



THE CITY OF WINNIPEG

TENDER

TENDER NO. 593-2024B

Construction of North Garage Replacement

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PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

- B1.1 Construction of North Garage Replacement

B2. SUBMISSION DEADLINE

- B2.1 The Submission Deadline is 12:00 noon Winnipeg time, April 11th, 2025.
- B2.2 The Contract Administrator or the Manager of Purchasing may extend the Submission Deadline by issuing an addendum at any time prior to the time and date specified in B2.1.

B3. BIDDERS' CONFERENCE AND SUBMISSION OF REQUESTED REVISIONS TO CONTRACT

- B3.1 Further to C3.1, the Contract Administrator will hold a Bidders' conference at 99 Commerce Drive, Winnipeg, Manitoba R3P 0Y7 at 1:00 p.m. on March 10th, 2025.
- B3.2 The Bidders' Conference will provide an opportunity to clarify the contents of the Tender and give the Bidder an opportunity to ask questions.
- B3.3 The Bidder shall not be entitled to rely on any information or interpretation received at the Bidders' Conference unless that information or interpretation is provided by the Contract Administrator in writing.
- B3.4 Bidders are advised that, further to B18, Bids containing deviations or modifications to the terms of the Contract may be rejected. Further, there will be no commercially confidential meetings for discussion of the terms of the Contract. However, the City requests that Bidders submit, via the Enquiries process in B4, any desired revisions to the terms of the Contract, by inclusion of a blackline of the Contract General or Supplemental Conditions, by a date no later than fourteen (14) Calendar Days before the Submission Deadline. The City shall consider all requested Contract revisions and may, in its sole discretion, modify the terms of the Contract prior to the Submission Deadline via the Addenda process provided in B6.

B4. ENQUIRIES

- B4.1 All enquiries shall be directed to the Contract Administrator identified in D6.1.
- 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 they have received all addenda and is advised to check the MERX website for addenda regularly and shortly before the Submission Deadline, as may be amended by addendum.
- 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 D6.

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 their sole discretion grant approval for the use of a substitute as an “approved equal” or as an “approved alternative”, or may refuse to grant approval of the substitute.

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 they wish 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 their Total Bid Price upon the specified item but may also indicate an alternative price based upon the approved alternative. Such alternatives will be evaluated in accordance with 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/Proposal;
- (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 their own name, their name shall be inserted;

- (b) if the Bidder is a partnership, the full name of the partnership shall be inserted;
- (c) if the Bidder is a corporation, the full name of the corporation shall be inserted;
- (d) if the Bidder is carrying on business under a name other than their own, the business name and the name of every partner or corporation who is the owner of such business name shall be inserted.

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

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.

B10.1.1 Notwithstanding C12.2.3(c), prices on Form B: Prices shall not include the Manitoba Retail Sales Tax (MRST, also known as PST), which shall be extra where applicable.

B10.2 The Bidder shall state a separate price in Canadian funds for each of the following items of Work on Form B: Prices:

- (a) Separate Price - Item No. 1 shall be the amount to be deducted from the lump sum price to change from asphalt to gravel for the parking lot in accordance with Section 01 23 00.01 – Alternatives;
- (b) Separate Price - Item No. 2 shall be the amount to be deducted from the lump sum price to defer one bus wash (external & undercarriage) in accordance with Section 01 23 00.01 – Alternatives;
- (c) Separate Price - Item No. 3 shall be the amount to be deducted from the lump sum price to defer procurement of interior building furniture in accordance with Section 01 23 00.01 – Alternatives.
- (d) Separate Price - Item No. 4 shall be the amount to be deducted from the lump sum price to defer site fencing in accordance with Section 01 23 00.01 – Alternatives.
- (e) Separate Price - Item No. 5 shall be the amount to be deducted from the lump sum price to reduce Bus Storage-Compartment 03 by one half in accordance with Section 01 23 00.01 – Alternatives.
- (f) Separate Price - Item No. 6 shall be the amount to be deducted from the lump sum price to reduce the remaining half of Bus Storage-Compartment 03 (this will defer construction of

the full Bus Storage-Compartment 03) in accordance with Section 01 23 00.01 – Alternatives.

- 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 B19.4 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) WSP Global Inc.
 - (b) Dillon Consulting Limited.

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 their participation in the Tender process or the Work; or
 - (f) has knowledge of confidential information (other than confidential information disclosed by the City in the normal course of the Tender process) of strategic and/or material relevance to the Tender process or to the Work that is not available to other bidders and that could or would be seen to give that Bidder an unfair competitive advantage.
- B12.3 In connection with their 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 their sole discretion, waive any and all perceived, potential or actual Conflicts of Interest. The City's waiver may be based upon such terms and conditions as the City, in their sole discretion, requires to satisfy itself that the Conflict of Interest has been appropriately avoided or mitigated, including requiring the Bidder to put into place such policies, procedures, measures and other safeguards as may be required by and be acceptable to the City, in their sole discretion, to avoid or mitigate the impact of such Conflict of Interest.

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 their sole discretion:

- (a) disqualify a Bidder that fails to disclose a perceived, potential or actual Conflict of Interest of the Bidder or any of their employees proposed for the Work;
- (b) require the removal or replacement of any employees proposed for the Work that has a perceived, actual or potential Conflict of Interest that the City, in their sole discretion, determines cannot be avoided or mitigated;
- (c) disqualify a Bidder or employees proposed for the Work that fails to comply with any requirements prescribed by the City pursuant to B12.4 to avoid or mitigate a Conflict of Interest; and
- (d) disqualify a Bidder if the Bidder, or one of their employees proposed for the Work, has a perceived, potential or actual Conflict of Interest that, in the City's sole discretion, cannot be avoided or mitigated, or otherwise resolved.

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

B13. QUALIFICATION

B13.1 Only Bidders that have been qualified under RFQ No. 593-2024A are eligible to bid on this project. Qualified Bidders in alphabetical order are:

- (a) Bird Construction Group
- (b) Graham Construction and Engineering LP
- (c) PCL Constructors Canada Inc.

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, Purchasing Division website <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 D8).

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, Purchasing Division website at <http://www.winnipeg.ca/matmgt/>).
- (c) Bidders are advised that the Lump Sum Price indicated on Form B: Prices will prevail over the Total Bid Price entered in MERX.

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 [Accessibility Training](#) for anyone that may have any interaction with the public on behalf of the City of Winnipeg.

B13.6 The Bidder shall submit, within five (5) 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 their Bid Submission bid security in the form of a digital bid bond, in the amount of at least ten percent (10%) of the Total Bid Price, and agreement to bond of a company registered to conduct the business of a surety in Manitoba, in Form G1: Bid Bond and Agreement to Bond, available at [Form G1 Bid Bond & Agreement to Bond](#).

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(b).

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 their Bid without penalty at any time 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 there from (pass/fail);
 - (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B13 (pass/fail);
 - (c) Evaluated 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 their Bid or in other information required to be submitted, that they are 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 adjusted, if necessary, as follows:
- (a) if the lowest evaluated responsive Bid submitted by a responsible and qualified Bidder is within the budgetary provision for the Work, no adjustment will be made to the Total Bid Price; or
 - (b) if the lowest evaluated responsive Bid submitted by a responsible and qualified Bidder exceeds the budgetary provision for the Work, the Total Bid Prices of all responsive Bids submitted by responsible and qualified Bidders will be adjusted by deducting item(s) 1 to 8, progressively in the order listed, until a Total Bid Price within the budgetary provision is achieved.
- B18.5 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 their own forces;
 - (d) only one Bid is received; or
 - (e) in the judgment of the Award Authority, the interests of the City would best be served by not awarding a Contract.
- B19.3 If funding for the Work is provided to the City of Winnipeg by the Government of Manitoba and/or the Government of Canada, Bidders are advised that the terms of D34 shall immediately take effect upon confirmation of such funding, regardless of when funding is confirmed.
- B19.4 Where an award of Contract is made by the City, the award shall be made to the qualified Bidder submitting the lowest evaluated responsive Bid, in accordance with B18.

B19.4.1 Following the award of contract, a Bidder will be provided with information related to the evaluation of their Bid upon written request to the Contract Administrator.

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, Purchasing Division website at http://www.winnipeg.ca/matmgt/gen_cond.stm
- C0.2 A reference in the Tender to a section, clause or subclause with the prefix “**C**” designates a section, clause or subclause in the *General Conditions for Construction*.

PART D - SUPPLEMENTAL CONDITIONS

GENERAL

D1. GENERAL CONDITIONS

- D1.1 In addition to the General Conditions for Construction, these Supplemental Conditions are applicable to the Civil Site Works at Winnipeg North Garage Replacement – 100 Oak Point Highway and the associated street work within the City of Winnipeg Right-of-Way on Oak Point Highway and Hyde Avenue.

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 subsequent Contract shall consist of the construction and commissioning of a Transit bus garage building and site works. The garage will have the capacity to park and service two hundred and seven (207) 40 ft equivalent buses (subject to change). The procurement will include all necessary equipment and fixtures for a fully functional parking and servicing garage at the completion of the Contract. The garage is expected to be approximately 26,184 square meters in size. The building will be at minimum LEED Silver certified building.

The major components of the Work are as follows:

- (a) The building:
 - (i) The building is composed of 4 main areas: bus service, bus storage, bus maintenance and an administration area.
 - (ii) Bus service area – Equipped with service feeds for inspection, cleaning and washing of the incoming buses.
 - (iii) Bus storage area – Three segregated compartments of parking space for 207 40 ft equivalent buses.
 - (iv) Bus maintenance and repair area – maintenance and repair bays, management offices, and parts warehouse.
 - (v) Administration area – Management and Dispatcher offices, training and conference rooms, lounge and lunchroom area, amenity facilities, and operation and repairs staff locker rooms.
- (b) Site Remediation – Historically, the property was the location for two deactivated gas stations and a landfill. Soil disposal and mitigation shall be performed following the design directions, municipal and provincial standards;
- (c) Oak Point Highway – Construction of auxiliary lanes within the Oak Point Highway right-of-way including a northbound left turn lane at the north site access and a southbound right turn lane at the Selkirk Avenue site access,
- (d) Hyde Avenue – Reconstruction of Hyde Avenue, which is one of the accesses to the garage site connecting it to Oak Point Highway;
- (e) Staff parking – Parking lot with a capacity of approximately 162 vehicles;
- (f) Off loading and installation Tender 1045-2024 Supply and Delivery of Long Lead Electrical Equipment for Winnipeg's North Garage Replacement Project. The following is a general list of items in the 1045-2024 Supply and Delivery of Long Lead Electrical Equipment for Winnipeg's North Garage Replacement Project:
 - (i) Building Power Transformer

- (ii) Charger Power Transformer
- (iii) 66kV Disconnect Switch and Fuses
- (iv) High Voltage Padmount Type Transformer
- (v) 12.47kV Switchgear SWBD-61
- (vi) Indoor Low Voltage Switchgear SWBD-61
- (vii) Indoor Low Voltage Switchgear SWBD-41

D3.2 The funds available for this Contract are \$145,000,000.00

D3.3 The following shall apply to the Services:

- (a) City of Winnipeg Green Building Policy: New City-Owned Buildings and major additions;
<http://clkapps.winnipeg.ca/DMIS/DocExt/ViewDoc.asp?DocumentTypeId=2&DocId=5989>
- (b) Universal Design Policy
<http://clkapps.winnipeg.ca/DMIS/DocExt/ViewDoc.asp?DocumentTypeId=2&DocId=3604>

D4. SITE INVESTIGATION DUE DILIGENCE AND RISK

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

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

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

D5. DEFINITIONS

D5.1 When used in this Tender:

- (a) “**Supply Chain Disruption**” means an inability by the Contractor to obtain goods or services from third parties necessary to perform the Work of the Contract within the schedule specified therein, despite the Contractor making all reasonable commercial efforts to procure same. Contractors are advised that increased costs do not, in and of themselves, amount to a Supply Chain Disruption;
- (b) “**EMT**” means Electrical Metallic Tubing;
- (c) “**Job Meeting**” shall include Construction Meeting or any meeting when the City is present;
- (d) “**MPI**” means Master Paint Institute;

- (e) **“On-site work”** shall include work within the site property limits necessary to construct the North Transit Garage;
- (f) **“Off-site work”** shall include Civil underground and surface work within the Oak Point Highway and Hyde Avenue Right-of-Ways;
- (g) **“PVC”** means Polyvinyl Chloride;
- (h) **“SSPC”** means Society for Protective Coatings;
- (i) **“ULC”** means Underwriters Laboratories of Canada Inc.;
- (j) **“UPS”** means Uninterruptible Power Supply.

D6. CONTRACT ADMINISTRATOR

D6.1 The Contract Administrator is AECOM Canada ULC, represented by:

Arthur Anderson, C.E.T., CCCA
Contract Administrator

Telephone No. 204 801 7579

Email Address arthur.anderson@aecom.com

D6.2 At the pre-construction meeting, Arthur Anderson will identify additional personnel representing the Contract Administrator and their respective roles and responsibilities for the Work.

D7. CONTRACTOR'S SUPERVISOR

D7.1 At the pre-construction meeting, the Contractor shall identify their designated supervisor and any additional personnel representing the Contractor and their respective roles and responsibilities for the Work.

D8. ACCESSIBLE CUSTOMER SERVICE REQUIREMENTS

D8.1 This specification applies to the Work related to the street work within the City of Winnipeg Right-of-Ways on Oak Point Highway and Hyde Avenue.

D8.2 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.

D8.2.1 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.

D8.2.2 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.

D9. UNFAIR LABOUR PRACTICES

- D9.1 Further to C3.2, the Contractor declares that in bidding for the Work and in entering into this Contract, the Contractor and any proposed Subcontractor(s) conduct their respective business in accordance with established international codes embodied in United Nations Universal Declaration of Human Rights (UDHR) <https://www.un.org/en/about-us/universal-declaration-of-human-rights> International Labour Organization (ILO) [https://www.ilo.org/global/lang--en/index.htm](https://www.ilo.org/global/lang-en/index.htm) conventions as ratified by Canada.
- D9.2 The City of Winnipeg is committed and requires its Contractors and their Subcontractors, to be committed to upholding and promoting international human and labour rights, including fundamental principles and rights at work covered by ILO eight (8) fundamental conventions and the United Nations Universal Declaration of Human Rights which includes child and forced labour.
- D9.3 Upon request from the Contract Administrator, the Contractor shall provide disclosure of the sources (by company and country) of the raw materials used in the Work and a description of the manufacturing environment or processes (labour unions, minimum wages, safety, etc.).
- D9.4 Failure to provide the evidence required under D9.3, may be determined to be an event of default in accordance with C18.
- D9.5 In the event that the City, in its sole discretion, determines the Contractor to have violated the requirements of this section, it will be considered a fundamental breach of the Contract, and the Contractor shall pay to the City a sum specified by the Contract Administrator in writing ("Unfair Labour Practice Penalty"). Such a violation shall also be considered an Event of Default and shall entitle the City to pursue all other remedies it is entitled to in connection with same pursuant to the Contract.
- D9.5.1 The Unfair Labour Practice Penalty shall be such a sum as determined appropriate by the City, having due regard to the gravity of the Contractor's violation of the above requirements, any cost of obtaining replacement goods/ services or rectification of the breach, and the impact upon the City's reputation in the eyes of the public as a result of same.
- D9.5.2 The Contractor shall pay the Unfair Labour Practice Penalty to the City within thirty (30) Calendar Days of receiving a demand for same in accordance with D9.5. The City may also hold back the amount of the Unfair Labour Practice Penalty from payment for any amount it owes the Contractor.
- D9.5.3 The obligations and rights conveyed by this clause survive the expiry or termination of this Contract and may be exercised by the City following the performance of the Work, should the City determine, that a violation by the Contractor of the above clauses has occurred following same. In no instance shall the Unfair Labour Practice Penalty exceed the total of twice the Contract value.

D10. FURNISHING OF DOCUMENTS

- D10.1 Upon award of the Contract, the Contractor will be provided with 'issued for construction' Contract Documents electronically in PDF format, including Drawings in PDF format only.

SUBMISSIONS

D11. AUTHORITY TO CARRY ON BUSINESS

- D11.1 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.

D12. SAFE WORK PLAN

- D12.1 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.
- D12.2 The Safe Work Plan should be prepared and submitted in the format shown in the City's template which is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Purchasing Division website at <http://www.winnipeg.ca/matmgt/Safety/default.stm>
- D12.3 Notwithstanding B13.4 at any time during the term of the Contract, the City may, at their sole discretion and acting reasonably, require an updated COR Certificate or Annual Letter of good Standing. A Contractor, who fails to provide a satisfactory COR Certificate or Annual Letter of good Standing, will not be permitted to continue to perform any Work.

