to maintain hot joint conditions include, but are not limited to, echelon paving, staggered paving operations, or the use of infrared joint heating equipment, subject to approval of the Contract Administrator.

(c) For pavements with an asphalt overlay on residential local streets and public lanes, or where otherwise specified by the Contract Administrator, cutting of longitudinal joints is not required where paving is completed as a continuous operation within the same day. Where paving is completed on separate days, longitudinal joints shall be cut unless pavement repair fabric is used, subject to approval of the Contract Administrator.

(d) The fresh lift shall be laid to an elevation such that, when compacted, it will conform accurately to the grade of the existing pavement. Wherever practicable, this shall be done using mechanical pavers.

(e) Joints shall always be rolled before the remainder of the mat. Wherever practicable the joint shall be rolled with the roller travelling parallel to the joint and with a minimum of seventy-five (75%) percent of the width of the main roller(s) supported on the existing mat.

E11.25 Asphalt Patching

E11.25.1 Remove and replace existing asphalt pavements adjacent to proposed or renewed sidewalks and concrete approaches for grade adjustment to ensure drainage and rideability are maintained. Areas to be considered as asphalt patches shall be less than 1.5 meters in width. The locations requiring asphalt patching shall be shown on the Drawings or as directed by the Contract Administrator.

E11.25.2 The Contractor shall saw cut the asphalt pavement full-depth along the limits designated. The asphalt pavement shall be removed and disposed of in accordance with CW 3110. Upon removal of asphalt, the existing base materials shall be levelled and compacted. The asphalt shall match the thickness of the existing pavement. The material shall be placed and compacted by acceptable methods in accordance with Clause E11.26 of this specification to the satisfaction of the Contract Administrator.

E11.25.3 All costs incurred for asphalt removal, compaction of existing base materials and placement of Base Course and asphalt materials shall be included in the unit price for “Construction of Asphalt Patches”

E11.26 Compaction of Asphalt Paving Mixture

E11.26.1 General

(a) A rolling pattern shall be established by the Contractor and approved by the Contract Administrator. The Contract Administrator shall approve any deviation from the rolling pattern.

(b) The minimum number of rollers is identified in Table CW 3410.11.

Table CW 3410.11: Maximum Rates Per Paver and Roller Sequence

Asphalt Placement, tonnes/hr	Minimum Roller Combinations per Paver Breakdown + Intermediate + Finish*
≤ 100	S2 + R1 +S1 V1 + R1 + S1
> 100	S2 + 2 x R1 + S1 S2 + R2 + S1

	V2 + 2 x R1 +S1 V2 + R2 + S1

*No vibration shall be used when paving bridge decks. If Class V rollers are used, they shall be in static mode. The V3 roller can be used as a substitute for the V2 roller.

(c) The operating speed of rollers shall not exceed 5 km/hr and shall be slow enough to avoid undue displacement of the asphalt. Rollers shall operate with the drive wheel forward in the direction of paving.

(d) Any displacement occurring as a result of reversing the direction of the roller or any other cause shall be corrected. Rolling shall proceed continuously until all roller marks are eliminated and no further compression is possible. To prevent adhesion of the mixture to the roller, the wheels shall be kept properly moistened with water, limewater, or an approved detergent. Excess moisture will not be permitted.

E11.26.2 Rolling Procedures

(a) Compaction of the paving mixture shall consist of three (3) separate rolling operations as follows:

(i) Breakdown rolling: Rolling shall start longitudinally at the sides and proceed toward the centre of the pavement overlapping on successive passes by at least 150 mm. Breakdown rolling shall consist of at least two complete coverages by the roller. Delays in rolling freshly placed asphalt shall not be permitted.

(ii) Intermediate rolling shall immediately follow breakdown rolling. Passes shall be arranged to ensure overlapping successive tire paths. The rolling operation shall prevent pick-up of the mixture on the tires.

(iii) Final rolling shall be undertaken while the paving mixture is still warm enough to eliminate roller marks. Where the width permits, the asphalt shall be rolled diagonally in two directions, the second diagonal rolling crossing the first rolling direction. Final rolling shall start longitudinally at the high edge and proceed towards the lower edge of the mat. Final rolling shall be continue until there is no evidence of consolidation.

E11.27 Compaction of Irregular Areas

E11.27.1 Along curbs, manholes and similar structures and at all places not accessible to rollers, compaction shall be performed by plate compactors to the satisfaction of the Contract Administrator. All joints around these structures shall be effectively sealed.

E11.27.2 The asphalt may be heated to a maximum temperature of 120°C to facilitate the compaction where approved by the Contract Administrator.

E11.28 Requirements After Final Rolling

E11.28.1 After final rolling the surface of each lift shall be smooth and true to the established crown and grade. Any low or defective spots shall be remedied by milling to a minimum depth of 40 mm or as directed by the Contract Administrator, and replacing it with a fresh mixture.

E11.28.2 The corrected area shall have a smooth transition to the surrounding pavement without negatively affecting any adjacent sections, impairing the functionality and the service life of the area.

E11.29 Filling of Core Holes

E11.29.1 Where cores are collected, the Contractor shall patch each core hole immediately with an approved cold asphalt product.

E11.29.2 The patch shall be finished flush with the surface. Immediately before filling, the surface of each hole shall be thoroughly cleaned to ensure a proper bond. After filling each hole, all excess material shall be removed from the surface.

E11.29.3 Where HMA or WMA are not available, use only those materials listed as Approved Products for Surface Works. The Approved Products are available in Adobe Acrobat (.pdf) format at the City of Winnipeg, Corporate Finance, Material Management Internet site at: https://legacy.winnipeg.ca/matmgt/spec/default.stm

E11.30 Surface Tolerance

E11.30.1 The surface of the asphalt pavement shall be checked with a 3-metre straight edge and be within ± 5 mm from the surrounding area. Areas that do not meet these tolerances shall be corrected to the satisfaction of the Contract Administrator.

E11.30.2 Where the posted speed limit is greater than 60 km/hr, the Contract Documents shall identify smoothness requirements for longitudinal profile of the pavement surface. The smoothness requirements shall be approved by the City of Winnipeg, Research and Standards Engineer.

E11.31 Opening to Traffic

E11.31.1 In no case shall traffic or construction equipment be allowed on the asphalt pavement until completion of quality assurance testing by the Contract Administrator and until the completed pavement has cooled to atmospheric temperature or to such other temperature, as may be approved by the Contract Administrator, that will ensure no deformation of the pavement surface under traffic loading.

E11.31.2 The Contract Administrator's decision as to when the pavement will be opened to traffic shall be final. Prior to opening to traffic, the pavement shall be clean and free of aggregates or other deleterious materials on the surface.

QUALITY ASSURANCE

E11.32 General

E11.32.1 Tests used for purposes of assessing compliance with this specification or for acceptance of any products shall be conducted by a certified laboratory approved by the City of Winnipeg, Research and Standards Engineer.

