



**THE CITY OF WINNIPEG**

# **TENDER**

**TENDER NO. 197-2022**

**NEWPCC INTERIM PHOSPHOROUS REMOVAL**

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## **PART B - BIDDING PROCEDURES**

### **B1. CONTRACT TITLE**

B1.1 NEWPCC INTERIM PHOSPHOROUS REMOVAL

### **B2. SUBMISSION DEADLINE**

B2.1 The Submission Deadline is 12:00 noon Winnipeg time, **July 12<sup>th</sup>, 2022.**

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

### **B3. BIDDERS' CONFERENCE**

B3.1 Further to C3.1, the Contract Administrator will hold a Bidders' conference via **MS Teams** at **10:00 am** on **June 20<sup>th</sup>, 2022.**

(a) Bidders are required to register for the above session a minimum of 24 hours in advance by contacting the Contract Administrator listed in D5 and provide the Bidder's name, email address.

B3.2 The Bidder is advised that, at the Bidder's Conference, the Contract Administrator will make a PowerPoint presentation to outline the scope of the Work. The presentation will:

- (a) Describe the Site using the three-dimensional model developed for the Interim Phosphorous Removal project;
- (b) Review laydown and parking areas as well as access routes to the Site;
- (c) Review the Site constraints;
- (d) Review the Project schedule and proposed construction and commissioning sequencing; and,
- (e) Address Bidder's questions in accordance with B3.3.

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.

### **B4. SITE INVESTIGATION**

B4.1 Further to C3.1, the Contract Administrator or an authorized representative will be available at the Site at located at 2230 Main Street, Winnipeg, MB to provide Bidders access to the Site on the following dates and times.

- (a) June 22<sup>nd</sup>, 2022 at 10:00 am; and**
- (b) June 23<sup>rd</sup>, 2022 at 10:00 am.**

B4.2 The Bidder shall not be entitled to rely on any information or interpretation received at the Site investigation unless that information or interpretation is the Bidder's direct observation, or is provided by the Contract Administrator in writing.

B4.3 The Bidder is responsible for inspecting the Site, the nature of the Work to be done and all conditions that might affect his/her Bid or his/her performance of the Work, and shall assume all risk for conditions existing or arising in the course of the Work which have been or could have been determined through such inspection.

### **B5. ENQUIRIES**

B5.1 All enquiries shall be directed to the Contract Administrator identified in D5.1.

- B5.2 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.
- B5.3 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.
- B5.4 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.
- B5.5 The Bidder shall not be entitled to rely on any response or interpretation received pursuant to B5 unless that response or interpretation is provided by the Contract Administrator in writing.
- B5.6 Any enquiries concerning submitting through MERX should be addressed to:  
MERX Customer Support  
Phone: 1-800-964-6379  
Email: merx@merx.com

## **B6. CONFIDENTIALITY**

- B6.1 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.
- B6.2 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.
- B6.3 Notwithstanding B6.1, all quotations, invoices and other pricing related information associated with the Standardized Goods and acquired by a Bidder or its Subcontractors through enquiries, investigation or any other means is confidential. Such information shall not be used or disclosed in any way, other than meeting the requirements of this Tender.

## **B7. ADDENDA**

- B7.1 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.
- B7.2 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.
- B7.3 Addenda will be available on the MERX website at [www.merx.com](http://www.merx.com).
- B7.4 The Bidder is responsible for ensuring that he/she has received all addenda and is advised to check the MERX website for addenda regularly and shortly before the Submission Deadline, as may be amended by addendum.
- B7.5 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.

B7.6 Notwithstanding B5, enquiries related to an Addendum may be directed to the Contract Administrator indicated in D5.

**B8. SUBSTITUTES**

B8.1 The Work is based on the Plant, Materials and methods specified in the Tender.

B8.2 Substitutions shall not be allowed unless application has been made to and prior approval has been granted by the Contract Administrator in writing.

B8.3 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.

B8.4 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.

B8.5 The Contract Administrator, after assessing the request for approval of a substitute, may in his/her sole discretion grant approval for the use of a substitute as an "approved equal" or as an "approved alternative", or may refuse to grant approval of the substitute.

B8.6 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.

B8.6.1 The Contract Administrator will issue an Addendum, disclosing the approved materials, equipment, methods and products to all potential Bidders. The Bidder requesting and obtaining the approval of a substitute shall be responsible for disseminating information regarding the approval to any person or persons he/she wishes to inform.

B8.7 If the Contract Administrator approves a substitute as an "approved equal", any Bidder may use the approved equal in place of the specified item.

B8.8 If the Contract Administrator approves a substitute as an "approved alternative", any Bidder bidding that approved alternative may base his/her Total Bid Price upon the specified item but may also indicate an alternative price based upon the approved alternative. Such alternatives will be evaluated in accordance with B19.

B8.9 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.

B8.10 Substitutes to the City's Standardized Goods, as identified in E2, will not be accepted.

## **B9. BID COMPONENTS**

- B9.1 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.
- B9.2 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.
- B9.3 The Bid shall be submitted electronically through MERX at [www.merx.com](http://www.merx.com).
- B9.3.1 Bids will **only** be accepted electronically through MERX.
- B9.4 Bidders are advised that inclusion of terms and conditions inconsistent with the Tender document, including the General Conditions, will be evaluated in accordance with B19.1(a).

## **B10. BID**

- B10.1 The Bidder shall complete Form A: Bid/Proposal, making all required entries.
- B10.2 Paragraph 2 of Form A: Bid/Proposal shall be completed in accordance with the following requirements:
- (a) if the Bidder is a sole proprietor carrying on business in his/her own name, his/her name shall be inserted;
  - (b) if the Bidder is a partnership, the full name of the partnership shall be inserted;
  - (c) if the Bidder is a corporation, the full name of the corporation shall be inserted;
  - (d) if the Bidder is carrying on business under a name other than his/her own, the business name and the name of every partner or corporation who is the owner of such business name shall be inserted.
- B10.2.1 If a Bid is submitted jointly by two or more persons, each and all such persons shall identify themselves in accordance with B10.2.
- B10.3 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.
- B10.4 Paragraph 13 of Form A: Bid/Proposal shall be signed in accordance with the following requirements:
- (a) if the Bidder is a sole proprietor carrying on business in his/her own name, it shall be signed by the Bidder;
  - (b) if the Bidder is a partnership, it shall be signed by the partner or partners who have authority to sign for the partnership;
  - (c) if the Bidder is a corporation, it shall be signed by its duly authorized officer or officers;
  - (d) if the Bidder is carrying on business under a name other than his/her own, it shall be signed by the registered owner of the business name, or by the registered owner's authorized officials if the owner is a partnership or a corporation.
- B10.4.1 The name and official capacity of all individuals signing Form A: Bid/Proposal should be entered below such signatures.
- B10.5 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.

## **B11. PRICES**

- B11.1 The Bidder shall state a price in Canadian funds for each item of the Work identified on Form B: Prices.
- B11.1.1 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.
- B11.1.2 Prices stated on Form B: Prices shall not include any costs which may be incurred by the Contractor with respect to any applicable funding agreement obligation as outlined in D31. Any such costs shall be determined in accordance with D31.
- B11.2 The quantities listed on Form B: Prices are to be considered approximate only. The City will use said quantities for the purpose of comparing Bids.
- B11.3 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.
- B11.4 Payments to Non-Resident Contractors are subject to Non-Resident Withholding Tax pursuant to the Income Tax Act (Canada).
- B11.5 The Bidder shall enter the Total Bid Price from Form B: Prices into the Total Bid Price field in MERX.
- B11.5.1 Bidders are advised that the calculation indicated in B19.4 will prevail over the Total Bid Price entered in MERX.

## **B12. DISCLOSURE**

- B12.1 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.
- B12.2 The Persons are:
- (a) N/a

## **B13. CONFLICT OF INTEREST AND GOOD FAITH**

- B13.1 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.
- B13.2 Conflict of Interest means any situation or circumstance where a Bidder or employee of the Bidder proposed for the Work has:
- (a) other commitments;
- (b) relationships;
- (c) financial interests; or
- (d) involvement in ongoing litigation;
- that could or would be seen to:
- (i) exercise an improper influence over the objective, unbiased and impartial exercise of the independent judgment of the City with respect to the evaluation of Bids or award of the Contract; or
- (ii) compromise, impair or be incompatible with the effective performance of a Bidder's obligations under the Contract;



- (e) has contractual or other obligations to the City that could or would be seen to have been compromised or impaired as a result of its participation in the Tender process or the Work;  
or
- (f) has knowledge of confidential information (other than confidential information disclosed by the City in the normal course of the Tender process) of strategic and/or material relevance to the Tender process or to the Work that is not available to other bidders and that could or would be seen to give that Bidder an unfair competitive advantage.

**B13.3** In connection with its Bid, each entity identified in B13.2 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.

**B13.4** Without limiting B13.3, the City may, in its sole discretion, waive any and all perceived, potential or actual Conflicts of Interest. The City's waiver may be based upon such terms and conditions as the City, in its sole discretion, requires to satisfy itself that the Conflict of Interest has been appropriately avoided or mitigated, including requiring the Bidder to put into place such policies, procedures, measures and other safeguards as may be required by and be acceptable to the City, in its sole discretion, to avoid or mitigate the impact of such Conflict of Interest.

**B13.5** Without limiting B13.3, and in addition to all contractual or other rights or rights at law or in equity or legislation that may be available to the City, the City may, in its sole discretion:

- (a) disqualify a Bidder that fails to disclose a perceived, potential or actual Conflict of Interest of the Bidder or any of its employees proposed for the Work;
- (b) require the removal or replacement of any employees proposed for the Work that has a perceived, actual or potential Conflict of Interest that the City, in its sole discretion, determines cannot be avoided or mitigated;
- (c) disqualify a Bidder or employees proposed for the Work that fails to comply with any requirements prescribed by the City pursuant to B13.4 to avoid or mitigate a Conflict of Interest; and
- (d) disqualify a Bidder if the Bidder, or one of its employees proposed for the Work, has a perceived, potential or actual Conflict of Interest that, in the City's sole discretion, cannot be avoided or mitigated, or otherwise resolved.

**B13.6** The final determination of whether a perceived, potential or actual Conflict of Interest exists shall be made by the City, in its sole discretion.

## **B14. QUALIFICATION**

**B14.1** The Bidder shall:

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

**B14.2** The Bidder and any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:

- (a) be responsible and not be suspended, debarred or in default of any obligations to the City. A list of suspended or debarred individuals and companies is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website <https://www.winnipeg.ca/matmgt/Templates/files/debar.pdf>
- B14.3** 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 B14.5 and D8).
- B14.4** Further to B14.3(c), the Bidder shall, within five (5) Business Days of a request by the Contract Administrator, provide proof satisfactory to the Contract Administrator that the Bidder/Subcontractor has a workplace safety and health program meeting the requirements of The Workplace Safety and Health Act (Manitoba), by providing:
- (a) Written confirmation of a safety and health certification meeting SAFE Work Manitoba's SAFE Work Certified Standard (e.g., COR™ and SECOR™) in the form of:
    - (i) a copy of their valid Manitoba COR certificate and Letter of Good Standing (or Manitoba equivalency) as issued under the Certificate of Recognition (COR) Program administered by the Construction Safety Association of Manitoba or by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ Program; or
    - (ii) a copy of their valid Manitoba SECOR™ certificate and Letter of Good Standing (or Manitoba equivalency) as issued under the Small Employer Certificate of Recognition Program (SECOR™) administered by the Construction Safety Association of Manitoba or by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ Program; or
  - (b) a report or letter to that effect from an independent reviewer acceptable to the City. (A list of acceptable reviewers and the review template are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/>).
- B14.5** Further to B14.3(d), the Bidder acknowledges they and all Subcontractors have obtained training required by the Accessibility for Manitobans Act (AMA) available at <http://www.accessibilitymb.ca/training.html> for anyone that may have any interaction with the public on behalf of the City of Winnipeg.
- B14.6** The Bidder shall submit, within three (3) Business Days of a request by the Contract Administrator, proof satisfactory to the Contract Administrator of the qualifications of the Bidder and of any proposed Subcontractor.
- B14.7** 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.
- B15. BID SECURITY**
- B15.1** The Bidder shall include in its Bid Submission bid security in the form of a digital bid bond, in the amount of at least ten percent (10%) of the Total Bid Price, and agreement to bond of a company registered to conduct the business of a surety in Manitoba, in Form G1: Bid Bond and Agreement to Bond, available on The City of Winnipeg, Corporate Finance, Materials Management Division website at <https://www.winnipeg.ca/MatMgt/templates/files/eBidsecurity.pdf>.

- B15.2 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 B15.2(b).
- B15.3 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 B19.1(a).
- B15.4 Bonds passing the verification process will be treated as original and authentic.
- B15.4.1 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.
- B15.5 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.
- B15.6 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.

## **B16. OPENING OF BIDS AND RELEASE OF INFORMATION**

- B16.1 Bids will not be opened publicly.
- B16.2 Following the Submission Deadline, the names of the Bidders and their Total Bid Prices (unevaluated and pending review and verification of conformance with requirements) will be available on the MERX website at [www.merx.com](http://www.merx.com).
- B16.3 After award of Contract, the name(s) of the successful Bidder(s) and their Contract amount(s) will be available on the MERX website at [www.merx.com](http://www.merx.com).
- B16.4 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).
- B16.4.1 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.

## **B17. IRREVOCABLE BID**

- B17.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 11 of Form A: Bid/Proposal.
- B17.2 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.

**B18. WITHDRAWAL OF BIDS**

B18.1 A Bidder may withdraw his/her Bid without penalty at any time prior to the Submission Deadline.

**B19. EVALUATION OF BIDS**

B19.1 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 B14 (pass/fail);
- (c) Total Bid Price;
- (d) economic analysis of any approved alternative pursuant to B8.

B19.2 Further to B19.1(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.

B19.3 Further to B19.1(b), the Award Authority shall reject any Bid submitted by a Bidder who does not demonstrate, in his/her Bid or in other information required to be submitted, that he/she is qualified.

B19.4 Further to B19.1(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.

B19.4.1 Further to B19.1(a), in the event that a unit price is not provided on Form B: Prices, the City may determine the unit price by dividing the Amount (extended price) by the approximate quantity, for the purposes of evaluation and payment.

B19.4.2 Bidders are advised that the calculation indicated in B19.4 will prevail over the Total Bid Price entered in MERX.

**B20. AWARD OF CONTRACT**

B20.1 The City will give notice of the award of the Contract or will give notice that no award will be made.

B20.2 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.

B20.2.1 Without limiting the generality of B20.2, the City will have no obligation to award a Contract where:

- (a) the prices exceed the available City funds for the Work;
- (b) the prices are materially in excess of the prices received for similar work in the past;
- (c) the prices are materially in excess of the City's cost to perform the Work, or a significant portion thereof, with its own forces;
- (d) only one Bid is received; or
- (e) in the judgment of the Award Authority, the interests of the City would best be served by not awarding a Contract.

B20.3 The Work of this Contract is contingent upon Council approval of sufficient funding in the 2022 Capital Budget. If the Capital Budget approved by Council does not include sufficient funding for the Work, the City will have no obligation to award a Contract.

- B20.4 If funding for the Work is provided to the City of Winnipeg by the Government of Manitoba and/or the Government of Canada, Bidders are advised that the terms of D31 shall immediately take effect upon confirmation of such funding, regardless of when funding is confirmed.
- B20.5 Where an award of Contract is made by the City, the award shall be made to the qualified Bidder submitting the lowest evaluated responsive Bid, in accordance with B19.
- B20.5.1 Following the award of contract, a Bidder will be provided with information related to the evaluation of his/her Bid upon written request to the Contract Administrator.

## PART C - GENERAL CONDITIONS

### C0. GENERAL CONDITIONS

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

## PART D - SUPPLEMENTAL CONDITIONS

### GENERAL

#### D1. GENERAL CONDITIONS

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

#### D2. FORM OF CONTRACT DOCUMENTS

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

#### D3. SCOPE OF WORK

D3.1 The Work to be done under the Contract shall consist of construction of new chemical receiving, storage, and dosing systems required for removing phosphorous from effluent being discharged from the North End Sewage Treatment Plant (NEWPCC).

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

- (a) New rail car unloading facility and associated rail line,
- (b) New ferric chloride chemical storage facility,
- (c) New sodium hydroxide chemical storage facility,
- (d) New chemical dosing systems including remote storage tanks, and
- (e) All associated automation and controls.

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. DEFINITIONS

D4.1 When used in this Tender:

- (a) "**Addendum**" means a written addendum to the Tender issued by the City as set out in B7;
- (b) "**ASME**" means the American Society of Mechanical Engineers;
- (c) "**Commissioning**" means the process of verifying that new equipment, and systems are installed, tested and capable of being operated and maintained to perform in conformance with the Drawings and Specifications. Commissioning includes, but is not limited to, satisfactory delivery, installation, training, testing, demonstration, performance verification, and document delivery for all equipment;
- (d) "**CSA**" means the Canadian Standards Association international, formerly the Canadian standards association;
- (e) "**ISO**" means the International Organization for Standardization;
- (f) "**NEWPCC**" means North End Sewage Treatment Plant;
- (g) "**O&M**" means Operation and Maintenance;
- (h) "**PDF**" means Portable Document Format;

- (i) "**Professional Engineer**" means an engineer registered in the Province of Manitoba;
- (j) "**Standardized Goods**" means the respective goods identified in D32 that have been standardized by the City.
- (k) "**WSTP**" means Winnipeg Sewage Treatment Program; and
- (l) "**WWD**" means Water and Waste Department

#### **D5. CONTRACT ADMINISTRATOR**

D5.1 The Contract Administrator is KGS Group, represented by:

Prasan Silva, P.Eng.  
Senior Mechanical Engineer  
Telephone No.: 204 998 2278  
Email Address: psilva@kgsgroup.com

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

#### **D6. CONTRACTOR'S SUPERVISOR**

D6.1 At the pre-construction meeting, the Contractor shall identify his/her designated supervisor and any additional personnel representing the Contractor and their respective roles and responsibilities for the Work.

#### **D7. NOTICES**

D7.1 Except as provided for in C22.4, all notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the Contractor shall be sent to the address or facsimile number identified by the Contractor in Paragraph 2 of Form A: Bid/Proposal.

D7.2 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the City, except as expressly otherwise required in D7.3 or elsewhere in the Contract, shall be sent to the attention of the Contract Administrator identified in D5.

