



THE CITY OF WINNIPEG

BID OPPORTUNITY

BID OPPORTUNITY NO. 739-2017

**NORTH END SEWAGE TREATMENT PLANT (NEWPCC)
RETURN ACTIVATED SLUDGE PIPE ASSESSMENT
PILOT INSPECTION PROGRAM**

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PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

B1.1 NORTH END SEWAGE TREATMENT PLANT (NEWPCC) RETURN ACTIVATED SLUDGE PIPE ASSESSMENT PILOT INSPECTION PROGRAM

B2. SUBMISSION DEADLINE

- B2.1 The Submission Deadline is 4:00 p.m. Winnipeg time, January 3, 2018.
- B2.2 Bids determined by the Manager of Materials to have been received later than the Submission Deadline will not be accepted and will be returned upon request.
- B2.3 The Contract Administrator or the Manager of Materials may extend the Submission Deadline by issuing an addendum at any time prior to the time and date specified in B2.1.

B3. SITE INVESTIGATION

- B3.1 Further to C3.1, the Bidder may make an appointment to view the Site by contacting the Contract Administrator.
- B3.2 The Bidder is advised that the Contract Administrator or an authorized representative will conduct a Site Investigation of the RAS Pipe Gallery area at the North End Sewage Treatment Plant (NEWPCC), located at 2230 Main Street, Winnipeg, MB, on the following dates and times:(a) December 19, 2017 at 1:30 PM; and (b) December 20, 2017 at 9:00AM.
- B3.2.1 The same information will be provided at both presentations of the Site Investigation.
- B3.2.2 Bidders are requested to register for the Site Investigation by contacting the Contract Administrator identified in D4 before December 18, 2017 at 4:00PM.
- B3.2.3 Bidders are requested to meet at the reception area of the Main Building of the NEWPCC.
- B3.2.4 Bidders attending the Site Investigation outlined B3.2 are required to provide their own Personal Protective Equipment; at a minimum hard hat, CSA approved safety footwear, and safety glasses.
- B3.3 Although attendance at the Site Investigations is not mandatory, the City strongly suggests that Bidders attend.
- B3.4 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. ENQUIRIES

- B4.1 All enquiries shall be directed to the Contract Administrator identified in D4.1.
- B4.2 If the Bidder finds errors, discrepancies or omissions in the Bid Opportunity, or is unsure of the meaning or intent of any provision therein, the Bidder shall notify the Contract Administrator of the error, discrepancy or omission, or request a clarification as to the meaning or intent of the provision at least five (5) Business Days prior to the Submission Deadline.
- B4.3 Responses to enquiries which, in the sole judgment of the Contract Administrator, require a correction to or a clarification of the Bid Opportunity will be provided by the Contract Administrator to all Bidders by issuing an addendum.

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

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

B5. CONFIDENTIALITY

B5.1 Information provided to a Bidder by the City or acquired by a Bidder by way of further enquiries or through investigation is confidential. Such information shall not be used or disclosed in any way without the prior written authorization of the Contract Administrator. The use and disclosure of the confidential information shall not apply to information which:

- (a) was known to the Bidder before receipt hereof; or
- (b) becomes publicly known other than through the Bidder; or
- (c) is disclosed pursuant to the requirements of a governmental authority or judicial order.

B5.2 The Bidder shall not make any statement of fact or opinion regarding any aspect of the Bid Opportunity to the media or any member of the public without the prior written authorization of the Contract Administrator.

B6. ADDENDA

B6.1 The Contract Administrator may, at any time prior to the Submission Deadline, issue addenda correcting errors, discrepancies or omissions in the Bid Opportunity, or clarifying the meaning or intent of any provision therein.

B6.2 The Contract Administrator will issue each addendum at least two (2) Business Days prior to the Submission Deadline, or provide at least two (2) Business Days by extending the Submission Deadline.

B6.2.1 Addenda will be available on the Bid Opportunities page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/bidopplasp>

B6.2.2 The Bidder is responsible for ensuring that he/she has received all addenda and is advised to check the Materials Management Division website for addenda regularly and shortly before the Submission Deadline, as may be amended by addendum.

B6.3 The Bidder shall acknowledge receipt of each addendum in Paragraph 8 of Form A: Bid. Failure to acknowledge receipt of an addendum may render a Bid non-responsive.

B7. SUBSTITUTES

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

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

B7.3 Requests for approval of a substitute will not be considered unless received in writing by the Contract Administrator at least five (5) Business Days prior to the Submission Deadline.