D13. INSURANCE

- D13.1 The City shall provide and maintain the following owner-controlled insurance program to remain in place as outlined below. The City reserves the right to add, delete, revise and redefine insurance requirements and deductibles at any time, at its sole discretion, or as necessitated by market conditions and/or renewal extension of the insurance policies during the term of the Work:
- (a) Wrap-Up Liability insurance in an amount of no less than twenty-five million dollars (\$25,000,000) inclusive per occurrence and twenty-five million dollars (\$25,000,000) general aggregate covering bodily injury, personal injury, property damage and products and completed operations consistent with industry standard insurance wordings. Wrap Up Liability insurance to also include evidence of contractual liability, sudden and accidental pollution liability, and cross liability clause, Manitoba its ministers, officers, employees and agents to be listed as additional insureds.
 - (i) The Contractor shall be responsible for deductible up to \$50,000 for any one loss.
 - (ii) The insurance will be written jointly in the name of The City, Contractor and subcontractors as insureds. Provision of this insurance by the City is not intended in any way to relieve the Contractor from its obligations under the terms of the Contract. Specifically, losses relating to deductibles for insurance, as well as losses in excess of limits of coverage and any risk of loss that is not covered under the terms of the insurance provided by the City remains with the Contractor.
 - (iii) BellMTS, Manitoba Hydro, Shaw, Rogers and Telus shall be shown as additional insureds, if required by contract(s)
 - (iv) Wrap-up Liability insurance shall be maintained from the date of the commencement of the Work until the date of Total Performance of the Work, or unless determined otherwise by The City, and shall include an additional 24 months completed operations coverage which will take affect after the date of Total Performance.
 - (b) All risks course of construction insurance, including equipment breakdown and testing and commissioning, in the amount of one hundred percent (100% of the total Contract Price, written in the name of the Contractor and The City, at all times during the performance of the Work and until the date of Substantial Performance and the completion of all testing and commissioning. The Contractor shall be responsible for minimum deductibles of \$100,000 for all losses except for flood and water damage losses and testing and commissioning subject to \$150,000 deductible.
- D13.2 The Contractor shall provide and maintain the following insurance coverage during the performance of the Work and/or as stated below:

- (a) commercial general liability insurance, in the amount of at least ten million dollars (\$10,000,000.00) inclusive, with The City of Winnipeg added as an additional insured, with a cross-liability clause, such liability policy to also contain contractual liability, unlicensed motor vehicle liability, non-owned automobile liability and products and completed operations, to remain in place at all times during the performance of the Work and throughout the warranty period;
 - (b) Automobile Liability Insurance covering all motor vehicles, owned and operated and used or to be used by the Contractor directly or indirectly in the performance of the Work. The Limit of Liability shall not be less than \$5,000,000 inclusive for loss or damage including personal injuries and death resulting from any one accident or occurrence;
 - (c) Contractors pollution liability insurance in the amount of at least two million dollars (\$2,000,000) with a two million dollar (\$2,000,000) aggregate covering third party injury and property damage claims including clean up costs and transported cargo as a result of pollution conditions arising from the Contractors operations and completed operations. Such policy shall name the City as an additional insured and remain in place for a minimum of twelve (12) months following Total Performance; and
 - (d) all risks property insurance for all equipment, tools, portable toilets and field houses used by the Contractors directly or indirectly in the performance of the Work on the project that may be owned, rented, leased or borrowed.
- D13.3 The Contractor shall provide The City with any information reasonably requested by The City from time to time to enable the insurance specified above in D13.1 to be appropriately underwritten by competent insurers. Such information shall be provided within 14 Calendar Days.
- D13.4 Deductibles shall be borne by the Contractor.
- D13.5 All policies shall be taken out with insurers licensed to carry on business in the Province of Manitoba.
- D13.6 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 C4.1 for the return of the executed Contract Documents, as applicable.
- D13.7 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.

D14. CONTRACT SECURITY

- D14.1 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, [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, [Form H2 Labour and Material Bond](#) , in an amount equal to fifty percent (50%) of the Contract Price.
- D14.1.1 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 D14.1(b).

D14.1.2 Digital bonds failing the verification process will not be considered to be valid and may be determined to be an event of default in accordance with C18.1. If a digital bond fails the verification process, the Contractor may provide a replacement bond (in hard copy or digital format) within seven (7) Calendar Days of the City's request or within such greater period of time as the City in their discretion, exercised reasonably, allows.

D14.1.3 Digital bonds passing the verification process will be treated as original and authentic.

D14.2 The Contractor shall provide the Contract Administrator identified in D6 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.

D14.3 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 D14.1(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.

D15. SUBCONTRACTOR LIST

D15.1 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 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 C4.1 for the return of the executed Contract Documents, if applicable.

D16. DETAILED WORK SCHEDULE

D16.1 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 C4.1 for the return of the executed Contract Documents if applicable.

- (a) Contractor may be permitted or required to adjust the schedule if approval is received from the Contract Administrator following the approval of justifications issued to the City of Winnipeg.

D16.2 The detailed work schedule shall consist of the following:

- (a) a critical path method (C.P.M.) schedule for the Work as referenced in Section 01 32 16 – Construction Progress Schedule;

all acceptable to the Contract Administrator.

D16.3 Further to D16.2(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.

D17. REQUIREMENT FOR SITE ACCESSIBILITY PLAN

- D17.1 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.
- D17.2 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.
- D17.3 The Accessibility Plan may also include figures, sketches, or drawings to demonstrate the proposed plan.
- D17.4 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
- D17.5 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.
- D17.6 Any changes to the Accessibility Plan must be approved by the Contract Administrator.
- D17.7 Upon request from the Contract Administrator, the Contractor shall provide records demonstrating that the site has been maintained.
- D17.8 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

D18. COMMENCEMENT

- D18.1 The Contractor shall not commence any Work until they are in receipt of an award letter from the Award Authority authorizing the commencement of the Work.
- D18.2 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 D11;
 - (ii) evidence of the workers compensation coverage specified in C6.15;
 - (iii) the Safe Work Plan specified in D12;
 - (iv) evidence of the insurance specified in D13;
 - (v) the contract security specified in D14;
 - (vi) the Subcontractor list specified in D15;
 - (vii) the detailed work schedule specified in D16;
 - (viii) the Requirement for Site Accessibility Plan in D17; and
 - (ix) the direct deposit application form specified in D29.
 - (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.
- D18.3 The Contractor shall commence the Work on the Site within fifteen (15) Working Days of receipt of the award letter.
- D18.4 The City intends to award this Contract by June 18th, 2025.

D19. WORKING DAYS

- D19.1 Further to C1.1(tt), the Contract Administrator's determination of whether or not atmospheric and Site conditions are such that a Working Day is deemed to have elapsed may be based at one time on one type of work while at another time a Working Day may be based on another type of work. When more than one type of major work is involved, the quantity of equipment that must be able to work in order to meet the requirements of a Working Day may vary considerably from that specified in the General Conditions.
- D19.2 In the event that incidental work is behind schedule which, in the opinion of the Contract Administrator, should have been or could have been carried out by the Contractor in conjunction with or immediately following work of a major type, the City hereby reserves the right to charge Working Days on the incidental work until such time as it is up to schedule.
- D19.3 When the major type of work involves restoration of the site to the condition it was prior to rainfall, Working Days shall not be charged.
- D19.4 The Contract Administrator will furnish the Contractor with a daily record for each major type of work showing various information concerning the equipment, the time it worked, could have worked and Working Days charged. This report is to be signed each day by an authorized representative of the Contractor.

D20. WORK BY OTHERS

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

- D20.2 Work by others on or near the Site will include but not necessarily be limited to:
- (a) City of Winnipeg Traffic Signals – Traffic Signals Branch will be responsible for installation of traffic signals infrastructure;
 - (b) City of Winnipeg, Water and Waste Department – possible investigation of services, operating watermain valves, emergency repairs to Water and Waste Department infrastructure;
 - (c) City of Winnipeg Traffic Services – instructions for installation of traffic signage locations (in accordance with E6.1 and required line painting;
 - (d) City of Winnipeg Geometrics Branch – various Works on survey monuments;
 - (e) Manitoba Hydro Gas Division – lowering and/or rock wrapping of underground main and services as required; adjustment of impacted gas valves;
 - (f) Manitoba Hydro Underground Power – adjustment of manhole(s) frames and covers as required.

D20.3 Further to D20.1 the Contractor shall cooperate and coordinate all activities with all parties performing required Work by Others. The Contractor must include and accommodate Work by Others identified in D20.2 or additional parties.

D21. SUBSTANTIAL PERFORMANCE

- D21.1 The Contractor shall achieve Substantial Performance by September 1st, 2027.
- D21.2 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 reinspected.
- D21.3 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.

D22. TOTAL PERFORMANCE

- D22.1 The Contractor shall achieve Total Performance by October 30th, 2027.
- D22.2 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 reinspected.
- D22.3 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.

D23. LIQUIDATED DAMAGES

- D23.1 If the Contractor fails to achieve Substantial Performance in accordance with the Contract by the day fixed herein for Substantial Performance, the Contractor shall pay the City three thousand five hundred dollars (\$3,500.00) per Working Day for each and every Working Day following the day fixed herein for Substantial Performance during which such failure continues.
- D23.2 The amount specified for liquidated damages in D23.1 is based on a genuine pre-estimate of the City's damages in the event that the Contractor does not achieve Substantial Performance by the day fixed herein for same.

- D23.3 If the Contractor fails to achieve Total Performance in accordance with the Contract by the day fixed herein for Total Performance, the Contractor shall pay the City one thousand five hundred (\$1,500) per Working Day for each and every Working Day following the day fixed herein for Total Performance during which such failure continues.
- D23.4 The amount specified for liquidated damages in D23.3 is based on a genuine pre-estimate of the City's damages in the event that the Contractor does not achieve Total Performance by the day fixed herein for same.
- D23.5 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

D24. SUPPLY CHAIN DISRUPTION SCHEDULE DELAYS

- D24.1 The City acknowledges that the schedule for this Contract may be impacted by Supply Chain Disruption. Commencement and progress of the Work shall be performed by the Contractor with due consideration to the delivery requirements and schedule identified in the Contract, in close consultation with the Contract Administrator.
- D24.2 If the Contractor is delayed in the performance of the Work by reason of Supply Chain Disruption, 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.
- D24.3 A minimum of seven (7) Calendar Days prior to the commencement of Work, the Contractor shall declare whether a Supply Chain Disruption will affect the start date. The Contractor shall provide sufficient evidence that the delay is directly related to a Supply Chain Disruption, including but not limited to evidence related to availability ordering of Material or Goods, production and/or manufacturing schedules or availability of staff as appropriate.
- D24.4 For any delay related to supply chain disruption 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 D24.3. Failure to provide this notice will result in no additional time delays being considered by the City.
- D24.5 The Work schedule, including the durations identified in D22 to D23 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.
- D24.6 Where Work not previously identified is being carried over solely as a result of delays related to Supply Chain Disruption, 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 Supply Chain Disruption, a partial consideration of the cost of temporary works will be considered by the Contract Administrator.
- D24.7 Any time or cost implications as a result of Supply Chain Disruption and in accordance with the above, as confirmed by the Contract Administrator, shall be documented in accordance with C7.

D25. SCHEDULED MAINTENANCE

- D25.1 The Contractor shall perform the following scheduled maintenance in the manner and within the time periods required by the Specifications:
- (a) Section 32 92 10 – Hydraulic Seeding;
 - (b) Section 32 92 23 – Sodding;
 - (c) Section 32 93 53 – Planting of Trees, Shrubs and Ground Cover.
- D25.2 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

D26. JOB MEETINGS

- D26.1 Regular bi-weekly job meetings will be held at the Site. These meetings shall be organized by the Contractor and 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.
- D26.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever they deem it necessary.
- D26.3 Meetings will be recorded and a meeting summary for each job meeting will be provided and posted by the Contractor.

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

- D27.1 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).

D28. THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA) – QUALIFICATIONS

- D28.1 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 their sole discretion and acting reasonably, require updated proof of compliance, as set out in B13.4.

MEASUREMENT AND PAYMENT

D29. PAYMENT

- D29.1 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.
- D29.2 Notwithstanding C12.9, approval by the City of payment on account of a progress estimate will make the amount of the progress estimate payable. Payment shall be made to the Contractor for the amount approved for a particular progress estimate within thirty (30) Calendar Days of the approval date. Shall the City fail to make payment to the Contractor within this time period, the City shall pay to the Contractor a sum of interest calculated on the unpaid amount from the due date to the date of payment at the prejudgment interest rate determined under section 79 of The Court of King's Bench Act. The Contractor may suspend or terminate this Contract by notice to the City if the City has failed to pay any amount due to Contractor under this Contract, which amount or amounts, either singly or in the aggregate, exceed(s) \$5,000 (except to the extent that such amount is disputed in good faith) and the City does not remedy such failure within 30 Calendar Days of Contractor providing the City with notice to do so.

WARRANTY

D30. WARRANTY

- D30.1 Notwithstanding C13.2, the warranty period shall begin on the date of Substantial Performance and shall expire one (1) year or as indicated in the applicable specification thereafter unless extended pursuant to C13.2.1 or C13.2.2, in which case it shall expire when provided for thereunder.
- D30.2 Notwithstanding C13.2 or D30.1, the warranty period for the works within the City of Winnipeg Right-of-Way including auxiliary lanes on Oak Point Highway and reconstruction of Hyde Avenue shall begin on the date of Substantial 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 their written Appeal Form, in the manner and format set out on the City's Purchasing Website, to the Chief Administrative Officer, and to the Contract Administrator. The Contractor may not raise any other disputes other than the Disputed Matter in their Appeal Form.
- 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.
- D31.5 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.
- D31.6 As these negotiations are not an adjudicative hearing, neither party may have legal counsel present during the negotiations.

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- D31.7 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.
- D31.8 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 D31.7, 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.

INDEMNITY

D32. INDEMNITY

- D32.1 Indemnity shall be as stated in C17.
- D32.2 Notwithstanding C17.1, the Contractor shall save harmless and indemnify the City in the amount of twice the Contract Price or five million dollars (\$5,000,000), to a maximum of twenty million dollars (\$20,000,000.00) whichever is greater, against all costs, damages or expenses arising from actions, claims, demands and proceedings, by whomsoever brought, made or taken as a result of negligent acts or negligent omissions of the Contractor, their Subcontractors, employees or agents in the performance or purported performance of the Work, and more particularly from:
- (a) accidental injury to or death of any person whether retained by or in the employ of the Contractor or not, arising directly or indirectly by reason of the performance of the Work, or by reason of any trespass on or damage to property;
 - (b) damage to any property owned in whole or in part by the City, or which the City by duty or custom is obliged, directly or indirectly, in any way or to any degree, to construct, repair or maintain;
 - (c) damage to, or trespass or encroachment upon, property owned by persons other than the City;
 - (d) any claim for lien or trust claim served upon the City pursuant to The Builders' Liens Act;
 - (e) failure to pay a Workers Compensation assessment, or Federal or Provincial taxes;
 - (f) unauthorized use of any design, device, material or process covered by letters patent, copyright, trademark or trade name in connection with the Work;
 - (g) inaccuracies in any information provided to the City by the Contractor.
- D32.3 Further to C17, The City shall save harmless and indemnify the Contractor in the amount of twice the Contract Price or five million dollars (\$5,000,000), whichever is greater, against all costs, damages or expenses arising from actions, claims, demands and proceedings, by whomsoever brought, made or taken as a result of negligent acts or negligent omissions of the City, their employees or agents in the performance of its obligation under the Contract.
- D32.4 The limits set out in C17.1 shall be exclusive of any insurance proceeds received or which will be received pursuant to policies maintained in accordance with this Contract, or which would have been received if the Contractor had complied with its obligation to insure under this Contract or the terms of any policy of insurance required under this Contract; and shall not apply in cases of gross negligence or wilful misconduct.
- D32.5 The Contractor's obligation to indemnify the City pursuant to C17.1 shall only be triggered in the event that said costs, damages or expenses arising from actions, claims, demands and proceedings, by whomsoever brought, made or taken are brought as a result of negligent acts or omissions of the Contractor, their Subcontractors, employees or agents in the performance or purported performance of the Work; or from breach of this Contract by same; or from wilful misconduct by same.