D7.3 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications required to be submitted or returned to the City Solicitor shall be sent to the following facsimile number:

The City of Winnipeg  
Legal Services Department  
Attn: Director of Legal Services  
Facsimile No.: 204 947-9155

#### **D8. ACCESSIBLE CUSTOMER SERVICE REQUIREMENTS**

D8.1 The Accessibility for Manitobans Act (AMA) imposes obligations on The City of Winnipeg to provide accessible customer service to all persons in accordance with the Customer Service Standard Regulation ("CSSR") to ensure inclusive access and participation for all people who live, work or visit Winnipeg regardless of their abilities.



- D8.1.1 The Contractor agrees to comply with the accessible customer service obligations under the CSSR and further agrees that when providing the Goods or Services or otherwise acting on the City of Winnipeg's behalf, shall comply with all obligations under the AMA applicable to public sector bodies.
- D8.1.2 The accessible customer service obligations include, but are not limited to:
- (a) providing barrier-free access to goods and services;
  - (b) providing reasonable accommodations
  - (c) reasonably accommodating assistive devices, support persons, and support animals;
  - (d) providing accessibility features e.g. ramps, wide aisles, accessible washrooms, power doors and elevators
  - (e) inform the public when accessibility features are not available;
  - (f) providing a mechanism or process for receiving and responding to public feedback on the accessibility of all goods and services; and
  - (g) providing adequate training of staff and documentation of same.

## **D9. FURNISHING OF DOCUMENTS**

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

## **SUBMISSIONS**

### **D10. AUTHORITY TO CARRY ON BUSINESS**

- D10.1 The Contractor shall be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba, or if the Contractor does not carry-on business in Manitoba, in the jurisdiction where the Contractor does carry on business, throughout the term of the Contract, and shall provide the Contract Administrator with evidence thereof upon request.

### **D11. SAFE WORK PLAN**

- D11.1 The Contractor shall provide the Contract Administrator with a Safe Work Plan at least five (5) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract Documents, if applicable.
- D11.2 The Safe Work Plan 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, Materials Management Division website at <http://www.winnipeg.ca/matmgt/Safety/default.stm>
- D11.3 Notwithstanding B14.4 at any time during the term of the Contract, the City may, at its sole discretion and acting reasonably, require an updated COR Certificate or Annual Letter of good Standing. A Contractor, who fails to provide a satisfactory COR Certificate or Annual Letter of good Standing, will not be permitted to continue to perform any Work.

### **D12. QUALITY MANAGEMENT PLAN**

- D12.1 The Contractor shall submit a detailed Quality Management Plan that demonstrates conformance to the ISO 9001 Quality Management Standard or an equivalent standard.
- D12.2 The Quality Management Plan shall describe the Contractor's Quality Management System or "QMS" to provide an organizational structure, procedures, processes and resources necessary

to implement a comprehensive, planned and systematic program to ensure that the standards of quality control, quality management and quality assurance are achieved by the Contractor in every material aspect.

- (a) The QMS shall be consistent with the requirements of ISO 9001:2008 and all subsequent revisions, and shall address all stages of the Works in accordance with the Tender Documents. The QMS shall include procedures to monitor, update and manage the QMS. The QMS shall identify the staff responsible for carrying out quality control and quality assurance. The QMS shall require that testing, inspection and quality control records and reports are prepared and provided to the Contract Administrator.
- (b) The QMS shall provide a framework for the integration and structuring of the various quality management plans and systems that comprise the Quality Management System.
- (c) The QMS shall integrate the design and construction services including detailed quality assurance and quality control procedures, training, staffing assignments and communication protocols.
- (d) The QMS shall ensure the provision of durable, dependable and high-quality assets that will meet the specified design life of the Facility and provide dependable service to the City after the Term.
- (e) The QMS shall ensure that problems are discovered early, resolved quickly, corrected adequately and do not recur.
- (f) The QMS shall ensure that persons participating in the Works are competent to do their required tasks and are qualified and licensed as required.
- (g) The QMS shall ensure that deficiencies are documented along with a mechanism to ensure prompt and effective corrective action.

#### D12.3 Quality Records

- (a) The Contractor shall maintain complete records of all tests, reports and other documentation pertaining to its Quality Management System to demonstrate that the Work comply with the requirements of the Tender documents.

### D13. INSURANCE

D13.1 The City shall provide and maintain the following owner-controlled project insurance coverage to remain in place at all times during the performance of the Work and throughout the warranty period unless otherwise stated below:

- (a) all risks course of construction insurance including 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 Total Performance; 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 of \$250,000 deductible;
- (b) all risk property insurance for full replacement cost of the existing structure while under renovation or decommissioning for the Project. The Contractor shall be responsible for deductibles up to \$250,000 per occurrence for losses;
- (c) Wrap-up liability insurance in an amount of no less than ten million dollars (\$10,000,000) inclusive per occurrence and ten million dollars (\$10,000,000) general aggregate, covering bodily injury, personal injury, damage to the existing structure, hook liability, property damage and products and completed operations consistent with industry standard insurance policy wordings. Wrap up liability insurance to also include evidence of contractual liability and cross liability clauses.
  - (i) The Contractor shall be responsible for deductibles up to \$100,000 for any one loss.
  - (ii) The City will carry such insurance to cover the City, Contractors, and Subcontractors as insureds. Provision of this insurance by the City is not intended in any way to relieve the Contractor from his 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 and Telus shall be shown as additional insured, 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 and shall include an additional 24 months completed operations coverage which will take affect after Total Performance.

- D13.2 The Contractor shall provide and maintain the following insurance coverage to remain in place at all times during the performance of the Work and throughout the warranty period:
- (a) commercial general liability insurance, in the amount of at least five million dollars (\$5,000,000.00) 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, sudden and accidental pollution liability, non-owned automobile liability, broad form property damage cover and products and completed operations;
  - (b) Automobile Liability Insurance covering all motor vehicles, owned and operated and used or to be used by the Contractor directly or indirectly in the performance of the Work. The Limit of Liability shall not be less than \$2,000,000 inclusive for loss or damage including personal injuries and death resulting from any one accident or occurrence;
  - (c) property insurance for equipment, tools, field office and portable toilets, if to be used by the Contractor 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 in D13.1 – Insurance to be appropriately underwritten by competent insurers. Such information shall be provided within 14 calendar days from the request.
- D13.4 Deductibles shall be borne by the Contractor.
- D13.5 All policies shall be taken out with insurers licensed 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, in the form attached to these Supplemental Conditions (Form H1: Performance Bond), in the amount of fifty percent (50%) of the Contract Price; and
  - (b) a labour and material payment bond of a company registered to conduct the business of a surety in Manitoba, in the form attached to these Supplemental Conditions (Form H2: Labour and Material Payment Bond), in an amount equal to fifty percent (50%) of the Contract Price.
- 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 its 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 City Solicitor with the required performance and labour and material payment bonds within seven (7) Calendar Days of notification of the award of the Contract by way of an award letter and prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract Documents, if applicable.

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. EQUIPMENT LIST**

D16.1 The Contractor shall provide the Contract Administrator with a complete list of the equipment which the Contractor proposes to utilize (Form K: Equipment 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.

## **D17. DETAILED WORK SCHEDULE**

D17.1 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.

D17.2 The detailed work schedule shall consist of the following:

- (a) a critical path method (C.P.M.) schedule for the Work;
- (b) a Gantt chart for the Work based on the C.P.M. schedule;
- (c) a daily manpower schedule for the Work;

all acceptable to the Contract Administrator.

- D17.3 Further to D17.2(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.
- D17.4 Further to D17.2(b), the Gantt chart shall show the time on a weekly basis, required to carry out the Work of each trade, or specification division. The time shall be on the horizontal axis, and the type of trade shall be on the vertical axis.
- D17.5 Further to D17.2(c), the daily manpower schedule shall list the daily number of individuals on the Site for each trade.

## **D18. ESTIMATES**

- D18.1 The Contractor shall provide the Contract Administrator with copies of the estimates provided by Standardized Equipment Suppliers identified in E2 to E6.

## **SCHEDULE OF WORK**

### **D19. COMMENCEMENT**

- D19.1 The Contractor shall not commence any Work until he/she is in receipt of an award letter from the Award Authority authorizing the commencement of the Work.
- D19.2 The Contractor shall not commence any Work on the Site until:
- (a) the Contract Administrator has confirmed receipt and approval of:
    - (i) evidence of authority to carry on business specified in D10;
    - (ii) evidence of the workers compensation coverage specified in C6.15;
    - (iii) the Safe Work Plan specified in D11;
    - (iv) the Quality Management Plan specified in D12;
    - (v) evidence of the insurance specified in D13;
    - (vi) the contract security specified in D14;
    - (vii) the Subcontractor list specified in D15;
    - (viii) the equipment list specified in D16;
    - (ix) the detailed work schedule specified in D17;
    - (x) the estimates specified in D18; and
    - (xi) the direct deposit application form specified in D28
  - (b) the Contractor has attended a pre-construction meeting with the Contract Administrator, or the Contract Administrator has waived the requirement for a pre-construction meeting.
- D19.3 The City intends to award this Contract by **August 12<sup>th</sup>, 2022**.
- D19.3.1 If the actual date of award is later than the intended date, the dates specified for Substantial Performance and Total Performance will be adjusted by the difference between the aforementioned intended and actual dates.

### **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 Contractors execution of Work and it will be the Contractor's responsibility to cooperate to the fullest extent with other personnel working in the area, and such cooperation is an obligation of the Contractor under the terms of Contract.
- D20.2 Work by others on or near the Site will include but not necessarily be limited to:

- (a) Normal operations of the NEWPCC plant, including rail/truck deliveries and unloading of chemicals, sewage, etc. All roads, railway, and the existing facilities shall remain operational and accessible to normal operations of the plant.
- (b) Other on-going projects at the Plant.

D20.3 Further to D20.1 the Contractor shall cooperate and coordinate all activities with all parties performing required Work by Others identified in D20.1 and accommodate the necessary area on Site required for the Work by Others to complete the Work

## **D21. SUBSTANTIAL PERFORMANCE**

D21.1 The Contractor shall achieve Substantial Performance by **July 21, 2023**.

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 **August 31, 2023**.

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 or Total Performance in accordance with the Contract by the days fixed herein for same, the Contractor shall pay the City the following amounts per Working Day for each and every Working Day following the days fixed herein for same during which such failure continues:

- (a) Substantial Performance – One Thousand dollars (\$1,000);
- (b) Total Performance – Five Hundred dollars (\$500).

D23.2 The amounts specified for liquidated damages in D23.1 are based on a genuine pre-estimate of the City's losses in the event that the Contractor does not achieve Substantial Performance or Total Performance by the days fixed herein for same.

D23.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

## **D24. COVID-19 SCHEDULE DELAYS**

D24.1 The City acknowledges that the schedule for this Contract may be impacted by the COVID-19 pandemic. Commencement and progress of the Work shall be performed by the Contractor with due consideration to the health and safety of workers and the public, directives from health

authorities and various levels of government and in close consultation with the Contract Administrator.

- D24.2 If the Contractor is delayed in the performance of the Work by reason of the COVID-19 pandemic, the Work schedule may be adjusted by a period of time equal to the time lost due to such delay and costs related to such delay will be determined as identified herein.
- D24.3 A minimum of seven (7) Calendar Days prior to the commencement of Work, the Contractor shall declare whether COVID-19 will affect the start date. The Contractor shall provide sufficient evidence that the delay is directly related to COVID-19, including but not limited to evidence related to availability of staff, availability of Material or work by others.
- D24.4 For any delay related to COVID-19 and identified after Work has commenced, the Contractor shall within seven (7) Calendar Days of becoming aware of the anticipated delay declare the additional delay and shall provide sufficient evidence as indicated in 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 D21 to D22 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 COVID-19, as confirmed by the Contract Administrator, the cost of temporary works to maintain the Work in a safe manner until Work recommences, will be considered by the Contract Administrator. Where the Work is carried over only partially due to COVID-19, a partial consideration of the cost of temporary works will be considered by the Contract Administrator.
- D24.7 Any time or cost implications as a result of COVID-19 and in accordance with the above, as confirmed by the Contract Administrator, shall be documented in accordance with C7.

## **CONTROL OF WORK**

### **D25. JOB MEETINGS**

- D25.1 Regular weekly job meetings will be held at the Site. These meetings shall be attended by a minimum of one representative of the Contract Administrator, one representative of the City and one representative of the Contractor. Each representative shall be a responsible person capable of expressing the position of the Contract Administrator, the City and the Contractor respectively on any matter discussed at the meeting including the Work schedule and the need to make any revisions to the Work schedule. The progress of the Work will be reviewed at each of these meetings.
- D25.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever he/she deems it necessary.

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

- D26.1 Further to C6.26, the Contractor shall be the Prime Contractor and shall serve as, and have the duties of the Prime Contractor in accordance with The Workplace Safety and Health Act (Manitoba) in the designated area of Work.
- D26.2 Contractor is advised that Work in non-designated areas (mainly tunnels and remote dosing location) may have other contractors who are serving as the Prime Contractor in accordance with The Workplace Safety and Health Act (Manitoba).

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

D27.1 Further to B14.4, the Contractor/Subcontractor must, throughout the term of the Contract, have a Workplace Safety and Health Program meeting the requirements of The Workplace Safety and Health Act (Manitoba). At any time during the term of the Contract, the City may, at its sole discretion and acting reasonably, require updated proof of compliance, as set out in B14.4.

## **MEASUREMENT AND PAYMENT**

### **D28. PAYMENT**

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

## **WARRANTY**

### **D29. WARRANTY**

D29.1 Notwithstanding C13.2, the warranty period shall begin on the date of Total Performance and shall expire one (1) year thereafter unless extended pursuant to C13.2.1 or C13.2.2, in which case it shall expire when provided for thereunder.

## **DISPUTE RESOLUTION**

### **D30. DISPUTE RESOLUTION**

D30.1 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 D30.

D30.2 The entire text of C21.4 is deleted, and amended to read: "Intentionally Deleted"

D30.3 The entire text of C21.5 is deleted, and amended to read:

- (a) If Legal Services has determined that the Disputed Matter may proceed in the Appeal Process, the Contractor must, within ten (10) Business Days of the date of the Legal Services Response Letter, submit his written Appeal Form, in the manner and format set out on the City's Materials Management Website, to the Chief Administrative Officer, and to the Contract Administrator. The Contractor may not raise any other disputes other than the Disputed Matter in his Appeal Form.

D30.4 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.
- D30.5 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.
- D30.6 As these negotiations are not an adjudicative hearing, neither party may have legal counsel present during the negotiations.
- D30.7 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.
- D30.8 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 D30.7, 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.

### THIRD PARTY AGREEMENTS

#### D31. FUNDING AND/OR CONTRIBUTION AGREEMENT OBLIGATIONS

- D31.1 In the event that funding for the Work of the Contract is provided to the City of Winnipeg by the Government of Manitoba and/or the Government of Canada, the following terms and conditions shall apply, as required by the applicable funding agreements.
- D31.2 Further to D31.1, in the event that the obligations in D31 apply, actual costs legitimately incurred by the Contractor as a direct result of these obligations ("Funding Costs") shall be determined by the actual cost to the Contractor and not by the valuation method(s) outlined in C7.4. In all other respects Funding Costs will be processed in accordance with Changes in Work under C7.
- D31.3 For the purposes of D31:
  - (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.
- D31.4 Modified Insurance Requirements
  - D31.4.1 If not already required under the insurance requirements identified in D12, the Contractor will be required to provide wrap-up liability insurance in an amount of no less than two million dollars (\$2,000,000) inclusive per occurrence. Such policy will be written in the joint names of the City, Contractor, Consultants and all sub-contractors and sub-consultants and include twelve (12) months completed operations. The Government of Manitoba and its Ministers, officers, employees, and agents shall be added as additional insureds.
  - D31.4.2 If not already required under the insurance requirements identified in D12, the Contractor will be required to provide builders' risk insurance (including boiler and machinery insurance, as applicable) providing all risks coverage at full replacement cost, or such lower level of insurance that the City may identify on a case-by-case basis, such as an installation floater.
  - D31.4.3 The Contractor shall obtain and maintain third party liability insurance with minimum coverage of two million dollars (\$2,000,000.00) per occurrence on all licensed vehicles operated at the Site. In the event that this requirement conflicts with another licensed

vehicle insurance requirement in this Contract, then the requirement that provides the higher level of insurance shall apply.

- D31.4.4 Further to D13.6, insurers shall provide satisfactory Certificates of Insurance to the Government of Manitoba prior to commencement of Work as written evidence of the insurance required. The Certificates of Insurance must provide for a minimum of thirty (30) days' prior written notice to the Government of Manitoba in case of insurance cancellation.
- D31.4.5 All policies must be taken out with insurers licensed to carry on business in the Province of Manitoba.
- D31.5 Indemnification By Contractor
- D31.5.1 In addition to the indemnity obligations outlined in C17 of the General Conditions for Construction, the Contractor agrees to indemnify and save harmless the Government of Canada and the Government of Manitoba and each of their respective Ministers, officers, servants, employees, and agents from and against all claims and demands, losses, costs, damages, actions, suit or other proceedings brought or pursued in any manner in respect of any matter caused by the Contractor or arising from this Contract or the Work, or from the goods or services provided or required to be provided by the Contractor, except those resulting from the negligence of any of the Government of Canada's or the Government of Manitoba's Ministers, officers, servants, employees, or agents, as the case may be.
- D31.6 Records Retention and Audits
- D31.6.1 The Contractor shall maintain and preserve accurate and complete records in respect of this Contract and the Work, including all accounting records, financial documents, copies of contracts with other parties and other records relating to this Contract and the Work during the term of the Contract and for at least six (6) years after Total Performance. Those records bearing original signatures or professional seals or stamps must be preserved in paper form; other records may be retained in electronic form.
- D31.6.2 In addition to the record keeping and inspection obligations outlined in C6 of the General Conditions for Construction, the Contractor shall keep available for inspection and audit at all reasonable times while this Contract is in effect and until at least six (6) years after Total Performance, all records, documents, and contracts referred to in D31.6.1 for inspection, copying and audit by the City of Winnipeg, the Government of Manitoba and/or the Government of Canada and their respective representatives and auditors, and to produce them on demand; to provide reasonable facilities for such inspections, copying and audits, to provide copies of and extracts from such records, documents, or contracts upon request by the City of Winnipeg, the Government of Manitoba, and/or the Government of Canada and their respective representatives and auditors, and to promptly provide such other information and explanations as may be reasonably requested by the City of Winnipeg, the Government of Manitoba, and/or the Government of Canada from time-to-time.
- D31.7 Other Obligations
- D31.7.1 The Contractor consents to the City providing a copy of the Contract Documents to the Government of Manitoba and/or the Government of Canada upon request from either entity.
- D31.7.2 If the Lobbyists Registration Act (Manitoba) applies to the Contractor, the Contractor represents and warrants that it has filed a return and is registered and in full compliance with the obligations of that Act, and covenants that it will continue to comply for the duration of this Contract.
- D31.7.3 The Contractor shall comply with all applicable legislation and standards, whether federal, provincial, or municipal, including (without limitation) labour, environmental, and human rights laws, in the course of providing the Work.
- D31.7.4 The Contractor shall properly account for the Work provided under this Contract and payment received in this respect, prepared in accordance with generally accepted accounting principles in effect in Canada, including those principles and standards

approved or recommended from time-to-time by the Chartered Professional Accountants of Canada or the Public Sector Accounting Board, as applicable, applied on a consistent basis.

