



THE CITY OF WINNIPEG

TENDER

TENDER NO. 453-2022

**2023 REDWOOD AVENUE RECONSTRUCTION: SALTER STREET TO MAIN
STREET**

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PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

B1.1 2023 Redwood Avenue Reconstruction: Salter Street to Main Street

B2. SUBMISSION DEADLINE

B2.1 The Submission Deadline is 12:00 Noon Winnipeg time, December 15, 2022.

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

B3. SITE INVESTIGATION

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

B3.2 The Bidder is advised that construction of the watermain renewal project (Tender 228-2022) was performed in 2022 and some areas of site may still have restoration required.

B3.3 The Bidder is responsible for inspecting the Site, the nature of the Work to be done and all conditions that might affect his/her Bid or his/her performance of the Work, and shall assume all risk for conditions existing or arising in the course of the Work which have been or could have been determined through such inspection.

B4. ENQUIRIES

B4.1 All enquiries shall be directed to the Contract Administrator identified in D4.1.

B4.2 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.

B4.3 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.

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

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

B4.6 Any enquiries concerning submitting through MERX should be addressed to:
MERX Customer Support
Phone: 1-800-964-6379
Email: merx@merx.com

B5. CONFIDENTIALITY

B5.1 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.

B5.2 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.

B6. ADDENDA

B6.1 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.

B6.2 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.

B6.3 Addenda will be available on the MERX website at www.merx.com.

B6.4 The Bidder is responsible for ensuring that he/she has received all addenda and is advised to check the MERX website for addenda regularly and shortly before the Submission Deadline, as may be amended by addendum.

B6.5 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.

B6.6 Notwithstanding B4, enquiries related to an Addendum may be directed to the Contract Administrator indicated in D4.

B7. SUBSTITUTES

B7.1 The Work is based on the Plant, Materials and methods specified in the Tender.

B7.2 Substitutions shall not be allowed unless application has been made to and prior approval has been granted by the Contract Administrator in writing.

B7.3 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.

B7.4 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.

- B7.5 The Contract Administrator, after assessing the request for approval of a substitute, may in his/her sole discretion grant approval for the use of a substitute as an “approved equal” or as an “approved alternative”, or may refuse to grant approval of the substitute.
- B7.6 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.
- B7.6.1 The Contract Administrator will issue an Addendum, disclosing the approved materials, equipment, methods and products to all potential Bidders. The Bidder requesting and obtaining the approval of a substitute shall be responsible for disseminating information regarding the approval to any person or persons he/she wishes to inform.
- B7.7 If the Contract Administrator approves a substitute as an “approved equal”, any Bidder may use the approved equal in place of the specified item.
- B7.8 If the Contract Administrator approves a substitute as an “approved alternative”, any Bidder bidding that approved alternative may base his/her Total Bid Price upon the specified item but may also indicate an alternative price based upon the approved alternative. Such alternatives will be evaluated in accordance with B18.
- B7.9 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.

B8. BID COMPONENTS

- B8.1 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.
- B8.2 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.
- B8.3 The Bid shall be submitted electronically through MERX at www.merx.com.
- B8.3.1 Bids will **only** be accepted electronically through MERX.
- B8.4 Bidders are advised that inclusion of terms and conditions inconsistent with the Tender document, including the General Conditions, will be evaluated in accordance with B18.1(a).

B9. BID

- B9.1 The Bidder shall complete Form A: Bid/Proposal, making all required entries.
- B9.2 Paragraph 2 of Form A: Bid/Proposal shall be completed in accordance with the following requirements:
- (a) if the Bidder is a sole proprietor carrying on business in his/her own name, his/her name shall be inserted;
 - (b) if the Bidder is a partnership, the full name of the partnership shall be inserted;
 - (c) if the Bidder is a corporation, the full name of the corporation shall be inserted;
 - (d) if the Bidder is carrying on business under a name other than his/her own, the business name and the name of every partner or corporation who is the owner of such business name shall be inserted.
- B9.2.1 If a Bid is submitted jointly by two or more persons, each and all such persons shall identify themselves in accordance with B9.2.

- B9.3 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.
- B9.4 Paragraph 13 of Form A: Bid/Proposal shall be signed in accordance with the following requirements:
- (a) if the Bidder is a sole proprietor carrying on business in his/her own name, it shall be signed by the Bidder;
 - (b) if the Bidder is a partnership, it shall be signed by the partner or partners who have authority to sign for the partnership;
 - (c) if the Bidder is a corporation, it shall be signed by its duly authorized officer or officers;
 - (d) if the Bidder is carrying on business under a name other than his/her own, it shall be signed by the registered owner of the business name, or by the registered owner's authorized officials if the owner is a partnership or a corporation.
- B9.4.1 The name and official capacity of all individuals signing Form A: Bid/Proposal should be entered below such signatures.
- B9.5 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.

B10. PRICES

- B10.1 The Bidder shall state a price in Canadian funds for each item of the Work identified on Form B: Prices.
- B10.2 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.
- B10.3 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.
- B10.4 Payments to Non-Resident Contractors are subject to Non-Resident Withholding Tax pursuant to the Income Tax Act (Canada).
- B10.5 The Bidder shall enter the Total Bid Price from Form B: Prices into the Total Bid Price field in MERX.
- B10.5.1 Bidders are advised that the calculation indicated in B18.4 will prevail over the Total Bid Price entered in MERX.

B11. DISCLOSURE

- B11.1 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.
- B11.2 The Persons are:
- (a) N/A

B12. CONFLICT OF INTEREST AND GOOD FAITH

- B12.1 Further to C3.2, Bidders, by responding to this Tender, declare that no Conflict of Interest currently exists, or is reasonably expected to exist in the future.

- B12.2 Conflict of Interest means any situation or circumstance where a Bidder or employee of the Bidder proposed for the Work has:
- (a) other commitments;
 - (b) relationships;
 - (c) financial interests; or
 - (d) involvement in ongoing litigation;
- that could or would be seen to:
- (i) exercise an improper influence over the objective, unbiased and impartial exercise of the independent judgment of the City with respect to the evaluation of Bids or award of the Contract; or
 - (ii) compromise, impair or be incompatible with the effective performance of a Bidder's obligations under the Contract;
- (e) has contractual or other obligations to the City that could or would be seen to have been compromised or impaired as a result of its participation in the Tender process or the Work; or
 - (f) has knowledge of confidential information (other than confidential information disclosed by the City in the normal course of the Tender process) of strategic and/or material relevance to the Tender process or to the Work that is not available to other bidders and that could or would be seen to give that Bidder an unfair competitive advantage.
- B12.3 In connection with its Bid, each entity identified in B12.2 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.
- B12.4 Without limiting B12.3, the City may, in its sole discretion, waive any and all perceived, potential or actual Conflicts of Interest. The City's waiver may be based upon such terms and conditions as the City, in its sole discretion, requires to satisfy itself that the Conflict of Interest has been appropriately avoided or mitigated, including requiring the Bidder to put into place such policies, procedures, measures and other safeguards as may be required by and be acceptable to the City, in its sole discretion, to avoid or mitigate the impact of such Conflict of Interest.
- B12.5 Without limiting B12.3, and in addition to all contractual or other rights or rights at law or in equity or legislation that may be available to the City, the City may, in its sole discretion:
- (a) disqualify a Bidder that fails to disclose a perceived, potential or actual Conflict of Interest of the Bidder or any of its employees proposed for the Work;
 - (b) require the removal or replacement of any employees proposed for the Work that has a perceived, actual or potential Conflict of Interest that the City, in its sole discretion, determines cannot be avoided or mitigated;
 - (c) disqualify a Bidder or employees proposed for the Work that fails to comply with any requirements prescribed by the City pursuant to B12.4 to avoid or mitigate a Conflict of Interest; and
 - (d) disqualify a Bidder if the Bidder, or one of its employees proposed for the Work, has a perceived, potential or actual Conflict of Interest that, in the City's sole discretion, cannot be avoided or mitigated, or otherwise resolved.

B12.6 The final determination of whether a perceived, potential or actual Conflict of Interest exists shall be made by the City, in its sole discretion.

B13. QUALIFICATION

B13.1 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.

B13.2 The Bidder and any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:

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

B13.3 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 B13.5 and D6).

B13.4 Further to B13.3(c), the Bidder shall, within five (5) Business Days of a request by the Contract Administrator, provide proof satisfactory to the Contract Administrator that the Bidder/Subcontractor has a workplace safety and health program meeting the requirements of The Workplace Safety and Health Act (Manitoba), by providing:

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

B13.5 Further to B13.3(d), the Bidder acknowledges they and all Subcontractors have obtained training required by the Accessibility for Manitobans Act (AMA) available at <http://www.accessibilitymb.ca/training.html> for anyone that may have any interaction with the public on behalf of the City of Winnipeg.

B13.6 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.

B13.7 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.

B14. BID SECURITY

B14.1 The Bidder shall include in its Bid Submission bid security in the form of a digital bid bond, in the amount of at least ten percent (10%) of the Total Bid Price, and agreement to bond of a company registered to conduct the business of a surety in Manitoba, in Form G1: Bid Bond and Agreement to Bond, available on The City of Winnipeg, Corporate Finance, Materials Management Division website at <https://www.winnipeg.ca/MatMgt/templates/files/eBidsecurity.pdf>.

B14.2 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 B14.2(a).

B14.3 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 B18.1(a).

B14.4 Bonds passing the verification process will be treated as original and authentic.

B14.4.1 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.

B14.5 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.

B14.6 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.

B15. OPENING OF BIDS AND RELEASE OF INFORMATION

B15.1 Bids will not be opened publicly.

B15.2 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.

B15.3 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.

B15.4 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).

B15.4.1 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.

B16. IRREVOCABLE BID

B16.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 11 of Form A: Bid/Proposal.

B16.2 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.

B17. WITHDRAWAL OF BIDS

B17.1 A Bidder may withdraw his/her Bid without penalty prior to the Submission Deadline.

B18. EVALUATION OF BIDS

B18.1 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 B13 (pass/fail);
- (c) Total Bid Price;
- (d) economic analysis of any approved alternative pursuant to B7.

B18.2 Further to B18.1(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.

B18.3 Further to B18.1(b), the Award Authority shall reject any Bid submitted by a Bidder who does not demonstrate, in his/her Bid or in other information required to be submitted, that he/she is qualified.

B18.4 Further to B18.1(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.

B18.4.1 Further to B18.1(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.

B18.4.2 Bidders are advised that the calculation indicated in B18.4 will prevail over the Total Bid Price entered in MERX.

B19. AWARD OF CONTRACT

B19.1 The City will give notice of the award of the Contract or will give notice that no award will be made.

- B19.2 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.
- B19.2.1 Without limiting the generality of B19.2, the City will have no obligation to award a Contract where:
- (a) the prices exceed the available City funds for the Work;
 - (b) the prices are materially in excess of the prices received for similar work in the past;
 - (c) the prices are materially in excess of the City's cost to perform the Work, or a significant portion thereof, with its own forces;
 - (d) only one Bid is received; or
 - (e) in the judgment of the Award Authority, the interests of the City would best be served by not awarding a Contract.
- B19.3 The Work of this Contract is contingent upon Council approval of sufficient funding in the 2023 Capital Budget. If the Capital Budget approved by Council does not include sufficient funding for the Work, the City will have no obligation to award a Contract.
- B19.4 If funding for the Work is provided to the City of Winnipeg by the Government of Manitoba and/or the Government of Canada, Bidders are advised that the terms of D32 shall immediately take effect upon confirmation of such funding, regardless of when funding is confirmed.
- B19.5 Where an award of Contract is made by the City, the award shall be made to the qualified Bidder submitting the lowest evaluated responsive Bid, in accordance with B18.
- B19.5.1 Following the award of contract, a Bidder will be provided with information related to the evaluation of his/her Bid upon written request to the Contract Administrator.

PART C - GENERAL CONDITIONS

C0. GENERAL CONDITIONS

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

PART D - SUPPLEMENTAL CONDITIONS

GENERAL

D1. GENERAL CONDITIONS

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

D2. FORM OF CONTRACT DOCUMENTS

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

D3. SCOPE OF WORK

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

- (a) Sewer Separation
 - (i) Installation of new LDS trenchless sewer main on Redwood Avenue with tie-in on Salter Street.
 - (ii) Installation of new LDS trenchless sewer main on Redwood Avenue with tie-in on Charles Street.
 - (iii) Connection of new catch basins leads to SRS sewer on Redwood Avenue and Charles Street.
 - (iv) Installation of new catch basin and catch basins leads on Redwood Avenue and Charles Street.
- (b) Sewer External Point Repairs
 - (i) Sewer External Point Repairs within road reconstruction limits of Redwood Avenue.
 - (ii) Sewer External Point Repair on Aikins Street between Aberdeen Avenue and Redwood Avenue.
- (c) Road & Sidewalk Reconstruction
 - (i) Redwood Avenue from Salter Street to Main Street.
 - (ii) Intersection improvements at both the Redwood/Aikins and Redwood/Charles intersections:
- (d) Traffic Signals Improvements provided by the Traffic Signals Branch
 - (i) Traffic Signals improvements at the Redwood/Aikins, Redwood/Charles, and Redwood/Main intersections performed by the Traffic Signals Branch.
- (e) Street Light Renewals
 - (i) Renewal and modification of street lights on Redwood Avenue from Salter Street to Main Street.

D3.2 The major components of the Work are as follows:

- (a) Sewer Separation
 - (i) Installation of new land drainage using trenchless methods.
 - (ii) Deep excavation with engineered shoring for connecting to the existing Storm Relief Sewers in multiple locations.
 - (iii) Installation of new catch pits, catch basins, manholes, drainage connection pipe, catch basin leads, and sewer services.
 - (iv) Installation of sub-drains.

- (b) Sewer External Point Repairs
 - (i) External Point Repairs of existing combined sewers in various locations within the reconstruction limits.
 - (ii) External Point Repair of existing combined sewer on Aikins Street between Aberdeen Avenue and Redwood Avenue outside of the limits of reconstruction.
 - (iii) Concrete pavement and asphalt overlay removal and restoration for external point repair on Aikins Street.
 - (iv) Granular backfill for the external point repairs.
- (c) Road & Sidewalk Reconstruction
 - (i) Full reconstruction of Redwood Avenue from east side of Salter Street to west side of Main Street.
 - (ii) Concrete pavement with curb and asphalt overlay removal.
 - (iii) Excavation to sub-grade.
 - (iv) Preparation of the sub-grade.
 - (v) Excavation and installation of insulation over watermain and water services below sub-grade.
 - (vi) Installation of geotextile and geogrid fabrics.
 - (vii) Installation of 100 mm Granular A sub-base.
 - (viii) Installation of 50 mm Granular A sub-base
 - (ix) Installation of Granular A base course.
 - (x) Installation of 250 mm plain-dowelled concrete using slip-forming for mainline pavement.
 - (xi) Installation of 250 mm plain-dowelled concrete using hand-forming for intersections.
 - (xii) Installation of 300 mm plain-dowelled concrete using hand-forming over a portion of the feedermain.
 - (xiii) Installation of 150 mm reinforced concrete pavement for residential approaches and 200 mm reinforced concrete pavement for commercial approaches.
 - (xiv) Installation of 150 mm reinforced concrete pavement for concrete alley restoration following sewer separation works.
 - (xv) Installation of Integral 180 Barrier Curb for mainline pavements.
 - (xvi) Installation of 180 Modified Barrier Curb for all radii and curb extensions.
 - (xvii) Installation of lip curb for each sidewalk crossing.
 - (xviii) Installation of 180 barrier curb and gutter for tie-ins on both Aikins and Charles.
 - (xix) Installation of transition slabs with asphalt overlays and asphalt milling at the limits of construction.
 - (xx) Adjustment of curb stops to new sidewalk grade.
 - (xxi) Full renewal of sidewalks within the project limits.
 - (xxii) Boulevard regrading.
 - (xxiii) Landscaping with topsoil, seed, and sod.
 - (xxiv) Geometric improvements for road geometry including curb extensions, lane width modifications, and provision of a dedicated parking lane.
- (d) Traffic Signals Improvements provided by the Traffic Signals Branch
 - (i) Removal of existing overhead pedestrian crossing signals at Redwood Ave / Aikins St intersection.
 - (ii) Installation of new Rectangular Rapid Flashing Beacon pedestrian crossing at Redwood/Aikins intersection with underground conduit.
 - (iii) Installation of new Rectangular Rapid Flashing Beacon pedestrian crossing at Redwood/Charles intersection with solar power.
 - (iv) Removal of existing vehicle detector loops at the Redwood/Main intersection.
 - (v) Installation of new pole mounted vehicle sensors.