- D32.6 Notwithstanding C17.1, D31.2 and D31.3, the indemnities under this Contract shall not apply and there shall be no right to claim damages for breach of this Contract, in tort or on any other basis whatsoever, to the extent that loss claimed is:
- (a) for punitive, exemplary or aggravated damages; or
 - (b) for loss of profit (but does not include the parties' rights to payments expressly provided for in this contract), loss of use, loss of production, loss of business, claims of customers or loss of business opportunity.

D33. EVENTS OF DEFAULT

- D33.1 Notwithstanding C19.1:
- (a) If an event of default has occurred, and the Contractor has failed to comply with the curative provisions set out in C18.2, the City may, without process or action at law, do any one or more of the following where doing so is reasonably proportionate with the circumstances of the Contractor's event of default and its impact on the Work, taking into account both parties' duty of good faith contractual performance:
 - (i) withhold or retain the whole or part of any payment;
 - (ii) take the whole of the Work, or any part or parts thereof out of the hands of the Contractor;
 - (iii) demand payment for any amount owed to the City, including amounts paid or costs incurred by the City in connection with the event of default;
 - (iv) terminate the Contract;
- all as more particularly set forth in C19.3 to C19.14 below.

THIRD PARTY AGREEMENTS

D34. FUNDING AND/OR CONTRIBUTION AGREEMENT OBLIGATIONS

- D34.1 Funding for the Work of the Contract is being provided to the City of Winnipeg by the Government of Manitoba and/or the Government of Canada and accordingly, as required by the applicable funding agreements, the following terms and conditions shall apply.
- D34.2 For the purposes of D34:
- (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.
- D34.3 Indemnification By Contractor
- D34.3.1 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.
- D34.3.2 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.

D34.4 Records Retention and Audits

D34.4.1 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.

D34.4.2 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 D34.4.1 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.

D34.5 Other Obligations

D34.5.1 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.

D34.5.2 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.

D34.5.3 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.

D34.5.4 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.

D34.5.5 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.

D34.5.6 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.

D35. ADJUSTMENTS FOR CHANGES IN LAWS, TAXES, OR TARIFFS

- D35.1 Further to C12.4 and subject to C6.13, the Contract Price shall be adjusted if any change in a law or tax imposed under the Excise Act, the Excise Tax Act, the Customs Act, the Customs Tariff, The Mining Tax Act (Manitoba), or The Retail Sales Tax Act (Manitoba), by an act of the Congress of the United States of America, or by Executive Order by the President of the United States under the International Emergency Economic Powers Act of the United States of America or similar legislation:
- (a) occurs after the Submission Deadline;
 - (b) applies to Material; and
 - (c) affects the cost of that Material to the Contractor.
- D35.2 Further to C12.5, if a change referred to in C12.4 occurs, the Contract Price shall be increased or decreased by an amount equal to the amount that is established, by an examination of the relevant records of the Contractor, to be the increase or decrease in the cost incurred that is directly attributable to that change, and which the Contractor has proven to the Contract Administrator represents the minimum amount of increase necessary in order to obtain necessary Material or Plant. For the avoidance of doubt, the Contractor shall be required to provide satisfactory proof that it has investigated alternative options for obtaining equivalent Material or Plant and reducing or eliminating the increase in Contract Price, up to and including entering into purchase agreements with vendors located in other jurisdictions, in order for Contractor to be able to avail itself of the increase in Contract Price permitted under this clause.

PART E - SPECIFICATIONS

GENERAL

E1. APPLICABLE SPECIFICATIONS AND DRAWINGS

- E1.1 These Specifications shall apply to the Work.
- E1.2 These Specifications shall apply to the Civil Site Works at Winnipeg North Garage Replacement – 100 Oak Point Highway and the associated street work within the City of Winnipeg Right-of-Ways on Oak Point Highway and Hyde Avenue.
- E1.3 *The City of Winnipeg Standard Construction Specifications* in their entirety, whether or not specifically listed on Form B: Prices, shall apply to the Civil Site Works at Winnipeg North Garage Replacement – 100 Oak Point Highway and the associated street work within the City of Winnipeg Right-of-Ways on Oak Point Highway and Hyde Avenue.
- E1.3.1 *The City of Winnipeg Standard Construction Specifications* is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Purchasing Division website at <http://www.winnipeg.ca/matmgt/Spec/Default.stm> .
- E1.3.2 The version in effect three (3) Business Days before the Submission Deadline shall apply.
- E1.3.3 Further to C2.4(d), Specifications included in the Tender shall govern over *The City of Winnipeg Standard Construction Specifications*.
- E1.4 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.
- E1.5 The following are applicable to the Work:

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00-F-601	FIRE PROTECTION SCHEMATICS
00-D-101	SITE PLAN- NEW FUELING LANES
00-D-102	ENLARGED SITE PLAN- NEW FUELING LANES
10-D-101	GROUND FLOOR PLAN- SERVICE LANE-COMPRESSED AIR AND CLEANING SYSTEMS LAYOUT
10-D-102	GROUND FLOOR PLAN- SERVICE LANE-FUEL AND DEF
30-D-101	COMPRESSED AIR AND SERVICE PIPING ENLARGED PLAN-REPAIR GARAGE 1 OF 2
30-D-102	COMPRESSED AIR AND SERVICE PIPING ENLARGED PLAN-REPAIR GARAGE 2 OF 2
50-D-601	CENTRAL VACUUM SCHEMATIC
50-D-602	COMPRESSED AIR SCHEMATIC-GENERAL SHOP AIR-690 kPa (100 PSIG)
50-D-603	COMPRESSED AIR SCHEMATIC-TIRE FILL 895 KpA (130 psig) AND DETAILS
50-D-604	DEF SCHEMATIC
50-D-605	DIESEL FUEL SCHEMATIC
50-D-606	GASOLINE SCHEMATIC
50-D-607	INDUSTRIAL SCHEMATIC
50-D-608	LUBRICATION AND COOLANT DISTRIBUTION AND COLLECTION SCHEMATIC

<u>DRAWING NO.</u>	<u>DRAWING NAME / TITLE</u>
50-D-609	WINDSHIELD WASHER FLUID SCHEMATIC
50-D-610	INDUSTRIAL SCHEDULES
G-0002	PROJECT GENERAL NOTES, OVERALL SHEET LIST
E-0001	ELECTRICAL LEGEND, ABBREVIATIONS (1 OF 2)
E-0002	ELECTRICAL LEGEND, ABBREVIATIONS (2 OF 2)
E-0003	ELECTRICAL GENERAL NOTES
E-0050	ELECTRICAL SITE PLAN
E-0051	ELECTRICAL SITE PLAN - PARKING LOT
E-0052	LIGHTING SITE PLAN
E-0053	LIGHTING SITE PLAN - PHOTOMETRIC CALCULATIONS
E-0101	ELECTRICAL DETAILS 1
E-0102	ELECTRICAL DETAILS 2
E-0103	ELECTRICAL DETAILS 3
E-0104	ELECTRICAL DETAILS 4
E-0105	ELECTRICAL DETAILS 5
E-0106	ELECTRICAL DETAILS 6
E-0107	ELECTRICAL DETAILS 7
E-0108	ELECTRICAL DETAILS 8
E-0501	ENLARGED FLOOR PLAN - MAIN ELEC ROOM (ELEC ROOM 01 SP) - POWER AND SYSTEMS
E-0502	ENLARGED FLOOR PLAN - ELECTRICAL ROOM 01 (SV) - POWER AND SYSTEMS
E-1000	SINGLE LINE DIAGRAM 1
E-1001	SINGLE LINE DIAGRAM 2
E-1002	SINGLE LINE DIAGRAM 3
E-1003	SINGLE LINE DIAGRAM 4
E-1004	SINGLE LINE DIAGRAM 5
E-1005	SINGLE LINE DIAGRAM 6
E-2000	GROUND FLOOR KEY PLAN - POWER AND SYSTEMS
E-2001	SECOND FLOOR KEY PLAN - POWER AND SYSTEMS
E-2002	ROOF KEY PLAN - POWER AND SYSTEMS
E-2100	GROUND FLOOR PLAN - STORAGE GARAGE - POWER AND SYSTEMS
E-2101	GROUND FLOOR PLAN - STORAGE GARAGE - POWER AND SYSTEMS - SUPPORT ROOMS - WEST SIDE
E-2102	GROUND FLOOR PLAN - STORAGE GARAGE - POWER AND SYSTEMS - SUPPORT ROOMS - EAST SIDE
E-2103	GROUND FLOOR PLAN - STORAGE GARAGE - POWER AND SYSTEMS - SERVICE LANES - WEST SIDE
E-2104	GROUND FLOOR PLAN - STORAGE GARAGE - POWER AND SYSTEMS - SERVICE LANES - EAST SIDE
E-2105	GROUND FLOOR PLAN - STORAGE GARAGE - POWER AND SYSTEMS - WEST SIDE - AREA 1
E-2106	GROUND FLOOR PLAN - STORAGE GARAGE - POWER AND SYSTEMS - EAST SIDE - AREA 1
E-2107	GROUND FLOOR PLAN - STORAGE GARAGE - POWER AND SYSTEMS - PROTECTED CORRIDOR - WEST & EAST SIDE
E-2108	GROUND FLOOR PLAN - STORAGE GARAGE - POWER AND SYSTEMS - WEST SIDE - AREA 2
E-2109	GROUND FLOOR PLAN - STORAGE GARAGE - POWER AND SYSTEMS - EAST SIDE - AREA 2
E-2110	GROUND FLOOR PLAN - STORAGE GARAGE - POWER AND SYSTEMS - WEST SIDE - AREA 3

<u>DRAWING NO.</u>	<u>DRAWING NAME / TITLE</u>
E-2111	GROUND FLOOR PLAN - STORAGE GARAGE - POWER AND SYSTEMS - EAST SIDE - AREA 3
E-2200	SECOND FLOOR PLAN - STORAGE GARAGE - POWER AND SYSTEMS
E-2201	SECOND FLOOR PLAN - STORAGE GARAGE - POWER AND SYSTEMS - ELECTRICAL AND COMMUNICATION ROOM
E-2202	SECOND FLOOR PLAN - STORAGE GARAGE - POWER AND SYSTEMS - ELECTRICAL ROOM - EAST SIDE
E-2300	GROUND FLOOR PLAN - MAINTENANCE GARAGE - POWER AND SYSTEMS
E-2301	GROUND FLOOR PLAN - MAINTENANCE GARAGE - POWER AND SYSTEMS - FLAT SPOTS
E-2302	GROUND FLOOR PLAN - MAINTENANCE GARAGE - POWER AND SYSTEMS - STORES & PARTS
E-2400	SECOND FLOOR PLAN - MAINTENANCE GARAGE - POWER AND SYSTEMS
E-2600	ROOF FLOOR PLAN - STORAGE GARAGE - POWER AND SYSTEMS- SERVICE LANES - WEST SIDE
E-2601	ROOF FLOOR PLAN - STORAGE GARAGE - POWER AND SYSTEMS- SERVICE LANES - EAST SIDE
E-2602	ROOF FLOOR PLAN - STORAGE GARAGE - POWER AND SYSTEMS- WEST SIDE - AREA 1
E-2603	ROOF FLOOR PLAN - STORAGE GARAGE - POWER AND SYSTEMS- EAST SIDE - AREA 1
E-2604	ROOF FLOOR PLAN - STORAGE GARAGE - POWER AND SYSTEMS- WEST SIDE - AREA 2
E-2605	ROOF FLOOR PLAN - STORAGE GARAGE - POWER AND SYSTEMS- EAST SIDE - AREA 2
E-2606	ROOF FLOOR PLAN - STORAGE GARAGE - POWER AND SYSTEMS- WEST SIDE - AREA 3
E-2607	ROOF FLOOR PLAN - STORAGE GARAGE - POWER AND SYSTEMS- EAST SIDE - AREA 3
E-2608	ROOF FLOOR PLAN - MAINTENANCE GARAGE - POWER AND SYSTEMS - WEST SIDE - AREA 1
E-2609	ROOF FLOOR PLAN - MAINTENANCE GARAGE - POWER AND SYSTEMS - WEST SIDE - AREA 2
E-3000	GROUND FLOOR KEY PLAN - LIGHTING
E-3001	SECOND FLOOR KEY PLAN - LIGHTING
E-3100	GROUND FLOOR PLAN - STORAGE GARAGE - LIGHTING
E-3101	GROUND FLOOR PLAN - STORAGE GARAGE - LIGHTING - SUPPORT ROOMS - WEST SIDE
E-3102	GROUND FLOOR PLAN - STORAGE GARAGE - LIGHTING - SUPPORT ROOMS - EAST SIDE
E-3103	GROUND FLOOR PLAN - STORAGE GARAGE - LIGHTING - SERVICE LANES - WEST SIDE
E-3104	GROUND FLOOR PLAN - STORAGE GARAGE - LIGHTING - SERVICE LANES - EAST SIDE
E-3105	GROUND FLOOR PLAN - STORAGE GARAGE - LIGHTING - WEST SIDE - AREA 1
E-3106	GROUND FLOOR PLAN - STORAGE GARAGE - LIGHTING - EAST SIDE - AREA 1
E-3107	GROUND FLOOR PLAN - STORAGE GARAGE - LIGHTING - PROTECTED CORRIDOR - WEST & EAST SIDE
E-3108	GROUND FLOOR PLAN - STORAGE GARAGE - LIGHTING - WEST SIDE - AREA 2
E-3109	GROUND FLOOR PLAN - STORAGE GARAGE - LIGHTING - EAST SIDE - AREA 2
E-3110	GROUND FLOOR PLAN - STORAGE GARAGE - LIGHTING - WEST SIDE - AREA 3
E-3111	GROUND FLOOR PLAN - STORAGE GARAGE - LIGHTING - EAST SIDE - AREA 3
E-3200	SECOND FLOOR PLAN - STORAGE GARAGE - LIGHTING
E-3201	SECOND FLOOR PLAN - STORAGE GARAGE - LIGHTING - ELECTRICAL ROOM - WEST SIDE
E-3202	SECOND FLOOR PLAN - STORAGE GARAGE - LIGHTING - ELECTRICAL ROOM - EAST SIDE
E-3300	GROUND FLOOR PLAN - MAINTENANCE GARAGE - LIGHTING
E-3301	GROUND FLOOR PLAN - MAINTENANCE GARAGE - LIGHTING - FLAT SPOTS

<u>DRAWING NO.</u>	<u>DRAWING NAME / TITLE</u>
E-3302	GROUND FLOOR PLAN - MAINTENANCE GARAGE - LIGHTING - STORES & PARTS
E-3400	SECOND FLOOR PLAN - MAINTENANCE GARAGE - LIGHTING
E-3500	GROUND FLOOR PLAN - OFFICE - LIGHTING
E-3550	LIGHTING CONTROL RISER
E-3600	LUMINAIRE SCHEDULE (1 OF 2)
E-3601	LUMINAIRE SCHEDULE (2 OF 2)
E-3602	GROUND FLOOR PLAN - OFFICE - LIGHTING - PHOTOMETRIC CALCULATIONS
E-3603	GROUND FLOOR PLAN - STORAGE GARAGE- LIGHTING - PHOTOMETRIC CALCULATIONS
E-3604	GROUND FLOOR PLAN - MAINTENANCE GARAGE- LIGHTING - PHOTOMETRIC CALCULATIONS
E-3605	LIGHTING CALCULATION SUMMARY
E-4000	GROUND FLOOR PLAN - OVERALL GROUNDING LAYOUT
E-4010	GROUNDING DETAILS
E-4200	SECOND FLOOR PLAN - STORAGE GARAGE - GROUNDING LAYOUT
E-4600	GROUNDING RISER DIAGRAM
E-5000	GROUND FLOOR KEY PLAN - FIRE ALARM
E-5001	SECOND FLOOR KEY PLAN - FIRE ALARM
E-5100	GROUND FLOOR PLAN - STORAGE GARAGE - FIRE ALARM
E-5101	GROUND FLOOR PLAN - STORAGE GARAGE - FIRE ALARM - SUPPORT ROOMS - WEST SIDE
E-5102	GROUND FLOOR PLAN - STORAGE GARAGE - FIRE ALARM - SUPPORT ROOMS - EAST SIDE
E-5103	GROUND FLOOR PLAN - STORAGE GARAGE - FIRE ALARM- SERVICE LANES - WEST SIDE
E-5104	GROUND FLOOR PLAN - STORAGE GARAGE - FIRE ALARM- SERVICE LANES - EAST SIDE
E-5105	GROUND FLOOR PLAN - STORAGE GARAGE - FIRE ALARM - WEST SIDE - AREA 1
E-5106	GROUND FLOOR PLAN - STORAGE GARAGE - FIRE ALARM - EAST SIDE - AREA 1
E-5107	GROUND FLOOR PLAN - STORAGE GARAGE - FIRE ALARM - PROTECTED CORRIDOR - WEST & EAST SIDE
E-5108	GROUND FLOOR PLAN - STORAGE GARAGE - FIRE ALARM - WEST SIDE - AREA 2
E-5109	GROUND FLOOR PLAN - STORAGE GARAGE - FIRE ALARM - EAST SIDE - AREA 2
E-5110	GROUND FLOOR PLAN - STORAGE GARAGE - FIRE ALARM - WEST SIDE - AREA 3
E-5111	GROUND FLOOR PLAN - STORAGE GARAGE - FIRE ALARM - EAST SIDE - AREA 3
E-5200	SECOND FLOOR PLAN - STORAGE GARAGE - FIRE ALARM
E-5201	SECOND FLOOR PLAN - STORAGE GARAGE - FIRE ALARM - ELECTRICAL AND COMMUNICATION ROOM - WEST SIDE
E-5202	SECOND FLOOR PLAN - STORAGE GARAGE - FIRE ALARM - ELECTRICAL AND COMMUNICATION ROOM - EAST SIDE
E-5300	GROUND FLOOR PLAN - MAINTENANCE GARAGE - FIRE ALARM
E-5301	GROUND FLOOR PLAN - MAINTENANCE GARAGE - FIRE ALARM - FLAT SPOTS
E-5302	GROUND FLOOR PLAN - MAINTENANCE GARAGE - FIRE ALARM - STORES & PARTS
E-5400	SECOND FLOOR PLAN - MAINTENANCE GARAGE - FIRE ALARM
E-5500	GROUND FLOOR PLAN - OFFICE - FIRE ALARM
E-5501	GROUND FLOOR PLAN - OFFICE - FIRE ALARM - NORTH SIDE
E-5502	GROUND FLOOR PLAN - OFFICE - FIRE ALARM - MIDDLE AREA
E-5503	GROUND FLOOR PLAN - OFFICE - FIRE ALARM - SOUTH SIDE
E-5600	FIRE ALARM RISER DIAGRAM
E-5601	FIRE ALARM ZONE SCHEDULE
E-6000	GROUND FLOOR KEY PLAN - CONDUIT ROUTING