E11.32.2 Field sampling and testing of asphalt shall be performed by a certified person.

E11.32.3 The Contract Administrator shall be allowed access to all sampling locations and reserves the right to request quality assurance sample(s) at any time.

E11.32.4 Samples shall be protected during transportation from any exposure to adverse conditions.

E11.32.5 If any sample shows distinct evidence of improper sampling, handling, or testing, the test shall be disregarded and a new sample shall be collected.

E11.32.6 Testing in addition to the requirements of this Specification shall be as directed by the Contract Administrator.

E11.33 Testing Frequency

E11.33.1 Asphalt shall be sampled for acceptance in accordance with Table CW 3410.12.

Table CW 3410.12: Frequency of Sampling and Testing of Asphalt

Asphalt Type	Quantity (tonnes)	Minimum Frequency
MS1, MS2	< 150 150 - 300 > 300	2 test/day 3 tests/day 2 test/150 tonnes
MS3	< 50 50 - 100 > 100	1 test/day 2 tests/day 2 test/100 tonnes

SP1, SP2	--	2 test/150 tonnes

E11.33.2 Additional testing shall be as directed by the Contract Administrator.

E11.33.3 Copies of all test results shall be sent to the City of Winnipeg, Research and Standards Engineer and to the Contract Administrator.

E11.33.4 Copies of asphalt plant scale tickets shall be provided to the Contract Administrator.

E11.34 Acceptance Criteria

E11.34.1 The Contractor shall reimburse the City for any additional costs the City incurs as a result of failed tests.

E11.34.2 Where the work is not funded or administered by the City of Winnipeg or their representative, the party approved by the City of Winnipeg to execute the work will be responsible for making pay adjustments to the City of Winnipeg.

E11.34.3 All corrective actions shall be performed at the Contractor's expense.

E11.34.4 Acceptance of asphalt shall be based on the following:

(a) Visual Inspection:

(i) The Contract Administrator may reject visually defective asphalt areas based on, but not limited to the following defects: flushing, bleeding, segregation, fat spot, surface damage, and surface contamination. Such defective areas shall be removed and replaced at the Contractor's expense.

(b) Bituminous Mix Properties:

(i) Air Voids: If the measured air voids fall outside the limits specified in Clause E11.10 of this Specification, the Contract Administrator shall apply a payment adjustment in accordance with Table CW 3410.13 against the entire Lot represented by the failed test(s).

TABLE CW 3410.13 – Payment Adjustment for Air Voids

Asphalt Type	Average of the Failed Tests	Percent of Price Reduction %
MS1, MS2, MS3 SP1, SP2	≤ 0.5%	0.0
	0.5% to 1%	0.0*
	> 1%	Remove and replace at Contractor's expense

*Paving shall be suspended until necessary adjustments are made and approved by the Contract Administrator.

(ii) Voids in Mineral Aggregate (VMA): If the measured voids in mineral aggregate falls outside the limits specified in Clause E11.10 of this Specification, the Contract Administrator shall apply a payment adjustment in accordance with Table CW 3410.14 against the entire Lot represented by the failed test(s).

TABLE CW 3410.14 – Payment Adjustment for Voids in Mineral Aggregate

Average of the Failed Tests	Percent of Price Reduction %
≤ 0.5%	0.0
0.5% to 1%	0.0*
1% to 2%	

> 2%	Remove and replace at Contractor's expense

*Paving shall be suspended until necessary adjustments are made and approved by the Contract Administrator.

(iii) Asphalt Cement Content: If the measured asphalt cement content falls outside the limits specified in Clause E11.10 of this Specification or if it exceeds the allowable deviation for the JMF specified in Table CW 3410.5, the Contract Administrator shall apply a payment adjustment in accordance with Table CW 3410.15 against the entire Lot represented by the failed test(s).

TABLE CW 3410.15 – Payment Adjustment for Asphalt Cement Content

Average of the Failed Tests	Percent of Price Reduction %
≤ 0.15%	0.0
0.15% to 0.5%	0.0*
> 0.5%	Remove and replace at Contractor's expense

*Paving shall be suspended until necessary adjustments are made and approved by the Contract Administrator.

(iv) Gradation: If the gradation falls outside the limits specified in Table CW 3410.1 or if it exceeds the allowable deviation for the JMF specified in Table CW 3410.5, the Contract Administrator shall apply a payment adjustment in accordance with Table CW 3410.16 against the entire Lot represented by the failed test(s).

TABLE CW 3410.16 – Payment Adjustment for Gradation

Percent Passing Outside the JMF for Each Sieve			Percent of Price Reduction %
19, 16, 12.5, 9.5	4.75, 2.36, 1.18, 0.6, 0.15	0.075	
<2	<1	-	0.0
2-4	1-2	<1	0.0*
> 4	> 2	≥ 1	Remove and replace at Contractor's expense

*Paving shall be suspended until necessary adjustments are made and approved by the Contract Administrator.

(c) Density:

(i) Density testing shall be conducted at least once every 150 m^2. The Contract Administrator shall ensure that the density tests cover the full width of the construction area.

(ii) An area is deemed unacceptable if the compaction does not meet all of the following:

i. The average density results shall be between 93% and 95% of the theoretical maximum density; and,

ii. No individual location shall be less than 90% or higher than 98% of the theoretical maximum density.

(iii) Nuclear density test gauge results shall be used to assess in-place density. When density test results do not meet the minimum percent density specified herein, a coring and testing program can be undertaken to verify density percentage of the mix by Core Density Testing. If core density results confirm the Nuclear density results, the Contractor shall reimburse the City for any additional costs associated with coring, transmittal of cores, filling of cores and testing the City incurs as a result of failed tests.

(iv) The Contract Administrator shall apply a payment adjustment in accordance with Table CW 3410.17 against the entire lot represented by the failed test(s).

TABLE CW 3410.17 – Payment Adjustment for Density

Average of the Density Tests	Percent of Price Reduction %
> 98%	Remove and replace at Contractor's expense
97.9% to 97.1%	0%*
97% to 93%	0%
92.9% to 90%	0%*
< 90%	Remove and replace at Contractor's expense

*Paving shall be suspended until necessary adjustments are made and approved by the Contract Administrator.

(d) Segregation and Surface Defects

(i) Surface defects include but are not limited to: gouges, slippage, cracking, tearing, pocketing, blistering, shoving, wash boarding, surface depressions or surface defects shall be repaired to the satisfaction of the Contract Administrator.

(e) Asphalt Thickness:

(i) A Lot is deemed unacceptable if the asphalt thickness does not meet all of the following:

a) The average thickness is less than the required thickness; and,

b) No individual thickness shall be less than 90% of the required thickness.

(ii) The Contract Administrator shall apply a payment adjustment in accordance with Table CW 3410.19 against the entire Lot represented by the insufficient thickness.