D31.7.5 The Contractor represents and warrants that no current or former public servant or public office holder, to whom the Value and Ethics Code for the Public Sector, the Policy on Conflict of Interest and Post Employment, or the Conflict-of-Interest Act applies, shall derive direct benefit from this Contract, including any employment, payments, or gifts, unless the provision or receipt of such benefits is in compliance with such codes and the legislation.

D31.7.6 The Contractor represents and warrants that no member of the House of Commons or of the Senate of Canada or of the Legislative Assembly of Manitoba is a shareholder, director or officer of the Contractor or of a Subcontractor, and that no such member is entitled to any benefits arising from this Contract or from a contract with the Contractor or a Subcontractor concerning the Work.

## **STANDARDIZATION**

### **D32. STANDARDIZED GOODS**

D32.1 The following goods have been standardized by the City and will be supplied by the Contractor:

- (a) Control System and Motor Control Equipment in accordance with E3.
- (b) Electric Valve Actuators in accordance with E4.
- (c) Gas Detection Systems in accordance with E5.
- (d) Instrumentation in accordance with E6.

### **D33. CONTRACTUAL ARRANGEMENT**

D33.1 Each Standardization Vendor shall be a Subcontractor of the Contractor.

D33.2 The City's contract with each of the Standardization Vendors defines the prices and general terms of supply to the Contractor. Each Standardization Vendor is obligated to enter into a contract with the Contractor, based upon such prices and general terms of supply.

D33.2.1 The City is not a party to any contract between a Standardization Vendor and the Contractor, or any Subcontractor.

D33.3 In the event that a potential dispute arises between the Contractor and a Standardization Vendor, the Contract Administrator shall be notified.

### **D34. PAYMENT OF STANDARDIZATION VENDORS**

D34.1 The Contractor is obligated to pay the Standardization Vendors in accordance with general terms of supply applicable to such Standardization Vendor.

D34.2 The Contractor's payment terms to the Standardization Vendor, in respect of Standardized Goods, include the following:

D34.2.1 The Payment shall be in Canadian funds net thirty (30) Calendar Days after receipt and approval of the Standardization Vendor's invoice.

**FORM H1: PERFORMANCE BOND**  
(See D14)

KNOW ALL MEN BY THESE PRESENTS THAT

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

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

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

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

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

TENDER NO. 197-2022

NEWPCC INTERIM PHOSPHOROUS REMOVAL

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

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

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

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

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

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

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

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

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

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

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

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

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

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

**FORM H2: LABOUR AND MATERIAL PAYMENT BOND**  
(See D14)

KNOW ALL MEN BY THESE PRESENTS THAT

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

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

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

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

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

TENDER NO. 197-2022  
NEWPCC INTERIM PHOSPHOROUS REMOVAL

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

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

- (a) A claimant is defined as one having a direct contract with the Principal for labour, service and material, or any of them, used or reasonably required for use in the performance of the contract, labour, service and material being construed to include that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental of equipment (but excluding rent of equipment where the rent pursuant to an agreement is to be applied towards the purchase price thereof) directly applicable to the Contract;
- (b) The above-named Principal and Surety hereby jointly and severally agree with the Obligee that every claimant as herein defined, who has not been paid in full before the expiration of a period of ninety (90) days after the date on which the last of such claimant's work, labour or service was done or performed, or materials were furnished by such claimant, may sue on this bond, prosecute the suit to final judgment for such sum or sums as may be justly due claimant, and have execution thereon;
- (c) No suit or action shall be commenced hereunder by any claimant
  - (i) unless claimant shall have given written notice to the Principal and the Surety above-named, within one hundred and twenty (120) days after such claimant did or performed the last of the work, labour or service, or furnished the last of the materials for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were furnished, or for whom the work, labour or service was done or performed. Such notice shall be served by mailing the same by registered mail to the Principal, and Surety, at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the Province of Manitoba;
  - (ii) after the expiration of one (1) year following the date on which Principal ceased work on said Contract; including work performed under the guarantees provided in the Contract;
  - (iii) other than in a court of competent jurisdiction in the Province of Manitoba.

- (d) The amount of this bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder, inclusive of the payment by Surety of mechanics liens which may be filed of record against said improvement, whether or not claim for the amount of such lien be presented under and against this bond.
- (e) The Surety shall not be liable for a greater sum than the specified penalty of this bond.

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

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

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

SIGNED AND SEALED  
in the presence of:

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

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

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

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

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

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





**FORM K: EQUIPMENT**  
(See D16)

**NEWPCC INTERIM PHOSPHOROUS REMOVAL**

<p><b>1. Category/type:</b></p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>
<p><b>2. Category/type:</b></p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>
<p><b>3. Category/type:</b></p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>

**FORM K: EQUIPMENT**  
(See D16)

**NEWPCC INTERIM PHOSPHOROUS REMOVAL**

<p><b>4. Category/type:</b></p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>
<p><b>5. Category/type:</b></p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>
<p><b>6. Category/type:</b></p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>

## PART E - SPECIFICATIONS

### GENERAL

#### E1. APPLICABLE SPECIFICATIONS AND DRAWINGS

- E1.1 These Specifications shall apply to the Work.
- E1.2 *The City of Winnipeg Standard Construction Specifications* in its entirety, whether or not specifically listed on Form B: Prices, shall apply to the Work.
- E1.2.1 *The City of Winnipeg Standard Construction Specifications* is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/Spec/Default.stm>.
- E1.2.2 The version in effect three (3) Business Days before the Submission Deadline shall apply.
- E1.2.3 Further to C2.4(d), Specifications included in the Tender shall govern over *The City of Winnipeg Standard Construction Specifications*.
- E1.3 Bidders are reminded that requests for approval of substitutes as an approved equal or an approved alternative shall be made in accordance with B8. 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 B8.
- E1.4 The following are applicable to the Work:

Specification No.

**NMS SPECIFICATIONS**

**DIVISION 01:**

01 11 00	Summary of Work
01 31 19	Project Meetings
01 32 16	Construction Progress Schedule - Critical Path Method
01 33 00	Submittal Procedures
01 35 29.06	Health and Safety Requirements
01 51 00	Temporary Utilities
01 52 00	Construction Facilities
01 74 11	Cleaning
01 74 21	Construction/Demolition Waste Management and Disposal
01 78 00	Closeout Submittals
01 79 00	Demonstration and Training
01 91 31	Commissioning (Cx) Plan

**DIVISION 03:**

03 10 00	Concrete Forming and Accessories
03 20 00	Concrete Reinforcing
03 30 00	Cast-in-Place Concrete

**DIVISION 04:**

04 05 00	Common Work Results for Masonry
04 05 13	Masonry Mortaring and Grouting
04 05 19	Masonry Anchorage and Reinforcing
04 05 23	Masonry Accessories
04 21 13	Brick Masonry
04 22 00	Concrete Unit Masonry

**DIVISION 05:**

05 12 23	Structural Steel for Buildings
05 21 00	Steel Joist Framing
05 31 00	Steel Decking
05 50 00	Metal Fabrications

Specification Title

**GENERAL REQUIREMENTS**

**CONCRETE**

**MASONRY**

**METALS**

**DIVISION 06:**

06 10 53  
06 64 00

**WOOD, PLASTICS AND COMPOSITES**

Miscellaneous Rough Carpentry  
FRP Fabrications

**DIVISION 07:**

07 11 13  
07 13 52  
07 21 13  
07 27 00.01  
07 62 00  
07 92 00

**THERMAL AND MOISTURE PROTECTION**

Bituminous Dampproofing  
Modified Bituminous Sheet Waterproofing  
Board Insulation  
Air Barriers - Descriptive or Proprietary  
Sheet Metal Flashing and Trim  
Joint Sealants

**DIVISION 08:**

08 11 00  
08 36 13.16  
08 36 13.19  
08 71 00

**OPENINGS**

Metal Doors and Frames  
Sectional Metal Doors  
Sectional Plastic Curtains  
Door Hardware

**DIVISION 09:**

09 91 12  
09 91 23

**FINISHES**

Speciality Chemical-Resistant Painting  
Interior Painting

**DIVISION 10:**

10 44 16

**SPECIALTIES**

Portable Fire Extinguishers

**DIVISION 22:**

22 05 00  
22 10 10  
22 11 16  
22 13 18  
22 15 00  
22 33 00  
22 42 01  
22 45 00

**PLUMBING**

Common Work Results for Plumbing  
Plumbing Pumps  
Domestic Water Piping  
Drainage Waste and Vent Piping - Plastic  
General Service Compressed - Air Systems  
Domestic Water Heaters  
Plumbing Specialties and Accessories  
Emergency Plumbing Fixtures

**DIVISION 23:**

23 05 00  
23 05 05  
23 05 13  
23 05 19.01  
23 05 29  
23 05 53.01  
23 05 93  
23 07 13  
23 07 15  
23 11 23  
23 21 13.02  
23 21 14  
23 21 23  
23 31 13.02  
23 33 00  
23 33 14  
23 33 15  
23 34 00  
23 37 13  
23 73 11  
23 81 23  
23 82 39  
23 83 00

**HVAC**

Common Work Results for HVAC  
Installation of Pipework  
Common Motor Requirements for HVAC Equipment  
Thermometers and Pressure Gauges  
Hangers and Supports for HVAC Piping and Equipment  
Mechanical Identification  
Testing, Adjusting and Balancing for HVAC  
Duct Insulation  
Thermal Insulation for Piping  
Facility Natural Gas Piping  
Hydronic Piping Systems  
Hydronic Specialties  
Hydronic Pumps  
Metal Ducts - High Pressure To 2500 Pa  
Air Duct Accessories  
Dampers - Balancing  
Dampers - Operating  
HVAC Fans  
Diffusers, Registers and Grilles  
Makeup Air Units  
Split System Air  
Unit Heaters  
Radiant Heating Units

**DIVISION 25:**

25 05 01	Common Work Results Automation
25 80 08	Factory Acceptance Test
25 80 11	Automation Commissioning
25 90 01	Sequences of Operation
25 91 00	Automation - Process Measurement Devices
25 92 00	Automation – Primary Control Devices
25 94 43	Programmable Logic Controllers (PLC's)
25 95 13	Control Panels
25 95 74	Junction Boxes - Automation
25 99 01	Training
25 99 90	Maintenance and Support

**AUTOMATION**

**DIVISION 26:**

26 05 00	Common Work Results for Electrical
26 05 20	Wire and Box Connectors (0-1000 V)
26 05 21	Wires and Cables (0-1000 V)
26 05 24	Installation of Cables in Trench and in Ducts
26 05 28	Grounding - Secondary
26 05 29	Hanger and Supports for Electrical Systems
26 05 31	Splitters, Junction, Pull Boxes and Cabinets
26 05 32	Outlet Boxes, Conduit Boxes and Fittings
26 05 34	Conduits, Conduit Fastenings and Conduit Fittings
26 05 36	Cable Trays for Electrical Systems
26 12 16.01	Dry Type Transformers To 600 V Primary
26 24 16.01	Panel boards Breaker Type
26 27 16	Electrical Cabinets and Enclosures
26 27 26	Wiring Devices
26 28 16.02	Moulded Case Circuit Breakers
26 28 23	Disconnect Switches - Fused and Non-Fused
26 29 01	Contactors
26 29 03	Control Devices
26 29 10	Motor Starters To 600 V
26 29 23	Variable Frequency Drives
26 50 00	Lighting
26 52 01	Emergency Lighting
26 53 00	Exit Signs

**ELECTRICAL**

**DIVISION 27:**

27 10 05	Structured Cabling for Communications Systems
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**COMMUNICATIONS**

**DIVISION 28:**

28 31 01	Fire Alarm Systems
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**ELECTRONIC SAFETY AND SECURITY**

**DIVISION 31:**

31 61 13	Pile Foundations, General Requirements
31 62 13.19	Precast Concrete Piles

**PILE FOUNDATIONS**

**DIVISION 34:**

34 72 16	Railway Civil and Track Construction
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**TRANSPORTATION**

**DIVISION 40:**

40 00 05	General Process Provisions
40 00 10	Chemical Procurement
40 00 50	Process Piping
40 00 51	Process Pipe Joints and Equipment Connections
40 00 52	Process Pipe Guides and Anchors
40 00 53	Process Pipe Expansion Joints
40 00 55	Detailed Process Piping Specification Sheets

**PROCESS**

40 00 56	Process Pipeline Appurtenances
40 00 58	Process Pipe Hangers and Supports
40 01 00	Process Valves
40 01 25	Process Valve and Gate Actuators
40 03 15	Process Pump Skids Mounted
40 05 01	Chemical Storage Tanks
40 06 01	Chemical Containment Pallets
40 07 01	Rail Chemical Containment
40 09 10	Identification
40 40 00	Process Piping Insulation

## APPENDICES

Appendix A	Masks Poster
Appendix B	Mask Use Instructions
Appendix C	COVID Screening Questionnaire
Appendix D	Construction Plan
Appendix E	Commissioning Plan
Appendix F	Geotechnical Report
Appendix G	Site Plans for Laydown Area and Access Routes
Appendix H	Environmental Management Policy
Appendix I	City of Winnipeg Forms
Appendix J	WWD Identification Standard
Appendix K	Lists
Appendix L	WWD STP Tag Naming Standard.pdf
Appendix M	Datasheets
Appendix N	City of Winnipeg SOPs & SWPs
Appendix O	WWD Paint Colour Standard
Appendix P	City of Winnipeg Permit Forms
Appendix Q	City of Winnipeg Standard Specifications

### Drawing No.

### Drawing Name/Title

#### **General:**

1-0101-DAAA-A001-001	Cover Sheet
1-0101-DAAA-A002-001	Drawing Index

#### **Civil:**

1-0101-CGAD-F207-001	Municipal - Location Plan
1-0101-CRSW-F208-001	Municipal - Surface Works
1-0101-CUTY-F209-001	Municipal - Underground Works
1-0101-CDTL-F210-001	Municipal - Sections And Details

#### **Rail:**

1-0101-CAAA-F201-001	New Track Addition - General Notes And Legend
1-0101-CGAD-F202-001	New Track Addition - Track Plan And Profile
1-0101-CGAD-F203-001	New Track Addition - Track Typical Sections 1
1-0101-CGAD-F204-001	New Track Addition - Track Typical Sections 2
1-0101-CGAD-F205-001	New Track Addition - Grading Sections

#### **Building:**

1-0101-BAAA-F001-001	Abbreviations & Wall, Floor & Roof Types
1-0101-BAAA-F002-001	Notes
1-0101-BAAA-F003-001	Code Compliance - Building 101
1-0101-BAAA-F003-002	Code Compliance - Building 102
1-0101-BGAD-F201-001	Partial Site Plan
1-0101-BGAD-F202-001	Containment & Main Floor Plan - Building 101
1-0101-BGAD-F203-001	Platforms & Roof Plan - Building 101
1-0101-BGAD-F204-001	Roof Plan - Building 101

1-0101-BGAD-F205-001	Containment & Main Floor Plan - Building 102
1-0101-BGAD-F206-001	Platform & Roof Plan - Building 102
1-0101-BGAD-F207-001	North & South Elevations - Building 101
1-0101-BGAD-F208-001	East & West Elevations - Building 101
1-0101-BGAD-F209-001	North & South Elevations - Building 102
1-0101-BGAD-F210-001	East & West Elevations - Building 102
1-0101-BGAD-F211-001	Building Sections - Building 101
1-0101-BGAD-F211-002	Building Sections - Building 101
1-0101-BGAD-F211-003	Building Sections - Building 101
1-0101-BGAD-F212-001	Building Sections - Building 102
1-0101-BGAD-F212-002	Building Sections - Building 102
1-0101-BGAD-F213-001	Wall Sections - Building 101
1-0101-BGAD-F214-001	Wall Sections - Building 102
1-0101-BDTL-F201-001	Typical Sections & Details
1-0101-BDTL-F202-001	Sections & Details - Building 101
1-0101-BDTL-F302-002	Sections & Details - Building 101
1-0101-BDTL-F203-001	Sections & Details - Building 102
1-0101-BSCH-F201-001	Room & Door Schedules - Building 101
1-0101-BSCH-F202-001	Door Schedule Details - Building 101
1-0101-BSCH-F203-001	Room & Door Schedules & Details - Building 102

**Structural:**

1-0101-SAAA-F201-001	General Notes - Building 101 and 102
1-0101-SFDW-F201-001	Piling Plan - Building 101
1-0101-SFDW-F202-001	Containment Pit Base Slab / Wall Foundation Plan - Building 101
1-0101-SGAD-F201-001	Main Floor Framing Plan - Building 101
1-0101-SSST-F201-001	Platforms 1 & 2 Framing Plans - Building 101
1-0101-SGAD-F202-001	Roof and Wall Framing Plan - Building 101
1-0101-SFDW-F203-001	Plan / Containment Base Slab Plan - Building 102
1-0101-SSST-F202-001	Main Floor / Platform Framing Plan - Building 102
1-0101-SGAD-F203-001	Roof Wall Framing Plan - Building 102
1-0101-SGAD-F204-001	Sections - Building 101
1-0101-SGAD-F204-002	Sections - Building 101
1-0101-SDTL-F201-001	Sections and Details - Building 101
1-0101-SDTL-F201-002	Sections and Details - Building 101
1-0101-SDTL-F201-003	Sections and Details - Building 101
1-0101-SGAD-F205-001	Sections - Building 102
1-0101-SDTL-F202-001	Sections and Details - Building 102