<u>DRAWING NO.</u>	<u>DRAWING NAME / TITLE</u>
E-6001	SECOND FLOOR KEY PLAN - CONDUIT ROUTING
E-6100	GROUND FLOOR PLAN - STORAGE GARAGE - CONDUIT ROUTING
E-6101	GROUND FLOOR PLAN - STORAGE GARAGE - CONDUIT ROUTING - SUPPORT ROOMS - WEST SIDE
E-6102	GROUND FLOOR PLAN - STORAGE GARAGE - CONDUIT ROUTING - SUPPORT ROOMS - EAST SIDE
E-6103	GROUND FLOOR PLAN - STORAGE GARAGE - CONDUIT ROUTING - SERVICE LANES - WEST SIDE
E-6104	GROUND FLOOR PLAN - STORAGE GARAGE - CONDUIT ROUTING - SERVICE LANES - EAST SIDE
E-6105	GROUND FLOOR PLAN - STORAGE GARAGE - CONDUIT ROUTING - WEST SIDE - AREA 1
E-6106	GROUND FLOOR PLAN - STORAGE GARAGE - CONDUIT ROUTING - EAST SIDE - AREA 1
E-6107	GROUND FLOOR PLAN - STORAGE GARAGE - CONDUIT ROUTING - PROTECTED CORRIDOR - WEST & EAST SIDE
E-6108	GROUND FLOOR PLAN - STORAGE GARAGE - CONDUIT ROUTING - WEST SIDE - AREA 2
E-6109	GROUND FLOOR PLAN - STORAGE GARAGE - CONDUIT ROUTING - EAST SIDE - AREA 2
E-6110	GROUND FLOOR PLAN - STORAGE GARAGE - CONDUIT ROUTING - WEST SIDE - AREA 3
E-6111	GROUND FLOOR PLAN - STORAGE GARAGE - CONDUIT ROUTING - EAST SIDE - AREA 3
E-6200	SECOND FLOOR PLAN - STORAGE GARAGE - CONDUIT ROUTING
E-6201	SECOND FLOOR PLAN - STORAGE GARAGE - CONDUIT ROUTING - ELECTRICAL ROOM - WEST SIDE
E-6202	SECOND FLOOR PLAN - STORAGE GARAGE - CONDUIT ROUTING - ELECTRICAL ROOM - EAST SIDE
E-6300	GROUND FLOOR PLAN - MAINTENANCE GARAGE - CONDUIT ROUTING
E-6301	GROUND FLOOR PLAN - MAINTENANCE GARAGE - CONDUIT ROUTING - STORES & PARTS
E-6302	GROUND FLOOR PLAN - MAINTENANCE GARAGE - CONDUIT ROUTING - FLAT SPOTS
E-6303	GROUND FLOOR PLAN - MAINTENANCE GARAGE - CONDUIT ROUTING - NORTH REPAIR BAYS
E-6400	SECOND FLOOR PLAN - MAINTENANCE GARAGE - CONDUIT ROUTING
E-6500	GROUND FLOOR PLAN - OFFICE - CONDUIT ROUTING
E-7000	GROUND FLOOR KEY PLAN - COMMS
E-7001	SECOND FLOOR KEY PLAN - COMMS
E-7100	GROUND FLOOR PLAN - STORAGE GARAGE - COMMS
E-7101	GROUND FLOOR PLAN - STORAGE GARAGE - COMMS - SUPPORT ROOMS - WEST SIDE
E-7102	GROUND FLOOR PLAN - STORAGE GARAGE - COMMS - SUPPORT ROOMS - EAST SIDE
E-7103	GROUND FLOOR PLAN - STORAGE GARAGE - COMMS - SERVICE LANES - WEST SIDE
E-7104	GROUND FLOOR PLAN - STORAGE GARAGE - COMMS - SERVICE LANES - EAST SIDE
E-7105	GROUND FLOOR PLAN - STORAGE GARAGE - COMMS - WEST SIDE - AREA 1
E-7106	GROUND FLOOR PLAN - STORAGE GARAGE - COMMS - EAST SIDE - AREA 1
E-7107	GROUND FLOOR PLAN - STORAGE GARAGE - COMMS - PROTECTED CORRIDOR - WEST & EAST SIDE
E-7108	GROUND FLOOR PLAN - STORAGE GARAGE - COMMS - WEST SIDE - AREA 2
E-7109	GROUND FLOOR PLAN - STORAGE GARAGE - COMMS - EAST SIDE - AREA 2
E-7110	GROUND FLOOR PLAN - STORAGE GARAGE - COMMS - WEST SIDE - AREA 3
E-7111	GROUND FLOOR PLAN - STORAGE GARAGE - COMMS - EAST SIDE - AREA 3
E-7200	SECOND FLOOR PLAN - STORAGE GARAGE - COMMS
E-7201	SECOND FLOOR PLAN - STORAGE GARAGE - COMMS - ELECTRICAL ROOM - WEST SIDE

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<u>DRAWING NO.</u>	<u>DRAWING NAME / TITLE</u>
E-7202	SECOND FLOOR PLAN - STORAGE GARAGE - COMMS - ELECTRICAL ROOM - EAST SIDE
E-7300	GROUND FLOOR PLAN - MAINTENANCE GARAGE - COMMS
E-7301	GROUND FLOOR PLAN - MAINTENANCE GARAGE - COMMS - STORES & PARTS
E-7302	GROUND FLOOR PLAN - MAINTENANCE GARAGE - COMMS - FLAT SPOTS
E-7500	GROUND FLOOR PLAN - OFFICE - COMMS
E-7700	ENLARGED COMMUNICATION PLAN - COMM ROOM (SV)
E-7701	ENLARGED COMMUNICATION PLAN - WALL MOUNTED CABINETS 03 (20-106)
E-7702	ENLARGED COMMUNICATION PLAN - COMMS ROOM (SG) (20-201)
E-7703	ENLARGED COMMUNICATION PLAN - COMMS ROOM (SG) (20-205)
E-7704	ENLARGED COMMUNICATIONS PLAN - ELEC RM 01 (SP) (30-107)
E-7900	COMMS RISER DIAGRAMS 1
E-8000	PANEL SCHEDULES - ELECTRICAL ROOM 01 (SP)
E-8001	PANEL SCHEDULES - ELECTRICAL ROOM 01 (SP)
E-8002	PANEL SCHEDULES - ELECTRICAL ROOM 01 (SP)
E-8003	PANEL SCHEDULES - ELECTRICAL ROOM 01 (SV)
E-8004	PANEL SCHEDULES - MAINTENANCE GARAGE
E-8005	PANEL SCHEDULES - MAINTENANCE GARAGE
E-8006	PANEL SCHEDULES - MAINTENANCE GARAGE
E-8007	PANEL SCHEDULES - OFFICE
E-8008	PANEL SCHEDULES - STORAGE GARAGE
E-8009	PANEL SCHEDULES - STORAGE GARAGE
E-8010	PANEL SCHEDULES - STORAGE GARAGE
E-8011	PANEL SCHEDULES - STORAGE GARAGE
E-8012	PANEL SCHEDULES - STORAGE GARAGE
E-8013	PANEL SCHEDULES - STORAGE GARAGE
E-9000	66 / 12.47KV SUBSTATION SINGLE LINE DIAGRAM
E-9001	66 / 12.47kV SUBSTATION GENERAL ARRANGEMENT
E-9002	66/ 12.47kV SUBSTATION ELEVATION- SECTION A
E-9003	66 / 12.47kV SUBSTATION ELEVATION - SECTION B AND C
E-9050	15kV AND LOW VOLTAGE U/G CABLE AND CONDUIT LAYOUT
E-9051	15kV AND LOW VOLTAGE U/G CABLE AND CONDUIT SECTION DETAILS
E-9052	66 / 12.47KV SUBSTATION CONDUIT LAYOUT
E-9300	66 / 12.47KV SUBSTATION GROUNDING LAYOUT
E-9301	66KV DISCONNECT GROUNDING DETAILS
E-9302	66KV CABLE RISER POLE GROUNDING DETAILS
E-9303	SUBSTATION FENCE GROUNDING
E-9304	GROUNDING GRID CONNECTION DETAILS
E-9305	RELAY AND METERING COMMUNICATION BLOCK DIAGRAM
00-C-001	TOPOGRAPHIC SURVEY PLAN
00-C-002	DEMOLITION & REMOVALS PLAN
00-C-003	HORIZONTAL LAYOUT PLAN 1 OF 2
00-C-004	HORIZONTAL LAYOUT PLAN 2 OF 2
00-C-005	CUT/FILL CONTOUR PLAN 1 OF 2
00-C-006	CUT/FILL CONTOUR PLAN 2 OF 2
00-C-007	PAVEMENT ELEVATION PLAN 1 OF 2
00-C-008	PAVEMENT ELEVATION PLAN 2 OF 2

<u>DRAWING NO.</u>	<u>DRAWING NAME / TITLE</u>
00-C-009	PAVING AND GRADING PLAN 1 OF 2
00-C-010	PAVING AND GRADING PLAN 2 OF 2
00-C-011	PAVEMENT JOINT PLAN 1 OF 2
00-C-012	PAVEMENT JOINT PLAN 2 OF 2
00-C-013	EROSION CONTROL MEASURES
00-C-014	CROSS SECTIONS 1 OF 3
00-C-015	CROSS SECTIONS 2 OF 3
00-C-016	CROSS SECTIONS 3 OF 3
00-C-017	TURNING LANE CONSTRUCTION - NORTHBOUND OAK POINT HIGHWAY
00-C-018	TURNING LANE CONSTRUCTION - SOUTHBOUND OAK POINT HIGHWAY
00-C-019	CONCRETE PAVEMENT CONSTRUCTION - HYDE AVENUE
00-C-020	CONCRETE PAVEMENT CONSTRUCTION - HYDE AVENUE
00-C-021	OAK POINT HIGHWAY TURNING LANES AND HYDE AVENUE - STAGING
00-C-022	CLAY CUTOFF WALL
00-CU-101	SITE SERVICING
00-CU-201	STORMWATER RETENTION BASIN, PLANS, SECTIONS AND DETAILS
00-CU-301	SEWER AND WATER PROFILES SHEET 1
00-CU-302	SEWER AND WATER PROFILES SHEET 2
00-CU-303	SEWER AND WATER PROFILES SHEET 3
00-CU-401	STORMWATER MANAGEMENT PLAN
00-CU-501	SITE UTILITIES DETAILS
00-CU-601	UTILITIES LAYOUT PLAN
00-L-101	LANDSCAPE PLAN
00-L-102	LANDSCAPE PLANTING SHEET 1 OF 2
00-L-103	LANDSCAPE PLANTING SHEET 2 OF 2
00-L-501	LANDSCAPE NOTES, PLANT LIST AND DETAILS
00-L-502	LANDSCAPE DETAILS
TY001	COVER PAGE
TY002	DRAWING LIST
TY003	SYMBOLS AND ABBREVIATIONS
TY100	OUTDOOR EQUIPMENT SITE LAYOUT
TY101	BUILDING KEY PLAN
TY200	GROUND FLOOR - OFFICE AREA - CCTV PLAN
TY201	GROUND FLOOR - STORAGE GARAGE - CCTV PLAN
TY202	GROUND FLOOR - MAINTENANCE GARAGE & PARTS - CCTV PLAN
TY210	SECOND FLOOR - STORAGE GARAGE - CCTV PLAN
TY211	SECOND FLOOR - MAINTENANCE GARAGE - CCTV PLAN
TY300	GROUND FLOOR - OFFICE AREA - IACS & PA PLAN
TY301	GROUND FLOOR - STORAGE GARAGE - IACS & PA PLAN
TY302	GROUND FLOOR - MAINTENANCE GARAGE & PARTS - IACS & PA PLAN
TY310	SECOND FLOOR - STORAGE GARAGE - IACS PLAN
TY400	SECURITY & PA SYSTEMS BLOCK DIAGRAM
TY401	FIBRE ARCHITECTURE DIAGRAM
TY402	CCTV INDOOR RISER DIAGRAM
TY403	ACCESS CONTROL RISER
TY404	INTRUSION DETECTION RISER

<u>DRAWING NO.</u>	<u>DRAWING NAME / TITLE</u>
TY405	PA & INTERCOM SYSTEM INDOOR RISER
TY406	OUTDOOR EQUIPMENT RISER
TY700	TYPICAL CCTV DETAILS 1
TY701	TYPICAL CCTV DETAILS 2
TY702	TYPICAL IACS DETAILS
TY703	TYPICAL TURNSTILE & ADA GATE DETAILS
TY704	TYPICAL PA DETAILS
TY800	RACK ELEVATIONS
TY900	OUTDOOR CABLE AND CONDUIT SCHEDULE
TY2008	FIBRE SPLICING SCHEDULE

E2. SOILS INVESTIGATION REPORT

- E2.1 Further to C3.1, the geotechnical report is provided to aid the Contractor's evaluation of the pavement structure and specific types of contamination in the existing soil conditions. See the list of appendices noted below
- (a) Appendix B Geotechnical Report
 - (b) Appendix C Remediation Report
 - (c) Appendix D City Supplied Report (link to documents to be provided upon request to the Contract Administrator indicated in D6)

GENERAL REQUIREMENTS

E3. OFFICE FACILITIES

- E3.1 The Contractor shall supply office facilities meeting the following requirements:
- (a) Section 01 50 00 – Temporary Facilities and Controls

E4. HAZARDOUS MATERIALS

- E4.1 If asbestos or other hazardous materials are encountered during the Work of the Contract, the Contractor shall stop all work and notify the Contract Administrator immediately. Removal of hazardous materials shall be dealt with by the City and the Contractor shall await further instruction by the Contract Administrator.

E5. PROTECTION OF EXISTING TREES

- E5.1 The Contractor shall take the following precautionary steps to prevent damage from construction activities to existing boulevard trees with the City Right of Way and within the limits of the On-Site Work in which trees are stated to remain:
- (a) The Contractor shall not stockpile materials and soil or park vehicles and equipment on boulevards within 2 metres of trees.
 - (b) Trees identified to be at risk by the Contract Administrator are to be strapped with 25 x 100 x 2400mm wood planks, or suitably protected as approved by the Contract Administrator.
 - (c) Excavation shall be performed in a manner that minimizes damage to the existing root systems. Where possible, excavation shall be carried out such that the edge of the excavation shall be a minimum of 1.5 times the diameter (measured in inches), with the outcome read in feet, from the closest edge of the trunk. Where roots must be cut to facilitate excavation, they shall be pruned neatly at the face of excavation.
 - (d) Operation of equipment within the dripline of the trees shall be kept to the minimum required to perform the work required. Equipment shall not be parked, repaired, refuelled;

construction materials shall not be stored, and earth materials shall not be stockpiled within the driplines of trees. The dripline of a tree shall be considered to be the ground surface directly beneath the tips of its outermost branches. The Contractor shall ensure that the operations do not cause flooding or sediment deposition on areas where trees are located.