TABLE CW 3410.19 – Payment Adjustment for Pavement Thickness

Average Thickness	Percent of Price Reduction %
Less than specified thickness but more than 90% of specified thickness	0.0*
Less than 90% of specified thickness	Remove and replace at Contractor's expense

*Paving shall be suspended until necessary adjustments are made and approved by the Contract Administrator.

MEASUREMENT AND PAYMENT

E11.35 Construction of Asphalt Pavement

E11.35.1 Construction of asphalt pavement will be measured and paid for at the Contract Unit Price per tonne for the “Items of Work” listed here below, measured as specified herein, which price shall be payment in full for supplying all materials and performing all operations herein described and all other items incidental to the work included in this Specification.

Items of Work:

(a) Construction of Main line Paving (*)”

(b) Construction of Tie-ins and Approaches (*)
* Specify either MS1, MS2, MS3, SP1, or SP2

E11.35.2 The weight to be paid for shall be the total number of tonnes placed and compacted in accordance with this Specification and accepted by the Contract Administrator, as measured on a certified weigh scale.

E11.36 Construction of Asphalt Patches

E11.36.1 Construction of asphalt patches will be measured and paid for at the Contract Unit Price per square meter for “Construction of Asphalt Patches”, measured as specified herein, which price shall be payment in full for supplying all materials and performing all operations herein described and all other items incidental to the work included in this Specification.

E12. OPERATING CONSTRAINTS FOR WORK IN CLOSE PROXIMITY TO WELLINGTON AVENUE FEEDER MAIN

E12.1 Description

E12.1.1 This Section details operating constraints for all work to be carried out in close proximity to the Wellington Avenue Feeder Main. Close proximity shall be deemed to be any construction activity within a 5 m horizontal offset from the centerline of the feeder main.

E12.1.2 General Considerations for Work in Close Proximity to Feeder Mains

(a) Feeder mains are a critical component of the City of Winnipeg Regional Water Supply System and work in close proximity to feeder mains shall be undertaken with an abundance of caution. Feeder mains cannot typically be taken out of service for extended periods to facilitate construction and inadvertent damage caused to the pipe would likely have catastrophic consequences.

(b) Work around feeder mains shall be planned and implemented to minimize the time period that work is carried out in close proximity to the pipe and to ensure that the pipeline is not subjected to excessive construction related loads, including excessive vibrations and/or concentrated or asymmetrical lateral loads during backfill placement.

(c) Large diameter pressure pipe generally has limited ability to withstand increased earth and live loading. Therefore, every precaution must be undertaken to ensure that applied loading during all phases of construction is within accepted loading parameters. PCCP typically fails in a non-ductile mode and has the potential to cause extensive consequential damage to infrastructure if failure should occur.

E12.2 Pre-Work, Planning and General Execution

E12.2.1 No work shall commence in close proximity to feeder mains, chambers, and critical infrastructure until the equipment specifications and construction method statement have been submitted and accepted, and feeder main locations have been clearly delineated in the field. Work over feeder mains shall only be carried out with equipment that has been reviewed and quantified in terms of its loading implications on the pipe.

E12.2.2 Contact the City of Winnipeg Water and Waste Department, Construction Services Coordinator prior to construction.

E12.2.3 Locate feeder mains and confirm their position horizontally and vertically at the proposed following locations prior to undertaking work in close proximity to the identified feeder mains. Note, exact locations to be identified in the field.

E12.2.4 Locate feeder mains and confirm their position horizontally and vertically prior to the work where catch basin leads are to be installed over top of existing feeder mains. Provide full time supervision and complete the excavation utilizing hand excavation or soft excavation methods. All other installation practices shall be in accordance with the specifications for working in proximity to feeder mains.

E12.2.5 Visually delineate all critical infrastructure identified herein on Site by use of paint, staking/flagging, construction fencing, snow fencing, or other suitable methods

E12.2.6 Only utilize construction practices and procedures that do not impart excessive vibratory loads on feeder mains and chambers or that would cause settlement of the subgrade below feeder mains and critical pipelines.

E12.2.7 At all times prior to completion of final paving; reduce equipment speeds to levels that minimize the effects of impact loading to the pipe.

E12.2.8 For construction work activities either longitudinally or transverse to the alignment of a feeder main, work only with equipment and in the manner stipulated in the accepted Construction Method Statement and the supplemental requirements noted herein.

E12.2.9 Where the existing road structure must be removed, crossing of critical infrastructure shall be prohibited from the time the existing roadway structure is removed until the completion of granular base construction. At all times prior to completion of final paving; reduce equipment speeds to levels that minimize the effects of impact loading to the critical infrastructure.

E12.2.10 Only equipment and construction practices stipulated in the accepted construction method statement and the supplemental requirements noted herein may be utilized in close proximity to feeder mains, chambers, and other critical infrastructure identified herein.

E12.2.11 Construction operations should be staged in such a manner as to limit multiple construction loads at one time, (e.g., offset crossings sufficiently from each other, rollers should remain a sufficient distance behind spreaders to limit loads. A reasonable offset distance is 3 m between loads).

E12.2.12 Granular material, construction material, soil, and/or other material shall not be stockpiled on the pipelines or within 5 m of any feeder main, valve chamber, or other critical infrastructure identified herein.

E12.2.13 The Contractor shall make themself fully aware of all associated restrictions, constraints, and risks associated with working adjacent to and over this pipeline.

E12.2.14 The Contractor shall ensure that all crew members understand and observe the requirements of working near feeder mains, valve chambers, and critical infrastructure. Prior to commencement of on-site work, the Contractor shall jointly conduct an orientation meeting with the Contract Administrator, all superintendents, foreman, and heavy equipment operators to make all workers on the Site fully cognizant of the limitations of altered loading on, the ramifications of inadvertent damage to, and the constraints associated with work in close proximity to feeder mains and critical pipelines. New personnel introduced after commencement of the Project need to be formally orientated as outlined herein. It is recommended that restrictions associated with the crossing, consistent with the Contractor’s submitted method statement be posted on Site and near the crossing.

E12.3 Demolition, Excavation, and Shoring

E12.3.1 Use of pneumatic concrete breakers within 3 m of a feeder main, valve chamber, or critical pipeline is prohibited. Pavement shall be full depth sawcut and carefully removed. Use of hand held jackhammers for pavement removal will be allowed.

E12.3.2 Offset excavation equipment a minimum of 3 m from the centerline of critical pipelines when undertaking excavations where there is less than 2.4 m of earth cover over the pipeline.

E12.3.3 Utilize only smooth edged excavation buckets, soft excavation, or hand excavation techniques where there is less than 1.5 m of earth cover over the pipeline. Where there is less than 1.0 m of soil cover above the pipeline, provide full time supervision and complete the excavation utilizing hand excavation or soft excavation methods.

E12.3.4 Equipment should not be allowed to operate while positioned directly over a feeder main or critical pipeline except were permitted herein, outlined in the reviewed and accepted construction method statement.