- (e) Street Light Renewals
 - (i) Removal of all street lights within the project limits.
 - (ii) Modification of joint use street light and overhead pedestrian crossing poles.
 - (iii) Temporary overhead feeds for street lighting.
 - (iv) Trenchless installation of conduit.
 - (v) Pulling of wiring through conduit.
 - (vi) Installation of new street lights.

D4. CONTRACT ADMINISTRATOR

- D4.1 The Contract Administrator is KGS Group, represented by:
Craig Rowbotham
Municipal Assistant Department Head
Telephone No. 204 318-2051 Email Address crowbotham@ksgroup.com
- D4.2 At the pre-construction meeting, Craig Rowbotham will identify additional personnel representing the Contract Administrator and their respective roles and responsibilities for the Work.

D5. CONTRACTOR'S SUPERVISOR

- D5.1 At the pre-construction meeting, the Contractor shall identify his/her designated supervisor and any additional personnel representing the Contractor and their respective roles and responsibilities for the Work.
- D5.2 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 D5.1 or an alternate can be contacted twenty-four (24) hours a day to respond to an emergency.

D6. ACCESSIBLE CUSTOMER SERVICE REQUIREMENTS

- D6.1 The Accessibility for Manitobans Act (AMA) imposes obligations on The City of Winnipeg to provide accessible customer service to all persons in accordance with the Customer Service Standard Regulation ("CSSR") to ensure inclusive access and participation for all people who live, work or visit Winnipeg regardless of their abilities.
- D6.1.1 The Contractor agrees to comply with the accessible customer service obligations under the CSSR and further agrees that when providing the Goods or Services or otherwise acting on the City of Winnipeg's behalf, shall comply with all obligations under the AMA applicable to public sector bodies.
- D6.1.2 The accessible customer service obligations include, but are not limited to:
- (a) providing barrier-free access to goods and services;
 - (b) providing reasonable accommodations;
 - (c) reasonably accommodating assistive devices, support persons, and support animals;
 - (d) providing accessibility features e.g. ramps, wide aisles, accessible washrooms, power doors and elevators;
 - (e) inform the public when accessibility features are not available;
 - (f) providing a mechanism or process for receiving and responding to public feedback on the accessibility of all goods and services; and
 - (g) providing adequate training of staff and documentation of same.

D7. FURNISHING OF DOCUMENTS

- D7.1 Upon award of the Contract, the Contractor will be provided with 'issued for construction' Contract Documents electronically, including Drawings in PDF format only.

SUBMISSIONS

D8. AUTHORITY TO CARRY ON BUSINESS

- D8.1 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.

D9. SAFE WORK PLAN

- D9.1 The Contractor shall provide the Contract Administrator with a Safe Work Plan at least five (5) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract Documents, if applicable.
- D9.2 The Safe Work Plan shall be prepared and submitted in the format shown in the City's template which is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/safety/default.stm>
- D9.3 Notwithstanding B13.4 at any time during the term of the Contract, the City may, at its sole discretion and acting reasonably, require an updated COR Certificate or Annual Letter of good Standing. A Contractor, who fails to provide a satisfactory COR Certificate or Annual Letter of good Standing, will not be permitted to continue to perform any Work.

D10. INSURANCE

- D10.1 The Contractor shall provide and maintain the following insurance coverage:
- (a) commercial general liability insurance, in the amount of at least five million dollars (\$5,000,000.00) inclusive, with the City as an additional insureds, with a cross-liability clause. Such liability policy to also contain contractual liability, unlicensed motor vehicle liability, non-owned automobile liability, broad form property damage cover and products and completed operations, to remain in place at all times during the performance of the Work and throughout the warranty period. If required by contract, BellMTS and/or Manitoba Hydro, shall be added as additional insureds;
 - (b) if applicable, Automobile Liability Insurance covering all motor vehicles, owned and operated and used or to be used by the Contractor directly or indirectly in the performance of the Work. The Limit of Liability shall not be less than \$2,000,000 inclusive for loss or damage including personal injuries and death resulting from any one accident or occurrence;
 - (c) an all risks Installation Floater carrying adequate limits to cover all machinery, equipment, supplies and/or materials intended to enter into and form part of any installation.
- D10.2 Deductibles shall be borne by the Contractor.
- D10.3 All Subcontractors performing Work on the Project shall provide the Contractor with evidence of insurance as outlined in D10.1 (a) and (b) above and be registered with Workers Compensation Board of Manitoba and maintain insurance and workers compensation coverage throughout the performance of the Work. The Contractor shall provide the Contract Administrator with evidence of same prior to the commencement of any Work.

- D10.4 The Contractor shall provide the City Solicitor with a certificate(s) of insurance for the City in a form satisfactory to the City Solicitor, at least two (2) Business Days prior to the commencement of any Work but in no event later than the date specified in the C4.1 for the return of the executed Contract Documents, as applicable.
- D10.5 All policies shall be taken out with insurers licensed in the Province of Manitoba.
- D10.6 The Contractor shall provide the City Solicitor with a certificate(s) of insurance, in a form satisfactory to the City Solicitor, at least two (2) Business Days prior to the commencement of any Work but in no event later than the date specified in the C4.1 for the return of the executed Contract Documents, as applicable.
- D10.7 The Contractor shall not cancel, materially alter, or cause each policy to lapse without providing at least thirty (30) Calendar Days prior written notice to the Contract Administrator.

D11. CONTRACT SECURITY

- D11.1 The Contractor shall provide and maintain the performance bond and the labour and material payment bond until the expiration of the warranty period in the form of:
- (a) a performance bond of a company registered to conduct the business of a surety in Manitoba, in the form attached to these Supplemental Conditions (Form H1: Performance Bond), in the amount of fifty percent (50%) of the Contract Price; and
 - (b) a labour and material payment bond of a company registered to conduct the business of a surety in Manitoba, in the form attached to these Supplemental Conditions (Form H2: Labour and Material Payment Bond), in an amount equal to fifty percent (50%) of the Contract Price.
- D11.1.1 Where the contract security is a performance bond, it may be submitted in hard copy or digital format. If submitted in digital format the contract security must meet the following criteria:
- (a) the version submitted by the Contractor must have valid digital signatures and seals;
 - (b) the version submitted by the Contractor must be verifiable by the City with respect to the totality and wholeness of the bond form, including: the content; all digital signatures and digital seals; with the surety company, or an approved verification service provider of the surety company.
 - (c) the version submitted must be viewable, printable and storable in standard electronic file formats compatible with the City, and in a single file. Allowable formats include pdf.
 - (d) the verification may be conducted by the City immediately or at any time during the life of the bond and at the discretion of the City with no requirement for passwords or fees.
 - (e) the results of the verification must provide a clear, immediate and printable indication of pass or fail regarding D11.1(b).
- D11.1.2 Digital bonds failing the verification process will not be considered to be valid and may be determined to be an event of default in accordance with C18.1. If a digital bond fails the verification process, the Contractor may provide a replacement bond (in hard copy or digital format) within seven (7) Calendar Days of the City's request or within such greater period of time as the City in its discretion, exercised reasonably, allows.
- D11.1.3 Digital bonds passing the verification process will be treated as original and authentic.
- D11.2 The Contractor shall provide the Contract Administrator identified in D4 with the required performance and labour and material payment bonds within seven (7) Calendar Days of notification of the award of the Contract by way of an award letter and prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract Documents, if applicable.

- D11.3 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 D11.1(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.

D12. SUBCONTRACTOR LIST

- D12.1 The Contractor shall provide the Contract Administrator with a complete list of the Subcontractors whom the Contractor proposes to engage (Form J: Subcontractor List) at or prior to a pre-construction meeting, or at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in the C4.1 for the return of the executed Contract Documents, if applicable.

D13. DETAILED WORK SCHEDULE

- D13.1 The Contractor shall provide the Contract Administrator with a detailed work schedule at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in the General Conditions for the return of the executed Contract Documents, as applicable.
- D13.2 The detailed work schedule shall consist of the following:
- (a) a critical path method (C.P.M.) schedule for the Work;
 - (b) a Gantt chart for the Work based on the C.P.M. schedule; and
 - (c) a daily manpower schedule for the Work.
- all acceptable to the Contract Administrator.
- D13.3 Further to D13.2(a), the C.P.M. schedule shall clearly identify the start and completion dates of all of the following activities/tasks making up the Work as well as showing those activities/tasks on the critical path:
- D13.4 Further to D13.2(b), the Gantt chart shall show the time on a weekly basis, required to carry out the Work of each trade, or specification division. The time shall be on the horizontal axis, and the type of trade shall be on the vertical axis.
- D13.5 Further to D13.2(c), the daily manpower schedule shall list the daily number of individuals on the Site for each trade.

D14. REQUIREMENTS FOR SITE ACCESSIBILITY PLAN

- D14.1 The Contractor shall provide the Contract Administrator with an Accessibility Plan at least five (5) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract Documents, if applicable.
- D14.2 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.
- D14.3 The Accessibility Plan may also include figures, sketches, or drawings to demonstrate the proposed plan.
- D14.4 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
- D14.5 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.
- D14.6 Any changes to the Accessibility Plan must be approved by the Contract Administrator.
- D14.7 Upon request from the Contract Administrator, the Contractor shall provide records demonstrating that the site has been maintained.
- D14.8 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

D15. COMMENCEMENT

- D15.1 The Contractor shall not commence any Work until he/she is in receipt of an award letter from the Award Authority authorizing the commencement of the Work.
- D15.2 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 D8;
 - (ii) evidence of the workers compensation coverage specified in C6.15;
 - (iii) the twenty-four (24) hour emergency response phone number specified in D5.2.
 - (iv) the Safe Work Plan specified in D9;
 - (v) evidence of the insurance specified in D10;
 - (vi) the contract security specified in D11;
 - (vii) the subcontractor list specified in D12;
 - (viii) the detailed work schedule specified in D13;

- (ix) the Requirements for Site Accessibility Plan specified in D14; and
 - (x) the direct deposit application form specified in D28.
- (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.

D15.3 The Contractor shall not commence the Work on the Site before May 15, 2023, and shall commence the Work on Site no later than May 31, 2023, as directed by the Contract Administrator and weather permitting.

D15.3.1 If the actual date of award is later than the intended date, the dates specified for Substantial Performance, and Total Performance will be adjusted by the difference between the aforementioned intended and actual dates.

D16. WORKING DAYS

D16.1 Further to C1.1(tt);

D16.1.1 The Contract Administrator will determine daily if a Working Day has elapsed and will record his/her assessment. On a weekly basis the Contract Administrator will provide the Contractor with a record of the Working Days assessed for the preceding week. The Contractor shall sign each report signifying that he/she agrees with the Contract Administrator's determination of the Working Days assessed for the report period.

D16.1.2 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.

D16.1.3 When the Work includes two or more major types of Work that can be performed under different atmospheric conditions, the Contract Administrator shall consider all major types of Work in determining whether the Contractor was able to work in assessing Working Days.

D16.1.4 If the Contractor requests to work on a weekend or holiday and the Contract Administrator approves the request, then the day worked on a weekend or holiday shall be counted as a Working Day.

D17. RESTRICTED WORK HOURS

D17.1 Further to clause 3.10 of CW 1130, the Contractor shall require written permission forty-eight (48) hours in advance from the Contract Administrator for any work to be performed between 2000 hours and 0700 hours, or on Saturdays, Sundays, Statutory Holidays and or Civic Holidays.

D17.2 The following work hour restrictions shall also apply:

- (a) For the new land drainage sewer connection to the storm relief sewer on Salter Street, peak hour restrictions shall apply following the Manual of Temporary Traffic Control. A single lane closure will be allowed on Salter Street southbound during the sewer tie-in work.
- (b) Peak hour restrictions shall apply for the pavement tie-ins on Salter Street and Main Street following the Manual of Temporary Traffic Control.

D18. WORK BY OTHERS

D18.1 Further to C6.25, the Contractor's attention is directed to the fact that other Contractors, the personnel of Utilities and the staff of the City may be working within the project limit, approach roadway, adjacent roadways or right-of-way. The activities of these agencies may coincide with the Contractor's execution of work and it will be the Contractor's responsibility to cooperate to the fullest extent with other personnel working in the area, and such cooperation is an obligation of the Contractor under the terms of Contract.

D18.2 Work by others on or near the Site will include but not necessarily be limited to:

- (a) Watermain Renewal Contract (Tender 228-2022)
 - (i) Watermain renewal Works along Redwood Avenue from Charles Street to Main Street. 2023 works will likely be focused on sidewalk restoration or remediation works on Main Street.
- (b) Manitoba Hydro
 - (i) Street Light Renewal Works
- (c) City of Winnipeg – Traffic Services and Traffic Signals Branches
 - (i) Lane Marking
 - (ii) Sign Installation
 - (iii) Traffic Signal Modifications

D18.3 Further to D18.1 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 D18.2 or additional parties, in their construction schedule as per D13 and accommodate the necessary area on Site required for the Work by Others to complete the Work.

D19. SEQUENCE OF WORK

D19.1 Further to C6.1, the sequence of work shall be as follows:

D19.1.1 The Work shall be divided into two Phases. Each Phase shall be subdivided into stages. Stages are further subdivided into major items of work.