B7.4 The Bidder shall ensure that any and all requests for approval of a substitute:

- (a) provide sufficient information and details to enable the Contract Administrator to determine the acceptability of the Plant, Material or method as either an approved equal or alternative;
- (b) identify any and all changes required in the applicable Work, and all changes to any other Work, which would become necessary to accommodate the substitute;

- (c) identify any anticipated cost or time savings that may be associated with the substitute;
- (d) certify that, in the case of a request for approval as an approved equal, the substitute will fully perform the functions called for by the general design, be of equal or superior substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule and the dates specified in the Supplemental Conditions for Substantial Performance and Total Performance;
- (e) certify that, in the case of a request for approval as an approved alternative, the substitute will adequately perform the functions called for by the general design, be similar in substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule and the dates specified in the Supplemental Conditions for Substantial Performance and Total Performance.

B7.5 The Contract Administrator, after assessing the request for approval of a substitute, may in his/her sole discretion grant approval for the use of a substitute as an "approved equal" or as an "approved alternative", or may refuse to grant approval of the substitute.

B7.6 The Contract Administrator will provide a response in writing, at least two (2) Business Days prior to the Submission Deadline, to the Bidder who requested approval of the substitute.

B7.6.1 The Contract Administrator will issue an Addendum, disclosing the approved materials, equipment, methods and products to all potential Bidders. The Bidder requesting and obtaining the approval of a substitute shall be responsible for disseminating information regarding the approval to any person or persons he/she wishes to inform.

B7.7 If the Contract Administrator approves a substitute as an "approved equal", any Bidder may use the approved equal in place of the specified item.

B7.8 If the Contract Administrator approves a substitute as an "approved alternative", any Bidder bidding that approved alternative may base his/her Total Bid Price upon the specified item but may also indicate an alternative price based upon the approved alternative. Such alternatives will be evaluated in accordance with B16.

B7.9 No later claim by the Contractor for an addition to the Total Bid Price because of any other changes in the Work necessitated by the use of an approved equal or an approved alternative will be considered.

B8. BID COMPONENTS

B8.1 The Bid shall consist of the following components:

- (a) Form A: Bid;
- (b) Form B: Prices;

B8.2 Further to B8.1, the Bidder should include the written correspondence from the Contract Administrator approving a substitute in accordance with B7.

B8.3 All components of the Bid shall be fully completed or provided, and submitted by the Bidder no later than the Submission Deadline, with all required entries made clearly and completely.

B8.4 The Bid Submission may be submitted by mail, courier or personal delivery, or by facsimile transmission.

B8.5 If the Bid Submission is submitted by mail, courier or personal delivery, it shall be enclosed and sealed in an envelope clearly marked with the Bid Opportunity number and the Bidder's name and address, and shall be submitted to:

The City of Winnipeg
Corporate Finance Department

Materials Management Division
185 King Street, Main Floor
Winnipeg, MB R3B 1J1

- B8.5.1 Samples or other components of the Bid Submission which cannot reasonably be enclosed in the envelope may be packaged separately, but shall be clearly marked with the Bid Opportunity number, the Bidder's name and address, and an indication that the contents are part of the Bidder's Bid Submission.
- B8.6 Bidders are advised not to include any information/literature except as requested in accordance with B8.1.
- B8.7 Bidders are advised that inclusion of terms and conditions inconsistent with the Bid Opportunity document, including the General Conditions, will be evaluated in accordance with B16.1(a).
- B8.8 If the Bid Submission is submitted by facsimile transmission, it shall be submitted to 204 949-1178.
- B8.8.1 The Bidder is advised that the City cannot take responsibility for the availability of the facsimile machine at any time.
- B8.8.2 Bids submitted by internet electronic mail (e-mail) will not be accepted.