E12.3.5 Excavations within 3 m of the outside edge of a feeder main (hydrovac holes for confirming trenchless installations excluded) and which extend below obvert of the feeder main shall utilize shoring methods that precludes the movement of native in-situ soils (i.e. a tight shoring system).Pre-bore all piles to below the invert of critical infrastructure within 5 m (horizontally) of the pipeline's outside edge.

E12.3.6 Offset pile driving equipment a minimum of 3 m (horizontally) from the centerline of the pipeline during piling operations.

E12.4 Base Course Construction

E12.4.1 Base course materials shall not be dumped directly on pipelines but shall be stockpiled outside limits noted in these recommendations and shall be carefully bladed in-place.

E12.4.2 Base course compaction within 3 m horizontal of the centerline of a critical pipeline shall be either carried out by static methods (without vibration) or with smaller approved equipment such as handheld plate packers or smaller roller equipment.

E12.5 Paving

E12.5.1 When constructing asphalt pavements only non-vibratory compaction should be used within 3 m (horizontal) of the center of critical pipelines.

E12.6 Measurement and Payment

E12.6.1 No measurement or payment will be made for meeting the requirements of this specification.

E13. CONSTRUCTION OF MONOLITHIC CURB AND CONCRETE SIDEWALKS

DESCRIPTION

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

MEASUREMENT AND PAYMENT

E13.2 Add the following to Section 12:

E13.2.1 Construction of monolithic curb and concrete sidewalks 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

E13.3 Add the following to section 13:

E13.3.1 Construction of monolithic curb and concrete sidewalks 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.

E13.3.2 Items of Work:

(a) Type 1 Concrete Monolithic Curb and Sidewalk

(b) Type 2 Concrete Monolithic Curb and Sidewalk

(c) Type 1 Concrete Monolithic Curb and 150mm Sidewalk (Reinforced)

E13.3.3 Concrete thickness greater than the specified sidewalk thickness as a result of shaping the base material is incidental to the listed Items of Work.

E13.3.4 Construction of 100mm or 150mm reveal height barrier curb, 150 mm reveal height modified barrier curb, and 8-12 mm reveal height monolithic curb ramp shall be incidental to the construction of the above Items of Work.

E14. APPLICABLE STANDARD DETAILS

DESCRIPTION

E14.1 Further to CW 3110-R22, CW3120-R4, CW3130-R5, CW 3210-R8, CW3230-R8, CW 3235-R9, CW3240-R10, CW 3310-R19, CW 3325-R5, CW 3330-R5, CW 3335-R1, CW 3410-R12 and CW 3530-R3 this specification covers the use of updated and new standard details.

E14.2 The following updated Standard Details are provided in Appendix 'B':

(a) SD-200A – Barrier Curb for Asphalt Pavement

(b) SD-200B – Barrier Curb and Reversed Gutter for Asphalt Pavement

(c) SD-202D – 75 mm Lip Curb for Asphalt Pavement

(d) SD-202E – 75 mm Lip Curb with Integral Approach for Asphalt Pavement

(e) SD-202F – Lip Curb with Integral Approach for Asphalt Pavement

(f) SD-203C – Modified Barrier Curb for Asphalt Pavement

(g) SD-203D – Modified Barrier Curb with Reversed Gutter for Asphalt Pavement

(h) SD-204 – Barrier Curb Integral

(i) SD-210A – Longitudinal Joint for Concrete Pavement

(j) SD-210B – Longitudinal Joint for Concrete Pavements with Bar Mat Reinforcement

(k) SD-211A – Construction Joint for Reinforced Concrete Pavement

(l) SD-211B – Contraction Joint for Reinforced Concrete Pavement

(m) SD-211C – Construction Joint and Contraction Joint for Plain Dowelled Concrete Pavement

(n) SD-212 – Sawn Joint and Butt Joint for Concrete Pavements

(o) SD-213B – Full-Depth Patches and Slab Replacement

(p) SD-214A – Longitudinal Joint Repair Details Full-Width Patch (Both Sides at Same Time)

(q) SD-214B – Longitudinal Joint Repair Details Lane-at-a-Time Patch

(r) SD-214C – Longitudinal Joint Patch Details One Side Only

(s) SD-215 – Load Transfer Device for Plain Dowelled Concrete Pavement

(t) SD-216 – Steel Reinforcement for Reinforced Concrete Pavement

(u) SD-217 – Layout for Type "A" and "B" Bar Mat Reinforcement

(v) SD-218A – Typical Joint Detail for Portland Cement Concrete Pavements

(w) SD-218B – Location of Longitudinal Joints in Concrete Pavements

(x) SD-219 – Typical Public Lane Details

(y) SD-220A – Manhole Isolation Detail for Concrete Pavements

(z) SD-220B – Manole Isolation Detail in Existing Pavements

(aa) SD-220C – Curb and Gutter Inlet Isolation Detail

(bb) SD-220D – Barrier Curb and Gutter Inlet Isolation Detail for Exposed Concrete Pavements

(cc) SD-220E – Barrier Curb and Gutter Inlet Isolation Detail for New Asphalt Pavements

(dd) SD-220F – Lip Curb and Gutter Inlet Isolation Detail for Exposed Concrete Pavements

(ee) SD-220G – Manhole Isolation Detail for Asphalt Pavements

(ff) SD-221 – Curb Inlet with Catch Basin in Pavement

(gg) SD-222 – Curb Inlet with Catch Basin in Boulevard

(hh) SD-228A – Concrete Sidewalk

(ii) SD-228D – Sidewalk Expansion Joints

(jj) SD-229F – Curb Ramp for Asphalt Pavement

(kk) SD-235 – Residential Approach – Concrete (With Existing Barrier Curb)

(ll) SD-236 – Residential Approach – Concrete (With Existing Lip Curb)

(mm) SD-237A – Residential Approach – Paving Stone (With Existing Barrier Curb)

(nn) SD-237B – Residential Approach – Asphalt (With Existing Barrier Curb)

(oo) SD-238A – Residential Approach – Paving Stone (With Existing Lip Curb)

(pp) SD-238B – Residential Approach – Asphalt (With Existing Lip Curb)

(qq) SD-240A – Interlocking Paving Stone Detail for Residential Approaches

(rr) SD-242 – C.S.P. Enclosure for Gate Valve

(ss) SD-245 – Subdrain Installation Detail

MATERIALS

E14.3 Use only those materials listed as Approved Products for Surface Works. The Approved Products are available in Adobe Acrobat (.pdf) format at the City of Winnipeg, Corporate Finance, Material Management Internet site at: https://legacy.winnipeg.ca/finance/findata/matmgt/std_const_spec/current/Docs/Approved_Product_Surface_Works.pdf

CONSTRUCTION METHODS

E14.4 Construction shall be in accordance with the updated Standard Details in E14.2 and the referenced standard construction specifications.