D19.1.2 **Phase I** – Sewer Separation Works

- (a) **Stage I** – Sewer Separation from Salter Street to Aikins Street
 - (i) Site preparation (tree protection, barricades, snow fencing, signage, etc.);
 - (ii) Locating of all sewer crossings;
 - (iii) Temporary closures for all soft-digging for locating trenchless crossings on Salter Street;
 - (iv) Soft-digging for all trenchless crossings;
 - (v) Excavation and shoring for all deep excavations;
 - (vi) Installation of temporary support for MTS Duct Banks;
 - (vii) Installation of trenchless sewer separation for sewer mainline;
 - (viii) Installation of trenchless sewer separation for deep catch basin leads;
 - (ix) Installation of open cut sewer works for shallow catch basin leads;
 - (x) Installation of structures including manholes, catch basins, and catch pits;
 - (xi) Regrading of sewer or water services if required;
 - (xii) Installation of bedding, granular backfill, and performing water jetting for Class 1 backfill;
 - (xiii) Installation of final backfill as cement-stabilized fill for Class 1 Backfill;
 - (xiv) Installation of tee for tie-in to 375 Concrete SRS at the Redwood and Salter intersection;

- (xv) Placement and maintenance of lane closures and signage on Redwood from Powers to Salter for sewer tie-in;
 - (xvi) Placement of cement-stabilized fill for restoration of Salter SRS tie-in;
 - (xvii) Restoration of granular base and backfill for Salter SRS tie-in; and
 - (xviii) Restoration of the concrete and asphalt overlay for the Salter SRS tie-in.
- (b) **Stage II – Sewer Separation from Aikins Street to Charles Street**
- (i) Locating of all sewer crossings;
 - (ii) Soft-digging for all trenchless crossings;
 - (iii) Excavation and shoring for all deep excavations;
 - (iv) Installation of trenchless sewer separation for sewer mainline;
 - (v) Installation of trenchless sewer separation for deep catch basin leads;
 - (vi) Installation of open cut sewer works for shallow catch basin leads;
 - (vii) Installation of structures including manholes, catch basins, and catch pits;
 - (viii) Regrading of sewer or water services if required;
 - (ix) Installation of tee for tie-in to 600 Concrete SRS at the Redwood and Charles intersection;
 - (x) Installation of bedding, granular backfill, and performing water jetting for Class 1 backfill; and
 - (xi) Installation of final backfill as cement-stabilized fill for Class 1 Backfill.
- (c) **Stage III – Sewer Separation from Charles Street to Main Street**
- (i) Installation of temporary access off of Boyd Avenue;
 - (ii) Locating of all sewer crossings;
 - (iii) Soft-digging for all trenchless crossings;
 - (iv) Locating and confirming feedermain crossing elevations and adjustment of pipe profiles to maintain a minimum of 1.0m vertical clearance between the bottom of the feedermain and the top of the crossing pipe;
 - (v) Excavation and shoring for all deep excavations;
 - (vi) Installation of trenchless sewer separation for deep catch basin leads;
 - (vii) Installation of open cut sewer works for shallow catch basin leads;
 - (viii) Installation of structures including manholes, catch basins, and catch pits;
 - (ix) Regrading of sewer or water services if required;
 - (x) Installation of tees for tie-in to 375 Concrete SRS at various points;
 - (xi) Installation of vertical rigid insulation board for feedermain frost protection;
 - (xii) Installation of bedding, granular backfill, and performing water jetting for Class 1 backfill; and
 - (xiii) Installation of final backfill as cement-stabilized fill for Class 1 Backfill.
- (d) **Stage IV – Street Lighting Renewals and Traffic Signal Improvements**
- (i) Installation of temporary overhead lighting feeds;
 - (ii) Modification of combined street light and overhead pedestrian crossing pole;
 - (iii) Soft-digging for all trenchless crossings;
 - (iv) Removal of existing street lights and concrete bases;
 - (v) Removal of existing vehicle detector loops;
 - (vi) Installation of new conduit for street lights;
 - (vii) Installation of new conduit for pedestrian crossing signal at Aikins;
 - (viii) Installation new concrete bases for street lights;
 - (ix) Installation of new street light poles;
 - (x) Wiring of street light poles;

- (xi) Installation of new RRFB Pedestrian Signals for the Aikins and Charles crossings; and
- (xii) Traffic Signals improvements in the Redwood/Main Intersection.

D19.1.3 **Phase II** – Surface Works

(a) **Stage I** – Surface Works Mainline

- (i) Concrete Pavement Removal;
- (ii) Milling for tie-ins at each limit;
 - ◆ At the end of any day, there shall be no drop-off along any longitudinal joint, excepting the longitudinal joint between the gutter and approaches.
- (iii) Excavation to sub-grade with protection of mature tree root bulbs;
- (iv) Sub-grade preparation and compaction;
- (v) Locates of all watermain and water service locations for determining insulation limits;
- (vi) Excavation for placement of insulation;
- (vii) Placement of rigid insulation in sub-grade excavations. Including leveling sand above and below the insulation;
- (viii) Placement of geotextile and geogrids;
- (ix) Placement of sub-base materials and compaction in lifts;
- (x) Placement of base materials and compaction in lifts;
- (xi) Installation of slip-formed concrete mainline pavement with integral curbs;
- (xii) Installation of hand-formed concrete mainline pavement with integral curbs including barrier and modified barrier curbs;
- (xiii) Installation of transition slabs at each limit;
- (xiv) Installation of sidewalk ramps for curb extension crossing;
- (xv) Renewal of reinforced concrete approaches;
- (xvi) Sidewalk removal on one side of roadway;
- (xvii) Rough regrading boulevard on one side of roadway;
- (xviii) Installation of sidewalk on one side of roadway;
Reopening of sidewalk on one side of roadway; and
- (xix) Boulevard fine regrading and restoration.

(b) **Stage II** – Surface Works Intersections

- (i) Pavement Removal;
- (ii) Milling for tie-ins at each limit;
- (iii) Excavation to sub-grade with protection of mature tree root bulbs;
- (iv) Sub-grade preparation and compaction;
- (v) Locates of all watermain and water service locations for determining insulation limits;
- (vi) Excavation for placement of insulation;
- (vii) Placement of rigid insulation in sub-grade excavations. Including leveling sand above and below the insulation;
- (viii) Placement of geotextile and geogrids;
- (ix) Placement of sub-base materials and compaction in lifts;
- (x) Placement of base materials and compaction in lifts;
- (xi) Installation of slip-formed concrete mainline pavement with integral curbs;
- (xii) Installation of hand-formed concrete mainline pavement with integral curbs including barrier and modified barrier curbs;
- (xiii) Installation of transition slabs at each limit;

- (xiv) Renewal of reinforced concrete approaches;
- (xv) Renewal of reinforced concrete alley;
- (xvi) Sidewalk Removal on remaining side of roadway;
- (xvii) Sidewalk installation on remaining side of roadway;
- (xviii) Rough regrading boulevard on remaining side of roadway; and
- (xix) Boulevard fine regrading and restoration.

(c) **Stage III – Restoration**

- (i) Installation of topsoil and sod;
- (ii) Installation of asphalt overlays at each tie-in;
- (iii) Site Cleanup; and
- (iv) Removal of all temporary works (signage, tree protection, snow fence, barricades, debris, etc.).

- D19.1.4 At the end of any day, there shall be no drop-off along any longitudinal joint, excepting the longitudinal joint between the gutter and approaches. Temporary asphalt ramps shall be provided at all active curb ramp locations.
- D19.1.5 Placing the topsoil and finished grading of all boulevard and median areas shall be completed prior to commencing construction of the asphaltic concrete overlay, including the scratch course.
- D19.1.6 Immediately following the completion of the Phase II Works, the Contractor shall clean up the Site and remove all plant, surplus material, waste and debris, other than that left by the City or other Contractors.

D20. SUBSTANTIAL PERFORMANCE

- D20.1 The Contractor shall achieve Substantial Performance within eighty (80) consecutive Working Days of the commencement of the Work as specified in D15.
- D20.2 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.
- D20.3 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.

D21. TOTAL PERFORMANCE

- D21.1 The Contractor shall achieve Total Performance within eight-five (85) consecutive Working Days of the commencement of the Work as specified in D15.
- D21.2 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.
- D21.3 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.

D22. LIQUIDATED DAMAGES

- D22.1 If the Contractor fails to achieve Substantial Performance or Total Performance in accordance with the Contract by the days fixed herein for same, the Contractor shall pay the City the following amounts per Working Day for each and every Working Day following the days fixed herein for same during which such failure continues:
- (a) Substantial Performance – Three Thousand Five Hundred dollars (\$3,500);
 - (b) Total Performance – Two Thousand dollars (\$2,000).
- D22.2 The amounts specified for liquidated damages in D22.1 are based on a genuine pre-estimate of the City's losses in the event that the Contractor does not achieve Substantial Performance or Total Performance by the days fixed herein for same.
- D22.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

D23. COVID-19 SCHEDULE DELAYS

- D23.1 The City acknowledges that the schedule for this Contract may be impacted by the COVID-19 pandemic. Commencement and progress of the Work shall be performed by the Contractor with due consideration to the health and safety of workers and the public, directives from health authorities and various levels of government and in close consultation with the Contract Administrator.
- D23.2 If the Contractor is delayed in the performance of the Work by reason of the COVID-19 pandemic, the Work schedule may be adjusted by a period of time equal to the time lost due to such delay and costs related to such delay will be determined as identified herein.
- D23.3 A minimum of seven (7) Calendar Days prior to the commencement of Work, the Contractor shall declare whether COVID-19 will affect the start date. The Contractor shall provide sufficient evidence that the delay is directly related to COVID-19, including but not limited to evidence related to availability of staff, availability of Material or work by others.
- D23.4 For any delay related to COVID-19 and identified after Work has commenced, the Contractor shall within seven (7) Calendar Days of becoming aware of the anticipated delay declare the additional delay and shall provide sufficient evidence as indicated in D23.3. Failure to provide this notice will result in no additional time delays being considered by the City.
- D23.5 The Work schedule, including the durations identified in D17 to D21 where applicable, will be adjusted to reflect delays accepted by the Contract Administrator. No additional payment will be made for adjustment of schedules except where seasonal work, not previously identified in the Contract, is carried over to the following construction season.
- D23.6 Where Work not previously identified is being carried over solely as a result of delays related to COVID-19, as confirmed by the Contract Administrator, the cost of temporary works to maintain the Work in a safe manner until Work recommences, will be considered by the Contract Administrator. Where the Work is carried over only partially due to COVID-19, a partial consideration of the cost of temporary works will be considered by the Contract Administrator.
- D23.7 Any time or cost implications as a result of COVID-19 and in accordance with the above, as confirmed by the Contract Administrator, shall be documented in accordance with C7.

D24. SCHEDULED MAINTENANCE

- D24.1 The Contractor shall perform the following scheduled maintenance in the manner and within the time periods required by the Specifications:
- (a) Sod Maintenance as specified in CW 3510-R10;
 - (b) Seed Maintenance as specified in CW 3520-R7;

(c) Reflective Crack Maintenance as specified in CW 3250-R7.

D24.2 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

D25. JOB MEETINGS

D25.1 Regular weekly job meetings will be held at Site. These meetings shall be attended by a minimum of one representative of the Contract Administrator, One representative of the City and one representative of the Contractor. Each representative shall be a responsible person capable of expressing the position of the Contract Administrator, the City and the Contractor respectively on any matter discussed at the meeting including the Work schedule and the need to make any revisions to the Work schedule. The progress of the Work will be reviewed at each of these meetings.

D25.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever he/she deems it necessary.

D26. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)

D26.1 Further to C6.26, the Contractor shall be the Prime Contractor and shall serve as, and have the duties of the Prime Contractor in accordance with The Workplace Safety and Health Act (Manitoba).

D27. THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA) – QUALIFICATIONS

D27.1 Further to B13.4, the Contractor/Subcontractor must, throughout the term of the Contract, have a Workplace Safety and Health Program meeting the requirements of The Workplace Safety and Health Act (Manitoba). At any time during the term of the Contract, the City may, at its sole discretion and acting reasonably, require updated proof of compliance, as set out in B13.4.

MEASUREMENT AND PAYMENT

D28. PAYMENT

D28.1 Further to C12, the City shall make payments to the Contractor by direct deposit to the Contractor's banking institution, and by no other means. Payments will not be made until the Contractor has made satisfactory direct deposit arrangements with the City. Direct deposit application forms are at https://winnipeg.ca/finance/files/Direct_Deposit_Form.pdf.

D29. FUEL PRICE ADJUSTMENT

D29.1 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 - $((CFI/BFI)-1.15) \times Q \times FF$; and

(b) where the price of fuel has decreased - $((CFI/BFI)-0.85) \times Q \times FF$; 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.

- D29.1.1 Eligible Work will be determined in accordance with D29.5.
- D29.1.2 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.
- D29.1.3 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.
- D29.1.4 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.
- D29.2 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.
- D29.3 The fuel escalation or de-escalation adjustment will not be applied if the CFI is within $\pm 15\%$ of the BFI.
- D29.4 Fuel escalation adjustments will not be considered beyond the Substantial Performance 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.
- D29.5 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;
 - (b) The Fuel Factor will not apply to the following sections identified on Form B: Prices related to:
 - (i) Section B: Water and Waster Works;
 - (ii) Section C: Street Light Renewal Works;
 - (iii) Section D: Mobilization/Demobilization.

D30. WARRANTY

- D30.1 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.

DISPUTE RESOLUTION

D31. DISPUTE RESOLUTION

- D31.1 If the Contractor disagrees with any opinion, determination, or decision of the Contract Administrator, the Contractor shall act in accordance with the Contract Administrator’s opinion, determination, or decision unless and until same is modified by the process followed by the parties pursuant to D31.
- D31.2 The entire text of C21.4 is deleted, and amended to read: “Intentionally Deleted”
- D31.3 The entire text of C21.5 is deleted, and amended to read:
- (a) If Legal Services has determined that the Disputed Matter may proceed in the Appeal Process, the Contractor must, within ten (10) Business Days of the date of the Legal Services Response Letter, submit his written Appeal Form, in the manner and format set out on the City’s Materials Management Website, to the Chief Administrative Officer, and to

the Contract Administrator. The Contractor may not raise any other disputes other than the Disputed Matter in his Appeal Form.

- D31.4 Further to C21, prior to the Contract Administrator's issuance of a Final Determination, the following informal dispute resolution process shall be followed where the Contractor disagrees with any opinion, determination, or decision of the Contract Administrator ("Dispute"):
- (a) In the event of a Dispute, attempts shall be made by the Contract Administrator and the Contractor's equivalent representative to resolve Disputes within the normal course of project dealings between the Contract Administrator and the Contractor's equivalent representative.
 - (b) Disputes which in the reasonable opinion of the Contract Administrator or the Contractor's equivalent representative cannot be resolved within the normal course of project dealings as described above shall be referred to a without prejudice escalating negotiation process consisting of, at a minimum, the position levels as shown below and the equivalent Contractor representative levels:
 - (i) The Contract Administrator;
 - (ii) Supervisory level between the Contract Administrator and applicable Department Head;
 - (iii) Department Head.
- D31.4.1 Names and positions of Contractor representatives equivalent to the above City position levels shall be determined by the Contractor and communicated to the City at the pre-commencement or kick off meeting.
- D31.4.2 As these negotiations are not an adjudicative hearing, neither party may have legal counsel present during the negotiations.
- D31.4.3 Both the City and the Contractor agree to make all reasonable efforts to conduct the above escalating negotiation process within twenty (20) Business Days, unless both parties agree, in writing, to extend that period of time.
- D31.4.4 If the Dispute is not resolved to the City and Contractor's mutual satisfaction after discussions have occurred at the final escalated level as described above, or the time period set out in D31.4.3, as extended if applicable, has elapsed, the Contract Administrator will issue a Final Determination as defined in C1.1(v), at which point the parties will be governed by the Dispute Resolution process set out in C21.

THIRD PARTY AGREEMENTS

D32. FUNDING AND/OR CONTRIBUTION AGREEMENT OBLIGATIONS

- D32.1 In the event that funding for the Work of the Contract is provided to the City of Winnipeg by the Government of Manitoba and/or the Government of Canada, the following terms and conditions shall apply, as required by the applicable funding agreements.
- D32.2 Further to D32.1, in the event that the obligations in D32 apply, actual costs legitimately incurred by the Contractor as a direct result of these obligations ("Funding Costs") shall be determined by the actual cost to the Contractor and not by the valuation method(s) outlined in C7.4. In all other respects Funding Costs will be processed in accordance with Changes in Work under C7.
- D32.3 For the purposes of D32:
- (a) **"Government of Canada"** includes the authorized officials, auditors, and representatives of the Government of Canada; and
 - (b) **"Government of Manitoba"** includes the authorized officials, auditors, and representatives of the Government of Manitoba.
- D32.4 Modified Insurance Requirements

- D32.4.1 If not already required under the insurance requirements identified in D10, the Contractor will be required to provide wrap-up liability insurance in an amount of no less than two million dollars (\$2,000,000) inclusive per occurrence. Such policy will be written in the joint names of the City, Contractor, Consultants and all sub-contractors and sub-consultants and include twelve (12) months completed operations. The Government of Manitoba and its Ministers, officers, employees, and agents shall be added as additional insureds.
- D32.4.2 If not already required under the insurance requirements identified in D10, the Contractor will be required to provide builders' risk insurance (including boiler and machinery insurance, as applicable) providing all risks coverage at full replacement cost, or such lower level of insurance that the City may identify on a case-by-case basis, such as an installation floater.
- D32.4.3 The Contractor shall obtain and maintain third party liability insurance with minimum coverage of two million dollars (\$2,000,000.00) per occurrence on all licensed vehicles operated at the Site. In the event that this requirement conflicts with another licensed vehicle insurance requirement in this Contract, then the requirement that provides the higher level of insurance shall apply.
- D32.4.4 Further to D10.3, insurers shall provide satisfactory Certificates of Insurance to the Government of Manitoba prior to commencement of Work as written evidence of the insurance required. The Certificates of Insurance must provide for a minimum of thirty (30) days' prior written notice to the Government of Manitoba in case of insurance cancellation.
- D32.4.5 All policies must be taken out with insurers licensed to carry on business in the Province of Manitoba.