**Mechanical:**

1-0101-MAAA-F001-001	Mechanical - Legends And Details
1-0101-MGAD-F201-001	Main Floor And Platform - Plumbing - Building 102
1-0101-MGAD-F202-001	Main Floor And Platform - HVAC - Building 102
1-0101-MGAD-F203-001	Main Floor And Platform - Process - Building 102
1-0101-MGAD-F204-001	Main Floor - Plumbing - Building 101
1-0101-MGAD-F205-001	Platform 1 - Plumbing - Building 101
1-0101-MGAD-F206-001	Platform 2 - Plumbing - Building 101
1-0101-MGAD-F207-001	Demo - Main Floor - HVAC - Building 101
1-0101-MGAD-F208-001	Main Floor - HVAC - Building 101
1-0101-MGAD-F209-001	Platform 1 - HVAC - Building 101
1-0101-MGAD-F210-001	Platform 2 - HVAC - Building 101
1-0101-MGAD-F211-001	Main Floor - Process - Building 101
1-0101-MGAD-F212-001	Platform 1 - Process - Building 101
1-0101-MGAD-F213-001	Platform 2 - Process - Building 101
1-0101-MGAD-F214-001	Plan - Compressed Air - Mechanical Room Dewatering Building
1-0101-MGAD-F215-001	Platform - Process - Room 100
1-0101-MGAD-A001-001	Chemical Distribution - Process - Overall Site Plan
1-0101-MGAD-F216-001	Chemical Distribution - Process - Dewatering Building
1-0101-MGAD-D101-001	Chemical Distribution - Process - Primary Sludge
1-0101-MGAD-D102-001	Chemical Distribution - Process - Trucked Sludge

1-0101-MGAD-G014-001	Chemical Distribution - Process - Piping Gallery No. 6
1-0101-MGAD-Y301-001	Chemical Distribution - Process - Junction Chamber
1-0101-MGAD-F017-001	Sections - Process - Dewatering Building Sections
1-0101-MGAD-D001-001	Sections - Process - Primary Sludge
1-0101-MGAD-D002-001	Sections - Process - Trucked Sludge
1-0101-MGAD-G015-001	Sections - Process - Piping Gallery No. 6
1-0101-MGAD-Y001-001	Sections - Process - Junction Chamber
1-0101-MGAD-F018-001	Sections - Plumbing - Building 101
1-0101-MGAD-F019-001	Sections - HVAC - Building 101
1-0101-MGAD-F020-001	Sections - Process - Building 101
1-0101-MGAD-F020-002	Sections - Process - Building 101
1-0101-MGAD-F021-001	Sections - Plumbing - Building 102
1-0101-MGAD-F022-001	Sections - HVAC - Building 102
1-0101-MGAD-F023-001	Sections - Process - Building 102
1-0101-MDTL-F007-001	Details - General - Sheet 1
1-0101-MDTL-F007-002	Details - Plumbing - Sheet 1
1-0101-MDTL-F001-001	Details - Plumbing - Sheet 1
1-0101-MDTL-F002-001	Details - Plumbing - Sheet 2
1-0101-MDTL-F003-001	Details - HVAC - Sheet 1
1-0101-MDTL-F004-001	Details - HVAC -Sheet 2
1-0101-MDTL-F005-001	Details - Process -Sheet 1
1-0101-MDTL-F006-001	Details - Process - Sheet 2
1-0101-MGAD-F024-001	Isometric View - Process -Sheet 1
1-0101-MGAD-F025-001	Isometric View - Process -Sheet 2
1-0101-MGAD-F026-001	Isometric View - Process -Sheet 3
1-0101-MGAD-F027-001	Isometric View - Process -Sheet 4
1-0101-MGAD-F028-001	Isometric View - Process -Sheet 5
1-0101-MGAD-F029-001	Isometric View - Plumbing - Dewatering Building
1-0101-MGAD-F030-001	ISOMETRIC VIEW - NATURAL GAS - ROOM 101A
1-0101-MGAD-F031-001	FERRIC CHLORIDE TANK GENERAL ARRANGEMENT - PROCESS - TK-F0730
1-0101-MGAD-F032-001	FERRIC CHLORIDE TANK GENERAL ARRANGEMENT - PROCESS - TK-F0740
1-0101-MGAD-F033-001	SODIUM HYDROXIDE TANK GENERAL ARRANGEMENT - PROCESS - TK-F0810
1-0101-MGAD-F034-001	SODIUM HYDROXIDE TANK GENERAL ARRANGEMENT - PROCESS - TK-F0820
1-0101-MSCH-F001-001	MECHANICAL EQUIPMENT - SCHEDULES - SHEET 1
1-0101-MSCH-F002-001	MECHANICAL EQUIPMENT - SCHEDULES -SHEET 2
1-0101-PPFD-F001-001	PROCESS FLOW DIAGRAM - EXISTING CHEMICAL RECEIVING AND CHEMICAL STORAGE
1-0101-PPFD-F002-001	PROCESS FLOW DIAGRAM - NEW CHEMICAL RECEIVING AND CHEMICAL STORAGE
1-0101-PPFD-F003-001	PROCESS FLOW DIAGRAM - CHEMICAL DOSING POINTS PROCESS AND INSTRUMENTATION DIAGRAMS - LEGENDS AND DETAILS
1-0101-PAAA-F001-001	PROCESS AND INSTRUMENTATION DIAGRAMS - LEGENDS AND DETAILS
1-0101-PAAA-F001-002	PROCESS AND INSTRUMENTATION DIAGRAMS - LEGENDS AND DETAILS
1-0101-PAAA-F001-003	PROCESS AND INSTRUMENTATION DIAGRAMS - LEGENDS AND DETAILS
1-0101-PPID-F001-001	PROCESS AND INSTRUMENTATION DIAGRAMS - ROOM 101A
1-0101-PPID-F002-001	PROCESS AND INSTRUMENTATION DIAGRAMS - ROOM 101B
1-0101-PPID-F003-001	PROCESS AND INSTRUMENTATION DIAGRAMS - ROOM 100 AND CONTAINMENT
1-0101-PPID-F004-001	PROCESS AND INSTRUMENTATION DIAGRAMS - ROOM 101C AND CONTAINMENT
1-0101-PPID-F005-001	PROCESS AND INSTRUMENTATION DIAGRAMS - BUILDING 102 AND CONTAINMENT



1-0101-PPID-F006-001 PROCESS AND INSTRUMENTATION DIAGRAMS - ROOM 100  
METERING PUMPS  
1-0101-PPID-F007-001 PROCESS AND INSTRUMENTATION DIAGRAMS - ROOM  
101C METERING PUMPS  
1-0101-PPID-F008-001 PROCESS AND INSTRUMENTATION DIAGRAMS - BUILDING  
102 METERING PUMPS  
1-0101-PPID-F009-001 PROCESS AND INSTRUMENTATION DIAGRAMS - ROOM  
101C TRANSFER PUMPS  
1-0101-PPID-G012-001 PROCESS AND INSTRUMENTATION DIAGRAMS - CHEMICAL  
DOSING TANK AND METERING PUMPS FOR DP 2.1A/B  
1-0101-PPID-Y001-001 PROCESS AND INSTRUMENTATION DIAGRAMS - CHEMICAL  
DOSING TANK AND METERING PUMPS FOR DP 4.1,4.2,4.3  
1-0101-PPID-F010-001 PROCESS AND INSTRUMENTATION DIAGRAMS - CHEMICAL  
DOSING DIGESTED SLUDGE  
1-0101-PPID-F011-001 PROCESS AND INSTRUMENTATION DIAGRAMS - CHEMICAL  
DOSING CENTRIFUGE CENTRATE  
1-0101-PPID-D001-001 PROCESS AND INSTRUMENTATION DIAGRAMS - CHEMICAL  
DOSING NEWPCC PRIMARY SLUDGE  
1-0101-PPID-D002-001 PROCESS AND INSTRUMENTATION DIAGRAMS - CHEMICAL  
DOSING WEWPCC AND SEWPCC TRUCKED SLUDGE  
1-0101-PPID-G013-001 PROCESS AND INSTRUMENTATION DIAGRAMS - CHEMICAL  
DOSING PRIMARY EFFLUENT DP 2.1A/B  
1-0101-PPID-Y002-001 PROCESS AND INSTRUMENTATION DIAGRAMS - CHEMICAL  
DOSING PRIMARY EFFLUENT DP 4.1,4.2,4.3  
1-0101-PPID-F012-001 SCHEMATIC - COMPRESSED AIR - BUILDING 101  
1-0101-PPID-F013-001 SCHEMATIC - DOMESTIC WATER - BUILDING 101  
1-0101-PPID-F014-001 SCHEMATIC - NATURAL GAS - BUILDING 101  
1-0101-PPID-F015-001 SCHEMATIC - HVAC PIPING  
1-0101-PPID-F016-001 SCHEMATIC - HVAC CONTROLS  
1-0101-PPID-F017-001 SCHEMATIC - COMPRESSED AIR - BUILDING 102  
1-0101-PPID-F018-001 SCHEMATIC - DOMESTIC WATER - BUILDING 102  
1-0101-PPID-F019-001 SCHEMATIC - NATURAL GAS - BUILDING 102  
1-0101-PPID-F020-001 SCHEMATIC - COMPRESSED AIR SYSTEM - DEWATERING  
BUILDING

**Automation:**

1-0101-ADTL-F201-001 AUTOMATION - PROFIBUS PA WIRING DETAILS  
1-0101-ANET-F201-001 AUTOMATION - NETWORK DIAGRAM - CP-F8000 - CONTROL  
NETWORK  
1-0101-ANET-F202-001 AUTOMATION - NETWORK DIAGRAM - CP-F8000 - CONTROL  
NETWORK  
1-0101-ANET-F203-001 - AUTOMATION - NETWORK DIAGRAM - RI0-F8000-1  
CONTROL NETWORK  
1-0101-ANET-F204-001 AUTOMATION - NETWORK DIAGRAM - RI0-F8000-2  
CONTROL NETWORK  
1-0101-ANET-F205-001 AUTOMATION - NETWORK DIAGRAM - RI0-G8000-3  
CONTROL NETWORK  
1-0101-ANET-F206-001 AUTOMATION - NETWORK DIAGRAM - RI0-Y8000-4  
CONTROL NETWORK  
1-0101-AGAD-F201-001 AUTOMATION - INSTRUMENT LOCATION PLAN - BUILDING  
100  
1-0101-AIFS-F201-001 AUTOMATION - PROFIBUS SEGMENT ND-F8100 - BUILDING  
101  
1-0101-AIFS-F202-001 AUTOMATION - PROFIBUS SEGMENT NSP-F8110 - BUILDING  
101  
1-0101-AIFS-F203-001 AUTOMATION - PROFIBUS SEGMENT NSP-F8120 - BUILDING  
101  
1-0101-AIFS-F204-001 AUTOMATION - PROFIBUS SEGMENT ND-F8130 - BUILDING  
102  
1-0101-AILD-F201-001 AUTOMATION - LOOP DRAWING - XV-F8700 SUPPLY VALVE

1-0101-AILD-F202-001	FERRIC CHLORIDE TANK W-700 - BUILDING 101 AUTOMATION - LOOP DRAWING - XV-F8710 SUPPLY VALVE
1-0101-AILD-F203-001	FERRIC CHLORIDE TANK W-710 - BUILDING 101 AUTOMATION - LOOP DRAWING - XV-F8711 SUPPLY VALVE
1-0101-AILD-F204-001	FERRIC CHLORIDE TANK W-720 - BUILDING 101 AUTOMATION - LOOP DRAWING - XV-F8702 FERRIC CHLORIDE SUPPLY VALVE - BUILDING 101
1-0101-AILD-F205-001	AUTOMATION - LOOP DRAWING - XV-F8703 FERRIC CHLORIDE SUPPLY VALVE - BUILDING 101
1-0101-AILD-F206-001	AUTOMATION - LOOP DRAWING - XV-F8704 FERRIC CHLORIDE SUPPLY VALVE - BUILDING 101
1-0101-AILD-F207-001	AUTOMATION - LOOP DRAWING - XV-F8705 FERRIC CHLORIDE SUPPLY VALVE - BUILDING 101
1-0101-AILD-F208-001	AUTOMATION - LOOP DRAWING - XV-F8706 FERRIC CHLORIDE DISCHARGE VALVE - BUILDING 101
1-0101-AILD-F209-001	AUTOMATION - LOOP DRAWING - XV-F8707 FERRIC CHLORIDE DISCHARGE VALVE - BUILDING 101
1-0101-AILD-F210-001	AUTOMATION - LOOP DRAWING - XV-F8717 FERRIC CHLORIDE SUPPLY VALVE - BUILDING 101
1-0101-AILD-F211-001	NEWPCC - INTERIM PHOSPHOROUS REMOVAL - AUTOMATION - LOOP DRAWING - ZS-F8790 DOOR SWITCH
1-0101-AILD-F212-001	RAILCAR SHELTER 2 - NORTH DOOR 101B - BUILDING 101 AUTOMATION - LOOP DRAWING - ZS-F8791 DOOR SWITCH
1-0101-AILD-F213-001	RAILCAR SHELTER 2 - EAST DOOR 101B - BUILDING 101 AUTOMATION - LOOP DRAWING - XS-F8794 MOTION
1-0101-AILD-F214-001	SENSOR RAILCAR SHELTER 2 - BUILDING 101 AUTOMATION - LOOP DRAWING - XS-F8797 MOTION
1-0101-AILD-F215-001	SENSOR CHEMICAL STORAGE 101C - BUILDING 101 AUTOMATION - LOOP DRAWING - PSH-F8712 FERRIC
1-0101-AILD-F216-001	CHLORIDE AIR SUPPLY HIGH PRESSURE SWITCH - BUILDING 101
1-0101-AILD-F217-001	AUTOMATION - LOOP DRAWING - PSH-F07701 CHEMICAL PUMP PRESSURE SWITCH HIGH - BUILDING 101
1-0101-AILD-F218-001	AUTOMATION - LOOP DRAWING - PSH-F07711 CHEMICAL PUMP PRESSURE SWITCH HIGH - BUILDING 101
1-0101-AILD-F219-001	AUTOMATION - LOOP DRAWING - PSH-F07721 CHEMICAL PUMP PRESSURE SWITCH HIGH - BUILDING 101
1-0101-AILD-F220-001	AUTOMATION - LOOP DRAWING - FS-F85011 FERRIC CHLORIDE UNLOADING EYEWASH STATION FLOW SWITCH - BUILDING 101
1-0101-AILD-F221-001	AUTOMATION - LOOP DRAWING - FS-F85013 FERRIC CHLORIDE UNLOADING EYEWASH STATION FLOW SWITCH - BUILDING 101
1-0101-AILD-F222-001	AUTOMATION - LOOP DRAWING - FIT-F87021 FERRIC CHLORIDE UNLOADING FLOW METER - BUILDING 101
1-0101-AILD-F223-001	AUTOMATION - LOOP DRAWING - FIT-F87031 FERRIC CHLORIDE UNLOADING FLOW METER - BUILDING 101
1-0101-AILD-F224-001	AUTOMATION - LOOP DRAWING - FIT-F07703 FERRIC CHLORIDE CHEMICAL PUMP FLOW METER - BUILDING 101
1-0101-AILD-F225-001	AUTOMATION - LOOP DRAWING - FIT-F07713 FERRIC CHLORIDE CHEMICAL PUMP FLOW METER - BUILDING 101
1-0101-AILD-F226-001	AUTOMATION - LOOP DRAWING - FIT-F07723 FERRIC CHLORIDE CHEMICAL PUMP FLOW METER - BUILDING 101
1-0101-AILD-F227-001	AUTOMATION - LOOP DRAWING - FIT-F07804 FERRIC CHLORIDE TRANSFER PUMP FLOW METER - BUILDING 101
1-0101-AILD-F228-001	AUTOMATION - LOOP DRAWING - LI-F87302 HYDROSTATIC LEVEL INDICATOR TANK TK-F0730 - BUILDING 101
1-0101-AILD-F229-001	AUTOMATION - LOOP DRAWING - LI-F87402 HYDROSTATIC LEVEL INDICATOR TANK TK-F0740 - BUILDING 101
	AUTOMATION - LOOP DRAWING - TIT-F8798 BUILDING

	TEMPERATURE INDICATING TRANSMITTER RAILCAR SHELTER 2 - BUILDING 101
	AUTOMATION - LOOP DRAWING - TIT-F8799 BUILDING TEMPERATURE INDICATING TRANSMITTER CHEMICAL STORAGE - BUILDING 101
1-0101-AILD-F230-001	AUTOMATION - LOOP DRAWING - LSH-F8707 LEVEL SWITCH HIGH SUMP PIT - BUILDING 101
1-0101-AILD-F231-001	AUTOMATION - LOOP DRAWING - ZS-F8789 ELECTRICAL ROOM - DOOR - BUILDING 101
1-0101-AILD-F232-001	AUTOMATION - LOOP DRAWING - LCP-F87001 ANALOG OUTPUT
1-0101-AILD-F233-001	AUTOMATION - LOOP DRAWING - LCP-F87002 ANALOG OUTPUT - SHEET 1
1-0101-AILD-F234-001	AUTOMATION - LOOP DRAWING - LCP-F87002 ANALOG OUTPUT - SHEET 2
1-0101-AILD-F234-002	AUTOMATION - LOOP DRAWING - LCP-F87002 ANALOG OUTPUT - SHEET 3
1-0101-AILD-F234-003	AUTOMATION - LOOP DRAWING - LCP-F87003 ANALOG OUTPUT - SHEET 1
1-0101-AILD-F235-001	AUTOMATION - LOOP DRAWING - LCP-F87003 ANALOG OUTPUT - SHEET 2
1-0101-AILD-F235-002	AUTOMATION - LOOP DRAWING - LCP-F87004 ANALOG OUTPUT - SHEET 1
1-0101-AILD-F236-001	AUTOMATION - LOOP DRAWING - XV-W8800 SODIUM HYDOXIDE DISCHARGE VALVE - BUILDING 102
1-0101-AILD-F237-001	AUTOMATION - LOOP DRAWING - XV-W8801 SODIUM HYDOXIDE DISCHARGE VALVE - BUILDING 102
1-0101-AILD-F238-001	AUTOMATION - LOOP DRAWING - XV-W8802 SODIUM HYDOXIDE DISCHARGE VALVE - BUILDING 102
1-0101-AILD-F239-001	AUTOMATION - LOOP DRAWING - XV-W8803 SODIUM HYDOXIDE DISCHARGE VALVE - BUILDING 102
1-0101-AILD-F240-001	AUTOMATION - LOOP DRAWING - LSH-W8803 LEVEL SWITCH HIGH SUMP PIT - BUILDING 102
1-0101-AILD-F241-001	AUTOMATION - LOOP DRAWING - FS-W85320 FLOW SWITCH SODIUM HYDROXIDE EYEWASH STATION - BUILDING 102
1-0101-AILD-F242-001	AUTOMATION - LOOP DRAWING - PSH-W88301 SODIUM HYDROXIDE CHEMICAL PUMP PRESSURE SWITCH HIGH - BUILDING 102
1-0101-AILD-F243-001	AUTOMATION - LOOP DRAWING - PSH-W88311 SODIUM HYDROXIDE CHEMICAL PUMP PRESSURE SWITCH HIGH - BUILDING 102
1-0101-AILD-F244-001	AUTOMATION - LOOP DRAWING - XS-W8892 MOTION SENSOR - BUILDING 102
1-0101-AILD-F245-001	AUTOMATION - LOOP DRAWING - FIT-W8801 SODIUM HYDROXIDE UNLOADING FLOW METER - BUILDING 102
1-0101-AILD-F246-001	AUTOMATION - LOOP DRAWING - FIT-W88303 SODIUM HYDROXIDE CHEMICAL PUMP FLOW METER - BUILDING 102
1-0101-AILD-F247-001	AUTOMATION - LOOP DRAWING - FIT-W88313 SODIUM HYDROXIDE CHEMICAL PUMP FLOW METER - BUILDING 102
1-0101-AILD-F248-001	AUTOMATION - LOOP DRAWING - TIT-W8893 BUILDING TEMPERATURE TRANSMITTER - BUILDING 102
1-0101-AILD-F249-001	AUTOMATION - LOOP DRAWING - LT-W08102 HYDROSTATIC LEVEL INDICATOR TANK TK-F0810 - BUILDING 102
1-0101-AILD-F250-001	AUTOMATION - LOOP DRAWING - LT-W08202 HYDROSTATIC LEVEL INDICATOR TANK TK-F0820 - BUILDING 102
1-0101-AILD-F251-001	AUTOMATION - LOOP DRAWING - LCP-F87005 ANALOG OUTPUT -SHEET 1
1-0101-AILD-F252-001	AUTOMATION - LOOP DRAWING - XV-F87090 FERRIC CHLORIDE SUPPLY VALVE TANK TK-F0750 - JUNCTION AT PIPING GALLERIES 4 AND 6
1-0101-AILD-G201-001	