MEASUREMENT AND PAYMENT

E14.5 Measurement and payment shall be in accordance with the referenced standard construction specifications.

E15. SIDEWALK EXPANSION JOINTS

DESCRIPTION

E15.1 Further to CW 3325-R5, CW 3235-R9 and CW 3310-R19, this specification covers the supply and installation of expansion joints to be constructed within concrete sidewalk.

E15.2 Referenced Standard Details

(a) SD-228D Sidewalk Expansion Joints (Appendix ‘H’)

MATERIALS

E15.3 Use only those materials listed as Approved Products for Surface Works. The Approved Products are available in Adobe Acrobat (.pdf) format at the City of Winnipeg, Corporate Finance, Material Management Internet site at: https://legacy.winnipeg.ca/finance/findata/matmgt/std_const_spec/current/Docs/Approved_Product_Surface_Works.pdf

E15.4 Expansion Joint Filler

(a) Sidewalk expansion joints shall be a closed-cell expansion joint filler.

E15.5 Reinforcing Steel

(a) Dowels bars may consist of the following:

(i) 300mm long 10M dowels, epoxy coated, meeting the requirements of ASTM Standard A934/A934M, Standard Specification for Epoxy-Coated Prefabricated Steel Reinforcing Bars.

(ii) 300mm long, 12.7mm diameter long galvanized smooth bars

(b) Dowel bars shall be plain round bars of grade 300 or better in accordance with CSA G40.21.

(c) The dowels shall be placed half depth of the sidewalk and aligned parallel to the centreline and surface of the slab with a maximum allowable tolerance of ± 5 mm. The dowels shall be positioned sufficiently rigid so the dowels are held in alignment within the specified tolerance, both horizontally and vertically, until the concrete placing and setting cycle is complete.

(d) All areas of the dowel bar with damaged epoxy coating shall be cleaned and painted to the satisfaction of the Contract Administrator.

(e) All dowels shall be thoroughly coated with a thin uniform coating of bond breaker or lubricant such as oil, grease, or synthetic materials to prevent bonding with the concrete for the length of the dowel. The bond breaker coating shall be smooth and free of voids.

CONSTRUCTION METHODS

E15.6 Install sidewalk expansion joints as detailed in SD-228D Sidewalk Expansion Joints.

E15.7 Expansion joints shall be constructed and installed as indicated in the Contract Documents or directed by the Contract Administrator.

E15.8 The fiber joint filler shall extend the full width and depth of the sidewalk. Any excess material shall be trimmed to match the surface of the concrete.

E15.9 Dowels shall be placed at 0.45m O/C spacing. Three dowels shall be installed at each expansion joint no closer than 0.15m from edge of concrete. If dowels are displaced during concrete placing operations, concrete placement shall cease and shall not resume until the displaced dowels have been reset to the true design position.

E15.10 Once dowels are in position, they shall be inspected and approved by the Contract Administrator before any concrete is placed. Otherwise the concrete will be rejected by the Contract Administrator and shall be removed by the Contractor at his own expense.

E15.11 Expansion joints shall be installed every 15 meters when constructing new or renewing existing sidewalk. If sidewalk is constructed during cold weather concreting period, expansion joints shall be installed every 12 meters. Expansion joints shall not be installed when renewing less than 15m of sidewalk.

E15.12 Where the Drawings call for a new slab to be tied into an existing slab along a transverse joint, the Contractor shall construct an expansion joint and install dowels into the existing slab in accordance with Clause 6.3.2., CW 3310. Following installation of dowels, the ends of the

dowels that extend into the new area shall be completely coated with a thin uniform coating of approved bond breaker or lubricant.

E15.13 When replacing heaved panels in an existing sidewalk, expansion joints shall be installed on both ends of the replaced panels.

E15.14 Expansion joints shall not be installed when constructing monolithic curb and sidewalk.

E15.15 Expansion joints shall be installed when installing separate concrete splash strip.

MEASUREMENT AND PAYMENT

E15.16 No payment shall be made for supplying all materials and for performing all operations herein described and all other items incidental to the Work included in this Specification.

E16. BARRIER CURB AND ARCHED GUTTER INLET FRAME, BOX AND INLET COVER

DESCRIPTION

E16.1 General

E16.1.1 This Specification shall cover the replacement of Barrier Curb and Gutter Inlet Frame and Box (AP-011) and Inlet Cover (AP-012) with Barrier Curb and Arched Gutter Frame, Box and Inlet Cover on existing Catch Pits, Catch Basins and with Installation of New Catch Pit (SD-023) and New Catch Basin (SD-024).

E16.2 Referenced Standard Construction Specifications

(a) CW 3210 – Adjustment of Pavement and Boulevard Structures;

(b) CW 2130 – Gravity Sewers; and

(c) Barrier Curb and Arched Gutter Inlet Frame, Box and Inlet Cover (Appendix 'I').

MATERIALS

E16.3 Approved Products

(a) D&L Foundry Inc. – TF-103-3F-A (frame)

(b) D&L Foundry Inc. – TF103-SI (box)

(c) D&L Foundry Inc. – TF-103-G-A (cover)

MEASUREMENT AND PAYMENT

E16.4 Barrier curb and arched gutter inlet frames, boxes and inlet covers for catch basins and catch pits will be included in the price for Items of Work "Catch Basin" and "Catch Pit", as per Clause 4.4 of CW 2130.

E16.5 Barrier curb and arched gutter inlet frames, boxes and inlet covers will be measured on a unit basis and paid for at the Contract Unit Price per unit for the "Barrier Curb and Arched Gutter Inlet Frame, Box and Inlet Cover". The number of units to be paid for will be the total number of each unit supplied and installed in accordance with this specification, accepted and measured by the Contract Administrator.

E17. CONCRETE CURB AND REVERSED GUTTER FOR ASPHALT PAVEMENT

DESCRIPTION

E17.1 This specification covers the supply and installation of concrete curb and reversed gutter for asphalt pavement.

CONSTRUCTION METHODS

E17.1.1 At locations on the drawings and as directed by the Contract Administrator, construct concrete curb and reversed gutter pavement on Goulding Street.

E17.1.2 Concrete curb and reversed gutter pavement shall be constructed in accordance with this specification, CW3310 and the details in Appendix 'I'.

MEASUREMENT AND PAYMENT

E17.1.3 Construction of concrete curb and reversed gutter will be measured on a length basis. The length to be paid for shall be the number of linear 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

E17.1.4 Construction of concrete curb and reversed gutter curbs will be paid for at the Contract Unit Price per linear 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.

E17.1.5 Items of Work:

(a) Construction of Type 2 Concrete Curb and Reversed Gutter (180mm ht, Barrier, Integral, 450mm width, 150mm Plain Concrete Pavement)

(b) Construction of Type 2 Concrete Curb and Reversed Gutter (180mm ht, Modified Barrier, Integral, 450mm width, 150mm Plain Concrete Pavement)

E17.1.6 Concrete curb height greater than the specified height as a result of shaping the base material is incidental to the listed Items of Work.