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

E5.2 All damage to existing trees caused by the Contractor's activities shall be repaired to the requirements and satisfaction of the Contract Administrator and the City Forester or their designate.

E5.3 No separate measurement or payment will be made for the protection of trees.

E5.4 Elm trees shall not be pruned at any time between April 1 and July 31.

E6. TRAFFIC CONTROL

E6.1 This specification relates to the associated street work within City of Winnipeg Rights-of-Way including the auxiliary lanes on Oak Point Highway and reconstruction of Hyde Avenue. Further to 3.6, 3.7 and 3.8 of CW 1130:

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

E6.2 Upon request from the Contract Administrator, the Contractor shall provide records demonstrating that the site has been maintained.

E6.3 Further to E6.1(c) and E6.1(d) the Contractor shall make arrangements with the Traffic Services Branch of the City of Winnipeg to reinstall the permanent regulatory signs after the Contract

Work is complete. The Contractor shall make arrangements to drop off the stockpiled materials to Traffic Services at 495 Archibald Street.

E6.4 Any changes to the approved Traffic Management Plan must be submitted to the Contract Administrator a minimum of five (5) Working Days prior to the required change for approval.

E6.5 If the Contract Administrator determines that the Contractor is not performing Traffic Control in accordance with this specification, Traffic Services may be engaged to perform the Traffic Control. In this event the Contractor shall bear costs charged to the project by the Traffic Services Branch of the City of Winnipeg in connection with the required Works.

E7. TRAFFIC MANAGEMENT

E7.1 Further to 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.

E8. PEDESTRIAN SAFETY

E8.1 During the Work on Oak Point Highway and Hyde Avenue within City of Winnipeg Right-of-Ways, a temporary snow fence shall be installed adjacent to excavations. The Contractor shall be responsible for maintaining the snow fence in a proper working condition. No measurement for payment shall be made for this Work as it is incidental to the Contract Price.

E9. WATER OBTAINED FROM THE CITY

E9.1 Further to 3.7 of CW 1120, the Contractor shall pay for all costs, including sewer charges, associated with obtaining water from the City in accordance with the Waterworks and Sewer By-laws.

E10. SURFACE RESTORATIONS

E10.1 This specification relates to the associated street work within the City of Winnipeg Right-of-Ways on Oak Point Highway and Hyde Avenue.

E10.2 Further to 3.3 of CW 1130, when Total Performance is not achieved in the year the Contract is commenced, the Contractor shall temporarily repair any Work commenced and not completed to the satisfaction of the Contract Administrator. The Contractor shall maintain the temporary repairs in a safe condition as determined by the Contract Administrator until permanent repairs are completed. The Contractor shall bear all costs associated with temporary repairs and their maintenance.

E11. MIX DESIGN PROPORTION

E11.1 General

E11.1.1 Further to CW 3310-R18, this Specification covers the mix proportion for all concrete types related to the construction of Portland Cement Concrete pavements, curbs, gutters, private approaches, bull-noses, median slabs, medians, safety medians and boulevard splash strips, sidewalks and other related concrete works.

E11.2 Referenced Standard Construction Specifications

(a) CW 3310 – Portland Cement Concrete Pavement Works.

E11.3 Mix Design

E11.3.1 Further to CW 3310-R18 Table CW 3310.5, the minimum cementitious contents shall be as follows:

- Type 1 - 380 kg/m³
- Type 2 - 360 kg/m³
- Type 3 - 380 kg/m³
- Type 4 - 380 kg/m³
- Type 5 - 340 kg/m³
- Type 6 - 360 kg/m³

E11.4 Requirements

E11.4.1 The Mix Design Statements for all the concrete shall be submitted to the City of Winnipeg, Research and Standards Engineer for approval.

E11.5 Quality Assurance

E11.5.1 The Contract Administrator shall ensure the frequency and number of quality assurance tests in accordance with CW 3310.

E12. ASPHALT SPECIAL PROVISION

E12.1 All asphalt shall be in accordance with Special Provision for Asphalt Pavement Works as Per Appendix A.

E13. STRAW ROLL DITCH CHECK

E13.1 Description

- (a) This section outlines the requirements for all operations related to the supply and placement of straw roll ditch checks.

E13.2 Materials

- (a) The straw roll shall consist of straw or wood fibre that has been compressed and stuffed into a biodegradable polyester or plastic netting. The straw or wood fibre roll shall be a minimum of 305 mm in diameter.
- (b) The straw roll shall be anchored with wooden stakes having a 50 mm x 50 mm cross section and a minimum length of 600 mm. Stakes shall have a maximum spacing along the roll of 1200 mm.

E13.3 Submittals

- (a) The Contractor shall submit all manufacturers' product specifications and recommended installation methods for the proposed Straw Roll Ditch Checks and associated materials to the Contract Administrator.

E13.4 Construction Methods

- (a) General
- (i) Installation of the straw roll ditch checks shall conform to the Manufacturer's recommendations and as accepted by the Contract Administrator.
 - (ii) The straw roll shall be anchored (through the netting only) with wooden stakes on the downstream side of the roll with a maximum stake spacing of 1200 mm.

E13.5 Maintenance

- (a) The Contractor shall maintain the temporary ditch checks until they are no longer necessary. Maintenance consists of keeping the devices functioning effectively. The

Contractor shall repair or correct plugged, displaced, damaged, or non-functioning devices to the satisfaction of the Contract Administrator.

E13.6 Measurement and Payment

(a) Straw Roll Ditch Checks

- (i) The supply and placement of Straw Roll Ditch checks shall be measured on a linear measure basis and shall be paid for at the Contract Unit Price per metre for "Supply and Placement of Straw Roll ditch Checks" which shall be payment in full for completing all operations herein described and all other items incidental to the Work.
- (ii) Maintenance is considered incidental to supply and installation of straw roll ditch checks and no separate measurement or payment will be made.

E14. EROSION CONTROL BLANKET (ECB)

E14.1 Description

- (a) This specification shall cover the supply, installation, and maintenance of Erosion Control Blanket (ECB) to be installed as directed by the Contract Administrator.

E14.2 Materials

- (a) ECB shall be a machine-produced mat of 100% agricultural straw with a functional longevity of up to 12 months. Suitable products include S32 by Erosion Control Blanket, or approved equivalent.
- (b) The blanket shall be of consistent thickness with the straw evenly distributed over the entire area of the mat. The blanket shall be covered on the top and bottom sides with lightweight photodegradable polypropylene netting having ultraviolet additives to delay breakdown and a maximum 1.27 x 1.27 cm mesh. The blanket shall be sewn together on 3.81 cm centres (maximum) with degradable thread.
- (c) ECB shall have the following properties:
 - (i) Matrix 100% straw fibre 0.27 kg/m².
 - (ii) Netting top and bottom lightweight photodegradable (0.73 kg/100 m²).
 - (iii) Degradable thread.

E14.3 Submittals

- (a) The Contractor shall submit all manufacturers' product specifications and recommended installation methods for the proposed ECB's and associated materials to the Contract Administrator.

E14.4 Construction Methods

(a) General

- (i) The Contractor shall supply, install and maintain all ECB's as directed by the Contract Administrator. Seeding shall be placed on the existing or final grade prior to placement of the ECB in accordance with seeding specifications.
- (ii) Actual alignment and location of the ECB may be adjusted in the field by the Contract Administrator.

(b) Erosion Control Blanket – Side Slope Installation

- (i) For ECB installation on side slopes, excavate a trench 150 mm deep by 15 cm wide at the top of slope area leave 300 mm of ECB beyond the upslope portion of the trench. Anchor blanket with 200 mm long staples in trench. Staples shall be a minimum 300 mm apart. Backfill trench with soil and compact. Apply seed to compacted soil. Fold remaining portion of blanket over seeded soil and secure with staples spaced 300 mm apart (maximum) across width of blanket.
- (ii) Roll blanket down slope. Secure blanket to soil with staples. There shall be a minimum of 2 staples per square metre.

- (iii) There shall be a minimum 150 mm overlap between blankets in the down slope direction. Staples through the overlap areas shall be a minimum 300 mm apart.
- (iv) The edges of parallel blankets shall have a minimum overlap of 150 mm (depending on type) and a minimum staple spacing of 300 mm.

E14.5 Maintenance

- (a) The areas covered with ECB shall be regularly inspected especially after severe rainfall or storm events, to check for blanket separation or breakage.
- (b) Any damaged or poorly performing areas as the result of storm events shall be replaced/repaired immediately. Re-grading of the slope by hand methods may be required in the event of rill or gully erosion. Areas requiring replacement for these reasons as directed by the Contract Administrator will be re-measured and additionally paid for at the unit price for "Supply and Placement of Erosion Control Blanket" of the Work.
- (c) Damaged areas may require reseeding. Those areas requiring reseeding as directed by the Contract Administrator will be re-measured and additionally paid for at the unit price for this "Supply and Placement of Erosion Control Blanket" of the Work as set out in the Contractor's Proposal.
- (d) No re-measurement or payment will be made for those areas damaged and requiring re-seeding and reinstallation due to faulty installation of the erosion control blanket.
- (e) Should the Contract Administrator determine that the Contractor has not maintained the ECB's properly or has damaged the blankets from construction activities resulting in sediment releases beyond the Work area, the Contractor shall retrieve all sediment that has left the construction area, to the fullest extent possible, at its own cost.
- (f) As a minimum, the Contractor shall remove all deltas and sediment deposited in drainage ways and re-grade and/or reseed the areas where sediment removal results in exposed soil. The removal and restoration shall take place within 5 working days of discovery unless precluded by legal, regulatory, or physical access restraints. If precluded, removal and restoration must take place within 5 working days of obtaining access.
- (g) The Contractor is responsible for contacting all local, regional, provincial, and federal authorities before working in surface waters and for obtaining applicable permits. The Contractor's restoration work to restore property outside of the designated Work area shall be at its own cost.

E14.6 Measurement and Payment

- (a) Erosion Control Blanket
 - (i) Erosion Control Blanket and related work specified herein will be measured on an area basis and paid for at the unit price per square metre for "Supply and Placement of Erosion Control Blanket". The area to be paid for shall be the total number of square metres of ground covered (i.e. overlap at joints shall be considered a single layer), performed in accordance with this specification, accepted and measured by the Contract Administrator.
 - (ii) Maintenance is considered incidental to supply and installation of erosion control blanket and no separate measurement or payment will be made.

E15. SILT FENCE

E15.1 Description

- (a) This specification shall cover the supply, delivery, installation, maintenance, sediment removal and removal of the temporary silt fence to be installed as directed by the Contract Administrator.

E15.2 Materials

- (a) Nails shall be used to fasten the silt fence fabric to wooden posts and tie wire or locking plastic fasteners shall be used to fasten the silt fence fabric to steel posts each; in

accordance with the manufacturers recommendations. Maximum spacing of fasteners shall be 200 mm along the length of the steel post.

E15.3 Installation

- (a) The Contractor has the option to install the silt fence manually (by hand) or mechanically as set forth in this specification.
- (b) Manual Installation:
 - (i) A trench measuring approximately 200 mm wide by 200 mm deep shall be excavated along the entire line of posts. The trench shall be on the side of the posts where grading work is to be conducted.
 - (ii) The geotextile from the silt fence barrier shall extend into the trench a minimum of 600 mm.
 - (iii) The trench shall be backfilled and tamped to existing grade so as to hold the base of the geotextile firmly in place.
 - (iv) The silt fence toe fabric shall achieve consistent placement depth and compaction such that no water flow can pass beneath the fence nor scour soil material away from the toe area of the fence.
 - (v) The back-filled toe trench material shall be compacted by operating the wheel of a tractor or skid steer on each side of the silt fence a minimum of two passes, or alternative method to achieve similar compaction as approved by the Contract Administrator.
- (c) Machine Installation
 - (i) The geotextile of the machine sliced silt fence shall be inserted by machine in a slit in the soil 200 mm to 300 mm deep.
 - (ii) The slit shall be created such that a horizontal chisel point at the base of a soil slicing blade slightly disrupts soil upward as the blade slices through the soil.
 - (iii) The geotextile shall be mechanically inserted directly behind the soil slicing blade in a simultaneous operation, achieving consistent placement and depth. No turning over (plowing) of soil is allowed for the slicing method.
 - (iv) The soil shall be compacted immediately next to the silt fence fabric by operating the wheels of a tractor or skid steer on each side of the silt fence a minimum of 2 times.
- (d) Actual alignment and location of the silt fence may be adjusted in the field by the Contract Administrator.
- (e) The silt fence shall be installed in a curved configuration along contours as directed by the Contract Administrator. The maximum dimensions of the curves will be as per the manufacturer's instructions or as directed by the Contract Administrator.

E15.4 Maintenance

- (a) The Contractor shall maintain the silt fences until they are no longer necessary and are removed. Maintenance shall consist of all work necessary to keep the devices functioning effectively.
- (b) The Contractor shall repair or correct plugged, torn, displaced, damaged, or non-functioning devices to the satisfaction of the Contract Administrator.
- (c) If the Contract Administrator determines that the Contractor has not maintained the silt fences properly or has damaged the devices from construction activities resulting in sediment releases beyond the Work area, the Contractor shall retrieve all sediment that has left the construction area, to the fullest extent possible, at its own cost.
- (d) As a minimum, the Contractor shall remove all deltas and sediment deposited in drainage ways and re-grade and/or reseed the areas where sediment removal results in exposed soil. The removal and restoration shall take place within 5 working days of discovery unless precluded by legal, regulatory, or physical access restraints. If precluded, removal and restoration must take place within 5 working days of obtaining access.

- (e) The Contractor is responsible for contacting all local, regional, provincial, and federal authorities before working in surface waters and for obtaining applicable permits.
- (f) The Contractor's restoration work to restore property outside of the designated Work area shall be at its own cost.

E15.5 Final Removal of Silt Fence

- (a) When 50% of the total area covered by new seeding has established growth to a height of 50 mm, as determined by the Contract Administrator, the Contractor shall perform final removal of all silt fence. All removed materials become the property of the Contractor and shall be removed off Site.
- (b) As part of the final removal of the silt fence the Contractor shall spread any accumulated sediment to form a suitable surface for seeding or dispose of the sediment at a disposal site acceptable to the Contract Administrator.
- (c) All areas below and adjacent to the silt fence and any existing grassed areas disturbed by the Contractor during final removal of the silt fence shall be seeded by the Contractor, at its own cost, and no separate measurement or payment will be made for this Work. The seeding mix and construction methods shall be in accordance with specifications for supply and installation of seeding.

E15.6 Measurement and Payment

- (a) Silt fence will be measured on a length basis and paid for at the unit price per lineal metre for "Silt Fence". The amount to be paid for shall be the total number of lineal metres of silt fence installed, maintained, and removed in accordance with this specification, accepted and measured by the Contract Administrator. Payment for silt fence shall be in accordance with the following payment schedule:
 - (i) Seventy five percent (75%) of the unit price per lineal metre for "Silt Fence" shall be paid following supply and installation to the satisfaction of the Contract Administrator.
 - (ii) Twenty five percent (25%) of the unit price per lineal metre for "Silt Fence" shall be paid for silt fence maintenance and removal upon completion to the satisfaction of the Contract Administrator.
- (b) Maintenance is considered incidental to supply and installation of silt fence and no separate measurement or payment will be made.
- (c) Seeding of all areas below and adjacent to the silt fence or seeding of any other existing grassed areas disturbed by the Contractor from sediment removal during construction or from final removal of the silt fence is considered incidental to the Work and no separate measurement or payment will be made.

E16. DISPOSAL AND PLACEMENT OF EXCAVATED MATERIAL

DESCRIPTION

E16.1 General

- E16.1.1 Further to CW 3110, this Specification covers the excavation, disposal, stockpile and placement of material on the Winnipeg North Garage Replacement – 100 Oak Point Highway, as shown in the contract drawings. Records indicate the site contains material that is either suitable site material, unsuitable site material, landfill contaminated material or hydrocarbon contaminated material. If discovered, the material shall be handled in accordance with this specification.