B9. BID

- B9.1 The Bidder shall complete Form A: Bid, making all required entries.
- B9.2 Paragraph 2 of Form A: Bid shall be completed in accordance with the following requirements:
- (a) if the Bidder is a sole proprietor carrying on business in his/her own name, his/her name shall be inserted;
 - (b) if the Bidder is a partnership, the full name of the partnership shall be inserted;
 - (c) if the Bidder is a corporation, the full name of the corporation shall be inserted;
 - (d) if the Bidder is carrying on business under a name other than his/her own, the business name and the name of every partner or corporation who is the owner of such business name shall be inserted.
- B9.2.1 If a Bid is submitted jointly by two or more persons, each and all such persons shall identify themselves in accordance with B9.2.
- B9.3 In Paragraph 3 of Form A: Bid, the Bidder shall identify a contact person who is authorized to represent the Bidder for purposes of the Bid.
- B9.4 Paragraph 10 of Form A: Bid shall be signed in accordance with the following requirements:
- (a) if the Bidder is a sole proprietor carrying on business in his/her own name, it shall be signed by the Bidder;
 - (b) if the Bidder is a partnership, it shall be signed by the partner or partners who have authority to sign for the partnership;
 - (c) if the Bidder is a corporation, it shall be signed by its duly authorized officer or officers;
 - (d) if the Bidder is carrying on business under a name other than his/her own, it shall be signed by the registered owner of the business name, or by the registered owner's authorized officials if the owner is a partnership or a corporation.
- B9.4.1 The name and official capacity of all individuals signing Form A: Bid should be printed below such signatures.
- B9.4.2 All signatures shall be original.

B9.5 If a Bid is submitted jointly by two or more persons, the word "Bidder" shall mean each and all such persons, and the undertakings, covenants and obligations of such joint Bidders in the Bid and the Contract, when awarded, shall be both joint and several.

B10. PRICES

B10.1 The Bidder shall state the lump sum price in Canadian funds for the Work on Form B: Prices.

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

B10.2 Payments to Non-Resident Contractors are subject to Non-Resident Withholding Tax pursuant to the Income Tax Act (Canada).

B11. DISCLOSURE

B11.1 Various Persons provided information or services with respect to this Work. In the City's opinion, this relationship or association does not create a conflict of interest because of this full disclosure. Where applicable, additional material available as a result of contact with these Persons is listed below.

B11.2 The Persons are:

- (a) Razar Contracting Services Ltd
- (b) Testlabs International Ltd. (DT)
- (c) PICA Corp (NDT)

B12. QUALIFICATION

B12.1 The Bidder shall:

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

B12.2 The Bidder and any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:

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

B12.3 The Bidder and/or any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:

- (a) have successfully carried out work similar in nature, scope and value to the Work; and
- (b) be fully capable of performing the Work required to be in strict accordance with the terms and provisions of the Contract; and
- (c) have a written workplace safety and health program if required pursuant to The Workplace Safety and Health Act (Manitoba);

B12.4 Further to B12.3(c), the Bidder shall, within five (5) Business Days of a request by the Contract Administrator, provide proof satisfactory to the Contract Administrator that the Bidder/Subcontractor has a workplace safety and health program meeting the requirements of The Workplace Safety and Health Act (Manitoba), by providing:

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

B12.5 The Bidder shall submit, within three (3) Business Days of a request by the Contract Administrator, proof satisfactory to the Contract Administrator of the qualifications of the Bidder and of any proposed Subcontractor.

B12.6 The Bidder shall provide, on the request of the Contract Administrator, full access to any of the Bidder's equipment and facilities to confirm, to the Contract Administrator's satisfaction, that the Bidder's equipment and facilities are adequate to perform the Work.

B13. OPENING OF BIDS AND RELEASE OF INFORMATION

B13.1 Bids will not be opened publicly.

B13.2 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 Closed Bid Opportunities (or Public/Posted Opening & Award Results) page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/>

B13.3 After award of Contract, the name(s) of the successful Bidder(s), their address(es) and the Contract amount(s) will be available on the Closed Bid Opportunities (or Public/Posted Opening & Award Results) page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/>

B13.4 The Bidder is advised that any information contained in any Bid may be released if required by The Freedom of Information and Protection of Privacy Act (Manitoba), by other authorities having jurisdiction, or by law or by City policy or procedures (which may include access by members of City Council).

B14. IRREVOCABLE BID

B14.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 9 of Form A: Bid.

B14.2 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 for the time period specified in Paragraph 9 of Form A: Bid.

B15. WITHDRAWAL OF BIDS

B15.1 A Bidder may withdraw his/her Bid without penalty by giving written notice to the Manager of Materials at any time prior to the Submission Deadline.