E18. SUPPLY AND INSTALL WATERMAIN AND WATER SERVICE INSULATION

DESCRIPTION

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

E18.2 Referenced Standard Construction Specifications

(a) CW 2030 – Excavation Bedding and Backfill

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

E18.3 Referenced Standard Details

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

MATERIALS

E18.4 Acceptable insulation is:

(a) Extruded Polystyrene rigid foam insulation – Type 4, 100 mm (4") in thickness.

DOW - Roofmate or Highload 40

Owen's Corning - Foamular 350 or Foamular 400.

2" X 48" X 96", 2" X 24" X 96", 4" X 24" X 96"

E18.5 Sand Bedding:

(a) In accordance with CW 2030

CONSTRUCTION METHODS

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

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

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

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

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

MEASUREMENT AND PAYMENT

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

(a) Excavation of the roadway subgrade in accordance with E18.6 will not be measured for payment and will be included in the payment for “Watermain and Water Service Insulation”.

E19. CLEANING OF EXISTING CONCRETE SWALE AT WESTVIEW PARK ROAD

DESCRIPTION

E19.1 This specification covers the cleaning of the concrete drainage swale at Westview Park Road.

CONSTRUCTION METHODS

E19.2 Remove refuse and/or material blocking the concrete drainage swale.

E19.3 Grade surrounding slope to mitigate the volume of debris continuing to enter the swale.

MEASUREMENT AND PAYMENT

E19.4 Cleaning of existing concrete swale will be measured on a length basis and paid for at the Contract Unit Price per metre of “Cleaning of Existing Concrete Swale”. The length to be paid for shall be the total number of meters of swale cleaned in accordance with this specification, accepted and measured by the Contract Administrator.

E20. REMOVAL, INSTALLATION AND DISPOSAL OF PRECAST CONCRETE CURBS

DESCRIPTION

E20.1 This specification covers removal of the precast concrete curbs along the sides of Westview Park Road.

CONSTRUCTION METHODS

E20.2 The Contractor shall detach the existing precast concrete curbs from the pavement along the full length of the roadway prior to pavement removal or planing. The Contract Administrator will inspect all curb units before disposal. Any units deemed damaged will be removed off site along with the existing pavement. Units assessed to be in good condition shall be re-installed in resurfacing section after asphalt paving has been completed.

E20.3 Once asphalt paving is complete the remaining precast concrete curbs shall be transferred to the City of Winnipeg yard by the contractor. Contact information and address:

Address: 1536 Waverley Street Yard

Attn: Landscape Development Services

Contact: Bryan (204) 479-5488

Contact: Dylan (204) 794-4278

MEASUREMENT AND PAYMENT

E20.4 All work required with the precast concrete curbs will be measured on a unit basis and will be paid for at the contract Unit Price under the items of work below.

Items of Work:

(a) Removal of Precast Concrete Curbs.

(b) Installation of Precast Concrete Curbs.

(c) Disposal of Precast Concrete Curbs.

E20.5 Transfer of precast curbs to the 1536 Waverley Street Yard shall be considered incidental to the Items of Work identified above.

E21. HAULING AND PLACEMENT OF 50MM GRANULAR B RECYCLED CONCRETE AGGREGATE

DESCRIPTION

E21.1 General

(a) This Specification covers the hauling from a designated supplier and installation of 50 mm Granular B Recycled Concrete Aggregate.

(b) Referenced Standard Construction Specifications:

(i) CW 3110 – Sub-Grade, Sub-Base and Base Course Construction

MATERIALS

E21.2 Materials will be provided to the Contractor in accordance with Tender 103-2026. Tender 103-2026 is a continuation of Tender 103-2025 awarded in the previous year. Contact information and address will be provided once the award process is complete.

HAULING OF MATERIALS

E21.3 The Contractor shall obtain the 50 mm Granular B Recycled Concrete Aggregate from a stockpile location within the limits of the City of Winnipeg.

E21.4 The Customer will place orders before 4:00p.m. for each Business Day for the expected supply requirements for the following Business Day.

E21.5 The material will be available for pick up between the following hours:

(a) 0700 to 1800 from Monday to Friday

(b) 0700 to 1400 on Saturday

CONSTRUCTION METHODS

E21.6 Construction methods will be in accordance with CW 3110.

MEASUREMENT AND PAYMENT

E21.7 The hauling, placing and compaction of sub-base material will be measured on a weight basis and paid for at the Contract Unit Price per tonne for the “Hauling and Placing Sub-base Material” listed here below. The weight to be paid for will be the total number of tonnes of sub-base material supplied, placed and compacted in accordance with this Specification, accepted and measured by the Contract Administrator.

E21.8 Items of Work:

(a) 50 mm Granular B Recycled Concrete

E21.9 The weight to be paid for will the total number of tonnes of sub-base material as measured on a certified weight scale.

E21.10 Only material placed within the limits of excavation will be included in the payment for the “Items of Work listed for sub-base material”. No measurement or payment will be made for materials rejected by the Contract Administrator.

E22. BRADFORD STREET CONSTRUCTION STAGING

DESCRIPTION

E22.1 The Contractor shall coordinate with businesses on Bradford Street to schedule property access for large vehicles. Construction staging will be required for the placement of approach and mainline infill concrete in the vicinity of each business. If large vehicle access is required during the week and cannot be coordinated, the contractor shall complete the construction of approach and mainline infill concrete works on a Saturday or Sunday. Working days will not be assessed for approach or mainline infill concrete works performed on Saturdays or Sundays.

E22.2 MEASUREMENT AND PAYMENT

E22.3 No measurement or payment will be made for meeting the requirements of this specification.

E23. INSTALLATION OF STREET LIGHTING AND ASSOCIATED WORKS

E23.1 DEFINITIONS

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

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

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

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

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

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

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

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

E23.2 DESCRIPTION

E23.2.1 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.

E23.3 WORK LOCATIONS

E23.3.1 The proposed street light installation and removals are shown on construction drawings and are as follows:

(a) Goulding Street from St. Matthews Avenue to Sargent Avenue

E23.4 COORDINATION OF WORK

E23.4.1 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.

E23.4.2 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.

E23.4.3 Manitoba Hydro's CSC will provide the Limits of Approach applicable to the Contractor on the Work Clearance form.

E23.5 ORIENTATION

E23.5.1 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.

E23.6 PRE-CONSTRUCTION MEETING

E23.6.1 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.

E23.6.2 The Contractor's cost to attend this pre-construction meeting shall be incorporated into the unit prices for the work.

E23.7 QUALIFICATIONS AND CERTIFICATION

E23.7.1 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.

E23.7.2 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.

E23.7.3 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

E23.7.4 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.

E23.7.5 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.

E23.8 REFERENCED STANDARD CONSTRUCTION SPECIFICATIONS

E23.8.1 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”)

E23.8.2 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.