E16.2 Definitions

Suitable Site Material - Includes all suitable site material (clay). Based on the test pit program, excavated suitable site material will be classified as "clean" or "contaminated". Clean suitable site material can be utilized as fill in pipe trenches, under the building, under roadways, as part of landscape berms, or as clay cap material in undeveloped areas of the

site. Excess clean suitable site material will be disposed as per City of Winnipeg Standard Construction Specifications. Contaminated suitable site material can be utilized as fill in pipe trenches outside paved areas or as part of landscape berms. Excess contaminated suitable site material will be disposed at Prairie Green Landfill.

Unsuitable Site Material - Includes all unsuitable site material (silt, construction debris). Based on the test pit program, excavated unsuitable site material will be classified as "clean" or "contaminated". Clean unsuitable site material will be disposed as per City of Winnipeg Standard Construction Specifications. Contaminated unsuitable site material will be disposed at Prairie Green Landfill.

Landfill Contaminated Material - Includes all landfill material excavated from the defined landfill area after removal of the clay cap. All landfill material must be disposed at Prairie Green Landfill.

Hydrocarbon Contaminated Material - Includes all hydrocarbon contaminated material excavated from the identified APEC 1 and APEC 2 areas of the site (previously developed as gas stations). All hydrocarbon contaminated material must be disposed at Prairie Green Landfill.

E16.3 Referenced Standard Construction Specifications

E16.3.1 CW 3110 – Sub-Grade, Sub-Base and Base Course Construction.

E16.4 Construction Methods

- (a) Excavate site material as directed by the Contract Administrator.
- (b) The Contract Administrator and an environmental representative will be onsite during the hydrocarbon soil remediations to survey the area. The excavation boundaries will be laid out to direct the Contractor.
- (c) Further to CW 3110, material deemed to be contaminated with Hydrocarbons shall be excavated as shown on removals drawings and disposed of at Prairie Green Landfill, provide receipts proofing delivery of material to Prairie Green Landfill.
- (d) The landfill footprint will be surveyed and, after removal of the clay cap material, any soil from within the footprint is considered Landfill Contaminated Material. All landfill material must be disposed at Prairie Green Landfill.
- (e) A preconstruction sampling program will identify the clean and contaminated soil areas with boundaries marked out. Other than the 2 gas station properties, the identified hydrocarbon areas, and material from the landfill footprint, material from the remainder of the site may be considered clean or contaminated Suitable Site material, or clean or contaminated Unsuitable Site material.
- (f) Further to CW 3110, clean or contaminated Suitable Site material shall be excavated as directed by the Contract Administrator and placed as fill where required or placed in the landscape berms as shown on the Civil Drawings and as directed by the Contract Administrator.
- (g) Clean Suitable Site material in excess of the volume required to complete the grading shown on the Civil drawings will be disposed by the Contractor as per City of Winnipeg Standard Construction Specifications.
- (h) Contaminated Suitable Site material in excess of the volume required to complete the grading shown on the Civil drawings will be disposed by the Contractor at Prairie Green Landfill.
- (i) Clean Unsuitable Site material will be disposed by the Contractor as per City of Winnipeg Standard Construction Specifications.
- (j) Contaminated Unsuitable Site material will be disposed by the Contractor at Prairie Green Landfill.
- (k) Stockpile Suitable Site material at locations on site as directed by the Contract Administrator.

- (l) Further to CW 3110, clean Suitable Site material shall be excavated and stockpiled in the future employee parking lot areas shown on the Civil Drawings and as directed by the Contract Administrator.
- (m) Stockpiled clean Suitable Site material shall be placed as a clay cap in undeveloped areas as directed by the Contract Administrator.

E16.5 Measurement and Payment

- (a) Excavation and disposal of Hydrocarbon Contaminated Material will be measured on a weight basis and paid for at the Contract Unit Price per tonne for "Excavation and Disposal of Hydrocarbon Material". The weight to be paid for will be the total number of tonnes excavated in accordance with this specification, measured on a certified weight scale with receipts as proof of delivery to Prairie Green Landfill.
 - (i) Hauling of material will be included in payment for "Excavation and Disposal of Hydrocarbon Material".
 - (ii) No additional payment will be made for multiple handling of Hydrocarbon Contaminated Material.
- (b) Excavation and disposal of Landfill Contaminated Material will be measured on a weight basis and paid for at the Contract Unit Price per tonne for "Excavation and Disposal of Landfill Contaminated Material". The weight to be paid for will be the total number of tonnes excavated in accordance with this specification, measured on a certified weight scale with receipts as proof of delivery to Prairie Green Landfill.
 - (i) Hauling of material will be included in payment for "Excavation and Disposal of Landfill Contaminated Material".
 - (ii) No additional payment will be made for multiple handling of Landfill Contaminated Material.
- (c) Excavation and disposal of Clean Suitable Site Material will be measured on a weight basis and paid for at the Contract Unit Price per tonne for "Excavation and Disposal of Clean Suitable Site Material". The weight to be paid for will be the total number of tonnes excavated in accordance with this specification, measured on a certified weight scale with receipts.
 - (i) Hauling of material will be included in payment for "Excavation and Disposal of Clean Suitable Site Material".
 - (ii) No additional payment will be made for multiple handling of Clean Suitable Site Material.
- (d) Excavation and disposal of Contaminated Suitable Site Material will be measured on a weight basis and paid for at the Contract Unit Price per tonne for "Excavation and Disposal of Contaminated Suitable Site Material". The weight to be paid for will be the total number of tonnes excavated in accordance with this specification, measured on a certified weight scale with receipts as proof of delivery to Prairie Green Landfill.
 - (i) Hauling of material will be included in payment for "Excavation and Disposal of Contaminated Suitable Site Material".
 - (ii) No additional payment will be made for multiple handling of Contaminated Suitable Site Material.
- (e) Excavation and disposal of Clean Unsuitable Site Material will be measured on a weight basis and paid for at the Contract Unit Price per tonne for "Excavation and Disposal of Clean Unsuitable Site Material". The weight to be paid for will be the total number of tonnes excavated in accordance with this specification, measured on a certified weight scale with receipts.
 - (i) Hauling of material will be included in payment for "Excavation and Disposal of Clean Unsuitable Site Material".
 - (ii) No additional payment will be made for multiple handling of Clean Unsuitable Site Material.
- (f) Excavation and disposal of Contaminated Unsuitable Site Material will be measured on a weight basis and paid for at the Contract Unit Price per tonne for "Excavation and Disposal

of Contaminated Unsuitable Site Material". The weight to be paid for will be the total number of tonnes excavated in accordance with this specification, measured on a certified weight scale with receipts as proof of delivery to Prairie Green Landfill.

- (i) Hauling of material will be included in payment for "Excavation and Disposal of Contaminated Unsuitable Site Material".
 - (ii) No additional payment will be made for multiple handling of Contaminated Unsuitable Site Material.
- (g) Excavation and placement of Suitable Site Material will be measured on a volume basis and paid for at the Contract Unit Price per cubic metre for "Excavation and placement of Suitable Site Material". Suitable Site Material for this item will include both Clean and Contaminated Material. The volume to be paid for will be the total number of cubic metres excavated and placed in accordance with this specification, accepted and measured by the Contract Administrator.
 - (i) The volume of excavation will be measured by cross-sections in its placed and compacted position and computed by the method of Average End Areas.
 - (ii) Excavation, hauling, placement and compaction of material will be included in the payment for "Excavation and placement of Suitable Site Material".
 - (iii) No additional payment will be made for multiple handling of Suitable Site Material that is excavated and placed within the Project site.
- (h) Excavation and Stockpile of Clean Suitable Site Material will be measured on a volume basis and paid for at the Contract Unit Price per cubic metre for "Excavation and Stockpile of Clean Suitable Site Material". The volume to be paid for will be the total number of cubic metres excavated and stockpiled in accordance with this specification, accepted and measured by the Contract Administrator.
 - (i) The volume of excavation will be measured by cross-sections in its stockpiled position and computed by the method of Average End Areas.
 - (ii) Excavation and stockpiling of material will be included in the payment for "Excavation and Stockpile of Clean Suitable Site Material".
 - (iii) Material stockpiled in excess of the volume required to complete the grading as per the drawings will not be paid for under item "Excavation and Stockpile of Clean Suitable Site Material" and will be paid under item "Excavation and Disposal of Clean Suitable Site Material".
 - (iv) No additional payment will be made for multiple handling of Clean Suitable Site Material that is excavated and stockpiled within the Project site.
- (i) Placement and Compaction of Stockpiled Clean Suitable Site Material will be measured on a volume basis and paid for at the Contract Unit Price per cubic metre for "Placement and Compaction of Stockpiled Clean Suitable Site Material". The volume to be paid for will be the total number of cubic metres placed and compacted in accordance with this specification, accepted and measured by the Contract Administrator.
 - (i) The volume of material will be measured by cross-sections in its placed and compacted position and computed by the method of Average End Areas.
 - (ii) Hauling from the stockpile, placement and compaction of material will be included in payment for "Placement and Compaction of Stockpiled Clean Suitable Site Material".
 - (iii) No additional payment will be made for multiple handling of Clean Suitable Site Material that is hauled from the stockpile, placed and compacted within the Project site.

E17. CUTOFF WALL

DESCRIPTION

E17.1 General

- E17.1.1** Further to CW 3110, this Specification covers the excavation, disposal, and placement of material for the cutoff wall on the Winnipeg North Garage Replacement – 100 Oak Point

Highway, as shown in the contract drawings. The cutoff wall is required to intercept the silt layer observed throughout the project site during the geotechnical investigation. A perched water table was observed in the silt layer that affects the design and construction methods. A clay cut off wall is to be constructed around the perimeter of the building per Drawing No. 00-C-022.

E17.2 Definitions

Clay Cutoff Wall – A barrier made of clay that is constructed to reduce groundwater at a specified zone.

Perched Water Table – An aquifer that occurs above the regional water table.

Unsuitable Site Material - Includes all unsuitable site material (silt, construction debris, contaminated clay). All contaminated unsuitable site material will be disposed at Prairie Green Landfill. Clean unsuitable site material will be disposed as per City of Winnipeg Standard Construction Specifications (CWSCS) or place in proposed berm as show on Civil Drawings.

Suitable Site Material - Includes all suitable site material (uncontaminated clay). Suitable site material can be utilized as fill in pipe trenches outside paved areas, clay cutoff wall or as part of landscape berms.

E17.3 Referenced Standard Construction Specifications

E17.3.1 CW 1130 – Site Requirements

E17.3.2 CW 2030 – Excavation Bedding and Backfill

E17.3.3 CW 3110 – Subgrade, Subbase and Base Course Construction

E17.4 Construction Methods

- (a) Keep excavations free of water while work is in progress.
- (b) Maintain existing site drainage around excavations.
- (c) Protect open excavations from flooding and damage due to rainfall and surface run-off.
- (d) Do no direct drainage water from ground surface or excavations into existing sewer system without written approval of the Contract Administrator.
- (e) Perform excavation in accordance with Province of Manitoba "W210 The Workplace Safety and Health Act" and "Guidelines for Excavation Work".
- (f) Excavate to the lines, grades, elevations and dimensions shown on the Drawing No. 00-C-022 and set in the field by the Contract Administrator.
- (g) Contract Administrator may terminate the cutoff wall at shallower depths than described in Drawing No. 00-C-022, if a depth of 0.3 m below the bottom of the silt layer is observed.
- (h) Contract Administrator may increase the cutoff wall depths than is described in Drawing No. 00-C-022, if bottom of the silt layer has not been reached.
- (i) Excavation of cutoff wall to be 1.0 m wide per Drawing No. 00-C-022.
- (j) Excavation of cutoff wall will result in contaminated unsuitable site material. Contaminated unsuitable site material is to be disposed of at Prairie Green Landfill.
- (k) Excavation of cutoff wall will result in clean unsuitable site material (silt). Clean unsuitable site material is to be disposed of as per City of Winnipeg Standard Construction Specifications (CWSCS) or placed in proposed berm shown on Civil Drawings.
- (l) Excavation of cutoff wall will result in clean suitable site material (clay). Clean suitable site material is to be used as clay cutoff wall backfill.
- (m) Disposal of unsuitable site material excavated from clay cutoff wall trench will result in a deficit of material required to backfill the cutoff wall. Clay backfill is to be first sourced from stockpiled material on site, prior to sourcing material elsewhere.

- (n) Backfill Material is to be a low permeability clay backfill, to prevent water within the silt layer from migrating to beneath the building footprint. Clay backfill is defined as a liquid limit greater than 50, and a plasticity index above the A line in the plasticity chart, with a minimum clay content greater than 50%.
- (o) For clay backfill placed beneath pavement areas, clay backfill shall be placed in lifts no greater than 150 mm and compacted to 98% Standard Proctor Maximum Dry Density (SPMDD).
- (p) For clay backfill placed beneath landscape areas, clay backfill shall be placed in lifts no greater than 300 mm and plate compacted.
- (q) Provide shoring in accordance with Province of Manitoba "W210 The Workplace Safety and Health Act" and "Guidelines for Excavation Work".
- (r) Use suitable type of shoring for soil conditions.
- (s) Provide shoring design stamped, signed and dated by a Professional Engineer experienced in shoring design and licensed to practice in Province of Manitoba.
- (t) Install shoring in a manner to support sides of excavation and prevent ground movement.
- (u) Use type or method of shoring that will not disturb the compacted backfill.
- (v) Leave the shoring system in place until such a time as the Professional Engineer who designed the shoring system has provided written approval to remove. Provide a copy of the written approval to the Contract Administrator before removal.
- (w) Repair damage done to existing adjacent structures and properties during construction of the Work to the satisfaction of the owner and the Contract Administrator.

E17.5 Measurement and Payment

- (a) Excavation and Disposal of Unsuitable Site Material (Cutoff Wall) will be measured on a weight basis and paid for at the Contract Unit Price per tonne for "Excavation and Disposal of Unsuitable Site Material (Cutoff Wall) – Code A003 Part A.1 vi". The weight to be paid for will be the total number of tonnes excavated in accordance with this specification, measured on a certified weight scale with proof of delivery to Prairie Green Landfill.
 - (i) Contractor to provide weight tickets daily to Contract Administrator. Contract Administrator will collect and review the tonnage tickets.
 - (ii) Hauling of material will be included in payment for "Excavation and Disposal of Unsuitable Site Material".
- (b) Excavation, Placement and Compaction of Suitable Site Material (Cutoff Wall) will be measured on a volume basis paid for at the Contract Unit Price per cubic metre for "Excavation, Placement and Compaction of Suitable Site Material (Cutoff Wall) – Code A003 Part A.2 vii". The volume to be paid for will be the total number of cubic metres excavated and placed in accordance with this specification, measured and confirmed by Contractor survey.
 - (i) Contractor to provide volumes weekly to Contract Administrator. Contract Administrator will review the provided volumes.
 - (ii) Hauling of material will be included in payment for "Excavation, Placement and Compaction of Suitable Site Material (Cutoff Wall)".
- (c) Placement of Suitable Site Material for Replacement of Unsuitable Site Material (Cutoff Wall) will be measured on a volume basis paid for at the Contract Unit Price per cubic metre for "Placement of Suitable Site Material for Replacement of Unsuitable Site Material (Cutoff Wall) – Code A003 Part A.2 viii". The volume to be paid for will be the total number of cubic metres placed in accordance with this specification, measured and confirmed by Contractor survey.
 - (i) Contractor to provide volumes weekly to Contract Administrator. Contract Administrator will review the provided volumes.
 - (ii) Hauling of material will be included in payment for "Placement of Suitable Site Material for Replacement of Unsuitable Site Material (Cutoff Wall)".

E18. DITCH GRADING

- E18.1 Ditch excavation and grading will be incidental to the excavation work outlined in the Disposal and Placement of Excavated Material.

E19. HYDRO EXCAVATION FOR UTILITY EXPLORATION

E19.1 Description

E19.1.1 General

- (a) Further to the requirements of CW 1120, this Specification covers all operations relating to the removal of earthen material immediately adjacent to underground utilities infrastructure by means of high-pressure water spray, and the recovery of evacuated material by vacuum type means or equivalent method as reviewed by the Contract Administrator and acceptable to the utility owner.
- (b) 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.

E19.2 Equipment

- (a) Hydro excavation unit shall be capable of maintaining a minimum working pressure of 6.9 MPa (10,000 psi), at a rate of flow of 0.63 – 0.76 L/s (10 to 12 gallons per minute). The unit should be adjustable, to provide adequate pressure to remove earthen material.
- (b) Spray head shall be equipped with a rotating type nozzle, in order to provide a wider path of cut.
- (c) Utilize only equipment that will not damage existing utilities and is acceptable to the various utility organizations.