- B15.1.1 Notwithstanding C23.3, the time and date of receipt of any notice withdrawing a Bid shall be the time and date of receipt as determined by the Manager of Materials.
- B15.1.2 The City will assume that any one of the contact persons named in Paragraph 3 of Form A: Bid or the Bidder's authorized representatives named in Paragraph 10 of Form A: Bid, and only such person, has authority to give notice of withdrawal.
- B15.1.3 If a Bidder gives notice of withdrawal prior to the Submission Deadline, the Manager of Materials will:
- (a) retain the Bid until after the Submission Deadline has elapsed;
 - (b) open the Bid to identify the contact person named in Paragraph 3 of Form A: Bid and the Bidder's authorized representatives named in Paragraph 10 of Form A: Bid; and
 - (c) if the notice has been given by any one of the persons specified in B15.1.3(b), declare the Bid withdrawn.
- B15.2 A Bidder who withdraws his/her Bid after the Submission Deadline but before his/her Bid has been released or has lapsed as provided for in B14.2 shall be liable for such damages as are imposed upon the Bidder by law and subject to such sanctions as the Chief Administrative Officer considers appropriate in the circumstances. The City, in such event, shall be entitled to all rights and remedies available to it at law.

B16. EVALUATION OF BIDS

- B16.1 Award of the Contract shall be based on the following bid evaluation criteria:
- (a) compliance by the Bidder with the requirements of the Bid Opportunity or acceptable deviation there from (pass/fail);
 - (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B12 (pass/fail);
 - (c) Total Bid Price;
 - (d) economic analysis of any approved alternative pursuant to B7.
- B16.2 Further to B16.1(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.
- B16.3 Further to B16.1(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 responsible and qualified.
- B16.4 Further to B16.1(c), the Total Bid Price shall be the lump sum price shown on Form B: Prices.

B17. AWARD OF CONTRACT

- B17.1 The City will give notice of the award of the Contract or will give notice that no award will be made.
- B17.2 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 responsible and qualified, and the Bids are determined to be responsive.
- B17.2.1 Without limiting the generality of B17.2, 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.

B17.3 Where an award of Contract is made by the City, the award shall be made to the responsible and qualified Bidder submitting the lowest evaluated responsive Bid, in accordance with B16.

B17.3.1 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.

B17.4 Notwithstanding C4, the City may issue a Purchase Order to the successful Bidder in lieu of the execution of a Contract.

B17.5 The Contract, as defined in C1.1, in its entirety shall be deemed to be incorporated in and to form a part of the Purchase Order notwithstanding that it is not necessarily attached to or accompany said Purchase Order.

PART C - GENERAL CONDITIONS

C0. GENERAL CONDITIONS

- C0.1 The *General Conditions for Construction* (Revision 2006 12 15) are applicable to the Work of the Contract.
- C0.1.1 The *General Conditions for Construction* are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at http://www.winnipeg.ca/matmgt/gen_cond.stm
- C0.2 A reference in the Bid Opportunity to a section, clause or subclause with the prefix “**C**” designates a section, clause or subclause in the *General Conditions for Construction*.

PART D - SUPPLEMENTAL CONDITIONS

GENERAL

D1. GENERAL CONDITIONS

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

D2. SCOPE OF WORK

D2.1 The Work to be done under the Contract shall consist of inspecting the condition of sample RAS/WAS piping at the NEWPCC using NDT and DT technologies. The Contractor shall provide support services to qualified testing agencies including providing scaffolding to access piping for NDT. The Contractor shall remove selected 300 mm and 500 mm pipe sample sections for DT and deliver them to a location where DT work can be completed. Pipe samples removed for DT testing shall be replaced with new piping sections as the RAS piping system is still in service. The Contractor shall coordinate pipe section removals and replacements with plant operations personnel and ensure they are not adversely affected.

D2.2 The major components of the Work are as follows:

- (a) Engage an NDT agency to provide the specified on-site inspection and reporting services;
- (b) Provide scaffolding and support services as required for the NDT agency to complete their work on-site;
- (c) Remove and install replacement piping for three (3) 300 mm dia. RAS pipe sections and two (2) 500 mm dia. RAS pipe sections for DT as outlined in the drawings.
- (d) Engage a DT agency to inspect five (5) pipe samples removed under this Contract, and three (3) previously removed short 300 mm dia. RAS pipe sections, and three (3) previously removed 250/300 mm dia. WAS pipe sections, and report on test results;
- (e) Provide written test reports from the NDT and DT agencies.

D3. DEFINITIONS

D3.1 When used in this Bid Opportunity:

- (a) "NDT" means Non Destructive Testing;
- (b) "DT" means Destructive Testing;
- (c) "RAS" means Return Activated Sludge;
- (d) "WAS" means Waste Activated Sludge;
- (e) "NEWPCC" means North End Sewage Treatment Plant;
- (f) "UT" means straight beam ultrasonic;
- (g) "PA" means phase array ultrasonic;
- (h) "GW" means guided wave ultrasonic;
- (i) "ETT" means electromagnetic through thickness;

D4. CONTRACT ADMINISTRATOR

D4.1 The Contract Administrator is KGS Group, represented by:

Jason Smith,
Senior Mechanical Engineer
Telephone No. 204-896-01209
Email Address jsmith@ksgroup.com

D4.2 At the pre-construction meeting, Jason Smith will identify additional personnel representing the Contract Administrator and their respective roles and responsibilities for the Work.