1-0101-AILD-G202-001	AUTOMATION - LOOP DRAWING - XV-F87095 FERRIC CHLORIDE SUPPLY VALVE TANK TK-F0750 - JUNCTION AT PIPING GALLERIES 4 AND 6
1-0101-AILD-G203-001	AUTOMATION - LOOP DRAWING - P-F0751 DOSING PUMP - JUNCTION AT PIPING GALLERIES 4 AND 6
1-0101-AILD-G204-001	AUTOMATION - LOOP DRAWING - LSH-F07503 HIGH LEVEL SWITCH TK F0750 - JUNCTION AT PIPING GALLERIES 4 AND 6
1-0101-AILD-G205-001	AUTOMATION - LOOP DRAWING - LSL-F07501 LOW LEVEL SWITCH TK F0750 - JUNCTION AT PIPING GALLERIES 4 AND 6
1-0101-AILD-G206-001	AUTOMATION - LOOP DRAWING - LIT-F07502 ULTRASONIC LEVEL TRANSMITTER TK-F0750 - JUNCTION AT PIPING GALLERIES 4 AND 6
1-0101-AILD-G207-001	AUTOMATION - LOOP DRAWING - FS-F5220 EYEWASH STATION FLOW SWITCH - JUNCTION AT PIPING GALLERIES 4 AND 6
1-0101-AILD-G208-001	AUTOMATION - LOOP DRAWING - LS-F07504 LEVEL SWITCH - TK-F0750 LEAK ALARM - JUNCTION AT PIPING GALLERIES 4 AND 6
1-0101-AILD-G209-001	AUTOMATION - LOOP DRAWING - LS-F07505 LEVEL SWITCH - TK-F0750 LEAK ALARM - JUNCTION AT PIPING GALLERIES 4 AND 6
1-0101-AILD-G210-001	AUTOMATION - LOOP DRAWING - PSH-F07511 PRESSURE SWITCH HIGH - JUNCTION AT PIPING GALLERIES 4 AND 6
1-0101-AILD-G211-001	AUTOMATION - LOOP DRAWING - FIT-F07513 FLOW INDICATING TRANSMITTER - JUNCTION AT PIPING GALLERIES 4 AND 6
1-0101-AILD-Y201-001	AUTOMATION - LOOP DRAWING - XV-F87155 FERRIC CHLORIDE SUPPLY VALVE TANK TK-F0790 - JUNCTION CHAMBER
1-0101-AILD-Y202-001	AUTOMATION - LOOP DRAWING - XV-F87150 FERRIC CHLORIDE SUPPLY VALVE TANK TK-F0790 - JUNCTION CHAMBER
1-0101-AILD-Y203-001	AUTOMATION - LOOP DRAWING - LSH-F07903 HIGH LEVEL SWITCH TK F0790 - JUNCTION CHAMBER
1-0101-AILD-Y204-001	AUTOMATION - LOOP DRAWING - LSL-F07901 LOW LEVEL SWITCH TK F0790 - JUNCTION CHAMBER
1-0101-AILD-Y205-001	AUTOMATION - LOOP DRAWING - LIT-F07902 ULTRASONIC LEVEL TRANSMITTER TK-F0790 - JUNCTION CHAMBER
1-0101-AILD-Y206-001	AUTOMATION - LOOP DRAWING - FS-F5522 EYEWASH STATION FLOW SWITCH - JUNCTION CHAMBER
1-0101-AILD-Y207-001	AUTOMATION - LOOP DRAWING - LS-F07904 LEVEL SWITCH - TK-F0790 LEAK ALARM - JUNCTION CHAMBER
1-0101-AILD-Y208-001	AUTOMATION - LOOP DRAWING - LS-F07905 LEVEL SWITCH - TK-F0790 LEAK ALARM - JUNCTION CHAMBER
1-0101-AILD-Y209-001	AUTOMATION - LOOP DRAWING - PSH-F07911 PRESSURE SWITCH HIGH - JUNCTION CHAMBER
1-0101-AILD-Y210-001	AUTOMATION - LOOP DRAWING - PSH-F07921 PRESSURE SWITCH HIGH - JUNCTION CHAMBER
1-0101-AILD-Y211-001	AUTOMATION - LOOP DRAWING - PSH-F07931 PRESSURE SWITCH HIGH - JUNCTION CHAMBER
1-0101-AILD-Y212-001	AUTOMATION - LOOP DRAWING - FIT-F07913 FLOW INDICATING TRANSMITTER - JUNCTION CHAMBER
1-0101-AILD-Y213-001	AUTOMATION - LOOP DRAWING - FIT-F07923 FLOW INDICATING TRANSMITTER - JUNCTION CHAMBER
1-0101-AILD-Y214-001	AUTOMATION - LOOP DRAWING - FIT-F07533 FLOW INDICATING TRANSMITTER - JUNCTION CHAMBER
1-0101-AILD-Y215-001	AUTOMATION - LOOP DRAWING - P-F0791 DOSING PUMP - JUNCTION CHAMBER

1-0101-AILD-Y216-001	AUTOMATION - LOOP DRAWING - P-F0792 DOSING PUMP - JUNCTION CHAMBER
1-0101-AILD-Y217-001	AUTOMATION - LOOP DRAWING - P-F0793 DOSING PUMP - JUNCTION CHAMBER
1-0101-AGAD-F202-001	AUTOMATION - MAIN FLOOR INSTRUMENT LOCATION PLAN - BUILDING 101
1-0101-AGAD-F203-001	AUTOMATION - PLATFORM 1 INSTRUMENT LOCATION PLAN - BUILDING 101
1-0101-AGAD-F204-001	NEWPCC - INTERIM PHOSPHOROUS REMOVAL - AUTOMATION - PLATFORM 2 INSTRUMENT LOCATION PLAN - BUILDING 101
1-0101-AGAD-F205-001	AUTOMATION - MAIN FLOOR INSTRUMENT LOCATION PLAN - BUILDING 102
1-0101-AGAD-F206-001	AUTOMATION - PLATFORM INSTRUMENT LOCATION PLAN - BUILDING 102
1-0101-AGAD-G207-001	AUTOMATION - PLATFORM INSTRUMENT LOCATION PLAN - JUNCTION AT EXISTING PIPING GALLERIES 4 AND 6
1-0101-AGAD-Y208-001	AUTOMATION - PLATFORM INSTRUMENT LOCATION PLAN - JUNCTION CHAMBER
1-0101-ACBD-F200-001	AUTOMATION - CP-F8000 PLC CABINET LAYOUT - BUILDING 101 - SHEET 1
1-0101-ACBD-F200-002	AUTOMATION - CP-F8000 PLC CABINET LAYOUT - BUILDING 101 - SHEET 2
1-0101-ACBD-F201-001	AUTOMATION - CP-F8000 POWER DISTRIBUTION SCHEMATIC - BUILDING 101 - SHEET 1
1-0101-ACBD-F201-002	AUTOMATION - CP-F8000 POWER DISTRIBUTION SCHEMATIC - BUILDING 101 - SHEET 2
1-0101-ACBD-F201-004	AUTOMATION - CP-F8000 POWER DISTRIBUTION SCHEMATIC - BUILDING 101 - SHEET 4
1-0101-ACBD-F201-005	AUTOMATION - CP-F8000 POWER DISTRIBUTION SCHEMATIC - BUILDING 101 - SHEET 5
1-0101-ACBD-F201-006	AUTOMATION - CP-F8000 POWER DISTRIBUTION SCHEMATIC - BUILDING 101 - SHEET 6
1-0101-ACBD-F201-007	AUTOMATION - CP-F8000 POWER DISTRIBUTION SCHEMATIC - BUILDING 101 - SHEET 7
1-0101-ACBD-F202-001	AUTOMATION - LCP-F87001 FERRIC CHLORIDE UNLOADING CONTROL PANEL LAYOUT - BUILDING 101 - SHEET 1
1-0101-ACBD-F203-001	AUTOMATION - LCP-F87001 FERRIC CHLORIDE UNLOADING CONTROL PANEL WIRING DIAGRAM - BUILDING 101 - SHEET 2
1-0101-ACBD-F204-001	AUTOMATION - LCP-F87002 FERRIC CHLORIDE UNLOADING CONTROL PANEL LAYOUT - BUILDING 101 - SHEET 1
1-0101-ACBD-F205-001	AUTOMATION - LCP-F87002 FERRIC CHLORIDE UNLOADING CONTROL PANEL WIRING DIAGRAM - BUILDING 101 - SHEET 2
1-0101-ACBD-F206-001	AUTOMATION - LCP-F87003 FERRIC CHLORIDE UNLOADING CONTROL PANEL LAYOUT - BUILDING 101 - SHEET 1
1-0101-ACBD-F207-001	AUTOMATION - LCP-F87003 FERRIC CHLORIDE UNLOADING CONTROL PANEL WIRING DIAGRAM - BUILDING 101 - SHEET 2
1-0101-ACBD-F208-001	AUTOMATION - LCP-F87004 FERRIC CHLORIDE UNLOADING CONTROL PANEL LAYOUT - BUILDING 101 - SHEET 1
1-0101-ACBD-F209-001	AUTOMATION - LCP-F87004 FERRIC CHLORIDE UNLOADING CONTROL PANEL WIRING DIAGRAM - BUILDING 101 - SHEET 1
1-0101-ACBD-F210-001	AUTOMATION - LCP-F87002 FERRIC CHLORIDE UNLOADING CONTROL PANEL WIRING DIAGRAM - BUILDING 101 - SHEET 2
1-0101-ACBD-F211-001	AUTOMATION - RIO-F8000-1 - RIO CABINET LAYOUT - BUILDING 101 - SHEET 1

1-0101-ACBD-F212-001	AUTOMATION - RIO-F8000-1 - RIO CABINET LAYOUT - BUILDING 101 - SHEET 2
1-0101-ACBD-F212-002	AUTOMATION - RIO-F8000-1 POWER DISTRIBUTION SCHEMATIC - BUILDING 101 - SHEET 1
1-0101-ACBD-F213-001	AUTOMATION - RIO-F8000-1 POWER DISTRIBUTION SCHEMATIC - BUILDING 101 - SHEET 2
1-0101-ACBD-F213-002	AUTOMATION - RIO-F8000-1 WIRING DIAGRAM - DISCRETE INPUT - BUILDING 101
1-0101-ACBD-F214-001	AUTOMATION - RIO-F8000-1 WIRING DIAGRAM - DISCRETE OUTPUT - BUILDING 101 - SHEET 1
1-0101-ACBD-F214-002	AUTOMATION - RIO-F8000-1 WIRING DIAGRAM - DISCRETE OUTPUT - BUILDING 101 - SHEET 2
1-0101-ACBD-F214-003	AUTOMATION - RIO-F8000-1 WIRING DIAGRAM - DISCRETE OUTPUT - BUILDING 101 - SHEET 3
1-0101-ACBD-F215-001	AUTOMATION - RIO-F8000-1 WIRING DIAGRAM - ANALOG INPUT - BUILDING 101 - SHEET 1
1-0101-ACBD-F215-002	AUTOMATION - RIO-F8000-1 WIRING DIAGRAM - ANALOG INPUT - BUILDING 101 - SHEET 2
1-0101-ACBD-F216-001	AUTOMATION - RIO-F8000-1. R1 WIRING DIAGRAM - ANALOG OUTPUT - BUILDING 101 - SHEET 1
1-0101-ACBD-F216-002	AUTOMATION - RIO-F8000-1. R1 WIRING DIAGRAM - ANALOG OUTPUT - BUILDING 101 - SHEET 2
1-0101-ACBD-F216-003	AUTOMATION - RIO-F8000-1. R1 WIRING DIAGRAM - ANALOG OUTPUT - BUILDING 101 - SHEET 3
1-0101-ACBD-F216-004	AUTOMATION - RIO-F8000-1. R1 WIRING DIAGRAM - ANALOG OUTPUT - BUILDING 101 - SHEET 4
1-0101-ACBD-F217-001	AUTOMATION - RIO-F8000-2 - RIO CABINET LAYOUT - BUILDING 102 - SHEET 1
1-0101-ACBD-F217-002	AUTOMATION - RIO-F8000-2 - RIO CABINET LAYOUT - BUILDING 102 - SHEET 2
1-0101-ACBD-F218-001	AUTOMATION - RIO-F8000-2 POWER DISTRIBUTION SCHEMATIC - BUILDING 102 - SHEET 1
1-0101-ACBD-F218-002	AUTOMATION - RIO-F8000-2 POWER DISTRIBUTION SCHEMATIC - BUILDING 102 - SHEET 2
1-0101-ACBD-F219-001	AUTOMATION - RIO-F8000-2 WIRING DIAGRAM - DISCRETE INPUT - BUILDING 102
1-0101-ACBD-F220-001	AUTOMATION - RIO-F8000-2 WIRING DIAGRAM - DISCRETE OUTPUT - BUILDING 102
1-0101-ACBD-F221-001	AUTOMATION - RIO-F8000-2 WIRING DIAGRAM - ANALOG INPUT - BUILDING 102
1-0101-ACBD-F222-001	AUTOMATION - RIO-F8000-2 WIRING DIAGRAM - ANALOG OUTPUT - BUILDING 102
1-0101-ACBD-F223-001	AUTOMATION - LCP-F87005 FERRIC CHLORIDE UNLOADING CONTROL PANEL LAYOUT - BUILDING 102 - SHEET 1
1-0101-ACBD-F224-001	AUTOMATION - LCP-F87005 FERRIC CHLORIDE UNLOADING CONTROL PANEL WIRING DIAGRAM - BUILDING 102 - SHEET 2
1-0101-ACBD-G201-001	AUTOMATION - RIO-F8000-3 - RIO CABINET LAYOUT - PIPING GALLERY - SHEET 1
1-0101-ACBD-G201-002	AUTOMATION - RIO-G8000-3 - RIO CABINET LAYOUT - PIPING GALLERY - SHEET 2
1-0101-ACBD-G202-001	AUTOMATION - RIO-G8000-3 POWER DISTRIBUTION SCHEMATIC - PIPING GALLERY - SHEET 3
1-0101-ACBD-G202-002	AUTOMATION - RIO-G8000-3 POWER DISTRIBUTION SCHEMATIC - PIPING GALLERY - SHEET 4
1-0101-ACBD-G203-001	AUTOMATION - RIO-G8000-3 WIRING DIAGRAM - DISCRETE INPUT - PIPING GALLERY - SHEET 5
1-0101-ACBD-G204-001	AUTOMATION - RIO-G8000-3 WIRING DIAGRAM - DISCRETE OUTPUT - PIPING GALLERY - SHEET 6
1-0101-ACBD-G205-001	AUTOMATION - RIO-G8000-3 WIRING DIAGRAM - ANALOG

1-0101-ACBD-G206-001	INPUT - PIPING GALLERY - SHEET 7 AUTOMATION - RIO-G8000-3 WIRING DIAGRAM - ANALOG OUTPUT - PIPING GALLERY - SHEET 8
1-0101-ACBD-Y201-001	AUTOMATION - RIO-Y8000-4 - RIO CABINET LAYOUT - JUNCTION CHAMBER - SHEET 1
1-0101-ACBD-Y201-002	AUTOMATION - RIO-Y8000-4 - RIO CABINET LAYOUT - JUNCTION CHAMBER - SHEET 2
1-0101-ACBD-Y202-001	AUTOMATION - RIO-Y8000-4 POWER DISTRIBUTION SCHEMATIC - JUNCTION CHAMBER - SHEET 3
1-0101-ACBD-Y202-002	AUTOMATION - RIO-Y8000-4 POWER DISTRIBUTION SCHEMATIC - JUNCTION CHAMBER - SHEET 4
1-0101-ACBD-Y203-001	NEWPC - INTERIM PHOSPHOROUS REMOVAL - AUTOMATION - RIO-Y8000-4 WIRING DIAGRAM - DISCRETE INPUT - JUNCTION CHAMBER - SHEET 5
1-0101-ACBD-Y204-001	AUTOMATION - RIO-Y8000-4 WIRING DIAGRAM - DISCRETE OUTPUT - JUNCTION CHAMBER - SHEET 6
1-0101-ACBD-Y205-001	AUTOMATION - RIO-Y8000-4 WIRING DIAGRAM - ANALOG INPUT - JUNCTION CHAMBER - SHEET 7
1-0101-ACBD-Y206-001	AUTOMATION - RIO-Y8000-4 WIRING DIAGRAM - ANALOG OUTPUT - JUNCTION CHAMBER - SHEET 8