E23.8.3 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.

E23.9 TOOLS, EQUIPMENT AND MATERIALS

E23.9.1 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.

E23.9.2 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

E23.9.3 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.

E23.9.4 Alternative equipment manufacturers may be considered upon request by the Contractor and shall be approved for use by Manitoba Hydro prior to use.

E23.9.5 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.

E23.10 MATERIAL SUPPLIED BY MANITOBA HYDRO

E23.10.1 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:

E23.10.2 Manitoba Hydro Central Stores (contact personnel will be provided to the successful contractor).

E23.10.3 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.

E23.10.4 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.

E23.10.5 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.

E23.11 MATERIAL SUPPLIED BY CONTRACTOR

E23.11.1 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.

E23.12 SURPLUS, RECLAIM AND SCRAP MATERIAL

E23.12.1 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.

E23.12.2 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.

E23.12.3 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.

E23.13 DE-ENERGIZATION AND LOCKOUT

E23.13.1 **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.

E23.13.2 **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.

E23.13.3 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.

E23.14 TEMPORARY OVERHEAD FEEDS

E23.14.1 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.

E23.14.2 When using the existing poles for temporary lighting, Manitoba Hydro shall remove an Overhead Source in accordance with DE-ENERGIZATION AND LOCKOUT section above, prior to the Contractor installing a #4 duplex overhead conductor between the existing poles. The #4 duplex overhead conductor will normally be attached to the tenon of the davit arm near the luminaire with a pre-form grip. Older poles may require a spool insulator be attached to the pole using a pre-form grip to support the #4 duplex overhead conductor. A short length of 2C/#12 copper conductor is connected to the terminals of the luminaire brought out and connected to the #4 duplex overhead conductor. The final span to the Overhead Source shall be installed by Manitoba Hydro.

E23.14.3 When using the new poles for temporary lighting, the Contractor shall install the new bases, poles and #4 duplex overhead conductor. The #4 duplex overhead conductor will be attached to the tenon of the davit arm near the luminaire with a pre-form grip. A short length of 2C/#12 copper conductor is connected to the terminals of the luminaire brought out and connected to the #4 duplex overhead conductor. The final span to the Overhead Source shall be installed by Manitoba Hydro.

E23.14.4 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.

E23.15 SAFE EXCAVATION

E23.15.1 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.

E23.16 SAFE HANDLING

E23.16.1 The Contractor shall apply handling techniques in accordance with Manitoba Workplace Health and Safety Regulation 217 (latest revision).

E23.17 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.

E23.18 PRECAST CONCRETE BASES

E23.18.1 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.

E23.18.2 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.

E23.19 STREET LIGHT POLES AND ARMS

E23.19.1 The Contractor shall handle, store, transport, and provide proper load securement for the poles and arms in a manner to prevent damage.

E23.20 LUMINAIRES

E23.20.1 The Contractor shall handle, store, transport and unload the luminaires in their original packaging and in a manner to prevent damage.

E23.21 SMALL MATERIAL

E23.21.1 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.

E23.22 CARE OF MATERIALS

E23.22.1 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.

E23.23 WIRE AND CABLE REEL STORAGE

E23.23.1 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.

E23.23.2 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.

E23.24 REEL HANDLING

E23.24.1 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.

E23.24.2 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.

E23.24.3 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.

E23.24.4 Returnable reels shall be returned promptly to Manitoba Hydro Central Stores and in no case later than three (3) days after the completion of the work unless otherwise mutually agreed between the Contractor and Manitoba Hydro.

E23.25 PRESSURIZED WATER/VACUUM EXCAVATION

E23.25.1 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.

E23.25.2 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.

E23.26 REMOVAL STREET LIGHT POLE FROM EXISTING BASE

E23.26.1 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.

E23.26.2 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.

E23.26.3 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.

E23.27 REMOVAL OF BASE AND DIRECT BURIED STREET LIGHT POLE

E23.27.1 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.

E23.27.2 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.

E23.27.3 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.

E23.28 INSTALLATION OF FOUNDATION - CONCRETE BASE

E23.28.1 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.

E23.28.2 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.

E23.28.3 The concrete base shall be set on a bed of ¾" down limestone. The concrete base backfill material shall be compacted in lifts no more than 150 mm. Backfill material shall be ¾" 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.

E23.28.4 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.

E23.28.5 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.

E23.28.6 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.

E23.29 BASE MOUNTED STREET LIGHT POLES

E23.29.1 This shall include all work required to install the street light pole on the concrete base as set forth in this Specification.

E23.29.2 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.

E23.29.3 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.

E23.29.4 The Contractor shall level the street light pole in all 4 directions. Leveling shims may be used.

E23.29.5 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.

E23.29.6 Unless otherwise specified, excess underground cable and 2C-12 wire shall be left inside the hand hole with the hand hole cover loosely installed.

E23.29.7 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.

E23.30 LUMINAIRES AND ASSOCIATED WIRING

E23.30.1 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.

E23.30.2 The Contractor shall verify the luminare 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.

E23.30.3 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.

E23.31 BREAK AWAY BASES

E23.31.1 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.

E23.31.2 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.

E23.32 SPLICING/CONNECTING CABLES

E23.32.1 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.

E23.32.2 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).

E23.33 EXCAVATION

E23.33.1 The Contractor shall furnish all labour, supplies and material (except as indicated in the Section "MATERIAL SUPPLIED BY MANITOBA HYDRO") necessary for the completion and maintenance of grade and line of the street light cables and conduit including water control if found to be necessary. The trench shall be graded to conform to the street light cables and conduit so that the street light cables and conduit rest firmly on a smooth surface throughout its length. All stones or other objects which, in the opinion of Manitoba Hydro might damage the street light cable jacket and conduit shall be removed. Where the presence of rock or other condition prevent a satisfactory bed for the cables, 150 mm of well-tamped, clean soil or ¼" down crushed limestone shall be placed in the bottom of the trench. In this case, the spoil bank from trenching operations shall not be allowed to fall into the trench or mix with the soil to be used in backfilling the trench. Loose debris or foreign matter and the spoil bank shall be placed so as not to hinder drainage, damage property, or obstruct traffic.

E23.33.2 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.

E23.34 LAYING CABLES

E23.34.1 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.

E23.34.2 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.

E23.34.3 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.

E23.34.4 During installation, under no circumstance is the cable to be subjected to a bending radius tighter than that detailed in the Standards.

E23.34.5 Where specified in the Standards or on the construction drawings, the Contractor shall install the street light cable in a conduit.

E23.35 INSTALLING CONDUIT AND CABLE BY BORING (HORIZONTAL DIRECTIONAL DRILLING)

E23.35.1 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.

E23.35.2 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.

E23.35.3 Drilling fluids and associated waste materials shall be disposed of in a manner that minimizes environmental effects.

E23.35.4 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.