D32.5 Indemnification By Contractor

- D32.5.1 In addition to the indemnity obligations outlined in C17 of the General Conditions for Construction, the Contractor agrees to indemnify and save harmless the Government of Canada and the Government of Manitoba and each of their respective Ministers, officers, servants, employees, and agents from and against all claims and demands, losses, costs, damages, actions, suit or other proceedings brought or pursued in any manner in respect of any matter caused by the Contractor or arising from this Contract or the Work, or from the goods or services provided or required to be provided by the Contractor, except those resulting from the negligence of any of the Government of Canada's or the Government of Manitoba's Ministers, officers, servants, employees, or agents, as the case may be.
- D32.5.2 The Contractor agrees that in no event will Canada or Manitoba, their respective officers, servants, employees or agents be held liable for any damages in contract, tort (including negligence) or otherwise, for:
- (a) any injury to any person, including, but not limited to, death, economic loss or infringement of rights;
 - (b) any damage to or loss or destruction of property of any person; or
 - (c) any obligation of any person, including, but not limited to, any obligation arising from a loan, capital lease or other long term obligation;

in relation to this Contract or the Work.

D32.6 Records Retention and Audits

- D32.6.1 The Contractor shall maintain and preserve accurate and complete records in respect of this Contract and the Work, including all accounting records, financial documents, copies of contracts with other parties and other records relating to this Contract and the Work during the term of the Contract and for at least six (6) years after Total Performance. Those records bearing original signatures or professional seals or stamps must be preserved in paper form; other records may be retained in electronic form.
- D32.6.2 In addition to the record keeping and inspection obligations outlined in C6 of the General Conditions for Construction, the Contractor shall keep available for inspection and audit at

all reasonable times while this Contract is in effect and until at least six (6) years after Total Performance, all records, documents, and contracts referred to in D32.6.1 for inspection, copying and audit by the City of Winnipeg, the Government of Manitoba and/or the Government of Canada and their respective representatives and auditors, and to produce them on demand; to provide reasonable facilities for such inspections, copying and audits, to provide copies of and extracts from such records, documents, or contracts upon request by the City of Winnipeg, the Government of Manitoba, and/or the Government of Canada and their respective representatives and auditors, and to promptly provide such other information and explanations as may be reasonably requested by the City of Winnipeg, the Government of Manitoba, and/or the Government of Canada from time-to-time.

D32.7 Other Obligations

- D32.7.1 The Contractor consents to the City providing a copy of the Contract Documents to the Government of Manitoba and/or the Government of Canada upon request from either entity.
- D32.7.2 If the Lobbyists Registration Act (Manitoba) applies to the Contractor, the Contractor represents and warrants that it has filed a return and is registered and in full compliance with the obligations of that Act, and covenants that it will continue to comply for the duration of this Contract.
- D32.7.3 The Contractor shall comply with all applicable legislation and standards, whether federal, provincial, or municipal, including (without limitation) labour, environmental, and human rights laws, in the course of providing the Work.
- D32.7.4 The Contractor shall properly account for the Work provided under this Contract and payment received in this respect, prepared in accordance with generally accepted accounting principles in effect in Canada, including those principles and standards approved or recommended from time-to-time by the Chartered Professional Accountants of Canada or the Public Sector Accounting Board, as applicable, applied on a consistent basis.
- D32.7.5 The Contractor represents and warrants that no current or former public servant or public office holder, to whom the Value and Ethics Code for the Public Sector, the Policy on Conflict of Interest and Post Employment, or the Conflict of Interest Act applies, shall derive direct benefit from this Contract, including any employment, payments, or gifts, unless the provision or receipt of such benefits is in compliance with such codes and the legislation.
- D32.7.6 The Contractor represents and warrants that no member of the House of Commons or of the Senate of Canada or of the Legislative Assembly of Manitoba is a shareholder, director or officer of the Contractor or of a Subcontractor, and that no such member is entitled to any benefits arising from this Contract or from a contract with the Contractor or a Subcontractor concerning the Work.

FORM H1: PERFORMANCE BOND
(See D11)

KNOW ALL MEN BY THESE PRESENTS THAT

_____ ,
(hereinafter called the "Principal"), and

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

_____ dollars (\$_____.)

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

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

TENDER NO. 453-2022

2023 Redwood Avenue Reconstruction: Salter Street to Main Street
which is by reference made part hereof and is hereinafter referred to as the "Contract".

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

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

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

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

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

_____ day of _____, 20_____.

SIGNED AND SEALED
in the presence of:

(Witness as to Principal if no seal)

(Name of Principal)

Per: _____ (Seal)

Per: _____

(Name of Surety)

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

FORM H2: LABOUR AND MATERIAL PAYMENT BOND
(See D11)

KNOW ALL MEN BY THESE PRESENTS THAT

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

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

_____ dollars (\$_____)

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

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

TENDER NO. 453-2022

2023 Redwood Avenue Reconstruction: Salter Street to Main Street

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

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

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

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

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

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

_____ day of _____, 20_____.

SIGNED AND SEALED
in the presence of:

(Witness as to Principal if no seal)

(Name of Principal)

Per: _____ (Seal)

Per: _____

(Name of Surety)

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

FORM J: SUBCONTRACTOR LIST
(See D12)

2023 Redwood Avenue Reconstruction: Salter Street to Main Street

<u>Portion of the Work</u>	<u>Name</u>	<u>Address</u>
SURFACE WORKS		
Supply of Materials:		
Concrete		
Asphalt		
Base Course & Sub-Base		
Topsoil, Seed, and Sod		
Pavement Repair Fabric		
Geogrid		
Geotextile Fabric		
Rigid Insulation		
Reinforcing bars, bar mat, dowels, and tie bars		
Installation and Placement:		
Concrete		
Asphalt		
Base Course & Sub-base		
Geogrid & Geotextile Fabric		
Rigid Insulation		
Topsoil, Seed, and Sod		
Temporary Signage		
UNDERGROUND WORKS		
Supply of Materials:		
Pre-cast Concrete Catch Basins, Catch Pits, Manholes, and Concrete Risers		
Sewer Service Pipe and Drainage Connection Pipe		
Catch basin, Catch Pit, & Manhole Frames and Covers		
Land Drainage Sewer Pipe		
Combined Sewer Pipe		

FORM J: SUBCONTRACTOR LIST
(See D12)

2023 Redwood Avenue Reconstruction: Salter Street to Main Street

<u>Portion of the Work</u>	<u>Name</u>	<u>Address</u>
Installation and Placement:		
Pre-cast Concrete Catch Basins, Catch Pits, Manholes, and Concrete Risers		
Catch Basin Leads, Sewer Service Pipe, and Drainage Connection Pipe		
Catch basin, Catch Pit, Manhole Frames & Covers, and Feedermain Chamber Frame & Cover		
Land Drainage Sewer Pipe		
Street Light Renewals - Installation:		

PART E - SPECIFICATIONS

GENERAL

E1. APPLICABLE SPECIFICATIONS AND DRAWINGS

- E1.1 These Specifications shall apply to the Work.
- E1.2 *The City of Winnipeg Standard Construction Specifications* in its entirety, whether or not specifically listed on Form B: Prices, shall apply to the Work.
- E1.2.1 *The City of Winnipeg Standard Construction Specifications* is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/Spec/Default.stm>
- E1.2.2 The version in effect three (3) Business Days before the Submission Deadline shall apply.
- E1.2.3 Further to C2.4(d), Specifications included in the Tender shall govern over *The City of Winnipeg Standard Construction Specifications*.
- E1.3 Bidders are reminded that requests for approval of substitutes as an approved equal or an approved alternative shall be made in accordance with B7. 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 B7.
- E1.4 The following are applicable to the Work:

<u>Specification No.</u>	<u>Specification Title</u>
Appendix 'A'	Concrete Constituent Materials, Mix Design Requirements, and Hot and Cold Weather Concreting

<u>Drawing No.</u>	<u>Drawing Name/Title</u>	<u>Drawing (Original) Sheet Size</u>
P-3555-000	Cover Sheet, Drawing List, & Site Location Map	A1
P-3555-101	Horizontal Geometry: Mainline	A1
P-3555-102	Horizontal Geometry: Intersections	A1
P-3555-103	Concrete Joint Layout	A1
P-3555-104	Signage & Pavement Markings	A1
P-3555-201	Water Main & Water Service Insulation	A1
P-3555-301	Plan & Profile: Salter Street to Sta 2+45	A1
P-3555-302	Plan & Profile: Sta 2+45 to Sta 3+85	A1
P-3555-303	Plan & Profile: Sta 3+85 to 5+25	A1
P-3555-304	Plan & Profile: Sta 5+25 to Main Street	A1
P-3555-305	Plan & Profile: Aikins Street & Charlese Street Intersections	A1
P-3555-401	Cross Sections & Details: Sheet 1	A1
P-3555-402	Cross Sections & Details: Sheet 2	A1
P-3555-403	Details	A1
LD-11335	Underground Works: Drawing Index, Drawing Notes, & Legend	A1
LD-11336	Underground Works: Salter Street to Sta 2+40	A1
LD-11337	Underground Works: Sta 2+40 to 3+80	A1
LD-11338	Underground Works: Sta 3+80 to Charles Street	A1
LD-11339	Underground Works: Charles Street Sewer Works	A1
LD-11340	Underground Works: Charles Street to Main Street: West Sewer Works	A1
LD-11341	Underground Works: Charles Street to Main Street: East Sewer Works	A1
LD-11739	Underground Works: Charles Street to Main Street: Alley Sewer Works	A1

<u>Drawing No.</u>	<u>Drawing Name/Title</u>	<u>Drawing (Original) Sheet Size</u>
13163	Underground Works: Aikins Street: External Point Repair	A1
1-04707-DE-50000-0602 0001	Redwood Reconstruction: Replace Street Lights On Redwood Between Main to Salter	A1

E2. MOBILIZATION AND DEMOBILIZATION PAYMENT

DESCRIPTION

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

SCOPE OF WORK

- E2.4 Further to C12 of the General Conditions, where Mobilization and Demobilization is included as a bid item, it shall consist of the following, as applicable:
- (a) Mobilization shall include, but not be limited to:
 - (i) All activities and associated costs for transportation of the Contractor's personnel, equipment, and operating supplies to the site, and/or sites, and/or between sites;
 - (ii) Establishment of offices, buildings, other necessary general facilities and equipment parking/staging areas for the Contractor's operations at the site or sites;
 - (iii) Premiums paid for performance and payment bonds including coinsurance and reinsurance agreements as applicable;
 - (iv) General cleanup and housekeeping needed maintain a neat and orderly project site(s);
 - (v) Other job related items.
 - (b) Demobilization shall include, but not be limited to:
 - (i) All activities and costs for transportation of personnel, equipment, and supplies not used in the project from the site, and/or sites, and/or between sites;
 - (ii) Disassembly, removal, and site cleanup and restoration of offices, buildings, and other facilities assembled on the site and/or sites;
 - (iii) Repair of access roads, temporary haul roads, and equipment parking areas leaving the project site in the same or better condition than at the start of the project;
 - (iv) General cleanup and housekeeping needed to restore a neat and orderly project site.
- E2.5 Access to the site, equipment parking, and staging areas are limited to that shown on the drawings or as approved by the Contract Administrator.

MEASUREMENT AND PAYMENT

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

E2.6.1 Further to B10, B18, 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 D14 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. PROVISIONAL ITEMS

E3.1 The Provisional Items listed on Form B: Prices are part of the Contract.

E3.2 The Contractor shall not perform Work included in the Provisional Items without prior authorization from the Contract Administrator. All Work included in the Provisional Items will be carried out within the construction areas shown on the Drawings.

E3.3 Notwithstanding C7, the City reserves the right to diminish all or any portion of the items of Work listed in the Provisional Items and no claim shall be made for damages on the grounds of loss of anticipated profit or for any other reason.

E4. CASH ALLOWANCE FOR ADDITIONAL WORK

E4.1 Additional Work may be necessitated due to unforeseen circumstances that may arise during the course of the project due to:

- (a) Additions to the scope of Work by the Contract Administrator, beyond that defined herein.
- (b) Unforeseen underground conditions encountered during performing sewer separation works.

E4.2 A cash allowance has been included on Form B: Prices.

E4.3 The City reserves the right to delete any or all of the Cash Allowance from the Contract if the Work intended to be covered by the Cash Allowance is not required, or if the Works intended are found to be more extensive than the provisional Cash Allowance.

E4.4 Cost of additional work shall be evaluated by the methods outlined in C7.4, and a Change Order prepared by the Contract Administrator. Cost of the Change Order will be paid on the Progress Estimate and deducted from the Cash Allowance. If the valuation of the authorized work exceeds the Value of the Cash Allowance, the Contract Value will be adjusted by the shortfall.

E4.5 Additional services and/or Work will not be initiated for:

- (a) Reasons of lack of performance or errors in execution.
- (b) Scheduling changes initiated by the City, where at least 24 hours' notice is given prior to the Contractors schedule time to be on Site.

- E4.6 Should it be determined that additional material or services are required, the Contract Administrator shall approve the Work, prior to commencement of the additional Work.
- E4.7 Material Mark-Up Factors:
- (a) The base cost is to be the wholesale cost of the material, regardless of the Contractor or Subcontractor supplying the material.
 - (b) In general, the party (Contractor or Subcontractor) supplying the material is the party that purchases the material from a supplier who does not perform any work on Site, unless otherwise determined by the Contract Administrator.
 - (c) Where the Contractor is supplying the material, the mark-up on the material is limited to fifteen percent (15%).
 - (d) Where the Contractor's immediate Subcontractor is supplying the material the total mark-up on the material including all Subcontractors and the Contractor is limited to twenty-five percent (25%)
 - (i) The Subcontractor's mark-up on the material is limited to fifteen percent (15%);
 - (ii) The Contractor's mark-up on the material is limited to ten percent (10%).
 - (e) A Third-Level Subcontractor is a Subcontractor of a Subcontractor of the Contractor.
 - (i) No Third-Level Subcontractors on this project are approved for additional mark-up.
 - (ii) In the event that a Third-Level Subcontractor is utilized, that is not approved for additional mark-up, the Contractor is responsible for coordinating the split of the maximum approved mark-up between the Contractor and Subcontractors.

E5. GEOTECHNICAL REPORT

- E5.1 Further to C3.1, the geotechnical report is provided to aid the Contractor's evaluation of the pavement structure and/or existing soil conditions. The geotechnical report is contained in Appendix 'B'.

E6. PROTECTION OF EXISTING TREES

- E6.1 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) All trees in the boulevard and any additional 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.
 - (i) Where there are extensive roots of mature trees that will need to be removed, the extent of removal shall be reviewed with the Contract Administrator prior to performing the removal. Where needed Urban Forestry will need to review the extent of root removal prior to performing the removal.
 - (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.

E6.2 All damage to existing trees caused by the Contractor's activities shall be repaired to the requirements and satisfaction of the Contract Administrator and the City Forester or his/her designate.

E6.3 No separate measurement or payment will be made for the protection of trees.