**Electrical:**

1-0101-EAAA-A001-001	ELECTRICAL - LEGEND
1-0101-ESLD-A001-001	ELECTRICAL - POWER SINGLE LINE DIAGRAM
1-0101-EFAS-F001-001	ELECTRICAL - FIRE ALARM RISER DIAGRAM
1-0101-EGRD-F001-001	ELECTRICAL - BUILDING 101 GROUNDING RISER DIAGRAM
1-0101-EDTL-F001-001	ELECTRICAL - DETAILS - TRENCH
1-0101-EDTL-F002-001	ELECTRICAL - DETAILS - CABLE TRAY
1-0101-EDTL-F003-001	ELECTRICAL - DETAILS - GROUNDING
1-0101-EDTL-F004-001	ELECTRICAL - DETAILS - INSTALLATION
1-0101-EDTL-F005-001	ELECTRICAL - DETAILS - SECURITY SYSTEM
1-0101-EDTL-F006-001	ELECTRICAL - HEAT TRACE SCHEDULE
1-0101-EDTL-F007-001	ELECTRICAL - HEAT TRACE INSTALLATION DETAILS
1-0101-EDTL-F007-002	ELECTRICAL - HEAT TRACE INSTALLATION DETAILS
1-0101-EGAD-A001-001	ELECTRICAL - SITE PLAN
1-0101-EGAD-A002-001	ELECTRICAL - OVERALL SITE PLAN
1-0101-ESCH-F201-001	ELECTRICAL - PANEL BOARD SCHEDULE - BUILDING 101
1-0101-ESCH-F202-001	ELECTRICAL - LUMINAIRE SCHEDULE
1-0101-ESCH-F203-001	ELECTRICAL - PANEL BOARD SCHEDULE - BUILDING 102
1-0101-ESCH-F204-001	ELECTRICAL - PANEL BOARD SCHEDULE - JUNCTION CHAMBER AND PIPING GALLERIES
1-0101-EGAD-F201-001	ELECTRICAL - MAIN FLOOR POWER LAYOUT - BUILDING 101
1-0101-EGAD-F202-001	ELECTRICAL - PLATFORM 1 POWER LAYOUT - BUILDING 101
1-0101-EGAD-F203-001	ELECTRICAL - PLATFORM 2 POWER LAYOUT - BUILDING 101
1-0101-ELTG-F201-001	ELECTRICAL - MAIN FLOOR LIGHTING LAYOUT - BUILDING 101
1-0101-ELTG-F202-001	ELECTRICAL - PLATFORM 1 LIGHTING LAYOUT - BUILDING 101
1-0101-ELTG-F203-001	ELECTRICAL - PLATFORM 2 LIGHTING LAYOUT - BUILDING 101
1-0101-EFAS-F201-001	ELECTRICAL - BUILDING 101 FIRE ALARM LAYOUT - BUILDING 101
1-0101-EFAS-F203-001	ELECTRICAL - MAINFLOOR - FIRE ALARM LAYOUT- BUILDING 102
1-0101-EFAS-F206-001	ELECTRICAL - PLATFORM 2 FIRE ALARM LAYOUT - BUILDING 101
1-0101-ESCY-F201-001	ELECTRICAL - SECURITY SYSTEM LAYOUT - BUILDING 101

1-0101-EGRD-F201-001	ELECTRICAL - MAIN FLOOR GROUNDING PLAN - BUILDING 101
1-0101-EHLC-F201-001	ELECTRICAL - MAIN LEVEL AREA CLASSIFICATION - BUILDING 101
1-0101-EHLC-F202-001	ELECTRICAL - PLATFORM 1 AREA CLASSIFICATION - BUILDING 101
1-0101-EHLC-F203-001	ELECTRICAL - PLATFORM 2 AREA CLASSIFICATION - BUILDING 101
1-0101-ECTR-F201-001	ELECTRICAL - CABLE TRAY PLAN- BUILDING 101
1-0101-EGAD-F204-001	ELECTRICAL - MAIN FLOOR POWER LAYOUT - BUILDING 102
1-0101-EGAD-F205-001	ELECTRICAL - PLATFORM POWER LAYOUT - BUILDING 102
1-0101-ELTG-F204-001	ELECTRICAL - MAIN FLOOR LIGHTING LAYOUT - BUILDING 102
1-0101-ELTG-F205-001	ELECTRICAL - PLATFORM LIGHTING LAYOUT - BUILDING 102
1-0101-EFAS-F203-001	ELECTRICAL - MAIN FLOOR FIRE ALARM LAYOUT - BUILDING 102
1-0101-EFAS-F204-001	ELECTRICAL - PLATFORM FIRE ALARM LAYOUT - BUILDING 102
1-0101-ESCY-F202-001	ELECTRICAL - SECUTIY SYSTEM LAYOUT - BUILDING 102
1-0101-EGRD-F202-001	ELECTRICAL - MAIN FLOOR GROUNDING PLAN - BUILDING 102
1-0101-EHLC-F204-001	ELECTRICAL - MAIN FLOOR AREA CLASSIFICATION - BUILDING 102
1-0101-EHLC-F205-001	ELECTRICAL - PLATFORM AREA CLASSIFICATION - BUILDING 102
1-0101-EGAD-G201-001	ELECTRICAL - POWER LAYOUT - JUNCTION AT EXISTING PIPING GALLERIES 4 AND 6
1-0101-EGAD-Y201-001	ELECTRICAL - POWER LAYOUT - JUNCTION CHAMBER
1-0101-EGAD-F206-001	ELECTRICAL - POWER LAYOUT - SECOND FLOOR COMPRESSOR POWER LAYOUT
1-0101-EGAD-F207-001	ELECTRICAL - BUILDING SECTION - BUILDING 101
1-0101-EGAD-F208-001	ELECTRICAL - ELECTRICAL ROOM BUILDING SECTION - BUILDING 101
1-0101-EMCL-F201-001	ELECTRICAL - P-F0770 SCHEMATIC AND WIRING DIAGRAM - BUILDING 101
1-0101-EMCL-F202-001	ELECTRICAL - P-F0771 SCHEMATIC AND WIRING DIAGRAM - BUILDING 101
1-0101-EMCL-F203-001	ELECTRICAL - P-F0772 SCHEMATIC AND WIRING DIAGRAM - BUILDING 101
1-0101-EMCL-F204-001	ELECTRICAL - P-F0780 SCHEMATIC AND WIRING DIAGRAM - BUILDING 101
1-0101-EMCL-F205-001	ELECTRICAL - P-F0781 SCHEMATIC AND WIRING DIAGRAM - BUILDING 101
1-0101-EMCL-F206-001	ELECTRICAL - P-F0830 SCHEMATIC AND WIRING DIAGRAM - BUILDING 102
1-0101-EMCL-F207-001	ELECTRICAL - P-F0831 SCHEMATIC AND WIRING DIAGRAM - BUILDING 102
1-0101-EMCL-F208-001	ELECTRICAL - P-F0832 SCHEMATIC AND WIRING DIAGRAM - BUILDING 102



## CONTRACTOR SUPPLIED STANDARDIZED GOODS

### E2. GENERAL REQUIREMENTS

- E2.1 Comply with the general requirements of E2 for all Standardized Goods supplied by the Contractor.
- E2.2 Comply with the following Standardization Goods requirements:
- E2.2.1 Control System and Motor Control Equipment in accordance with E3.
  - E2.2.2 Electric Valve Actuators in accordance with E4.
  - E2.2.3 Gas Detection Systems in accordance with E5.
  - E2.2.4 Instrumentation in accordance with E6.
- E2.3 Contact the Contract Administrator regarding any potential uncertainty as to whether a good is covered under a standardization agreement.
- E2.4 The Contractor may utilize a Standardization Vendor to provide other goods required under the Contract, in addition to Standardized Goods.
- E2.5 The Contractor shall separately track all goods supplied under each standardization agreement.
- E2.5.1 In the event that one or more Standardization Vendors are utilized to procure goods not covered under a standardization agreement, the Contractor shall ensure such goods are quoted, ordered, tracked and accounted in a separate manner.
- E2.6 Pricing:
- E2.6.1 The City has obtained discounted pricing for Standardized Goods. Each Standardization Vendor is obligated to sell Standardized Goods to all prospective Contractors at the discounted price, provided the goods are for the City of Winnipeg.
  - E2.6.2 The Standardization Vendors may at their option provide lump sum pricing for goods packages. The Standardization Vendor is not required to provide breakout pricing details to the Contractor.
  - E2.6.3 The Contractor and Subcontractors shall not utilize the City's agreements with the Standardization Vendors for any purpose other than City work.
  - E2.6.4 The City may audit the goods purchased from the Standardization Vendors under the standardization agreements and may identify to the Standardization Vendors any goods procured that are not associated with the Contract.
- E2.7 The Contractor is responsible for ensuring that the Material supplied by the Standardization Vendors meets the requirement of the Contract. The Contractor shall review and confirm quotations supplied by the Standardization Vendors to ensure that all required Material is supplied.
- E2.8 Without limiting or otherwise affecting any other term or condition of the Contract, including (non-exhaustive):
- E2.8.1 The supply of goods through a Standardization Vendor shall not relieve the Contractor of their obligations.
  - E2.8.2 Errors or omissions by a Standardization Vendor shall not be a cause for a Change in Work.
  - E2.8.3 Delays by a Standardization Vendor shall not be a cause for a Change in Work where the delay could have been avoided through reasonable planning, contingency allocation, or communication by the Contractor.

E2.8.4 The Contractor shall engage directly with the persons listed as the Standardized Vendor contact in the following sections E3.7, E4.10, E5.6 and E 6.7 unless otherwise directed by the Contract Administrator.

E2.9 Submittals

E2.9.1 Submittals shall be provided for Standardized Goods in accordance with the Specifications and typical industry practice. Submittals shall not be bypassed for Standardized Goods.

### **E3. STANDARDIZED CONTROL SYSTEM AND MOTOR CONTROL EQUIPMENT**

E3.1 The City has standardized on a specific vendor for the supply and delivery of control system and motor control equipment. The Standardization Vendor was selected via RFP 756-2013 and was awarded to Schneider Electric Canada Inc. (Schneider).

- (a) Refer to E3.7 for contact information.
- (b) Copies of the tender documents are available from City of Winnipeg Material Management's website.

E3.2 Goods to be procured via this standardization agreement includes but is not limited to:

- (a) Programmable Controllers (PLCs) including all associated components, hardware and software.
- (b) PLC to Infi90 Termination Unit migration cables.
- (c) Programmable Controller Programming Software.
- (d) Dynsim Process Simulator Software.
- (e) HMI System software.
- (f) Historian Server and Client Software.
- (g) Touchscreen HMI systems such as Magellis HMIs.
- (h) Touchscreen HMI Programming Software.
- (i) Motor Control Centers including all components.
- (j) Loose VFDs, motor starters, soft starters, and associated components.
- (k) Industrial Ethernet Switches as per design. Note that some Ethernet switches may be specified to be from other vendors due to application requirements. Refer to drawings and specifications.
- (l) Version Management Software.
- (m) Information Server Software.
- (n) Training sessions.

E3.3 For clarity, this standardization agreement does not include:

- (a) Computer workstation hardware including operating systems;
- (b) Computer server hardware, including operating systems and general terminal server / client software;
- (c) Thin client terminals;
- (d) Fused and un-fused disconnect switches not incorporated into a MCC or other motor starter;
- (e) Control stations and pendants not incorporated into a MCC or other motor starter;
- (f) Electrical Transformers not in a MCC or motor starter;
- (g) Panelboards not integrated in a MCC;
- (h) Switchboards / Switchgear not integrated in a MCC;
- (i) System Integration Services (including programming and configuration);

- (j) Control Panels to house PLCs;
  - (k) Instrumentation;
  - (l) Power supplies not integrated with the PLC / HMI systems; and
  - (m) Terminal blocks not integrated with the PLC / HMI systems.
- E3.4 The following model series shall be utilized unless otherwise indicated in the Specifications, Drawings or otherwise approved by the Contract Administrator:
- (a) M580, and M340 PLCs;
  - (b) X80 PLC I/O;
  - (c) EcoStruxure programming software;
  - (d) Citect Scada HMI systems;
  - (e) Wonderware Historian;
  - (f) Local HMI – Harmony HMIGTO or HMIGTU series;
  - (g) Model 6 MCC – NEMA rated starters, Intelligent Ethernet (unless otherwise specified);
  - (h) Altivar Process 600 series VFDs for variable torque applications; and
  - (i) Altivar Process 900 series VFDs for more demanding applications.
- E3.5 Commissioning and start-up:
- E3.5.1 Except as identified in E3.5.2, commissioning and start-up of all goods purchased under this standardization agreement shall be performed by the Contractor.
- E3.5.2 Schneider shall provide MCC start-up services, but not commissioning services. Coordinate with Schneider as required to understand the limitations of Schneider's MCC start-up services and provide all remaining testing, commissioning and start-up services to provide a complete commissioning and start-up.
- E3.6 Training
- E3.6.1 Programmable Controller Local Training
- (a) Overview
    - (i) Provide instruction to designated City personnel in the operation and maintenance of the Schneider programmable controller control system components and associated Schneider tools and equipment.
    - (ii) This training shall be provided by Schneider.
    - (iii) This training does not relieve the Contractor of other training requirements associated with the control system.
  - (b) Location
    - (i) The location of the training will be in the City of Winnipeg, in a facility provided by the City.
    - (ii) The room will be classroom style.
  - (c) Submittals
    - (i) Submit the names and qualifications of the proposed instructors.
    - (ii) Submit training proposal complete with hour-by-hour schedule including brief overview of content of each training segment a minimum of 30 Working Days prior to the anticipated date of beginning of training.
  - (d) Quality Assurance
    - (i) Provide competent instructors thoroughly familiar with all aspects of the programmable controller control system.
    - (ii) The Contract Administrator may reject instructors it deems to not be qualified.

- (iii) In the event that the training provided is not satisfactory, reduction of payment may be applied.
- (e) Duration
  - (i) The training shall be a minimum of one (1) day in duration.
- (f) Materials
  - (i) Provide equipment, visual and audio aids, and materials.
  - (ii) Supply manual for each trainee, describing in detail the information included in each training program.
- (g) Attendees
  - (i) The attendees are expected to include, but not be limited to: electrical and instrumentation maintenance personnel and programmable controller support specialists.
- (h) Content
  - (i) Overview of the equipment.
  - (ii) Equipment maintenance training including:
    - ◆ Installation
    - ◆ Troubleshooting
    - ◆ Preventative maintenance
    - ◆ Replacement of modules
    - ◆ Network communication troubleshooting and diagnostics.
    - ◆ Fieldbus troubleshooting and diagnostics
    - ◆ Programmable controller redundancy strategies and operation.
  - (iii) Maintenance use of programmable controller programming software, including:
    - ◆ Basic operation of the software
    - ◆ Connecting to programmable controllers
    - ◆ Download and upload of software configuration.
    - ◆ Diagnostics and troubleshooting.
- (i) Number of Sessions:
  - (i) Provide a minimum of two (2) sessions.

#### E3.6.2 MCC and VFD Local Training Session

- (a) Overview
  - (i) Provide instruction to designated City personnel in the operation and maintenance of the motor control centres and variable frequency drives.
  - (ii) This training shall be provided by Schneider.
  - (iii) This training does not relieve the Contractor of other training requirements associated with the control system.
- (b) Location
  - (i) The location of the training will be in the City of Winnipeg, in a facility provided by the City.
- (c) Submittals
  - (i) Submit the names and qualifications of the proposed instructors.
  - (ii) Submit training proposal complete with hour-by-hour schedule including brief overview of content of each training segment a minimum of 30 Working Days prior to the anticipated date of beginning of training.
- (d) Quality Assurance
  - (i) Provide competent instructors thoroughly familiar with all aspects of the MCC and VFD systems.

- (ii) The Contract Administrator may reject instructors it deems to not be qualified.
- (iii) In the event that the training provided is not satisfactory, reduction of payment may be applied.
- (e) Duration
  - (i) The training shall be a minimum of six (6) hours in duration, excluding coffee and lunch breaks.
- (f) Materials
  - (i) Provide equipment, visual and audio aids, and materials.
  - (ii) Supply manual for each trainee, describing in detail the information included in each training program.
- (g) Attendees
  - (i) The attendees are expected to include, but not be limited to:
    - ◆ Electrical and instrumentation maintenance personnel.
    - ◆ Programmable controller support specialists.
- (h) Content
  - (i) Overview of the equipment.
  - (ii) Equipment maintenance training including:
    - ◆ Installation
    - ◆ Troubleshooting
    - ◆ Preventative maintenance
    - ◆ Replacement of modules
    - ◆ Fieldbus diagnostics
    - ◆ Configuration of equipment parameters.
  - (iii) Maintenance use of equipment configuration software, including:
    - ◆ Basic operation of the software
    - ◆ Connecting to intelligent starts and VFDs.
    - ◆ Download and upload of software configuration.
    - ◆ Diagnostics and troubleshooting.
- (i) Number of Sessions:
  - (i) Provide a minimum of two (2) sessions.

E3.7 The contact information for all quotations and purchases from Schneider is: Garth Eastman  
21 Omands Creek  
Blvd Winnipeg, MB,  
R2R 2V2  
Telephone: 204-  
228-7807  
E-mail: garth.eastman@se.com

- E3.7.1 Goods to be procured directly from Schneider using the Schneider contact:
- (a) Further to E3.2, goods to be procured via Schneider includes but is not limited to:
    - (i) PLC to Infi90 Termination Unit migration cables;
    - (ii) Process Simulator Software;
    - (iii) Historian Server and Client Software;
    - (iv) Version Management Software; and
    - (v) Training sessions.

- E3.7.2 Goods to be procured via Eecol Electric (Eecol), as Schneider's High Tech Automation Distributor (HTAD):
- (a) Further to E3.2, goods to be procured via Eecol includes but is not limited to:

- (i) Programmable Controllers (PLCs) including all associated components hardware and software;
  - (ii) Programmable Controller Programming Software;
  - (iii) HMI System software;
  - (iv) Touchscreen HMI systems such as Magellis HMIs;
  - (v) Touchscreen HMI Programming Software;
  - (vi) Motor Control Centers including all components;
  - (vii) Loose VFDs, motor starters, soft starters, and associated components; and
  - (viii) Industrial Ethernet Switches as per design. Note that some Ethernet switches may be specified to be from other vendors due to application requirements. Refer to drawings and specifications.
- (b) The Eecol contact:
- Theodore James  
Howe Regional  
Industrial Manager  
1760 Wellington  
Avenue Winnipeg,  
MB, R3H 0E9  
Telephone: 204-784-  
6952  
E-mail: howetj@eecol.com
- (c) All correspondence related to requests-for-quotations to Eecol for goods listed under E3.7.2(a) shall be copied to the Schneider contact listed under E3.7.
- (d) For whatever reason, if Eecol is unable to receive or respond to request-for-quotations for goods listed under E3.7.2(a), request-for-quotations may be issued directly to the Schneider contact listed under E3.7.