E19.3 Construction Methods

E19.3.1 Hydro-Removal of Earthen Material

- (a) Earthen material adjacent to utility entity shall be sprayed with high pressure water so as to remove all such material.

E19.3.2 Recovery of Excavated Material

- (a) The recovery of excavated material shall be done using vacuum type method, or other type method as reviewed by the Contract Administrator.
- (b) The recovery of material shall follow immediately behind the excavation, to avoid excavated areas from filling with excavated material.
- (c) The use of mechanical sweepers will not be allowed.
- (d) Dispose of material in accordance with Section 3.4 of CW 1130.

E19.3.3 Backfill of Hydro Excavated Hole

- (a) The Contractor shall be responsible for the backfill of the hydro excavated hole with flowable cement-stabilized fill or sand backfill upon completion of the Work described herein, to the approval of the Contract Administrator.

E19.4 Measurement and Payment

- (a) No measurement or payment will be made for the Work described herein for locating and exposing utilities. This Work is incidental to the Project.

E20. MEASUREMENT AND PAYMENT FOR WATERMAINS AND SEWERS

E20.1 Further to CW 2110 and CW 2130:

- (a) Where payment items include a depth classification the payline for measuring to the depth classification is from finished grade.
- (b) No measurement or payment will be made for connections to plumbing services at the building.
- (c) Measurement of pipes connecting to building piping commences 1.0 metre outside the building or at the outlet to oil-water separators, sediment chambers, and pump stations installed outside the building under Division 22.

E21. EXCAVATION, TRENCHING AND BACKFILL IN AREAS OF POTENTIAL ENVIRONMENTAL CONCERN

E21.1 Description

- (a) Further to CW2030, this Specification describes the requirements for handling trench excavation material.

E21.2 Definitions

- (a) As per E16.2.

E21.3 Referenced Standard Construction Specifications

- (a) CW 2030 – Excavation, bedding and Backfill

E21.4 Referenced Documents

- (a) City of Winnipeg North Transit Garage Replacement Design Remedial Plan, February 2025.

E21.5 Execution

E21.5.1 Excavation, Disposal and Re-use

- (a) Excavation in accordance with CW 2030.
- (b) Stockpile clean clay material onsite for later use on site.
- (c) Utilize Clean Suitable Site materials in trench backfill in areas designated for Class 4 backfill.
- (d) Load and haul Contaminated Site trench excavation and place and compact in site waste berm.
- (e) Load and haul Contaminated Unsuitable Site trench excavation and dispose of at Prairie Green Landfill.
- (f) Load and haul Clean Unsuitable Site trench excavation and dispose of offsite at a location to be determined by the Contractor.
- (g) Load and haul Landfill Contaminated trench excavation and dispose of at Prairie Green Landfill.
- (h) Load and haul Hydrocarbon Contaminated trench excavation and dispose of at Prairie Green Landfill.
- (i) Handling of all contaminated materials requiring offsite disposal shall be conducted and documented in accordance with the remedial action plan noted in E21.4(a).

E21.5.2 Backfill

- (a) Backfill in accordance with CW 2030.

E21.6 Measurement and Payment

- (a) No additional measurement or payment shall be made for trench material re-used for trench backfill or disposed of in berms on site.
- (b) No additional measurement or payment shall be made for multiple handling of materials.

- (c) No additional measurement or payment shall be made for trench Clean Unsuitable Site trench material disposed of offsite at the Contractor's disposal site.
- (d) Disposal of Hydrocarbon Contaminated Material will be measured on a weight basis and paid for as described in E16.5(a)
- (e) Disposal of Landfill Contaminated Material will be measured on a weight basis and paid as described in E16.5(b).
- (f) Excavation and disposal of clean Suitable Site Material will be measured on a weight basis and paid for at the Contract Unit Price per tonne for "Excavation and Disposal of Clean Suitable Site Material". The weight to be paid for will be the total number of tonnes excavated in accordance with this specification, measured on a certified weight scale with receipts.
 - (i) The tonnage will be confirmed by the Contract Administrator by cross-sections in its original position and computed by the method of Average End Areas.
 - (ii) Hauling of material will be included in payment for "Excavation and Disposal of Clean Suitable Site Material".

E21.6.1 Disposal of Contaminated Unsuitable Site Material will be measured on a weight basis and paid for as described in E16.5(f).

E22. BEDDING AND BACKFILL WHERE PIPES CROSS CLAY CUTOFF TRENCH

E22.1 Description

E22.1.1 This Specification shall cover all operations relating to the supply and placement of a bentonite clay plug around utility pipes crossing clay cutoff trench.

E22.1.2 The work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies, and all things necessary for and incidental to the satisfactory performance and completion of all Work as hereinafter specified.

E22.2 Materials

E22.2.1 The bentonite clay material shall consist of medium to high yield bentonite clay hole plug material free from organic or other deleterious material and contaminants. The individual hole plug particles shall be angular, and of a uniform 12.5 mm diameter.

E22.3 Construction Methods

E22.3.1 The bentonite hole plug shall be placed by hand along the outside of the utility pipes crossing the clay cutoff trench where noted on the drawings. Place and tamp bentonite material to the limits and detailed as shown on the drawings. The material shall be tamped into place to ensure that no bridging or voids result.

E22.3.2 Above the limits of bentonite shown on the drawings, the Contractor shall place and compact select site clay material to City of Winnipeg requirements for Class 4 backfill.

E22.4 Method of Measurement and Basis of Payment

E22.4.1 The supply and placement of the bentonite clay plug shall be measured on a unit basis. The number of units to be paid for shall be the total number of clay plugs acceptably constructed, regardless of type, size, or depth of the utility crossing the clay cutoff wall. Payment will be made at the Contract Unit Price Bid for "Bentonite Clay Plug" which shall be payment in full for all excavation, disposal of excavated material, supply and placement of bentonite bedding and backfill, pacing and compacting select site clay material, and all other work described herein for which payment is not specified elsewhere.

E23. OIL AND GAS RESISTANT GASKETS FOR WATERMAIN PIPING, FITTINGS, AND APPURTENANCES

- E23.1 Further to CW 2110, all pipe, valves, hydrant assemblies, fittings, couplings, and appurtenances shall be installed with oil and gas resistant gaskets.
- E23.2 Gaskets shall be oil and gas resistant Nitrile conforming to ASTM F477 and shall be supplied by the pipe manufacturer.
- E23.3 No separate measurement or payment will be made for Nitrile Gaskets.

E24. WATERMAIN TESTING

- E24.1 All watermain testing shall be completed in accordance with CW 2125.
- E24.2 Complete hydrant flow testing on new hydrants post commissioning of the new watermain and submit results to the Contract Administrator.
- E24.3 The Contractor shall pay all costs related to water testing.

E25. CONNECTION TO COATED WATERMAIN

- E25.1 Description
- (a) This Specification shall cover the modification of water mains as required for connecting to the 300 mm fibre reinforced concrete (FRC)-coated, ductile iron water main.
- E25.2 Description of Work:
- E25.2.1 Piping Modifications:
- (a) Work involved includes connection of new watermain, water services, hydrant assemblies, hydrant removals and hydrant relocations required on the FRC coated ductile iron watermain along the previous Selkirk Avenue right-of-way along the north side of the site.
- (i) See Drawings for details and locations of valve and tee installation.
- E25.3 Submissions:
- E25.3.1 Submit Shop Drawings for all permanent and temporarily installed fittings, valves, piping and couplings in accordance with Section 01 33 00 Submittal Procedures.
- E25.4 Products
- E25.4.1 All products per City of Winnipeg Approved Products list except as modified herein.
- E25.4.2 Galvanic Anodes
- (a) Galvanic anodes for cathodic protection of buried ferrous pipes and fittings shall be 10.9 kg pre-packaged zinc anodes to City of Winnipeg specification.
- E25.4.3 Petrolatum Tape Corrosion Protection System
- (a) Petrolatum tape corrosion protection system shall consist of the following components:
- (i) Petrolatum paste primer;
- (ii) Void-filling mastic filler;
- (iii) Petrolatum tape;
- (iv) Protective outer wrap.
- (b) Petrolatum tape systems shall conform to AWWA C217.
- E25.5 Execution

- E25.5.1 Excavation in accordance with CW 2030. Excavate and expose existing watermain using only smooth tooth buckets. Excavation by machine will be permitted only to a depth of 2m from existing grade. From 2m depth to the top of the watermain excavate using soft dig techniques to expose top of watermain. Once top of the watermain is exposed, machine excavation is permitted but caution is required to prevent striking the pipe.
- E25.5.2 Pipe or Fitting Removal
- (a) Do not isolate the water main or sever existing pipe until all materials to complete installation are on site, are confirmed via site measurements, and available for installation.
 - (b) Cut pipe as required for new connections or fitting removals.
- E25.5.3 Preparation of Existing Pipe Surface
- (a) Remove coating to bare metal and clean to a surface finish and extent suitable for coupling installation.
- E25.5.4 Pipe Connections
- (a) Confirm diameters of pipelines at tie in points and ensure appropriate couplers are available for reconnection work.
 - (b) Make connection only with mainline and wide range couplings in accordance with AT 4.1.1.63 and AT 4.1.1.65. Connection with PVC pipe or fitting push on bells will not be permitted.
 - (c) Upon completion of Work, backfill in accordance with CW 2030.
- E25.5.5 Installation of Lead Wires, Continuity Bonding and Galvanic Anodes
- (a) Anodes and continuity bonding shall be installed existing pipes and fittings where connections are made to metallic pipes.
- E25.5.6 Installation of Petrolatum Tape Corrosion Protection Systems
- (a) All metallic pipe and fittings are too big protected by the system described herein. Protective system is to overlap existing pipe coating by 100mm.
 - (b) Install in accordance with AWWA C217 and the manufactures recommendations.
 - (c) For all surfaces to be wrapped with the corrosion protection system, remove loose rust, paint and foreign matter by hand and/or power tool cleaning in accordance with SSPC-SP-2 or SSPC-SP-3.
 - (d) Apply a thin uniform coat of petrolatum paste primer, using a glove or brush, to all surfaces to be wrapped with the corrosion protection system.
 - (e) Apply void-filling mastic filler, by hand, to all surfaces to be wrapped with the corrosion protection system. Mold the mastic to a rounded configuration around the flange, filling all spaces around fasteners and eliminating sharp edges and irregular shapes.
 - (f) Spirally wrap the petrolatum tape, using a minimum 25mm overlap, over the primed and mastic-filled pipe and flange surfaces. While wrapping, press out all air pockets and smooth all lap seams.
 - (g) Spirally wrap clear outer wrap, using sufficient tension to make a tight-fitting cover, over the petrolatum tape.
- E25.5.7 Bedding
- (a) All pipes shall be installed in accordance with CW2030, utilizing a Class B bedding.
- E25.5.8 Backfill
- (a) Upon completion of Work, backfill in accordance with CW 2030.
- E25.6 Measurement and Payment

- (a) Measurement and payment shall be as per CW 2110. Coating removal, pipe preparation, application of Petrolatum Tape Corrosion Protection Systems, and cathodic protection shall be incidental to the various connection items.

E26. CONCRETE FLARED END SECTIONS

E26.1 Description

E26.1.1 General

- (a) This specification covers the installation of concrete flared end sections with safety grates on concrete culverts.
- (b) Referenced Standard Construction Specifications
 - (i) CW 2030 – Excavation Bedding and Backfill;
 - (ii) CW3610 – Installation of Culverts.

E26.2 Materials

E26.2.1 Concrete Flared End Section

- (a) Concrete flared end sections shall be supplied in accordance with the Drawings.

E26.2.2 Safety Grate

- (a) Safety grates shall be supplied in accordance with the Drawings.

E26.3 Construction Methods

E26.3.1 Concrete Flared End Section

- (a) Concrete flared end sections including gaskets shall be installed on the ends of concrete culverts as shown on the Drawings or as directed by the Contract Administrator.

E26.3.2 Safety Grate

- (a) Safety grates shall be installed on concrete flared end sections where shown on the Drawings or as directed by the Contract Administrator.

E26.4 Measurement and Payment

E26.4.1 Concrete Flared End Section

- (a) Concrete flared end sections with safety grates will be measured on a unit basis for each size of end section and paid for at the Contract Unit Price for “Items of Work” listed here below. The number to be paid for will be to the total number of units installed including gaskets in accordance with this specification, accepted and measured by the Contract Administrator.
- (b) Items of Work
 - (i) Flared End Section c/w Safety Grate
 - ◆ 750 mm

E27. HDPE WEEPING TILE FORCEMAIN

E27.1 Description

- (a) Work shall include the supply and installation of a 65 mm HDPE sump pump forcemain from the proposed weeping tile sump pump station to connect into the land drainage sewer manhole indicated on the drawings.

E27.2 Reference Standard Specifications

- (a) CW 2030 Excavation Bedding and Backfill;

- (b) CW 2125 Flushing, Hydrostatic Leakage Testing and Disinfection of Water mains and Water Services;
- (c) CW 2130 Gravity Sewers.

E27.3 Standards

- (a) American Society of Testing and Materials (ASTM):
 - (i) A53/A53M: Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
 - (ii) D638: Standard Test Method for Tensile Properties of Plastics.
 - (iii) F-714: Standard Specification for Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Outside Diameter.
 - (iv) D 3350 Specification for Polyethylene Plastics Pipe and Fittings Materials.
 - (v) F 1055 Standard Specification for Electrofusion Type Polyethylene Fittings for Outside Diameter Controlled Polyethylene Pipe and Tubing.
 - (vi) D 3035 Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter.
 - (vii) F 2620 Standard Practice for Heat Fusion Joining of Polyethylene Pipe and Fittings.
- (b) American Water Works Association (AWWA):
 - (i) C906: Polyethylene (PE) Pressure Pipe and Fittings, 4 in. (100 mm) Through 63 in. (1,600 mm), for Water Distribution and Transmission.
- (c) Plastic Pipe Institute:
 - (i) TR-3 Policies and Procedures for Developing Hydrostatic Design Basis (HDB), Hydrostatic Design Stresses (HDS), Pressure Design Basis (PDB), Strength Design Basis (SDB), and Minimum Required Strength (MRS) Ratings for Thermoplastic Piping Materials or Pipe.
 - (ii) TR-4 PPI Listing of Hydrostatic Design Basis (HDB), Hydrostatic Design Stress (HDS), Strength Design Basis (SDB), Pressure Design Basis (PDB) and Minimum Required Strength (MRS) Ratings for Thermoplastic Piping Materials or Pipe.
- (d) CSA:
 - (i) CSA B137.1, PE Pipe, Tubing, and Fittings for Cold-Water Pressure Services.

E27.4 Definitions

- (a) Appurtenances: Additional piping items as required to provide a complete piping system suitable to convey water as specified and intended. These items may or may not be specified but are necessary to complete the piping system.

E27.5 Products

E27.5.1 HDPE Piping

- (a) General:
 - (i) Pipe to be made from polyethylene resin compound with a minimum cell classification of PE 445574C for PE 4710 materials in accordance with ASTM D3350. Resin is to have a minimum hydrostatic design basis (HDB) of 1600 psi and qualify for a 0.63 design factor to establish a maximum recommended hydrostatic design stress (HDS) of 1000 psi at 73°F (23°C) for water. Materials shall be listed in Plastic Pipe Institute (PPI) TR-4 2009, TABLE I.A.13 - PE 4710.
 - (ii) To be iron pipe sized, certified for potable water use, made in accordance with AWWA C901, and CSA B137.1.
 - (iii) Manufacture pipe to ASTM F714 or D3035.
 - (iv) Markings: continuously or at 1.5 m intervals indent print the following: pipe Manufacturer, nominal pipe size, dimension ratio, PE. grade per ASTM D3350, followed by the Hydrostatic Design basis in 100's of psi, AWWA and CSA

certification or complete with certification trademark logo, Manufacturing reference standard ASTM D 3035, and date of manufacture.

- (v) Maximum pipe ovality for polyethylene pipe prior to joining shall not exceed 4%.
- (vi) Shall contain no recycled material except that generated in the Manufacturer's own plant from the resin of the same specification and same raw material supplier.

(b) HDPE Forcemain:

- (i) Use DR 17 for all piping unless otherwise stated. Pipe shall be rated for use at a pressure class of 0.86 MPa (125 psi).
- (ii) Utilize coiled pipe. Pipe from the pump station to the discharge manhole shall be one continuous length.

(c) Acceptable Products:

- (i) Sclairpipe by Infra Pipe Solutions Ltd.;
- (ii) DriscoPlex by Performance Pipe;
- (iii) WL Plastics;
- (iv) or Approved Equal in accordance with Section 01 25 00.