E6.4 Except as required in clause E6.1(c) and E6.1(e), Elm trees shall not be pruned at any time between April 1 and July 31.

E7. TREE AND STUMP REMOVAL

DESCRIPTION

E7.1 This specification shall cover the removal of existing bushes, trees or stumps.

E7.2 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 Work as hereinafter specified.

MATERIALS

E7.3 Existing bushes, trees, and stumps to be removed

(a) The existing bushes, trees, and stumps to be removed include, but are not limited to ash, elm, cottonwood, basswood, oak, pine, maple, spruce, etc., all of which may be cut with standard chain saw equipment. The existing trees range from 50 mm to 1,500 mm diameter.

CONSTRUCTION METHODS

E7.4 Prior to commencement of the Work the Contract Administrator shall identify all bushes, trees, and stumps for removal. The Contractor shall cut down only bushes and trees designated to be removed, and grub out all stumps and roots greater than 100 mm diameter.

E7.5 In general, the Contractor shall start at the top of the tree and remove branches or trunks not longer than 2 meters. Trees are to be felled so as to land within the limits of the Works. The Contractor shall load and haul all trees, stumps, roots, logs, brush, rubbish and all other surface litter from the Site and dispose of these materials at an approved disposal Site, acceptable to the Contract Administrator.

E7.6 The Contractor shall take all precautions to prevent damage to structures, adjacent property and to trees and shrubs designated to remain. In the event of damage, the Contractor will be held liable, and shall be required to provide appropriate restoration at his cost, to the satisfaction of the Contract Administrator.

E7.7 Stumps shall be removed to 300 mm below the finished grade. Backfill of the area shall be performed with clean common fill from site or imported materials.

E7.8 Any trees damaged during construction activities shall be examined by a bonded tree care professional and pruned as required. Damaged trees which are not viable shall be replaced by the Contractor at their own cost.

MEASUREMENT AND PAYMENT

E7.9 The removal of existing bushes, trees, and stumps shall be measured on a per tree or per stump basis and paid for at the Contract Unit Price per unit for the "Items of Work" listed below. The amount to be paid shall be the total number of trees or stumps removed in accordance with this specification, accepted and measured by the Contract Administrator.

Items of Work:

Bush Removal

- i. Various lengths and Widths

Tree Removal

- i. 50 mm to 249 mm Diameter
- ii. 250 mm to 500 mm Diameter
- iii. Greater than 500 mm Diameter

Stump Removal

- i. 50 mm to 249 mm Diameter
- ii. 250 mm to 500 mm Diameter
- iii. Greater than 500 mm Diameter

E7.10 Backfill of the area impacted by the stump removal shall be incidental to the Works.

E7.11 The removal of trees, stumps, and bushes less than 50 mm diameter are considered incidental to the Work and no separate measurement or payment will be made.

E8. TRAFFIC CONTROL

E8.1 Further to clauses 3.6, 3.7 and 3.8 of CW 1130:

- (a) Where directed by the Contract Administrator, the Contractor shall construct and maintain temporary asphalt ramps to alleviate vertical pavement obstructions such as manholes and planing drop-offs to the satisfaction of the Contract Administrator. Payment shall be in accordance with CW3410.
- (b) In accordance with the Manual of Temporary Traffic Control on City Streets (MTTC), the Contractor ("Construction Agency" in the Manual) shall be responsible for placing, maintaining and removing the appropriate temporary traffic control devices as specified by the MTTC, the Contract Drawings, Staging Plans and Traffic Management Plans or by the Traffic Management Branch of the City of Winnipeg Public Works Department. The Contractor shall bear all costs associated with the placement of temporary traffic control devices by their own forces or Subcontractor.
- (c) In addition, the Contractor shall be responsible for supplying, removing, placing and maintaining all regulatory signing including but not limited to:
 - (i) Parking restrictions;
 - (ii) Stopping restrictions;
 - (iii) Turn restrictions;
 - (iv) Diamond lane removal;
 - (v) Full or directional closures on a Regional Street;
 - (vi) Traffic routed across a median;
 - (vii) Full or directional closure of a non-regional street where there is a requirement for regulatory signs (turn restrictions, bus stop relocations, etc.) to implement the closure.
- (d) The Contractor shall remove and stockpile any regulatory signage not required during construction such as, but not limited to, parking restrictions, turn restrictions and loading restrictions.

E8.2 Further to E8.1(c) ,the Contractor shall supply regulatory signs as required.

- E8.3 Upon request from the Contract Administrator, the Contractor shall provide records demonstrating that the site has been maintained.
- E8.4 Further to E8.1(c) and E8.1(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.
- E8.5 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.
- E8.6 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.

E9. TRAFFIC MANAGEMENT

- E9.1 Further to clause 3.7 of CW 1130:
- (a) Single lane closures on intersecting and/or adjoining Regional Streets shall only be permitted during non-peak periods when required for construction activities when approved by the Traffic Management Branch. Storage/parking of materials, equipment or vehicles is not permitted on Regional Streets at any time unless approved by the Contract Administrator, in consultation with the Traffic Management Branch.
- E9.1.1 The Contractor shall be permitted to fully close Redwood Avenue for both westbound and eastbound traffic from Salter Street to Main Street for the duration of construction while maintaining a single lane of traffic to cross Redwood Avenue at both Aikins Street and Charles Street as follows:
- (a) Aikins Street shall be maintained as a one-way traffic for the duration of construction flowing southbound from Boyd Avenue to Aberdeen Avenue.
- (b) Charles Street shall be maintained as a one-way traffic for the duration of construction with traffic flowing northbound from Aberdeen Avenue to Boyd Avenue.
- (c) During Phase II: Stage 2 the traffic on both Aikins and Charles Street shall be switched to contra-flow lanes while maintaining the same one-way traffic on each street respectively.
- E9.1.2 Single lane closures will be permitted on Salter Street and Main Street only for tie-in work during off-peak periods upon approval of the Traffic Management Branch.
- (a) Maintain a minimum of two northbound lanes of traffic on Salter Street during the morning peak period (07:00 – 09:00) and during the afternoon peak period (15:00 – 18:00).
- (i) If required during the sewer works tie-in on Salter Street, a single southbound lane closure may be permitted to be closed through morning and afternoon peak periods only upon approval of the Traffic Management Branch.
- (b) Maintain a minimum of three southbound lanes of traffic on Main Street during the morning peak period (07:00 – 09:00) and during the afternoon peak period (15:00 – 18:00).
- (i) Provide a temporary transit landing for the Transit Stop at the Redwood/Main Intersection if the southbound lane is closed during off-peak periods.
- (c) Temporary lane closures are permitted during off-peak periods and shall be no longer than 10 minutes during asphalt planing/paving operations.
- E9.1.3 The Contractor shall be permitted to close the eastbound traffic on Redwood Avenue from Powers Street to Salter Street while performing the Storm Relief Sewer tie-in in the Redwood/Salter intersection. Westbound traffic shall be maintained during this closure.

- (a) Closure of one southbound lane on Salter Street shall be permitted during the Storm Relief Sewer Works during off-peak hours.
- E9.1.4 All pedestrian corridors and crosswalks closures require approval from the Traffic Management Branch. Provide three (3) Working Days notice to the Contract Administrator, who will submit the online request form.
- E9.1.5 Sidewalk renewal work shall be staged to allow pedestrian traffic to flow along one side of Redwood Avenue from Salter Street to Main Street in accordance with D14.
- (a) Sidewalks shall be signed as closed with detour signs on the respective ends at each intersection.
- E9.1.6 Contractor shall maintain pedestrian traffic flow along both Aikins Street and Charles Streets along the side of the road where traffic is flowing for both Phase II: Stage I and Stage II.
- (a) Sidewalks shall be signed as 'Closed' with detour signs on the respective sides of both Aberdeen Avenue and Boyd Avenue.
- E9.1.7 Should the Contractor be unable to maintain pedestrian or vehicular access to a residence or business, he/she shall review the planned disruption with the business or residence and the Contract Administrator, and take reasonable measures to minimize the impact. The Contractor shall provide a minimum of three (3) working days notification to the affected residence or business and the Contract Administrator, prior to disruption of access.
- E9.1.8 Flag persons may be necessary to maintain the flow of traffic during certain work operations.
- E9.1.9 No lane closures will be permitted without the written permission of the Contract Administrator which are subject to the approval of the Traffic Management Branch;
- E9.1.10 Ambulance/emergency vehicle access must be maintained at all times.

E10. REFUSE AND RECYCLING COLLECTION

- E10.1 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 E10.2 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.
- E10.2 Collection Schedule:

Redwood Avenue, from Salter Street to Main Street (select locations)..

Collection Day(s): **Thursday**

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

Common Collection Area: **Front Street Collection for select properties only**
Contractor to relocate bins from Redwood Ave to the nearest adjoining street.

406 Redwood Avenue: Bins to be relocated onto Salter Street south of Redwood Avenue;
362 & 360 Redwood Avenue: Bins to be relocated onto Aikins Street south of Redwood Avenue;
298 Charles Street: Bins to be relocated onto Charles Street south of Redwood Avenue;
287, 285, and 283 Redwood Avenue: Bins to be relocated onto Charles Street north of Redwood Avenue

Redwood Avenue, from Salter Street to Main Street (remaining locations).

Collection Day(s): **Thursday**

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

Common Collection Area: **Respective Alleys on the north and south sides of Redwood Avenue.**

E10.3 Where directed by the Contract Administrator, the Contractor will be responsible for relocating bins to side streets prior to collection time and for returning the bins on collection days in a timely manner once collection has been completed.

E10.4 No measurement or payment will be made for the work associated with this specification.

E11. PEDESTRIAN SAFETY

E11.1 During the project, a temporary snow fence shall be installed around all shafts, excavations for underground works, and along any sharp drop-offs immediately adjacent to a pedestrian walkway. The Contractor shall be responsible for maintaining the snow fence in a proper working condition.

E11.2 No measurement for payment shall be made for this work.

E12. WATER OBTAINED FROM THE CITY

E12.1 Further to clause 3.7 of CW 1120, the Contractor shall pay for all costs, including sewer charges, associated with obtaining water from the City in accordance with the Waterworks and Sewer By-laws.

E13. SURFACE RESTORATIONS

E13.1 Further to clause 3.3 of CW 1130, when Total Performance is not achieved in the year the Contract is commenced, the Contractor shall temporarily repair any Work commenced and not completed to the satisfaction of the Contract Administrator. The Contractor shall maintain the temporary repairs in a safe condition as determined by the Contract Administrator until permanent repairs are completed. The Contractor shall bear all costs associated with temporary repairs and their maintenance.

E14. INFRASTRUCTURE SIGNS

E14. The Contractor shall obtain infrastructure signs from the Traffic Services Sign Shop at 421 Osborne Street. The Contractor shall mount each sign securely to a rigid backing material approved by the Contract Administrator. The Contractor shall fasten each sign to a suitable support and erect and maintain one sign at each street as directed by the Contract Administrator. When the Contract Administrator considers the Work on the street complete, the Contractor shall remove and dispose of the signs and supports. No measurement for payment will be made for performing all operations herein described and all other items incidental to the Work described.

E15. CONCRETE CONSTITUENT MATERIALS, MIX DESIGN REQUIREMENTS, AND HOT AND COLD WEATHER CONCRETING

E15.3 The specification contained in Appendix 'A' – 'Concrete Constituent Materials, Mix Design Requirements, and Hot and Cold Weather Concreting' shall apply to the Work.

E16. CONCRETE TRANSITION SLAB

DESCRIPTION

- E16.1 This specification applies to concrete transition slabs as detailed and at the locations as indicated on the Drawings. This specification shall be read in conjunction with CW3240 and E14.

CONSTRUCTION METHODS

- E16.2 Concrete transition slabs shall be constructed at each tie-ins as indicated on the Drawings.
- E16.3 The transition slab shall be pinned to the existing concrete in accordance with CW 3240.
- E16.4 The concrete header shall be formed to provide a smooth transition for the asphalt overlay that will span from the existing pavement overtop of the new concrete transition slab and meet at the concrete header.
- E16.5 Pavement repair fabric shall be placed over the concrete interface between the new and existing pavements in accordance with CW 3140.

MEASUREMENT AND PAYMENT

- E16.6 Concrete transition slabs will be measured transversely on a length basis, and paid for at the Contract Unit Price per metre for:
- (a) Transition Slab: Concrete to Asphalt Roadway (Plain-dowelled, Type 1)
 - (b) Transition Slab: Concrete to Asphalt/Concrete Roadway (Plain-dowelled, Type 1)
- E16.7 The area of the transition slab will not be deducted from the area measured for the new concrete pavement. However, the thickening of the slab as shown on the detail will be incidental to the installation of the transition slab.

E17. TEMPORARY COMMERCIAL ACCESS

- E17.1 The Temporary Commercial Access on Boyd Avenue shall be constructed as shown on the drawings and will include the following Works:
- (a) Removal of curb and gutter;
 - (b) Excavation of boulevard;
 - (c) Installation of temporary geotextile fabric following CW 3130;
 - (d) Installation of temporary granular following CW 3110;
 - (e) Installation of temporary asphalt approach following CW 3410;
 - (f) Removal of sidewalk following CW 3240;
 - (g) Removal, storage, and reinstallation of chain link fence;
 - (h) Removal, storage, and reinstallation of concrete wheel stops;
 - (i) Renewal of sidewalk following CW 3325;
 - (j) Installation of barrier curb and gutter following CW 3310;
 - (k) Restoration of boulevard with topsoil and sod following CW 3510.
- E17.2 Measurement and Payment
- (a) The Temporary Commercial Approach shall be paid as a lump sum for all Works, except for the items specifically described below, as follows:
 - (i) Temporary Commercial Access
 - (b) Restoration of the concrete curb & gutter, boulevard regrading, sidewalk renewal, and landscape restoration with sod shall be paid under each respective payment item.
 - (c) All other Works shall be incidental to the Temporary Commercial Access.

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 rigid insulation for the following types of frost penetration protection:
- (a) Horizontal installation of rigid insulation in roadway excavations over watermains and water services; and
 - (b) Vertical installation of rigid insulation in sewer excavations.
- E18.2 Rigid insulation shall be installed in accordance with the Drawings and Details contained therein.

MATERIALS

- E18.3 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.
Imperial sheet sizes: 2" X 48" X 96", 2" X 24" X 96", 4" X 24" X 96"
- E18.4 Sand Bedding:
- (a) In accordance with CW 2030 and as shown on the Drawings and Details.

CONSTRUCTION METHODS FOR PIPE UNDER ROADWAY EXCAVATION

- E18.5 Following compaction and preparation of the road sub-grade and prior to the installation of any sub-base material or geotextile material, locate all existing water services and water mains within the roadway excavation limits. Mark locations of centerline of all water services and water mains on the sub-grade surface and stake CL of crossing water services outside of the excavation limits.
- E18.6 Excavate sufficient depth below the road sub-grade surface 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 to the full width of the roadway excavation. Install sand bedding as required to level the surface.
- (a) Stockpile and dispose of excavated material in accordance with CW 3110.
- E18.7 Thickness of insulation shall be 100mm (4") regardless of pipe diameter or depth. If using 50mm (2") thick panels, two 50mm (2") layers shall be placed with staggered joints. Total width of insulation to be as directed by the Contract Administrator in accordance with the detail on the Drawings. Place sufficient full width panels to the minimum width indicated.
- E18.8 Where two water services are in close proximity, place insulation continuously across both water services as directed by the Contract Administrator.
- E18.9 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.
- E18.10 Use full panels of insulation where possible. Where necessary cut insulation panels to obtain coverage to specified lengths. All insulation pieces shall have a minimum of dimension of 300mm in width and length.
- E18.11 Where water services or water mains meet the excavation extents at an angle, cut the insulation such that it meets the excavation extent neatly and evenly.
- E18.12 Place sand leveling course over the insulation to provide a smooth surface for placement of the geotextile fabric.