E23.36 BURIED UTILITY CROSSINGS

E23.36.1 All buried obstructions are not necessarily shown on the reference drawings and the locations of those indicated are approximate only.

E23.36.2 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.

E23.36.3 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.

E23.36.4 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.

E23.37 BENDING CABLES/CONDUITS AND INSTALLATION INTO STANDARDS

E23.37.1 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.

E23.37.2 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.

E23.37.3 Unless otherwise directed, excess underground cable and 2C-12 wire shall be left inside the hand hole with the hand hole cover loosely installed.

E23.38 BACKFILL

E23.38.1 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.

E23.38.2 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.

E23.38.3 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.

E23.38.4 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.

E23.38.5 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.

E23.39 DEFECTIVE WORK & WARRANTY

E23.39.1 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.

E23.39.2 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.

E23.40 AS-BUILT DRAWING

E23.40.1 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 davits. Any changes of these items shall be clearly dimensioned to property line, and/or the original proposed location.

E23.40.2 Additional information to be included on the drawing, at each davit location: luminaire manufacturer, manufacturing date, wattage and serial number, along with the corresponding serial number of the davit upon which it is installed. As-built drawing submissions shall include the date the drawing was completed, name of the drafter and drawing reviewer.

E23.40.3 As-Built drawing submission package shall be received by Manitoba Hydro for review and acceptance prior to final energization of any newly installed infrastructure.

E23.41 MEASUREMENT AND PAYMENT

E23.41.1 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.

E23.41.2 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.

E23.41.3 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.

E23.41.4 Installation of 50 mm Conduit by Boring Method complete with Cable Insertion (#4 AL C/N or 1/0 AL Triplex)

(a) This pay item will be measured on a linear metre basis and paid for at the Contract Unit Price per linear metre for “Installation of 50 mm conduit or conduits by boring method complete with cable insertion (#4 AL C/N or 1/0 AL Triplex).” The number of meters to be paid for at the Contract Unit Price shall be measured and accepted by Manitoba Hydro. The Price shall be payment in full for performing all operations herein

described including installation of 50mm conduit or conduits by boring method, inserting the #4 AL C/N or 1/0 AL Triplex streetlight cable into the conduit(s), buried utility crossings, use of pressurized water/vacuum excavation and all other items incidental to the work included in the Specification.

E23.41.5 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.

E23.41.6 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.

E23.41.7 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.

E23.41.8 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.

E23.41.9 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.

E23.41.10 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.

E23.41.11 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.

E23.41.12 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.

E23.41.13 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.

E23.41.14 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.

E23.41.15 Installation of Overhead Span of #4 Duplex Between New or Existing Streetlight Poles and Connect Luminaire to Provide Temporary Overhead Feed

(a) This pay item will be measured on per span basis and paid for at the Contract Unit Price per span for “Installation of Overhead Span of #4 duplex Between New or Existing Streetlight Poles and Connect Luminaire to Provide Temporary Overhead Feed”. The number of units to be paid for at the Contract Unit Price shall be verified and accepted by Manitoba Hydro. The Price shall be payment in full for performing all operations herein described including attachment of the #4 duplex overhead conductor using a perform grip (c/w spool insulator(s) to davit arm if necessary), sagging conductor, connection of luminaire using 2C#12 copper conductor and all other items incidental to the work included in the Specification.

E23.41.16 Removal of Overhead Span of #4 Duplex Between New or Existing Streetlight Poles to Remove Temporary Overhead Feed

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

E23.41.17 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.

E24. PORTLAND CEMENT CONCRETE SIDEWALK WITH BLOCK OUTS FOR INDICATOR SURFACES

DESCRIPTION

E24.1 This specification shall supplement CW 3325-R5 “Portland Cement Concrete Sidewalks”.

CONSTRUCTION METHODS

E24.2 Add the following to section 9:

E24.2.1 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.

E24.2.2 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.

E24.2.3 Concrete curbs for monolithic curb and sidewalk with block outs shall be constructed in accordance with CW 3240.

MEASUREMENT AND PAYMENT

E24.3 Add the following to section 12:

E24.3.1 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

E24.4 Add the following to section 13:

E24.4.1 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.

E24.4.2 Items of Work:

(a) 100 mm Sidewalk with Block Outs

(b) 150 mm Sidewalk with Block Outs

(c) Monolithic Curb and 100 mm Sidewalk with Block Outs*

(d) Monolithic Curb and 150 mm Sidewalk with Block Outs*

* - reveal height and type

E24.4.3 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.

E25. PAVING STONES FOR INDICATOR SURFACES

DESCRIPTION

E25.1 This specification shall supplement CW 3330-R5 “Installation of Interlocking Paving Stones”

MATERIALS

E25.2 Add the following to section 5:

E25.2.1 Paving Stones for indicator surfaces shall be as shown on the drawings.

E25.2.2 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

E25.3 Add the following to section 9.2 “Preparation of Sub-grade, Sub-base and Sand-base” :

E25.3.1 Preparation of Sand-Base for Paving Stones in Sidewalk Block Outs.

E25.3.2 Place a 15mm layer of bedding sand in the blocked out sidewalk areas. SPEC NOTE: the bedding sand and paver dimensions must be considered in the block out dimensions on the drawing.

E25.3.3 The bedding sand shall be spread and levelled so that the paving stones when installed are 5 mm higher than the finished grade.

E25.3.4 No more sand shall be spread than can be covered in with paving stone on the same day.

E25.3.5 The bedding sand shall not be compacted or disturbed prior to laying the paving stones.

E25.4 Add the following to section 9.3 “Installation of Paving Stones” :

E25.4.1 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

E25.5 Add the following to section 12:

E25.6 Supply and Installation of Paving Stones for Indicator Surfaces

E25.6.1 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

E25.7 Add the following to section 13:

E25.7.1 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.

E25.7.2 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.

E26. REMOVAL OF EXISTING TREES

DESCRIPTION

E26.1 This specification covers the removal and disposal of existing trees.

CONSTRUCTION METHODS

E26.2 Trees shall be removed and disposed of by a pre-qualified subcontractor in accordance with the City’s ‘Guidelines for Maintaining City Owned Trees’. ‘Guidelines for Maintaining City Owned Trees’ and a list of pre-qualified contractors are located at:

https://winnipeg.ca/publicworks/parksOpenSpace/UrbanForestry/Homeowner_Tree_Maintenance_Guidelines.stm

E26.3 The tree in the north boulevard of Notre Dame Avenue west of King Edward Street shall not be removed until the Urban Forestry Branch has provided their approval.

E26.4 The Contract Administrator will notify the Urban Forestry Branch when the trees have been removed.

MEASUREMENT AND PAYMENT

E26.5 Removal and disposal of existing trees will be paid for at the Contract Unit Price per metre for ‘Removal of Existing Trees’, measured as specified herein, which price shall be payment in full for performing all operations herein described in this specification.