(d) Polyethylene Pipe Joints:

- (i) Joints to be thermal butt fusion welded, except where connecting to flanged fittings.
- (ii) Flanged connections with epoxy coated ductile iron backing rings. Bolts and nuts to be 316 stainless steel.
- (iii) Connections to pipe of other materials:
 - ◆ Bolts sleeve connections as per CW 2110 complete with stainless steel inserts.

E27.5.2 Polyethylene Fittings

- (a) Manufactured in accordance with the same specifications as HDPE pipe and shall be the same series and resin as the pipe with which the appurtenance is used.
- (b) Fittings shall be of the dimension ration (DR) as the pipe. The average wall thickness shall be 25% greater than that of the pipe. Where butt-fused, ends shall have the same wall thickness as the pipe.
- (c) Electrofusion fittings as per ASTM F1055.

E27.6 Submittals

- (a) Make submittals in accordance with Section 01 33 00.

E27.6.1 Shop drawings for HDPE pipe, fittings and appurtenances.

E27.6.2 Pipe Manufacture Quality Control Reports

- (a) Submit quality control reports, for testing required in accordance with AWWA C901 Section 5.4, no later than five (5) Business Days upon manufacture of pipe.

E27.6.3 Affidavit of Compliance

- (a) An affidavit of compliance signed by an officer of the pipe manufacturing company shall be provided stating that the pipe and fittings comply with this Specification, in accordance with Section 6.3 of AWWA C901.

E27.6.4 Written verification from the Manufacturer that the Contractor's personnel performing pipe fusing are qualified and that the jointing equipment has been inspected and is suitable for the pipe supplied.

E27.6.5 Pipe Manufacturer's written bulletins on required procedures, heat and pressures for butt fusion of HDPE pipe.

E27.6.6 Installation requirements for electrofusion fittings.

E27.6.7 Field welding reports containing data on:

- (a) Location of welds;
- (b) Ambient temperature;
- (c) Fusion temperature;
- (d) Interface pressure;
- (e) Heating time;
- (f) Cooling time.

E27.6.8 Data on all electrofusion welds performed.

E27.7 Quality Control

E27.7.1 Inspection:

- (a) The Contractor shall afford the Contract Administrator every facility to access and inspect all plant to be provided, work to be performed, materials to be supplied and equipment or machinery to be installed in accordance with Specifications.

E27.7.2 Testing of Pipe and Materials:

- (a) The Contractor shall provide access to the Contract Administrator or his appointed representative to conduct plant inspections, in accordance with Section 5.8 of AWWA C901. The Contractor shall provide a minimum of 7 calendar days notice of commencement of pipe manufacture, for the purposes of scheduling plant inspections.
- (b) The Contract Administrator reserves the right to conduct third party quality control testing.

E27.8 Construction Methods

E27.8.1 General:

- (a) Pipes, fittings, valves, and appurtenances shall be cleaned of accumulated debris before installation.
- (b) Carefully inspect all materials for defects. Remove defective materials from site.

E27.8.2 Fusing:

- (a) HDPE pipe sections are to be thermal butt fused with flanged connections used at fitting locations unless otherwise specified by the Contract Administrator.
- (b) Provide trained personnel and fusion machine suitable for the type of pipe being fused. Provide certification from the pipe manufacturer showing that the joining equipment is suitable for type of pipe used, and the Operator is qualified to operate same.
- (c) Submit records of fusing operations including:
 - (i) Location of welds; Ambient temperature; Fusion temperature; Interface pressure; Heating time; Cooling time.

E27.8.3 Installation:

- (a) Excavation shall be in accordance with Specification CW2030, "Excavation, Bedding and Backfill".
- (b) Pipe installation in accordance with CW 2110.
 - (i) Supply and install Denso paste and tape to coat all backing rings on flanged connections.

E27.9 Field Testing

E27.9.1 Flush new forcemains in accordance with City of Winnipeg Standard Construction Specifications CW 2145 prior to testing.

E27.9.2 Hydrostatic Leakage Testing:

- (a) After the system has been installed and backfilled to the satisfaction of the Contract Administrator, pressure test the system.
- (b) Provide labour, equipment and materials required to perform hydrostatic leakage tests hereinafter described. Ensure system will pass test prior to requesting Contract Administrator to witness test.
- (c) Notify Contract Administrator at least two (2) working days in advance of all proposed tests. Perform tests in presence of Contract Administrator.
- (d) Where any section of system is provided with concrete thrust blocks, do not conduct tests until at least five (5) days after placing concrete or two (2) days if high early strength concrete is used.
- (e) The test shall consist of an initial expansion phase and a test phase.

E27.9.3 Test Procedure:

- (a) Open mainline valves.
- (b) Provide temporary valves or caps for testing. Remove upon acceptance of test results.
- (c) Expel air from main by slowly filling main with potable water and complete flushing by running water to waste. Provide all water required for filling and flushing.
- (d) Flushing shall achieve velocities of 3.0 m/s.
- (e) Initial Expansion Phase:
 - (i) Pressurize the pipeline to an initial pressure of 1,000 kPa, based on the elevation of highest point in main and corrected to elevation of gauge, for a period of two (2) hours. To accommodate the initial expansion of the pipe under test, sufficient make-up water shall be added to the system at hourly intervals for four (4) hours to return to the initial test pressure.
 - (ii) Do not exceed the test pressure within 72 hours prior to completing the pressure testing.
 - (iii) In the event that the initial test pressure cannot be obtained, discontinue testing and repair leaks.
- (f) Test Phase:
 - (i) At the end of the four hour expansion phase, reduce the pipeline pressure by 70 kPa and monitor the pressure for 1 hour. No additional makeup water shall be added during the test phase.
 - (ii) Acceptable pressure drop during the one hour test phase is 5% of test pressure.
 - (iii) Following completion of the test phase bleed off water equivalent to from a location remote from the gauge location to demonstrate the pressure drop in the system.
- (g) Irrespective of pressure drop, repair any known leaks.
- (h) Depressurize and allow the piping system to "relax" for at least eight hours if the test is not completed within eight hours or must be repeated for any reason.
- (i) Locate and repair defects if leakage is greater than amount specified. Report leaks to Contract Administrator prior to excavating to allow Contract Administrator to be on Site if so desired. Provide written summary of all repair works completed.
- (j) Record tests whether acceptable or not on and sign and submit leakage test form to the Contract Administrator.
- (k) Repeat test in the presence of the Contract Administrator until pressure drop is within specified allowance.
- (l) Remove all temporary access points after satisfactorily completion of test and seal holes with brass plugs or as otherwise directed by the Contract Administrator.

E27.9.4 Connections to Gravity Sewer Systems:

- (a) Make connections to gravity sewer systems following acceptance of all pressure testing.
- (b) Terminate pipe inside manhole with 90 degree elbow directing flow downward into manhole. Provide puddle flange and grout into manhole wall to make water tight connection.

E27.10 Measurement and Payment

E27.10.1 With the exception of the items listed below, Measurement and Payment will be in accordance with CW 2110 as indicated for the items listed in Form B.

- (a) The supply and installation of sump pump forcemains will be measured on a length basis and paid for at the Contract Unit Price per meter for HDPE Sump Pump Forcemain.

E28. STORMWATER OIL AND GRIT SEPARATOR CHAMBERS

E28.1 Description

- (a) This section specifies performance and construction requirements for underground Oil Grit Separator (OGS) devices for stormwater quality treatment.
- (b) Work includes supply and installation of precast concrete chambers with OGS internal components and connections to site drainage piping systems.
- (c) Three units are required and are identified on the drawings as CB.16-Oil/Water Separator, Stormceptor 1 and Stormceptor 2.

E28.2 Related Sections

- (a) Section 01 33 00 Submittal Procedures
- (b) City of Winnipeg Standard construction Specifications:
 - (i) CW 2030 - Excavation Bedding and Backfill;
 - (ii) CW 2130 - Gravity Sewers;
 - (iii) CW 2140 - Sewer And Manhole Cleaning.

E28.3 Reference Standards

- (a) CAN/CSA-A257.4: Joints for Circular Concrete Sewer and Culvert Pipe, Manhole Sections, and Fittings Using Rubber Gaskets.
- (b) CAN/CSA-A257.4: Precast Reinforced Circular Concrete Manhole Sections, Catch Basins, and Fittings.
- (c) CAN/CSA-S6-00: Canadian Highway Bridge Design Code.
- (d) ASTM C 76M, Specification for Reinforced Concrete Culvert, Storm Drain and Sewer Pipe.
- (e) ASTM C 443: Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets.
- (f) ASTM C 478: Specification for Precast Reinforced Concrete Manhole Sections.
- (g) ASTM C 891: Standard Practice for Installation of Underground Precast Concrete Utility Structures.
- (h) ASTM D 2563: Standard Practice for Classification of Visual Defects in Reinforced Plastics.
- (i) ASTM D 4097: Contact Molded Glass Fiber Reinforced Chemical Resistant Tanks.
- (j) ISO 14034 Environmental Management – Environmental Technology Verification.

E28.4 Submissions

- (a) Submit Shop Drawings for all precast components and OGS components in accordance with Section 01 33 00.
- (b) Submit manufacturer's verification of stormwater treatment design as verified by Canadian Environmental Technology (ETV) Verification Program.

E28.5 Materials

- (a) Precast Manholes and Components.
 - (i) Precast concrete components shall conform to the requirements of CW 2130 Gravity Sewers and CoW-SM-14 Standard for Pre-Cast Concrete Manholes, Catchbasins, and Components.
 - (ii) Gaskets for Precast components shall be to CoW-SM-16 Standard for Manhole and Catch Basin Gaskets.
 - (iii) Manhole frame and covers to CoW-SM-18 CoW Standard for Gray and Ductile Municipal Castings, Detail AP-006 and AP-007.
 - (iv) All products shall be approved products listed in the City of Winnipeg Approved Products List.
 - (v) Provide aluminum ladder rungs as per City standards for each man entry access point.
- (b) Internal Sediment and Oil Collection Components
 - (i) Internal components shall be either
 - (i) fibreglass,
 - (ii) stainless steel (minimum 304 SS),
 - (iii) aluminum 5052 (minimum) for sheet work components or 6061 aluminum for load supporting components
 - (iv) fasteners connecting dissimilar metals shall include dielectric washers and sleeves.
 - (ii) Provide an oil inspection port, minimum 75mm diameter PVC Schedule 80 pipe, with watertight screw off cap or plug. Gaskets shall be nitrile.
 - (iii) All internal components shall be sealed with adhesive or sealant compatible with the mating surfaces and suitable for immersion in water and diesel or gasoline.

E28.6 Design Requirements

E28.6.1 General

- (a) The OGS shall be allowed to be specified and have the ability to function as a 240-degree bend structure in the stormwater drainage system, or as a junction structure.
- (b) Where specified, the OGS to be specified shall have the capability to accept influent flow from an inlet grate and an inlet pipe.
- (c) Tankage to be designed to sustain a minimum load equivalent to HS25 plus earth cover.

E28.6.2 Performance Requirements

- (a) The OGS device shall include a sump for sediment storage, and a fiberglass insert for the capture and storage of petroleum hydrocarbons and buoyant gross pollutants. The total sediment storage capacity shall be a minimum 1.1 m³ for 1.2m diameter chambers and 3.5m³ for 1.8m diameter chambers. The total petroleum hydrocarbon storage capacity shall be a minimum 266 litres and 610 litres for 1.2m and 1.8m diameter chambers respectively.
- (b) TSS Removal
 - (i) System to be capable of removing 60% of the net annual total suspended solids (TSS) load from 90% of the average runoff volume from based on a particle size distribution > 50 micron and effect mean concentration of 125mg/L TSS.

E28.7 Construction Methods

(a) Chamber installation

- (i) Installation of precast components to be in accordance with CW 2130. Precast components are to be install level.
- (ii) Backfill beneath inlet, outlet and by-pass pipes shall be cement stabilized fill as per CW 2030 up to 100mm below bottom of the pipes.
- (iii) Place and compact Type 3 material as per table CW 2030.1 for bedding and initial pipe surround.
- (iv) Connect inlet and outlet pipes in rough openings and grout in place for concrete pipe or in factory cored holes with rubber gaskets for PVC pipes.
- (v) Remainder of backfill within 1.0 metres of the chamber shall be Type 1 material as per table CW 2030 compacted to Class 2 backfill requirements.

(b) Treatment component installations

- (i) Install components as per manufacturer's directions.
- (ii) Seal all internal components watertight to precast components.

(c) Final Cleaning

- (i) Prior to application for Substantial Performance, empty chamber of all liquid and clean all debris from the chamber.

(d) Warranty Period Cleaning

- (i) 1 week prior to the expiry of the warranty period, inspect each chamber. Measure and document any accumulated oil and sediment. Provide written documentation of the measurements observed to the Contract Administrator. Empty each chamber of oil and sediment and dispose of off site at facilities licensed to accept waste types.

E28.8 Measurement and Payment

- (a) Stormwater oil and grit separator chambers will be paid for on a lump sum basis for each stormwater oil and grit separator chamber at the Contract Unit Price for Stormceptor Chambers for each type listed in the unit price bid form. The Contract Unit Price shall be payment in full for supply and installation of all materials specified herein, all excavation, backfill, and disposal of excavation materials, connection of land drainage sewer piping to the chambers, and all other items incidental to the work included in this specification.

E29. MOBILIZATION AND DEMOBILIZATION PAYMENT

E29.1 Description

- (a) This Specification shall govern mobilization and demobilization from Site.
- (b) 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 the Work.

E29.2 The Work under clause E29 shall include, but not be limited to:

- (a) Submission of the Contractor's site layout plan;
- (b) Mobilizing and demobilizing On-Site Work facilities;
- (c) Supplying, setting up, laying out and removing Site office facilities including electrical items and related appurtenances for complete, functioning, Site office facilities;
- (d) Install, maintaining and removing any temporary roadways and temporary parking areas.

E29.3 Submittals

- (a) The Contractor shall submit the following to the Contract Administrator fourteen (14) days prior to mobilization On-Site:

- (i) A plan highlighting the Site layout plan which includes laydown area location(s), staging areas, office facility location, access road(s), temporary secure fencing limits and gate locations for review and approval.
- (ii) Contractor shall refer to the Drawings for limits of construction.
- (iii) Submit in accordance with Section 01 33 00 – Submittal Procedures.

E29.4 Materials and Equipment

- (a) The Contractor shall be responsible for the supply, safe storage, and handling of all materials. All materials shall be handled in a careful and workmanlike manner.

E29.5 Pre-Mobilization and Pre-Demobilization Site Review

- (a) Site Inspection:
 - (i) Inspect the Site with the Contract Administrator to verify existing conditions prior to mobilizing On-Site; and
 - (ii) Inspect the Site with the Contract Administrator soon after demobilizing On-Site, confirming Site has been restored to its original condition prior to initiation of Work;

E29.6 Layout of On-Site Work Facilities

- (a) The Contractor shall mobilize all On-Site Work and other temporary facilities complete with electrical connection; and
- (b) Upon completion of construction activities, the Contractor shall remove all On-Site Work and other temporary facilities and related appurtenances.

E29.7 Temporary Access Roadways and Temporary Parking Area(s)

- (a) The Contractor shall maintain any temporary access roadways and temporary parking areas that the Contractor installs;
- (b) The temporary access roads and temporary parking areas shall be maintained on a regular basis to provide continual unrestricted Site access, to the satisfaction of the Contract Administrator; and
- (c) Upon completion of the Work, the area shall be restored to Contract Drawings condition.

E29.8 Snow and Ice Removal

- (a) As required, snow clearing shall be done by the Contractor on a regular basis; and if required, snow cover shall be cleared from the construction Site prior to commencement of the Work.

E29.9 Restoration of Site

- (a) Upon completion of the Work and demobilization, the Contractor shall restore the Site in accordance with the Contract Drawings and related Specifications, including snow removal, to the approval of the Contract Administrator.

E29.10 Measurement and Payment

E29.10.1 Mobilization and demobilization will be measured on a lump sum basis at the Contract Unit Quantity of one (1). Price for "Mobilization and Demobilization" as shown in Form B: Prices, shall be for the supplying and installation as referenced in clause E29 to the following:

- (a) Thirty percent (30%) when the Contract Administrator is satisfied that mobilization to the Site is complete.
- (b) Fifty percent (50%) during construction, percentage distributed equally on a monthly basis at the discretion of the Contract Administrator; and
- (c) Twenty percent (20%) when the Contract Administrator is satisfied that demobilization from the Site, including restoration of the Site is complete.