- E18.13 Monitor and correct any insulation that is displaced during subsequent installation of materials including the geotextiles, geogrids, and initial sub-base materials.
- E18.14 Take appropriate measures to ensure panels are not displaced when installing geotextiles and during granular installation.

CONSTRUCTION METHODS FOR PROTECTION FROM FROST PENETRATION FOR SEWER STRUCTURES

- E18.15 Where directed by the Contract Administrator and following completion of the installation of sewer infrastructure, install 100 mm of rigid insulation vertically within the excavation to limit frost penetration from sewer infrastructure to the adjacent water main or water service.
 - (a) Extend the insulation to the required depth and width as directed by the Contract Administrator. Stagger joints laterally to ensure full coverage if using 50mm (2") thick panels.
 - (b) In general, the insulation shall be placed such that it extends 500mm beyond the extents of the adjacent structure on each side and to a minimum depth of 1.8m below finished grade.
- E18.16 Shape the wall of the excavation such that the insulation will be fully supported across its width. Voids shall not be present between the wall of the excavation and the rigid insulation, unless they are backfilled neatly with sand and free of voids.
- E18.17 Install sand bedding behind the insulation and sand bedding or Type 1 backfill in front of the insulation in small lifts on each side of the rigid insulation such that the insulation is not deformed or displaced.
- E18.18 Backfill the excavation in lifts evenly to ensure that the rigid insulation remains in place and ensure no voids are left around the rigid insulation.

MEASUREMENT AND PAYMENT

- E18.19 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".
 - (a) Pipe Under Roadway Excavation
 - (b) Vertical Insulation between Structures and Water Services or Water Mains.
- E18.20 When placed horizontally, the insulation shall be measured based on the horizontal planar area as measured with the combined 100mm thickness of the insulation even if placed in more than one lift.
- E18.21 When placed vertically, the insulation shall be measured based on the vertical area of insulation installed as measured with the combined 100 mm thickness of the insulation.
- E18.22 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 regardless of whether one or more layers of insulation was installed.
 - (a) Excavation of the roadway subgrade in accordance with E18.5 will not be measured for payment and will be included in the payment for "Watermain and Water Service Insulation".
 - (b) Placement of sand bedding for leveling will not be measured for payment and will be included in the payment for "Watermain and Water Service Insulation".

E19. EXPLORATION OF EXISTING UTILITIES AND SERVICES

- E19.1 General
 - (a) This specification covers the soft-dig exploration of existing buried utilities for the Sewer Separation Works.

- (b) This specification covers the soft-dig exploration of existing buried utilities for the Sewer Separation Works.
- (c) Further to CW 1120, where described below the Contractor shall perform exploratory excavations by soft-dig methods, or other methods suitable to the Contract Administrator, to verify and locate buried utilities and services including, but not limited to: sewers, sewer services, feeder mains, water mains, water services, gas, electrical, and other buried communication cables or ducts.
 - (i) Exploration of existing buried utilities and services shall be performed for all infrastructure along the alignment of the proposed Sewer Separation Works, such as adjacent to new catchbasin/manholes structures, crossing the catch basin leads, crossing the land drainage sewer main, adjacent to Storm Relief Sewer tie-in locations, or where there is potential for the utility to be impacted by the sewer construction Works in general.
 - (ii) Where the existing sanitary sewer main invert is higher than the proposed land drainage sewer profile, the crossing sewer services do not need to be located by soft-dig methods for the trenchless installation of the mainline land drainage sewer.
 - (iii) The 600 Concrete Feedermain on Redwood Avenue, between Charles Street and Main Street, shall be located at both catch basin lead crossing locations to verify the depth of cover and clearances for the catch basin lead trenchless installation.

E19.2 Execution

- (a) The exploration shall be done following all utility locates and a minimum of five (5) Working Days prior to trenchless sewer construction Works commencing.
 - (i) The information obtained will determine if an alternate vertical or horizontal alignment of the proposed sewer may be beneficial to minimize conflicts with the existing utilities or services.
- (b) All proposed dig locations must be clearly identified and reviewed with the Contract Administrator prior to utility exploration Work beginning.
 - (i) The Contract Administrator may request additional exploratory locations as warranted for the proposed Works.
- (c) The Contractor shall arrange for all required utility locations, safety watches and other required notifications.
- (d) The Contractor shall provide a minimum of three (3) Working Days notice to the Contract Administrator prior to conducting utility exposures.
- (e) The Contractor shall request that the Contract Administrator arrange for the required lane closures, which are subject to the approval of the Traffic Management Branch. Once the lane closure is approved, the Contractor shall place the required temporary traffic control in accordance with the Manual of Temporary Traffic Control.
- (f) The Contractor shall use soft-digging equipment (i.e. hydro-excavator) to expose the utility under investigation.
- (g) The Contractor shall record the following information and provide this information to the Contract Administrator in tabular form:
 - (i) Station;
 - (ii) Offset;
 - (iii) Depth below existing grade; and
 - (iv) Elevation if available.
- (h) The Contractor is responsible for backfill and restoration of all soft-dig locations. Contractor to assume soft-dig locations to be within paved roadways.

- (i) Any soft-dig locations performed within the pavement reconstruction area only needs to be restored temporarily or protected appropriately until that portion of work is complete.
- (ii) Backfill soft-dig locations below subgrade with sand and ensure no voids present.
- (iii) Restore pavement at soft-dig locations outside of the reconstruction limits to match the existing pavement structure.

E19.3 Measurement and Payment

- (a) Any exploration of existing utilities and services within the limits of Work along the path of the drive lengths and service connections, whether explicitly shown on the Drawings or not, are the responsibility of the Contractor and are incidental to the cost of the Work.
 - (i) If the vertical profile of the land drainage sewer is required to be lowered to provide clearance from an existing utility:
 - (i) A cost adjustment for lowering the pipe installation depth shall not be considered if the vertical adjustment is less than 600mm.
 - (ii) If the depth of a manhole needs to be adjusted due to the pipe profile changing, the difference in vertical depth of the manhole shall be paid for at the defined unit price for that manhole.

E20. WORKING NEAR FEEDERMAINS

E20.1 Contractors carrying out pavement construction or working in close proximity to the Feedermain shall meet the following conditions and technical requirements.

- (a) Pre-work, Planning and General Execution
 - (i) No work shall commence at the site until the Construction Method Statement has been approved, a pre-construction meeting has been held, and the Feedermain location has been clearly delineated in the field by use of paint, staking/flagging, construction fencing, snow fencing, or other suitable methods.
 - (ii) The Contractor shall ensure that all work crew members understand and observe the requirements of this Specification. Prior to commencement of onsite work, the Contractor shall jointly conduct an orientation meeting with the Contract Administrator and with all superintendents, foremen, and heavy equipment operators to make all workers on site fully cognizant of the limitation of altered loading on the Feedermain, the ramifications of inadvertent damage to the Feedermain and the constraints associated with work in close proximity to the Feedermain.
 - (iii) For traverse crossings of the Feedermain in support of the roadworks activities, designate crossing locations just beyond the construction site and confine equipment crossing the Feedermain at those locations. Reduce equipment speeds to levels that minimize impact loadings.
 - (iv) For construction work activities either longitudinally or transverse to the alignment on the Feedermain, work only with equipment and in the manner stipulated in the approved construction method statement and the requirements noted herein.
 - (v) Subgrade, subbase, and base course construction shall be kept in a rut free condition at all times. Construction equipment is prohibited from crossing the Feedermain if the grade is insufficient to support the equipment without rutting.
 - (vi) Granular material, construction material, soil or other material shall not be stockpiled on the Feedermain or within 5 metres of the Feedermain centerline.
 - (vii) Stage construction such that the Feedermain is not subject to significant asymmetrical loading at any time.
 - (viii) Where work is in proximity to the Feedermain, utilize construction practices and procedures that do not impart excessive vibration loads on the Feedermain or that would cause settlement of the subgrade below the Feedermain.
- (b) Soft-Dig Feedermain

- (i) Perform exploration of feedermain within limits of Work to determine location and depth of cover on the feedermain in accordance with E19.
- (c) Demolition and Excavation
 - (i) Concrete demolition and removal within 3 metres horizontally of the Feedermain shall be completed by saw-cutting and removal, or use of hand-held jackhammers. **Use of machine mounted concrete breakers above the Feedermain shall not be permitted.**
 - (ii) Where there is less than 2.5 metres of cover over the Feedermain, offset the excavator or excavation equipment from the Feedermain a minimum of 2.5 metres from the Feedermain centerline to carry out excavation.
 - (iii) Where there is less than 1.6m of earth cover over the Feedermain and further excavation is required either adjacent to or over the Feedermain, utilize only smooth-edged excavation buckets, soft excavation, or hand excavation techniques.
 - (iv) Excavated materials intended for reuse shall not be dumped within 3.0 meters of the Feedermain but rather shall be carefully bladed into place.
- (d) Subgrade Construction
 - (i) Subgrade compaction within three metres (horizontal) of the Feedermain shall be limited to non-vibratory methods only.
 - (i) Small walk behind vibratory packers will be permitted.
 - (ii) Construction operations shall be staged to minimize the time period between excavation to subgrade and placement of granular subbase materials. Should bare subgrade be left overnight, measures shall be implemented to protect the subgrade against inadvertent travel over it and minimize the impact of wet weather.
 - (iii) Subgrade conditions should be inspected by personnel with competent geotechnical experience (e.g. ability to adequately visually classify soils and competency of subgrade, subbase, and base course materials). In the event of encountering unsuitable subgrade materials above the Feedermain, proposed design revisions shall be submitted to Water and Waste Department's office for review to obtain approval relative to any change in conditions.
- (e) Subbase and Base Course Construction
 - (i) Subbase or base course material shall not be dumped within 3 meters of the Feedermain, but rather shall be carefully bladed into place.
 - (ii) Subbase compaction within 3 meters of the feedermain shall be either carried out by static methods without vibration or with smaller equipment such as hand-held plate packers or smaller roller equipment.

E20.2 Measurement and Payment

- (a) No measurement or payment is applicable to this section as the Work is incidental to the completion of the Works in general.

E21. TEMPORARY SUPPORT OF EXISTING UTILITIES

- E21.1 The size and locations of shafts to facilitate the sewer separation Works are at the discretion of the Contractor. As such it is not known what infrastructure may be impacted by the Contractor's means and methods. This specification addresses some of the potential infrastructure that may be impacted by the Work and the Contractor's responsibility to support it.
- E21.2 Related Specifications include Section E21.5 – The Contractor shall provide support for duct banks, feeder mains, and fibre-optics cables/conduit when excavations/shafts expose or require these utilities to be supported (due to proximity or other reasons).
 - (a) Support of the utilities shall be undertaken to the requirements of the utility owner.
 - (b) Known locations that will require temporary support while performing the Works:
 - (i) Two BellMTS Duct Banks for the Salter/Redwood SRS sewer tie-in.

- (ii) Installation of land drainage sewer infrastructure adjacent to and crossing of the 600 feedermain on Redwood Avenue.
 - (iii) Installation of land drainage sewer infrastructure adjacent to or crossing of the Winnipeg School Division No. 1 Dark fibre-optic cables along both Charles Street and Redwood Avenue.
- (c) The Contractor shall provide temporary support of other existing utilities (including but not limited to water mains, feeder mains, sewer mains, gas mains, electrical or telecommunication conduit), when excavations/shafts expose or place the utility at risk of undermining (due to proximity or other reasons).
 - (i) Support of the impacted utilities shall be undertaken to the requirements of the utility owner. Services and utilities may only be interrupted with the permission of the Contract Administrator and the utility owner.
 - (ii) Where these utilities include buried gas or electrical lines, the Contractor shall contact Manitoba Hydro and follow the Safe Excavation & Safety Watch Guidelines listed at https://www.hydro.mb.ca/safety/pdfs/safe_excavation_safety_watch_guidelines.pdf
- (d) The Contractor shall submit a Temporary Utility Support Plan to the Contract Administrator five (5) Working Days prior to commencing the Work in order to provide time for the impacted utility time to review.

E21.3 Measurement and Payment

- (a) Temporary support of existing utilities to facilitate the sewer separation and associated Works shall be incidental to the relevant Works and not measured for payment.

E21.4 Supply and Installation of Temporary Shoring.

E21.5 The Contractor shall provide support for duct banks, feeder mains, and fibre-optics cables/conduit when excavations/shafts expose or require these utilities to be supported (due to proximity or other reasons).

- (a) Support of the utilities shall be undertaken to the requirements of the utility owner.
- (b) Known locations that will require temporary support while performing the Works:
 - (i) Two BellMTS Duct Banks for the Salter/Redwood SRS sewer tie-in.
 - (ii) Installation of land drainage sewer infrastructure adjacent to and crossing of the 600 feedermain on Redwood Avenue.
 - (iii) Installation of land drainage sewer infrastructure adjacent to or crossing of the Winnipeg School Division No. 1 Dark fibre-optic cables along both Charles Street and Redwood Avenue.
- (c) The Contractor shall provide temporary support of other existing utilities (including but not limited to water mains, feeder mains, sewer mains, gas mains, electrical or telecommunication conduit), when excavations/shafts expose or place the utility at risk of undermining (due to proximity or other reasons).
 - (i) Support of the impacted utilities shall be undertaken to the requirements of the utility owner. Services and utilities may only be interrupted with the permission of the Contract Administrator and the utility owner.
 - (ii) Where these utilities include buried gas or electrical lines, the Contractor shall contact Manitoba Hydro and follow the Safe Excavation & Safety Watch Guidelines listed at https://www.hydro.mb.ca/safety/pdfs/safe_excavation_safety_watch_guidelines.pdf
- (d) The Contractor shall submit a Temporary Utility Support Plan to the Contract Administrator five (5) Working Days prior to commencing the Work in order to provide time for the impacted utility time to review.

E21.6 Measurement and Payment

- (a) Temporary support of existing utilities to facilitate the sewer separation and associated Works shall be incidental to the relevant Works and not measured for payment.

E22. SUPPLY AND INSTALLATION OF TEMPORARY SHORING

E22.1 Description

- (a) This Specification supplements CW 2030 and covers temporary shoring requirements for the Works as required by the Province of Manitoba's "W210 The Workplace Safety Health Act" and "Guideline for Excavation Work".

E22.2 Construction Methods

(a) Excavation

- (i) Remove excavated material from the Site immediately. Excavated material shall not be stockpiled on-site.
- (ii) Stockpiles of materials shall not be stored adjacent to excavations.
- (iii) All Working areas below grade shall be kept adequately and securely supported during and after excavation until the shoring and bracing is in place to prevent loss of ground or injury to any person from falling material.

(b) Safety Around Excavations

- (i) Further to Clause 3.1 of CW 1130, wherein it states "Follow safety requirements of 'W210 The Workplace Safety and Health Act' and 'Guidelines for Confined Entry Work'".
 - (i) Protect public from inadvertent or intentional access to excavations by providing barriers around the excavation while actively working around them.
 - (ii) Whenever an excavation is unattended, the excavation shall be completely covered and provide a free-standing interlocking security fence to surround the excavation generally in accordance with the following:
 - ◆ The fence shall be a free-standing interlocking mesh fence that is a minimum 1.80 metres high with metal support posts legs spaced close enough together so the fence will not sag or collapse.
 - ◆ Interlocking fencing shall be fastened closed when unattended to ensure no inadvertent access is allowed to the excavation that is covered.