**E3.8 Quotations and orders:**

**E3.8.1 Reference the following in all quotation requests and purchase orders:**

- (a) This Bid Opportunity number; and
- (b) A statement indicating:  
"This request / purchase order is subject to the Terms and Conditions of City of Winnipeg Request for Proposal RFP 756-2013."

**E4. STANDARDIZED ELECTRIC VALVE ACTUATORS**

**E4.1** The City has standardized on a specific vendor for the supply and delivery of electric valve actuators. The Standardization Vendor was selected via RFP 331-2014 and was awarded to Rotork Control Canada Ltd. (Rotork).

- (a) Copies of the tender documents are available from City of Winnipeg Material Management's website.

**E4.2** Goods to be procured via this standardization agreement include but are not limited to:

- (a) Multi-turn electric valve actuators and quarter-turn electric valve actuators with approximate torque requirements of:
  - (i) On/off torques > 250 Nm
  - (ii) Modulating torques > 150 Nm
- (b) Associated accessories are also included in the agreement.

**E4.3** For clarity, this standardization agreement does not include:

- (a) Solenoid valve actuators;
- (b) Small HVAC damper actuators; and
- (c) Electric valve actuators with a power supply < 120 VAC.

- E4.4 The use of gearboxes shall not be utilized to reduce actuator torque requirements for the purpose of bypassing this standardization agreement.
- E4.5 The following model series shall be utilized unless otherwise indicated in the Specifications, Drawings or otherwise approved by the Contract Administrator:
- (a) IQ3 Range – (IQ, IQM, IQS, IQT, IQTM)
- E4.6 Valve Integration Assistance
- E4.6.1 Coordinate with Rotork to review the integration of valves with the valve actuators. Comply with guidance provided by Rotork.
- E4.6.2 The review provided by Rotork shall be for the purpose of ascertaining conformance of the actuator application with the given valve. The responsibility for integration of the valve with the valve actuator shall remain with the Contractor.
- E4.6.3 Rotork will make all applicable actuator shop drawings and datasheets available to the Contractor to allow for integration of the valve with the valve actuator.
- E4.6.4 In the event that the valve cannot directly attach to a standard base available for the electric actuator, supply and installation of valve adaptors between the actuator base and the valve will be the responsibility of the Contractor.
- E4.6.5 Costs
- (a) Rotork is obligated to provide valve integration assistance services at no additional cost above the supply of the actuator.
- E4.7 Valve Integration Services
- E4.7.1 The Contractor may engage Rotork to provide valve integration services in addition to that required in E4.6; however, this additional work would be outside of the Standardization Agreement.
- (a) The Contractor is encouraged to provide the best value for services provided.
- E4.8 Field setup and commissioning:
- E4.8.1 Field setup and commissioning of the actuators shall be performed by Rotork under the standardization agreement for the following:
- (a) The first actuator of each type installed on site; and
  - (b) A minimum of two actuators additional of each type, or 5% of the actuators of that type, whichever is greater.
- E4.8.2 Coordinate with Rotork as required to understand the limitations of Rotork's field setup and commissioning services and provide all remaining services to provide a complete commissioning and start-up.
- E4.8.3 Field setup and commissioning of the remaining actuators may be performed by Rotork, or by a representative of the valve manufacturer.
- E4.8.4 Rotork's presence to setup and commission the actuator in no way limits the valve or gate vendor's responsibility for setup and commissioning.
- E4.8.5 Responsibility of the Contractor:
- (a) It is the responsibility of the Contractor to ensure that the installation of the actuator is complete and that the valve is ready to commission, as per Rotork's documented pre-commissioning checklist.
- E4.8.6 Field setup and commissioning servers shall include all standard manufacturer recommended start-up and commissioning procedures, as well as the following:
- (a) Visual Inspection
    - (i) Inspect equipment for signs of damage.
    - (ii) Verify mechanical installation per drawings.

- (iii) Inspect electrical terminal compartment for foreign objects.
- (b) Mechanical Inspection
  - (i) Check all bolts for tightness and to the correct torque.
  - (ii) Check for alignment.
  - (iii) Ensure appropriate clearances for all connecting bushings and connecting faces.
- (c) Electrical Inspection
  - (i) Check all power wiring connections for tightness.
  - (ii) Check all fuses for continuity.
  - (iii) Confirm input voltage and phase rotation is correct.
  - (iv) Confirm that the control / fieldbus connections are correct.
- (d) Start-up Services
  - (i) Coordinate turning on power to the actuator.
  - (ii) Perform functional tests.
  - (iii) Coordinate with City personnel and designated representatives to confirm and finalize the application requirements.
  - (iv) Configure and document all settings, as appropriate for the application.
  - (v) Perform test runs.
  - (vi) Verify that all configuration values are in the correct state.
  - (vii) Transfer the configuration settings to on-site personnel.

#### E4.9 On-Site Training Session

##### E4.9.1 Operation and Basic Maintenance

- (a) Overview
  - (i) Provide instruction to designated City personnel in the operation and basic maintenance of the electric actuators.
- (b) Location
  - (i) The location of the training will be in the City of Winnipeg, in a facility provided by the City.
- (c) Travel
  - (i) Provide all travel and accommodations at no additional cost.
- (d) Submittals
  - (i) Submit the names and qualifications of the proposed instructors.
  - (ii) Submit training proposal complete with hour-by-hour schedule including brief overview of content of each training segment a minimum of 30 Calendar Days prior to the anticipated date of beginning of training.
- (e) Quality Assurance
  - (i) Provide competent instructors thoroughly familiar with all aspects of the electric actuators.
  - (ii) The Contract Administrator may reject instructors it deems too not be qualified.
  - (iii) In the event that the training provided is not satisfactory, reduction of payment may be applied.
- (f) Duration
  - (i) The training shall consist of two (2) three and a half (3.5) hours periods, excluding coffee breaks. Both sessions shall be in one day.
  - (ii) Each day shall be assumed to be independent of other training days, and not necessarily aligned with other on-site work or training.
- (g) Materials
  - (i) Provide equipment, visual and audio aids, and materials.



- (ii) Supply manual for each trainee, describing in detail the information included in each training program.
- (h) Attendees
  - (i) The attendees are expected to include, but not be limited to:
    - ◆ Operations personnel.
    - ◆ Mechanical maintenance personnel.
    - ◆ Electrical and instrumentation maintenance personnel.
  - (i) Content
    - (i) Overview of the equipment.
    - (ii) Internal operation of the actuators.
    - (iii) Equipment operating training including:
      - ◆ Local operation of the actuator,
      - ◆ Manual / handwheel operation,
      - ◆ Remote operation, and
      - ◆ Operation via the remote configuration tool.
  - (j) Basic equipment maintenance training including:
    - (i) Basic diagnostics,
    - (ii) Basic troubleshooting,
    - (iii) Access to historical information and torque values, and
    - (iv) Preventative maintenance
  - (k) Number of Sessions:
    - (i) Provide a minimum of three (3) sessions.

#### E4.9.2 Detailed Configuration and Service

- (a) Overview
  - (i) Provide instruction to designated City personnel in the detailed setup, configuration, and service of the electric actuators.
- (b) Location
  - (i) The location of the training will be in the City of Winnipeg, in a facility provided by the City.
- (c) Travel
  - (i) Provide all travel, meals and accommodations at no additional cost.
- (d) Submittals
  - (i) Submit the names and qualifications of the proposed instructors.
  - (ii) Submit training proposal complete with hour-by-hour schedule including brief overview of content of each training segment a minimum of 30 Calendar Days prior to the anticipated date of beginning of training.
- (e) Quality Assurance
  - (i) Provide competent instructors thoroughly familiar with all aspects of the electric actuators.
  - (ii) The Contract Administrator may reject instructors it deems to not be qualified.
  - (iii) In the event that the training provided is not satisfactory, reduction of payment may be applied.
- (f) Duration
  - (i) The training shall consist of two days, each seven (7) hour sessions, excluding lunch and coffee breaks. The session days shall be back-to-back.
  - (ii) Each session (2-days) shall be assumed to be independent of other training sessions, and not necessarily aligned with other on-site work or training.

- (g) Materials
  - (i) Provide equipment, visual and audio aids, and materials.
  - (ii) Supply manual for each trainee, describing in detail the information included in each training program.
- (h) Attendees
  - (i) The attendees are expected to include, but not be limited to:
    - ◆ Mechanical maintenance personnel.
    - ◆ Electrical and instrumentation maintenance personnel.
- (i) Content
  - (i) Detailed overview of the equipment and its internal construction.
  - (ii) Equipment configuration training, including:
    - ◆ Setup of the actuator parameters,
    - ◆ Establishing communications, and
    - ◆ Setting torque limits and end limits.
- (j) Equipment maintenance training including:
  - (i) Detailed diagnostics,
  - (ii) Detailed troubleshooting,
  - (iii) Preventative maintenance,
  - (iv) Disassembly,
  - (v) Replacement of modules, and
  - (vi) Fieldbus diagnostics
- (k) Maintenance use of equipment configuration software, including:
  - (i) Basic operation of the software,
  - (ii) Connecting to electric actuators,
  - (iii) Download and upload of the actuator configuration, and
  - (iv) Diagnostics and troubleshooting.
- (l) Number of Sessions:
  - (i) Provide a minimum of two (2) sessions.

E4.10 The contact for all quotations and purchases:

Mr. Henry Zenteno  
#6, 820 - 28th Street North East  
Street Calgary, Alberta, T2A  
6K1  
Telephone: 403-569-9455  
Mobile: 403-813-5850  
E-mail: [Henry.Zenteno@rotork.com](mailto:Henry.Zenteno@rotork.com)

E4.11 Quotations and orders:

E4.11.1 Reference the following in all quotation requests, quotations \ proposals, purchase orders, and invoices:

- (a) This Bid Opportunity number; and
- (b) A statement indicating:  
"This request / purchase order is subject to the Terms and Conditions of City of Winnipeg Request for Proposal RFP 331-2014."

## **E5. STANDARDIZED GAS DETECTION SYSTEMS**

- E5.1 The City has standardized on a specific vendor for the supply and delivery of gas detection systems. The Standardization Vendor was selected via RFP 123-2014 and was awarded to Mine Safety Appliances Company, LLC (MSA) c/o Tundra Process Solutions Ltd.
- (a) Copies of the tender documents are available from City of Winnipeg Material Management's website.
- E5.2 Goods to be procured via this standardization agreement include but are not limited to:
- (a) Gas detection sensors;
  - (b) Gas detection transmitters;
  - (c) Gas detection controllers;
  - (d) Gas detection sensor consumables; and
  - (e) Associated accessories.
- E5.3 The following model series shall be utilized unless otherwise indicated in the Specifications, Drawings or otherwise approved by the Contract Administrator:
- (a) UltimaX gas detection systems.
  - (b) GasGard XL controllers.
- E5.4 Field setup and commissioning:
- E5.4.1 Field setup and commissioning of the gas detection systems may be performed by MSA under the Standardization Agreement. Coordinate with MSA as required to understand the capabilities and limitations of MSA's field setup and commissioning services and provide all remaining services to provide a complete commissioning and start-up.
- E5.4.2 The Contractor may provide field setup and commissioning services for the gas detection system via alternate means, provided that this does not result in a reduction of the services or quality of work.
- E5.4.3 Where MSA is utilized to provide field setup and commissioning, their scope of work has been standardized as follows:
- (a) Provide the services for a factory-trained instrument technician to setup and commission the gas detection instruments and controllers, as requested by the City. It is expected that setup and commissioning will be required for some, but not all, of the equipment.
  - (b) Qualification
    - (i) The personnel provided shall be a factory trained and certified technologist, with a minimum of one year of experience working with the products proposed.
  - (c) Services
    - (i) Provide a full eight hours of on-site labour, for each allocated day, to setup and commission the gas detection systems.
    - (ii) Provide all travel and tools required.
- E5.5 Training
- E5.5.1 Local Training Session
- (a) Overview
    - (i) Provide instruction to designated City personnel in the operation and maintenance of the gas detection equipment.
  - (b) Location
    - (i) The location of the training will be in the City of Winnipeg, in a facility provided by the City.

- (c) Travel
  - (i) Provide all travel, meals and accommodations at no additional cost.
- (d) Submittals
  - (i) Submit the names and qualifications of the proposed instructors.
  - (ii) Submit training proposal complete with hour-by-hour schedule including brief overview of content of each training segment a minimum of 30 Working Days prior to the anticipated date of beginning of training.
- (e) Quality Assurance
  - (i) Provide competent instructors thoroughly familiar with all aspects of the gas detection equipment.
  - (ii) The Contract Administrator may reject instructors it determines too not be qualified.
  - (iii) In the event that the training provided is not satisfactory, reduction of payment may be applied.
- (f) Duration
  - (i) The training shall be a minimum of eight (8) hours in duration, excluding coffee and lunch breaks.
  - (ii) Each session shall be assumed to be independent of other training sessions, and not necessarily aligned with other on-site work or training.
- (g) Materials
  - (i) Provide equipment, visual and audio aids, and materials.
  - (ii) Supply manual for each trainee, describing in detail the information included in each training program.
- (h) Attendees
  - (i) The attendees are expected to include, but not be limited to:
    - ◆ Electrical and instrumentation maintenance personnel and
    - ◆ Operations personnel.
- (i) Content
  - (i) Overview of the equipment.
  - (ii) Equipment maintenance training including:
    - ◆ Installation,
    - ◆ Configuration,
    - ◆ Troubleshooting, and
    - ◆ Preventative maintenance
- (j) Number of Sessions:
  - (i) Provide a minimum of two (2) sessions.

E5.6 The contact for all quotations and purchases:

Sheldon Bradley  
Senior Inside  
Technical Sales 3200-  
118Ave S.E.  
Calgary, AB  
T2Z 3X1  
Telephone: 1-800-265-1166  
Mobile: 1-403-510-2011  
E-mail: sbradley@tundrasolutions.ca

**E5.7 Quotations and orders:**

**E5.7.1** Reference the following in all quotation requests, quotations \ proposals, purchase orders, and invoices:

- (a) This Bid Opportunity number; and
- (b) A statement indicating:

“This request / purchase order is subject to the Terms and Conditions of City of Winnipeg Request for Proposal RFP 123-2014.”

**E6. STANDARDIZED INSTRUMENTATION**

**E6.1** The City has standardized on a specific vendor for the supply and delivery of specific instrumentation. The Standardization Vendor was selected via RFP 449-2014 and was awarded to Trans-West Supply Company Inc. (Trans-West).

- (a) Copies of the tender documents are available from City of Winnipeg Material Management’s website.

**E6.2** Goods to be procured via this standardization agreement include but are not limited to:

- (a) Flowmeters – Electromagnetic;
- (b) Flowmeters – Differential pressure based;
- (c) Pressure Transmitters including manifold assemblies;
- (d) Temperature Transmitters including temperature elements and thermowells;
- (e) Ultrasonic Level Transmitters; and
- (f) Associated accessories.

**E6.3** For clarity, this standardization agreement does not include:

- (a) Flowmeters - Coriolis;
- (b) Flowmeters – Thermal Dispersion;
- (c) Flowmeters – Ultrasonic;
- (d) Flow switches (i.e. mechanical);
- (e) Pressure switches;
- (f) Temperature switches;
- (g) Radar Level Transmitters; and
- (h) Level Switches (non-ultrasonic based).

**E6.4** The following model series shall be utilized unless otherwise indicated in the Specifications, Drawings or otherwise approved by the Contract Administrator:

- (a) Magnetic Flowmeter Flowtubes – SITRANS F M MAG 5100W series.
  - (i) SITRANS F M MAG 3100W series may be utilized where specified.
- (b) Magnetic Flowmeter Transmitters - SITRANS F M MAG 6000 series.
- (c) Pressure Transmitters - SITRANS P DS III.
- (d) Temperature Transmitters
  - (i) SITRANS TF (Process Applications)
  - (ii) SITRANS TH400 (HVAC applications)
- (e) Ultrasonic Level Transmitters
  - (i) Integrated applications: SITRANS Probe LU
  - (ii) Separate controller applications: Multiranger 100/200 with EchoMax transducers.

E6.5 Field setup and commissioning:

- E6.5.1 Field setup and commissioning of the gas detection systems may be performed by Trans-West under the Standardization Agreement. Coordinate with Trans-West as required to understand the capabilities and limitations of Trans-West's field setup and commissioning services and provide all remaining services to provide a complete commissioning and start-up.
- E6.5.2 Field setup and commissioning of the standardized instrumentation shall be performed by Trans-West under the standardization agreement for the following:
- (a) The first instrument of each type installed on site; and
  - (b) A minimum of five additional instruments of each type, or 10% of the actuators of that type, whichever is greater.
- E6.5.3 The Contractor may provide field setup and commissioning services for the remaining instrumentation via alternate means, provided that this does not result in a reduction of the services or quality of work.
- E6.5.4 The services provided are to include at all standard manufacturer recommended start-up and commissioning procedures, as well as the following:
- (a) Visual Inspection
    - (i) Inspect instrument for signs of damage,
    - (ii) Verify mechanical and piping installation per drawings and manufacturer requirements,
    - (iii) Verify wiring installation per drawings and manufacturer requirements, and
    - (iv) Inspect electrical terminal compartment for foreign objects.
  - (b) Mechanical Inspection
    - (i) Check all connections and bolts for tightness and to the correct torque,
    - (ii) Check for alignment, and
    - (iii) Ensure appropriate clearances for all connecting bushings and connecting faces.
  - (c) Electrical Inspection
    - (i) Check all power wiring connections for tightness,
    - (ii) Check all fuses in the instrument for continuity,
    - (iii) Confirm input voltage is correct, and
    - (iv) Confirm that the signal / fieldbus connections are correct.
  - (d) Start-up Services
    - (i) Coordinate turning on power to the instrument,
    - (ii) Configure all applicable settings and parameters that could not be configured prior to installation,
    - (iii) Perform functional tests,
    - (iv) Coordinate with City personnel and designated representatives to confirm and finalize the application requirements,
    - (v) Configure and document all settings, as appropriate for the application,
    - (vi) Coordinate to perform test demonstrations to verify instrument performance,
    - (vii) Verify that all configuration values are in the correct state, and
    - (viii) Transfer the configuration settings to on-site personnel.
  - (e) Documentation
    - (i) Provide a signed documented commissioning form for each instrument, in a format acceptable to the Contract Administrator.
  - (f) Travel
    - (i) Provide all travel and accommodations at no additional cost.

- (g) Personnel:
  - (i) Personnel shall be factory trained in the maintenance, configuration, and service of the proposed instrumentation.

#### E6.5.5 Responsibility of the Contractor:

- (a) It is the responsibility of the Contractor to ensure that the installation of the instrumentation is complete and that the instrument is ready to commission prior to engaging Trans-West to commission any instrumentation.