(c) Shoring

- (i) The type, strength, and amount of shoring and bracing shall be provided consistent with the nature of the ground surface and subsurface conditions, taking into account proximity to property lines, existing slopes, adjacent utilities, and required depth of excavation.
- (ii) Shoring and bracing shall be spaced and dimensioned such as to prevent loss of support for adjacent utilities, caving, loss of ground, surface settlement, or squeezing of the soil beyond the neat lines of excavation.
 - (i) The shoring shall be free from defects that might impair its strength or suitability for the Work.
 - (ii) Sheeting/shoring and bracing shall conform to the latest revisions of the "Construction Safety Act" of the Department of Labour of the Government of Manitoba and in accordance with Province of Manitoba "W210 The Workplace Safety and Health Act" and "Guidelines for Excavation Work".
- (iii) Submit supporting design calculations and manufacture information as required to facilitate review of the submission for conformance with the Contract Documents.
- (iv) Submit AutoCAD Shop Drawings and design calculations for the shoring/excavation system designed and sealed by a Professional Engineer registered or licensed to practice in the Province of Manitoba and experienced in the structural design of shoring systems.

- (i) The designer of the shoring system shall inspect the system during construction and certify, in writing to the Contract Administrator, that construction is in conformance with the approved design.
- (v) Shoring and bracing shall be installed such that the structure size and wall thickness shown on the shop drawings can be effectively installed and or constructed subsequent to installation of the shoring system.
- (vi) Shoring and bracing shall be designed and installed to prevent settlement and damage to existing structures and utilities. In the event of damage, the Contractor will be held liable, and shall be required to provide appropriate restoration at their own cost, to the satisfaction of the Contract Administrator and the impacted utility owner.
 - (i) The shoring and bracing submission for the tie-in to the Salter Street SRS system shall consider the close proximity and dimensions of the two BellMTS duct banks indicated on the Drawings and as shown in Appendix 'E'.
 - (ii) The shoring design shall include provisions to ensure that the two duct banks are not adversely impacted or disturbed.
 - (iii) The shoring and bracing submission for the feedermain crossings shall ensure that the feedermain is adequately supported during all phases of the Work.
- (vii) Shoring and bracing shall remain in place until it is no longer required to complete the Work.

E22.3 Measurement and Payment

- (a) Shoring required for shafts to complete the Work will be incidental to the components of the Work to which shoring is required. No additional payment will be made for supplying materials and performing all operations herein described and all other items incidental to the Work included in this Specification.

E23. SEWER SEPARATION WORKS

E23.1 Description

- (a) This Specification supplements and amends City of Winnipeg Standard Construction Specification CW 2130 Gravity Sewers, and shall cover the installation of Land Drainage Sewers ranging in diameters from 250 mm to 600 mm.
- (b) Further to Clause 3.4.1 of CW 2130, sewers shall be installed by trenchless methods. Where necessary, tie-ins to existing sewers may be through open cut methods upon approval of the Contract Administrator.

E23.2 Submission

- (a) Submit Flow Control Plan to Contract Administrator three (3) working days prior to performing the sewer tie-in Works.

E23.3 Materials

- (a) Minimum pipe classes indicated on Drawings or within the tender documents represent long term design conditions and loading based on depth of bury. The Contractor shall verify that the pipe class, strength, reinforcing, and joint design of the pipes being installed are suitable for their proposed installation methods and procedures. Design of any pipe to suit installation methods is the responsibility of the Contractor.
- (b) Only use materials on the City of Winnipeg approved products list for the depth and classification of sewer.

E23.4 Construction Methods

- (a) Land drainage sewers shall be installed in accordance with CW 2130.
- (b) Selection of excavation and installation equipment for installation of sewers by trenchless methods shall be the responsibility of the Contractor and shall be made based on expected soil conditions inferred from the geotechnical report (see Appendix 'B').

- (c) All tie-ins to the existing Storm Relief Sewer (SRS) shall be done with the installation of a concrete tees with couplings on the SRS to meet the classification of the depth of bury.
- (d) Flow control and bypass pumping shall be provided in accordance with CW 2140 Part 3.13.
 - (i) Flow control and bypass pumping is anticipated at minimum to be required for the deep tie-in into the Storm Relief Sewer while installing the proposed tees.

E23.5 Measurement and Payment

- (a) Measurement and payment for trenchless sewer construction shall be in accordance with CW 2130 for the diameter, class, bedding, and backfill requirements listed on the Form B with the supplemental items listed below:
 - (i) Excavation, Bedding and Backfill, as described in E26, are incidental to each pay item related to the Sewer Separation Works.
 - (ii) Cost of shaft construction and associated shoring required, as described in E21.5, for the installation of the Works described herein, is incidental to Sewer Separation Works.
 - (iii) Cost of flow control and bypass pumping shall be incidental to the Sewer Separation Works for each tie-in to the Storm Relief Sewer.

E24. CATCH BASIN AND CATCH BASIN LEADS

E24.1 Description

- (a) This Specification supplements and amends City of Winnipeg Standard Construction Specification CW 2130 and shall clarify the installation of catch basin and catch basin leads, which are described in CW 2130 as Sewer Services.

E24.2 Construction Method

- (a) Install new catch basin leads and connect to the new Land Drainage Sewer (LDS) main using tees where shown on the Drawings.
- (b) Install new catch basin leads and connect to the new LDS manholes as shown on the Drawings.
 - (i) Where catch basin leads connect to an LDS manhole the manhole connection shall be installed within 100mm of the invert of the upstream mainline pipe.
 - (ii) The catch basins lead shall be installed following SD-014 – ‘Sewer Service with Alternative “A” Riser’, wherein the catch basin lead is installed at a minimum of 1% slope from the catch basin and then drops at an angle to the depth required for the connection to the manhole stub.
 - (iii) Install a minimum of 600mm long catch basin lead pipe (manhole stub) with a 1% slope for the connection to the LDS manhole and then using appropriate fittings to provide a diagonal connection between the two sections of the catch basin lead.
- (c) Connect new catch basin leads directly to the existing Storm Relief Sewer (SRS) using tees where shown on the Drawings.
- (d) Installation of deep catch basin structures adjacent to feeder main and installation of the catch basin leads crossing below the feeder main by trenchless installation:
 - (i) Verify 1.0 meter of vertical clearance is provided from the underside of the feeder main to the top of the trenchless pipe installation in accordance with Section E20 – Working Near Feeder Mains and Section E21 – Temporary Support of Existing Utilities.
 - (i) If required, adjust depth of deep catch basin structures to match required profile of the catch basin lead.

- E24.3 Provide shoring for installation of deep catch basins in accordance with Section E21.5 – The Contractor shall provide support for duct banks, feeder mains, and fibre-optics cables/conduit

when excavations/shafts expose or require these utilities to be supported (due to proximity or other reasons).

- (a) Support of the utilities shall be undertaken to the requirements of the utility owner.
- (b) Known locations that will require temporary support while performing the Works:
 - (i) Two BellMTS Duct Banks for the Salter/Redwood SRS sewer tie-in.
 - (ii) Installation of land drainage sewer infrastructure adjacent to and crossing of the 600 feedermain on Redwood Avenue.
 - (iii) Installation of land drainage sewer infrastructure adjacent to or crossing of the Winnipeg School Division No. 1 Dark fibre-optic cables along both Charles Street and Redwood Avenue.
- (c) The Contractor shall provide temporary support of other existing utilities (including but not limited to water mains, feeder mains, sewer mains, gas mains, electrical or telecommunication conduit), when excavations/shafts expose or place the utility at risk of undermining (due to proximity or other reasons).
 - (i) Support of the impacted utilities shall be undertaken to the requirements of the utility owner. Services and utilities may only be interrupted with the permission of the Contract Administrator and the utility owner.
 - (ii) Where these utilities include buried gas or electrical lines, the Contractor shall contact Manitoba Hydro and follow the Safe Excavation & Safety Watch Guidelines listed at https://www.hydro.mb.ca/safety/pdfs/safe_excavation_safety_watch_guidelines.pdf
- (d) The Contractor shall submit a Temporary Utility Support Plan to the Contract Administrator five (5) Working Days prior to commencing the Work in order to provide time for the impacted utility time to review.

E24.4 Measurement and Payment

- (a) Temporary support of existing utilities to facilitate the sewer separation and associated Works shall be incidental to the relevant Works and not measured for payment.
 - (i) Supply and Installation of Temporary Shoring.
 - (ii) Provide temporary support for feedermain in accordance with Section E20 – Working Near Feeder mains and Section E21 – Temporary Support of Existing Utilities.
 - (iii) Install cement-stabilized fill around the deep catch basin structures and exposed catch basin leads in accordance with Section E26 – Excavation, Bedding and Backfill as the shoring is being raised incrementally to prevent undermining of the feedermain.

E24.5 Measurement and Payment

- (a) Connection of new catch basin leads to new LDS mainline pipes using tees shall be incidental to the installation of the new LDS pipe in accordance with Section 4.5 of CW 2130.
- (b) Supply and installation of catch basin lead pipes (sewer service) will be measured and paid for in accordance with Section 4.5 of CW 2130.
- (c) Supply and installation of catch basin lead risers (sewer service risers) will be measured and paid for in accordance with Section 4.7 of CW 2130 with the following clarifications:
 - (i) The vertical distance for the sewer service riser, as shown on SD-014 and SD-015, shall be paid in addition to the length of sewer service riser as measured horizontally in Section 4.5 of CW 2130.
- (d) The cost of any shaft and associated shoring required to undertake the Sewer Separation Works described herein is considered incidental to the Works.

E25. REPAIRS TO EXISTING SEWER AND WATER SERVICES

E25.1 Description

- (a) Regrading of existing sewer or water services that conflict with the proposed sewer installation may be necessary.
- (b) To minimize the potential for damaging existing services, sewer and water services shall be located in accordance with Section E19 – Exploration of Existing Utilities and Services prior to trenchless sewer installation and associated construction (shafts or otherwise).

E25.2 Construction

E25.2.1 Where conflicts are found between the proposed Sewer Separation Works and existing services, the services may be regraded at the discretion of the Contract Administrator.

E25.2.2 The Contractor will immediately inform the Contract Administrator of any damage to a utility and cease all Work in the vicinity until direction is provided from the Contract Administrator.

E25.2.3 The Contractor will immediately inform the Contract Administrator of any damage to a water or sewer service and cease all Work in the vicinity. The Contractor shall undertake an investigation to determine the required repairs and undertake the repair to the satisfaction of the Contract Administrator.

E25.2.4 Sewer Service Repair and Replacement

- (a) The regrading or repair of existing 100 mm to 250 mm sewer services shall be done promptly in accordance with CW 2130.
- (b) Contractor shall excavate the existing sewer service line and determine the extent of repair required in order to provide a minimum 1.0% grade and the required clearances from the existing infrastructure.
- (c) Prior to completing the repair or regrading, the Contract Administrator shall approve the renewal limits and document the existing condition of the pipe. If warranted additional sewer service pipe renewal may be warranted.

E25.2.5 Water Service Repair and Replacement

- (a) The Contractor shall first attempt to adjust the water service pipe without cutting into the pipe to reroute it around the new sewer.
- (b) If the water service pipe cannot be adjusted, then the water service pipe shall be repaired as follows:
 - (i) Repair of damaged water service pipes shall be undertaken in accordance with CW 2110. The repair shall comply with the standard City of Winnipeg practice of allowing only one union per service, and fully renewing the remainder of the service to the main or to the curb stop (whichever is shorter). Existing corporation stops, curb stops, and boxes may be reused if in good condition and if compatible with the service pipe.
- (c) The Contract Administrator must be notified if any of the water service piping encountered is not copper.
 - (i) If water services requiring regrading are found to be made of lead, then the service shall be fully renewed with minimum 19 mm copper water services, including new saddle and corporation stop at the main, new curb stop and curb stop box.
 - (ii) Connect new copper water service to existing lead service with a suitable flange copper to lead adapter.
 - (iii) The Contract Administrator will inform the homeowner that their remaining water service is lead and recommend private replacement.

E25.3 Where directed by the Contract Administrator, the Contractor shall install vertical or horizontal insulation in accordance with CW 2110 and Section E18 – Supply and Install Watermain and Water Service Insulation.

E25.4 Measurement and Payment

- (a) Repair or regrading of existing sewer service will be measured and paid for on a per unit basis for regrading up to 1.5 m long and on a linear meter basis for regrading sections of sewer service longer than 1.5 m at the Provisional Contract unit prices for “Regrading of Existing Sewer Service”.
- (b) The replacement of water services including connections shall be measured and paid for on a linear meter basis for each size classification at the Provisional Contract unit prices for “Water Service Replacement”.
 - (i) Connecting to existing water services will be included in the installation of water service piping.
- (c) Supply and installation of new curb stops shall be measured and paid on a unit basis for the same size classifications identified for water service piping and at the Provisional Contract unit prices for “Curb Stop”.
- (d) Supply and installation of new curb stop boxes shall be measured and paid on a unit basis for the same size classifications identified for water service piping and at the Provisional Contract unit prices for “Curb Stop Box”.
- (e) Supply and installation of new corporation stops shall be measured and paid on a unit basis for the same size classifications identified for water service piping and at the Provisional Contract unit prices for “Corporation Stop”.
- (f) No payment will be made for repairs required for damages caused due to Contractor carelessness or as a result of insufficient utility exploration.

E26. EXCAVATION, BEDDING AND BACKFILL

E26.1 General

- (a) This Specification supplements requirements for excavation, bedding and backfill identified in CW 2030.

E26.2 Materials

- (a) Foundation Bedding, Bedding, and Initial Backfill shall be in accordance with CW 2030.
- (b) Cement-stabilized Fill shall be in accordance with CW 2030 and CW 2160.
 - (a) In accordance with Table CW 2160.1, the maximum compressive strength at 28 days shall be no more than 2.5 MPa.
- (c) No frozen materials shall be used for bedding or backfill.

E26.3 Submittals

E26.4 Submit shoring designs to Contract Administrator, in accordance with E21.5 – The Contractor shall provide support for duct banks, feeder mains, and fibre-optics cables/conduit when excavations/shafts expose or require these utilities to be supported (due to proximity or other reasons).

- (a) Support of the utilities shall be undertaken to the requirements of the utility owner.
- (b) Known locations that will require temporary support while performing the Works:
 - (i) Two BellMTS Duct Banks for the Salter/Redwood SRS sewer tie-in.
 - (ii) Installation of land drainage sewer infrastructure adjacent to and crossing of the 600 feedermain on Redwood Avenue.
 - (iii) Installation of land drainage sewer infrastructure adjacent to or crossing of the Winnipeg School Division No. 1 Dark fibre-optic cables along both Charles Street and Redwood Avenue.
- (c) The Contractor shall provide temporary support of other existing utilities (including but not limited to water mains, feeder mains, sewer mains, gas mains, electrical or

telecommunication conduit), when excavations/shafts expose or place the utility at risk of undermining (due to proximity or other reasons).

- (i) Support of the impacted utilities shall be undertaken to the requirements of the utility owner. Services and utilities may only be interrupted with the permission of the Contract Administrator and the utility owner.
 - (ii) Where these utilities include buried gas or electrical lines, the Contractor shall contact Manitoba Hydro and follow the Safe Excavation & Safety Watch Guidelines listed at https://www.hydro.mb.ca/safety/pdfs/safe_excavation_safety_watch_guidelines.pdf
- (d) The Contractor shall submit a Temporary Utility Support Plan to the Contract Administrator five (5) Working Days prior to commencing the Work in order to provide time for the impacted utility time to review.

E26.5 Measurement and Payment

- (a) Temporary support of existing utilities to facilitate the sewer separation and associated Works shall be incidental to the relevant Works and not measured for payment.
- (b) Supply and Installation of Temporary Shoring.

E26.6 Existing Utilities

- (a) Arrange and pay for any required safety watches around existing utilities as per CW 1120.
- (b) The Contractor shall provide temporary support of existing utilities required for the excavation of the shafts. Work on private utilities may not occur without submittal and approval of the Contractor's Temporary Utility Support Plan to the Contract Administrator and with approval from the impacted utility owner.
 - (i) See Section E21 – Temporary Support of Existing Utilities for further requirements.

E26.7 Disposal of Unsuitable or Surplus Excavated Material

- (a) The Contractor is responsible for arranging for a disposal site for all excavated material, and associated Works including transportation and payment of tipping fees.
- (b) There shall be no measurement of surplus soil material disposed of at any disposal site. No additional payment will be made for disposal of surplus soil materials. It shall be considered incidental to the cost of the Work.

E26.8 Foundation and Bedding and Initial Backfill

- (a) Foundation bedding for the bottom of shafts for trenchless installation shall be Type 3 Compacted Fill, in accordance with City of Winnipeg standard detail SD-001 and as shown on the detail on the Drawings.
- (b) Pipe Bedding and Initial Backfill shall be Class B Compacted Sand in accordance with City of Winnipeg standard detail SD-001 and as shown on the detail on the Drawings.

E26.9 Backfill

- (a) 'Modified Class 1 Backfill' shall be used for shafts, around structures, and for open-cut pipe installation following the CW 2030 Part 3.8 and the Detail on the Drawings, wherein the following modifications are required:
 - (i) Compacted or flooded, jetted and tamped Type 1 Fill shall be placed to within one (1.0) meter of the sub-grade.
 - (ii) A minimum of one (1.0) meter below subgrade shall be backfilled with Cement-stabilized Fill.
 - (i) The cement-stabilized fill shall be installed in equal lifts on each side of a structure or pip. The Contractor shall provide sufficient supports to resist uplift of piping or structures due to backfilling activities.
 - (ii) Where 100mm rigid insulation is required to be placed below the subgrade, the cement-stabilized fill shall be either left 100mm below the subgrade or

excavated to allow the insulation to be placed without protruding above the subgrade.

- (iii) If the cement-stabilized fill extends above the sub-grade surface it shall be removed prior to the placement of the geotextile fabric.

E26.9.1 Backfill around structures where indicated on the Drawings with Cement-stabilized Fill to minimize settlement.

- (a) Cement-stabilized fill shall be used for backfill within 1.0m below and to the top of the BellMTS Duct Banks for the SRS tie-in on Salter Street.
- (b) Cement-stabilized fill shall be used for filling around the two deep catch basin structures and exposed catch basin lead pipes adjacent to the feedermain between Charles Street and Main Street.
- (c) Cement-stabilized fill shall be installed in lifts as the shoring is removed in stages.

E26.10 Measurement and Payment

- (a) All costs associated with Excavation, Bedding and Backfill as described herein are incidental to the Work being undertaken including but not limited to installation of the catch basins, catch pits, manholes, catch basin leads (sewer services), drainage connection pipes, replacement of water services, regrading of sewer services, mainline Land Drainage Sewers, and external point repairs.

E27. SALT TOLERANT GRASS SEEDING

DESCRIPTION

E27.1 Further to CW 3520 and CW3540, this specification shall cover sub-grade preparation and the supply and placement of Salt Tolerant Grass Seed.

MATERIALS

E27.2 Salt Tolerant Grass Seed

E27.2.1 Salt Tolerant Grass Seed for regional and collector boulevards, medians and interchange areas shall be a mixture composed of:

- (a) Seventy percent (70%) Fults or Nuttals Alkaligrass (*Puccinellia* spp.), twenty percent (20%) Audubon or Aberdeen Creeping Red Fescue and ten percent (10%) Perennial Ryegrass.

EQUIPMENT

E27.3 Scarification equipment shall be suitable for the area being scarified, shall be capable of scarifying the sub-grade to the specified depth and shall be accepted by the Contract Administrator. For confined areas a toothed bucket may be acceptable. For larger areas tilling equipment may be required.

CONSTRUCTION METHODS

E27.4 Preparation of Existing Grade

E27.4.1 Prior to placing topsoil, in areas to be seeded greater in width than 600mm, prepare the existing sub-grade by scarifying to a minimum depth of 75mm and to a maximum depth of 100mm to the satisfaction of the Contract Administrator.

E27.4.2 Scarification shall consist of breaking up and loosening the sub-grade. No scarification shall occur within the edge of a tree canopy (or drip line).

E27.5 Salt Tolerant Grass Seeding

E27.5.1 Salt Tolerant Grass Seed shall be sown at a rate of 2.2 kilograms per 100 square meters.

MEASUREMENT AND PAYMENT

E27.6 Supply, placement and maintenance of Salt Tolerant Grass Seed will be paid for at the Contract Unit Price per square metre for "Salt Tolerant Grass Seeding", measured as specified herein, which price shall be payment in full for supplying all materials and for completing all operations herein described and all other items incidental to the work included in this Specification. Payment for Salt Tolerant Grass Seeding shall be in accordance with the following:

- (a) Sixty-five (65%) percent of quantity following supply and placement.
- (b) Remaining thirty-five (35%) percent of quantity following termination of the Maintenance Period.

E28. STREET LIGHT RENEWALS

E28.1 The following specifications, Section E29 was provided by Manitoba Hydro and shall be read in concert with Appendix 'F'.

E29. INSTALLATION OF STREET LIGHTING AND ASSOCIATED WORKS

E29.1 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).

E29.2 DESCRIPTION

E29.2.1 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.

E29.3 WORK LOCATIONS

E29.3.1 The proposed street light installation and removals are shown on construction drawings and are as follows:

- (a) Redwood Avenue between Main St and Salter St

E29.4 COORDINATION OF WORK

E29.4.1 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.

E29.4.2 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.

E29.4.3 Manitoba Hydro's CSC will provide the Limits of Approach applicable to the Contractor on the Work Clearance form.

E29.5 ORIENTATION

E29.5.1 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.

E29.6 PRE-CONSTRUCTION MEETING

E29.6.1 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.

E29.6.2 The Contractor's cost to attend this pre-construction meeting shall be incorporated into the unit prices for the work.

E29.7 QUALIFICATIONS AND CERTIFICATION

E29.7.1 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.

E29.7.2 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.

E29.7.3 Manitoba “Safe work” Bulletin M&E010 dated January 5, 2011 regarding Electrician Licenses discusses the requirements for a “Limited Specialized Trade Licence – ‘M-P’ Licence – Power Line”.

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

E29.7.4 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.

E29.7.5 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.

E29.8 REFERENCED STANDARD CONSTRUCTION SPECIFICATIONS

E29.8.1 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”)

E29.8.2 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.

E29.8.3 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.

E29.9 TOOLS, EQUIPMENT AND MATERIALS

E29.9.1 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.

E29.9.2 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

E29.9.3 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.

E29.9.4 Alternative equipment manufacturers may be considered upon request by the Contractor and shall be approved for use by Manitoba Hydro prior to use.

E29.9.5 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.

E29.10 MATERIAL SUPPLIED BY MANITOBA HYDRO

E29.10.1 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:

E29.10.2 Manitoba Hydro Central Stores (contact personnel will be provided to the successful contractor).

E29.10.3 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.

E29.10.4 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.

E29.10.5 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.

E29.11 MATERIAL SUPPLIED BY CONTRACTOR

E29.11.1 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.

E29.12 SURPLUS, RECLAIM AND SCRAP MATERIAL

E29.12.1 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.

E29.12.2 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.

E29.12.3 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.

E29.13 DE-ENERGIZATION AND LOCKOUT

E29.13.1 **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.

E29.13.2 **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.

E29.13.3 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.

E29.14 TEMPORARY OVERHEAD FEEDS

E29.14.1 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.

E29.14.2 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.

E29.14.3 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.

E29.14.4 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.

E29.15 SAFE EXCAVATION

E29.15.1 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.

E29.16 SAFE HANDLING

E29.16.1 The Contractor shall apply handling techniques in accordance with Manitoba Workplace Health and Safety Regulation 217 (latest revision).

E29.17 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.

E29.18 PRECAST CONCRETE BASES

E29.18.1 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.

E29.18.2 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.

E29.19 STREET LIGHT POLES AND ARMS

E29.19.1 The Contractor shall handle, store, transport, and provide proper load securement for the poles and arms in a manner to prevent damage.

E29.20 LUMINAIRES

E29.20.1 The Contractor shall handle, store, transport and unload the luminaires in their original packaging and in a manner to prevent damage.

E29.21 SMALL MATERIAL

E29.21.1 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.

E29.22 CARE OF MATERIALS

E29.22.1 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.

E29.23 WIRE AND CABLE REEL STORAGE

- E29.23.1 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.
- E29.23.2 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.

E29.24 REEL HANDLING

- E29.24.1 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.
- E29.24.2 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.
- E29.24.3 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.
- E29.24.4 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.

E29.25 PRESSURIZED WATER/VACUUM EXCAVATION

- E29.25.1 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.
- E29.25.2 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.

E29.26 REMOVAL STREET LIGHT POLE FROM EXISTING BASE

- E29.26.1 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.
- E29.26.2 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.
- E29.26.3 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.

E29.27 REMOVAL OF BASE AND DIRECT BURIED STREET LIGHT POLE

- E29.27.1 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.

E29.27.2 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.

E29.27.3 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.

E29.28 INSTALLATION OF FOUNDATION - CONCRETE BASE

E29.28.1 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.

E29.28.2 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.

E29.28.3 The concrete base shall be set on a bed of $\frac{3}{4}$ " down limestone. The concrete base backfill material shall be compacted in lifts no more than 150 mm. Backfill material shall be $\frac{3}{4}$ " down limestone. Compacting of backfill material shall be done using a hydraulic tamper. Alternative tamping methods shall be approved by Manitoba Hydro. Underground cables entering the concrete base shall be protected by a length of protective hose supplied by the Contractor and a layer of sand surrounding the cables to protect it from the limestone. The concrete base shall be installed level in all 4 directions. Final grade must be established prior to installing the concrete bases.

E29.28.4 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.

E29.28.5 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.

E29.28.6 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.

E29.29 BASE MOUNTED STREET LIGHT POLES

E29.29.1 This shall include all work required to install the street light pole on the concrete base as set forth in this Specification.

E29.29.2 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.

E29.29.3 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.

E29.29.4 The Contractor shall level the street light pole in all 4 directions. Leveling shims may be used.

E29.29.5 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.

E29.29.6 Unless otherwise specified, excess underground cable and 2C-12 wire shall be left inside the hand hole with the hand hole cover loosely installed.

E29.29.7 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.

E29.30 LUMINAIRES AND ASSOCIATED WIRING

E29.30.1 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.

E29.30.2 The Contractor shall verify the luminaire voltage matches the source voltage as shown on the construction drawings. If luminaire voltage does not match the source voltage, the Contractor shall re-wire the luminaire in accordance with the wiring diagram provided.
NOTE: Not applicable for LED luminaires.

E29.30.3 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.

E29.31 BREAK AWAY BASES

E29.31.1 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.

E29.31.2 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.

E29.32 SPLICING/CONNECTING CABLES

E29.32.1 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.

E29.32.2 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).

E29.33 EXCAVATION

E29.33.1 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.

E29.33.2 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.

E29.34 LAYING CABLES

E29.34.1 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.

E29.34.2 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.

E29.34.3 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.

E29.34.4 During installation, under no circumstance is the cable to be subjected to a bending radius tighter than that detailed in the Standards.

E29.34.5 Where specified in the Standards or on the construction drawings, the Contractor shall install the street light cable in a conduit.

E29.35 INSTALLING CONDUIT AND CABLE BY BORING (HORIZONTAL DIRECTIONAL DRILLING)

E29.35.1 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.

E29.35.2 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.

E29.35.3 Drilling fluids and associated waste materials shall be disposed of in a manner that minimizes environmental effects.

E29.35.4 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.

E29.36 BURIED UTILITY CROSSINGS

E29.36.1 All buried obstructions are not necessarily shown on the reference drawings and the locations of those indicated are approximate only.

E29.36.2 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 utility's 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.

E29.36.3 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.

E29.36.4 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.

E29.37 BENDING CABLES/CONDUITS AND INSTALLATION INTO STANDARDS

E29.37.1 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.

E29.37.2 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.

E29.37.3 Unless otherwise directed, excess underground cable and 2C-12 wire shall be left inside the hand hole with the hand hole cover loosely installed.

E29.38 BACKFILL

E29.38.1 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.

E29.38.2 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.

E29.38.3 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.

E29.38.4 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.

E29.38.5 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.

E29.39 DEFECTIVE WORK & WARRANTY

E29.39.1 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.

E29.39.2 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.

E29.40 AS-BUILT DRAWING

E29.40.1 The Contractor shall provide an as-built drawing or mark-up drawing to Manitoba Hydro which accurately displays the "as-built" location of the buried street light cables, conduits and street light poles.

E29.41 MEASUREMENT AND PAYMENT

E29.41.1 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.

E29.41.2 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.

- E29.41.3 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.
- E29.41.4 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.
- E29.41.5 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.
- E29.41.6 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.
- E29.41.7 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.
- E29.41.8 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.
- E29.41.9 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.
- E29.41.10 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.
- E29.41.11 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.
- E29.41.12 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.
- E29.41.13 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.

- E29.41.14 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.
- E29.41.15 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.
- E29.41.16 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.
- E29.41.17 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.

PART F - SECURITY CLEARANCE

F1. SECURITY CLEARANCE

- F1.1 Each individual proposed to perform the following portions of the Work:
- (a) any Work on private property;
 - (b) any Work within City facilities other than:
 - (i) an underground structure such as a manhole;
 - (ii) in areas and at times normally open to the public;
 - (c) communicating with residents and homeowners in person or by telephone;
- F1.1.1 Each Individual shall be required to obtain a Police Information Check from the police service having jurisdiction at his/her place of residence, or
- (a) Sterling BackCheck – for existing account holders, log into your account to send individual invitations to employees requiring security clearance. For those that do not have an account, click on the following link to open an account: <https://forms.sterlingbackcheck.com/partners/platform2-en.php?&partner=winnipegcity>; or
 - (b) Commissionaires (Manitoba Division), forms to be completed can be found on the website at: <https://www.commissionaires.ca/en/manitoba/home>; or .
 - (c) FASTCHECK Criminal Record & Fingerprint Specialists, forms to be completed can be found on the website at: <https://myfastcheck.com>
- F1.2 The following is a link to information for obtaining the Police Information Check from the City of Winnipeg Police Service. <http://winnipeg.ca/police/pr/PIC.stm>
- F1.2.1 The Police Information Check shall include a Vulnerable Sector Screening. This can be obtained by following the link below <http://winnipeg.ca/police/pr/PIC.stm>
- (a) Individuals will need to state in the form, that they may be working in City of Winnipeg pools, libraries and community centres;
- F1.2.2 The original Police Information Check (Form P–612) will be provided by the Winnipeg Police Service to the individual applicant. The original has a validation sticker from the Winnipeg Police Service in the top right hand corner. The applicant shall:
- (a) Provide the original Police Information Check (Form P–612) to the Contract Administrator.
- F1.3 Prior to the award of Contact, and during the term of the Contract if additional or replacement individuals are proposed to perform Work, the Contractor shall supply the Contract Administrator with a Police Information Check obtained not earlier than one (1) year prior to the Submission Deadline, or a certified true copy thereof, for each individual proposed to perform such Work.
- F1.4 Any individual for whom a Police Information Check is not provided, or for whom a Police Information Check indicates any convictions or pending charges related to property offences or crimes against another person will not be permitted to perform any Work specified in F1.1.
- F1.5 Any Police Information Check obtained thereby will be deemed valid for the duration of the Contract subject to a repeated records search as hereinafter specified.
- F1.6 Notwithstanding the foregoing, at any time during the term of the Contract, the City may, at its sole discretion and acting reasonably, require an updated Police Information Check. Any individual who fails to provide a satisfactory Police Information Check as a result of a repeated Police Information Check will not be permitted to continue to perform any Work specified in F1.1.