### E6.6 Training

#### E6.6.1 Local Training Session – General Requirements

- (a) Overview:
  - (i) Provide instruction to designated City personnel in the operation, configuration, and maintenance of the proposed instruments and associated components.
- (b) Location:
  - (i) The location of the training will be in the City of Winnipeg, in a facility provided by the City.
  - (ii) The room will be classroom style.
- (c) Submittals:
  - (i) Submit the names and qualifications of the proposed instructors.
  - (ii) Submit training proposal complete with hour-by-hour schedule including brief overview of content of each training segment a minimum of 30 Calendar Days prior to the anticipated date of beginning of training.
- (d) Quality Assurance:
  - (i) Provide competent instructors thoroughly familiar with all aspects of the instruments.
  - (ii) The Contract Administrator may reject instructors it deems to not be qualified.
  - (iii) In the event that the training provided is not satisfactory, reduction in payment may be applied.
- (e) Materials:
  - (i) Provide equipment, visual and audio aids, and materials.
  - (ii) Sample instruments of each type shall be provided, along with all equipment required to power and configure the instruments.
  - (iii) Supply manual for each trainee, describing in detail the information included in each training program.
- (f) Attendees:
  - (i) The attendees are expected to include, but not be limited to:
    - ◆ Electrical and instrumentation maintenance personnel.

#### E6.6.2 Local Training Session – Electromagnetic Flowmeter, Pressure, Temperature

- (a) Provide local training sessions, in accordance with E6.6.1:
- (b) Duration:
  - (i) Each training session shall be a minimum of six (6) hours in duration, excluding coffee and lunch breaks.
  - (ii) Each day shall be assumed to be independent of other training days, and not necessarily aligned with other on-site work or training.
- (c) Scope:
  - (i) Each training session shall address the complete scope of all products proposed.
- (d) For each instrument type, provide the following training content:
  - (i) Overview of the instrument,

- (ii) Equipment maintenance training, including:
  - ◆ Installation,
  - ◆ Troubleshooting,
  - ◆ Preventative maintenance,
  - ◆ Replacement of components,
  - ◆ Fieldbus network troubleshooting and diagnostics, and
  - ◆ Calibration procedures.
- (iii) Maintenance use of associated software and HART/PROFIBUS parameters, including:
  - ◆ Basic operation of software,
  - ◆ Connecting to instruments,
  - ◆ Configuration of parameters,
  - ◆ Download and upload software configuration, and
- (iv) Diagnostics and troubleshooting.
- (e) Number of Sessions:
  - (i) Provide a minimum of two (2) sessions for each instrument type.

#### E6.6.3 Local Training Session – Ultrasonic Level

- (a) Provide local training sessions, in accordance with E6.6.1:
- (b) Duration:
  - (i) Each training session shall be a minimum of three (3) hours in duration, excluding coffee and lunch breaks.
  - (ii) Each day shall be assumed to be independent of other training days, and not necessarily aligned with other on-site work or training.
- (c) Scope:
  - (i) Each training session shall address the complete scope of all products proposed.
- (d) For each instrument, provide the following training content:
  - (i) Overview of the instrument,
  - (ii) Equipment maintenance training, including:
    - ◆ Installation,
    - ◆ Troubleshooting,
    - ◆ Preventative maintenance,
    - ◆ Replacement of components,
    - ◆ Fieldbus network troubleshooting and diagnostics, and
    - ◆ Calibration procedures.
  - (iii) Maintenance use of associated software and HART/PROFIBUS parameters, including:
    - ◆ Basic operation of software,
    - ◆ Connecting to instruments,
    - ◆ Configuration of parameters,
    - ◆ Download and upload software configuration, and
    - ◆ Diagnostics and troubleshooting.
- (e) Number of Sessions:
  - (i) Provide a minimum of two (2) sessions for each instrument type.



- E6.6.4 Electromagnetic Flowmeter Calibration Verification Tool Training
- (a) Provide local training sessions, in accordance with E6.6.1:
  - (b) Provide one training session per unit supplied, to instruct designated City personnel in the operation, configuration, and maintenance of the proposed instruments and associated components.
  - (c) The location of the training will be in the City of Winnipeg, in a facility provided by the City.
  - (d) Provide competent instructors thoroughly familiar with all aspects of the verification tool.
    - (i) The Contract Administrator may reject instructors it deems to not be qualified.
- E6.6.5 Each training session shall be a minimum of four (4) hours in duration, excluding coffee and lunch breaks, or longer as required to instruct personnel in the required operation.

E6.7 The contact for all quotations and purchases:

Amurthan (Amu) Abimanan Branch  
Manager 126 Bannister Road  
Winnipeg, MB, R3R  
0S3 Telephone: 204-783-0100  
Mobile: 204-782-1864  
E-mail: amu@transwest-mb.com

E6.8 Quotations and orders:

- E6.8.1 Reference the following in all quotation requests, quotations \ proposals, purchase orders, and invoices:
- (a) This Bid Opportunity number; and
  - (b) A statement indicating:  
"This request / purchase order is subject to the Terms and Conditions of City of Winnipeg Request for Proposal RFP 449-2014."

## CIVIL WORKS

### E7. SUPPLY AND INSTALLATION OF IN-LINE GATE VALVE

E7.1 Description

E7.1.1 This specification shall cover the supply and installation of an in-line gate valve at the North End Water Treatment Plant's land drainage system and all activities required for the Works related to the installation of the new cast iron resilient-seated gate valve with non-rising stem.

E7.2 Materials and Construction Methods

E7.2.1 The Contractor shall provide shop drawings for the 300 mm diameter cast iron resilient-seated gate valve with non-rising stem. The O-rings, gaskets, and seals shall be made from Buna N Nitrile rubber (NBR). The interior and exterior of each cast iron resilient seated gate valve shall receive a fusion-bonded epoxy coating.

E7.2.2 The gate valve shall be installed in the location as indicated on the Drawings and in accordance with manufacturer's recommendations.

E7.2.3 Direction of close shall be clockwise and shall be clearly stamped or indicated with raised letters and arrow.

E7.2.4 Manufacturer's nameplate shall be attached to the valve body with stainless steel fasteners.

E7.2.5 Acceptable manufacturers include Clow Canada, Mueller Canada, or approved equivalent in accordance with B8.

E7.3 Measurement and Payment

E7.3.1 Removal and abandonment of the existing gate valve shall be considered incidental to Pipe Removal and Abandonment and no separate measurement or payment is to be made.

E7.3.2 Installation of new gate valve shall be measured and paid as a lump sum payment for "Supply and Installation of In-Line Gate Valve", which price shall be payment in full for performing all associated Works and operations specified herein and to the manufacturer's specifications.

## **E8. SUPPLY AND INSTALL 25 MM ID POLYMER COATED ORIFICE PLATE**

E8.1 Description

- (a) This Specification shall amend and supplement Standard Specifications CW 2130, CW 2160, and CW 3610
- (b) The Work to be done by the Contract 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 hereinafter specified.

E8.2 Materials

E8.2.1 Polymer Coated Orifice Plate

- (a) Orifice Plates shall be installed using a bolted connection. Shop Drawings shall be submitted for the Orifice Plate installation and shall be constructed of appropriate diameter and size for the pipe as specified on the contract drawings.

E8.3 Construction Methods

E8.3.1 Installation of Polymer Coated Orifice Plate

- (a) Orifice Plates shall be installed in accordance with the manufacturer's instructions and in the location as specified on the contract drawings.
- (b) All field welds and cuts on the polymer coated plate shall be repaired using Ranbar Tri-spec-515-7 black synthetic coating or approved equivalent in accordance with B8. Surfaces are to be clean and dry and free from grease, oil, dirt, and rust. Following the repair process, the field coating must be fully cured prior to exposure to water, soil, or debris.

E8.4 Method of Measurement and Payment

E8.4.1 Supply and Install Polymer Coated Orifice Plate

- (a) Measurement and Payment will be on a per Unit basis. The unit to be paid for shall be the total number of fittings installed in accordance with this Specification and acceptable to the Contract Administrator as computed from measurements made by the Contract Administrator.
- (b) The Unit Price shall include all work and materials, including modifications to the pipe on either side of the fittings, as required, to install the orifice plate.

## **E9. REMOVAL OF EXISTING FENCE**

E9.1 Description

E9.1.1 This Specification shall cover the removal and disposal of the existing chain link fencing, gates, line posts, terminal posts, concrete piles, and associated hardware and all activities required for the Works related to the removal and disposal of existing fences.

## E9.2 Construction Methods

E9.2.1 All existing fencing as indicated on the Drawings and as identified by the Contract Administrator shall be removed and appropriately disposed of off site.

## E9.3 Measurement and Payment

E9.3.1 The removal of fencing shall be measured by lineal metre and paid for at the Contract Unit Price for "Removal of Existing Fence". The length to be paid for shall be the total metres of fencing removed from Site and taken to a waste facility, in accordance with this Specification, and accepted and measured by the Contract Administrator.

E9.3.2 All costs associated with removal of fencing, which includes collection of debris, transport, and tipping fees, will be considered incidental to the Work.

## E10. SUBSURFACE CHARACTERIZATION

### E10.1 Description

E10.1.1 This specification shall cover the work required to accurately characterize the subsurface soil conditions in the areas where soil is being excavated. This will include testing and disposal requirements.

### E10.2 Materials

E10.2.1 As no previous information or data is available to characterize the subsurface conditions within the excavation areas, the soil testing requirements shall cover the following parameters:

- (a) Polycyclic Aromatic Hydrocarbons (PAH)
- (b) Petroleum Hydrocarbons (PHC)
- (c) Volatile Organic Compounds (VOC)
- (d) Metals

### E10.3 References

E10.3.1 The following references shall be used by the contractor to ensure the soils are being fully characterized and any additional information and/or requirements outlined in the following documents are achieved and/or adhered to:

- (a) Contaminated Sites Remediation Regulation - [Contaminated Sites Remediation Regulation, M.R. 105/97 \(gov.mb.ca\)](#)
- (b) Contaminated Sites Remediation Act - [C.C.S.M. c. C205 \(gov.mb.ca\)](#)
- (c) CCME Guidelines and Criteria - [Canadian Council of Ministers of the Environment | Le Conseil canadien des ministres de l'environnement \(ccme.ca\)](#)

### E10.4 Construction Methods

E10.4.1 The characterization of the subsurface soils will be completed during a test pitting program at the site. A designated professional should complete the test pitting program and obtain the soil samples, log the subsurface soil stratigraphy and submit the soil samples for laboratory analysis.

E10.4.2 Should contaminated material be identified during Subsurface Characterization, the Contractor shall remove and dispose of the contaminated material at a licensed facility capable of safely treating and disposing of the contaminated material as approved by the Contract Administrator.

### E10.5 Measurement and Payment

E10.5.1 All field activities, laboratory analysis, and disposal requirements that are associated with the subsurface soil characterization shall be paid for at the lump sum payment for

“Subsurface Characterization” price and will be paid in full for performing all the associated requirements identified in the reference material in B.1.2.

E10.5.2 Removal and disposal of contaminated soils will be measured in cubic metres to excavate, load, haul, and dispose of the contaminated material. A rate per cubic metre of contaminated material for removal and disposal will be negotiated with the Contractor should contaminated soil be identified during Subsurface Characterization.

## **E11. SUPPLY AND INSTALL SIGNS**

E11.1 Description

E11.1.1 This Specification shall cover the supply and installation of a sign as shown in the Drawings at the new Ferric Chloride Storage Building.

E11.2 Construction Methods

E11.2.1 The supplied sign shall be affixed to the new Ferric Chloride Building as shown on the Drawings and directed by the Contract Administrator using appropriate installation hardware as approved by the Contract Administrator.

E11.3 Measurement and Payment

E11.3.1 The supply and installation of signs shall be paid for at the Contract Unit Price for “Supply and Install Signs” for each sign supplied and installed.

E11.3.2 All costs associated with the supply and installation of the sign and installation hardware will be considered incidental to the Work.

## **E12. EROSION CONTROL BLANKETS**

E12.1 Description

E12.1.1 This Specification shall cover the supply and placement of erosion control blankets to provide temporary erosion control in localized areas (as directed by the Contract Administrator)

E12.2 Materials

E12.2.1 The blanket material shall consist of wheat or barley straw, or other plants approved by the Contract Administrator. Acceptable products will be S32 BD Double Net Straw Blankets with **biodegradable** netting or approved alternative in accordance with B8. The blanket material shall be air dried, reasonably light in colour, and shall not be musty, mouldy, caked or otherwise of low quality. The blanket material shall be free of coarse (chaff) material and free of noxious weeds and/or seeds to prevent the introduction of weeds into previously seeded and planted areas.

E12.3 Construction Methods

E12.3.1 General

- (a) The Contractor shall supply and place erosion control blankets immediately after seeding is completed and prior to March 15.
- (b) Erosion control blankets shall be placed as directed, measured, and accepted by the Contract Administrator.
- (c) Covered areas shall be inspected periodically and after runoff producing storm events. Damaged areas shall be repaired immediately as determined by the Contract Administrator. Areas requiring recovering as directed by the Contract Administrator will be re-measured and additionally paid for at the Contract Unit Price for the Work item.

#### E12.3.2 Installation

- (a) The erosion control blankets shall be installed as per the manufacturer's recommended procedures. Blankets shall be rolled out on smoothed out soils starting from the top of the slope. The Contractor is to start by stapling the blanket at the top of the slope in a 150 mm deep by 150mm wide trench. The trench will be backfilled and compacted so that water will flow evenly onto the blanket.
- (b) The Contractor shall roll the blankets down the slope insuring soil blanket contact. Edges are to be overlapped a minimum 50 mm with parallel blankets.
- (c) If more than one blanket is need for the run down the slope then adjoining ends must be overlapped a minimum 100 mm shingle style. Overlapped areas are to be stapled with a staggered pattern of staples.

#### E12.4 Measurement and Payment

- E12.4.1 Supply and placement of erosion control blankets will be measured on an area basis and paid for at the Contract Unit Price for "Erosion Control Blankets". The area to be paid for shall be the total number of square metres of ground covered by blankets, supplied and placed in accordance with this Specification, accepted and measured by the Contract Administrator.

### ALLOWANCES

#### E13. ADDITIONAL WORK

- E13.1 Additional Work may be necessitated due to unforeseen circumstances that may arise during the course of the project due to:
- (a) Additions to the scope of Work by the Contract Administrator, beyond that defined herein.
- E13.2 A cash allowance has been included on Form B: Prices.
- E13.3 The City reserves the right to delete any or all of the Cash Allowance from the Contract if the Work intended to be covered by the Cash Allowance is not required, or if the Works intended are found to be more extensive than the provisional Cash Allowance.
- E13.4 Cost of additional work shall be evaluated by the methods outlined in C7.4, and a Change Order prepared by the Contract Administrator. Cost of the Change Order will be paid on the Progress Estimate and deducted from the Cash Allowance. If the valuation of the authorized work exceeds the Value of the Cash Allowance, the Contract Value will be adjusted by the shortfall.
- E13.5 Additional services and/or Work will not be initiated for:
- (a) Reasons of lack of performance or errors in execution.
  - (b) Scheduling changes initiated by the City, where at least 24 hours notice is given prior to the Contractors schedule time to be on Site.
- E13.6 Should it be determined that additional material or services are required, the Contract Administrator shall approve the Work, prior to commencement of the additional Work.
- E13.7 Material Mark-Up Factors:
- (a) The base cost is to be the wholesale cost of the material, regardless of the Contractor or Subcontractor supplying the material.
  - (b) In general, the party (Contractor or Subcontractor) supplying the material is the party that purchases the material from a supplier who does not perform any work on Site, unless otherwise determined by the Contract Administrator.
  - (c) Where the Contractor is supplying the material, the mark-up on the material is limited to fifteen percent (15%).

- (d) Where a Subcontractor is supplying the material, the total mark-up on the material, including all Subcontractors and the Contractor is limited to twenty-five percent (25%), including the Contractor and all Subcontractors' mark-ups.
- (e) Where the Contractor's immediate Subcontractor is supplying the material:
  - (i) The Subcontractor's mark-up on the material is limited to fifteen percent (15%);
  - (ii) The Contractor's mark-up on the material is limited to ten percent (10%).
- (f) A Third-Level Subcontractor is a Subcontractor of a Subcontractor of the Contractor.
  - (i) No Third-Level Subcontractors on this project are approved for additional mark-up.
  - (ii) In the event that a Third-Level Subcontractor is utilized, that is not approved for additional mark-up, the Contractor is responsible for coordinating the split of the maximum approved mark-up between the Contractor and Subcontractors.

#### **E14. ALLOWANCE FOR VIBRATION MONITORING**

E14.1 There is potential that construction activities will have a negative impact through construction-induced vibrations. Excessive vibrations can cause damage to surrounding structures (above and below grade). Inspections and monitoring may be required to mitigate the severity of the damage.

##### **E14.2 Description**

- (a) The Contractor is advised that vibration monitors are required to be installed by a suitable testing company for this Contract.
- (b) Monitoring instruments will be set up on structures identified as being within the "zone of influence" of construction activities including installation of driven piles at the discretion of the Contract Administrator.
- (c) While a current by-law on acceptable vibrations does not exist for the City of Winnipeg, the monitoring data should be compared to the California Department of Transportation's "Transportation and Construction Vibration Guidance Manual" (April 2020) which presents probabilistic damages thresholds.
- (d) The Contractor should select construction methods that they feel results in a vibration tolerance limit that they deem is an acceptable risk.

##### **E14.3 Construction Methods**

- (a) The Contractor or their designate shall complete a pre-construction photographic survey of the existing structures adjacent to the Work (and for which vibration monitors may be installed upon).
- (b) The condition inspections must be coordinated with the City in advance for provision of access for inspections. The photographic survey should provide a record of foundation, interior walls, door and window frames, existing cracks and other features.
- (c) Vibration monitors should be installed in or adjacent to structures. The monitors should be capable of measuring 0 – 250 mm/sec, continuously. Where data storage permits continuous monitoring, the data should be downloaded periodically to provide sufficient storage for continuous monitoring.
- (d) The vibration monitoring will be set up prior to any construction activities to ensure a baseline reading is developed.
- (e) Data should be recorded and provided to the Contract Administrator.
- (f) The collected data shall be made available to the City upon request.
- (g) Following construction activities, the Contractor shall arrange for a post construction inspection of any buildings or facilities where preconstruction inspections were undertaken.

##### **E14.4 Measurement and Payment**

- (a) The cost for the building inspections and vibration monitors shall be paid for under the Contract unit price for "Allowance for Vibration Monitoring". Costs will be based on actual invoiced costs for inspections, equipment, and monitoring with allowable mark-ups in accordance with the General Conditions.