D5. CONTRACTOR'S SUPERVISOR

D5.1 At the pre-construction meeting, the Contractor shall identify his/her designated supervisor and any additional personnel representing the Contractor and their respective roles and responsibilities for the Work.

D6. OWNERSHIP OF INFORMATION, CONFIDENTIALITY AND NON DISCLOSURE

D6.1 The Contract, all deliverables produced or developed, and information provided to or acquired by the Contractor are the property of the City and shall not be appropriated for the Contractors own use, or for the use of any third party.

D6.2 The Contractor shall not make any public announcements or press releases regarding the Contract, without the prior written authorization of the Contract Administrator.

D6.3 The following shall be confidential and shall not be disclosed by the Contractor to the media or any member of the public without the prior written authorization of the Contract Administrator;

- (a) information provided to the Contractor by the City or acquired by the Contractor during the course of the Work;
- (b) the Contract, all deliverables produced or developed; and
- (c) any statement of fact or opinion regarding any aspect of the Contract.

D6.4 A Contractor who violates any provision of D6 may be determined to be in breach of Contract.

D7. NOTICES

D7.1 Except as provided for in C23.2.2, all notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the Contractor shall be sent to the facsimile number identified by the Contractor in Paragraph 2 of Form A: Bid.

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, D7.4 or elsewhere in the Contract, shall be sent to the attention of the Contract Administrator at the facsimile number identified in D4.

D7.3 Notwithstanding C21., all notices of appeal to the Chief Administrative Officer shall be sent to the attention of the Chief Financial Officer at the following facsimile number:

The City of Winnipeg
Chief Financial Officer

Facsimile No.: 204 949-1174

D7.4 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

D7.1 Bids Submissions must not be submitted to the above facsimile numbers. Bids must be submitted in accordance with B8.

SUBMISSIONS

D8. AUTHORITY TO CARRY ON BUSINESS

D8.1 The Contractor shall be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba, or if the Contractor does not carry on business in Manitoba, in the jurisdiction where the Contractor does carry on business, throughout the term of the Contract, and shall provide the Contract Administrator with evidence thereof upon request.

D9. SAFE WORK PLAN

D9.1 The Contractor shall provide the Contract Administrator with a Safe Work Plan at least five (5) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract.

D9.2 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>

D10. INSURANCE

D10.1 The Contractor shall provide and maintain the following insurance coverage:

- (a) commercial general liability insurance, in the amount of at least two million dollars (\$2,000,000.00) inclusive, with The City of Winnipeg added as an additional insured, with a cross-liability clause, such liability policy to also contain contractual liability, unlicensed motor vehicle liability, non-owned automobile liability and products and completed operations, to remain in place at all times during the performance of the Work and throughout the warranty period;
- (b) if applicable, Automobile Liability Insurance covering all motor vehicles, owned and operated and used or to be used by the Contractor directly or indirectly in the performance of the Work. The Limit of Liability shall not be less than \$2,000,000 inclusive for loss or damage including personal injuries and death resulting from any one accident or occurrence;
- (c) all risks course of construction insurance in the amount of one hundred percent (100%) of the total Contract Price, written in the name of the Contractor and The City of Winnipeg, at all times during the performance of the Work and until the date of Total Performance.

D10.2 Deductibles shall be borne by the Contractor.

D10.3 The Contractor shall provide the Contract Administrator 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 seven (7) Calendar Days from notification of the award of Contract by Purchase Order.

D10.4 The Contractor shall not cancel, materially alter, or cause each policy to lapse without providing at least thirty (30) Calendar Days prior written notice to the Contract Administrator.

D11. PERFORMANCE SECURITY

D11.1 If the Contract Price exceeds twenty-five thousand dollars (\$25,000.00), the Contractor shall provide and maintain performance security 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; or
- (b) an irrevocable standby letter of credit issued by a bank or other financial institution registered to conduct business in Manitoba and drawn on a branch located in Winnipeg, in the form attached to these Supplemental Conditions (Form H2: Irrevocable Standby Letter of Credit), in the amount of fifty percent (50%) of the Contract Price; or
- (c) a certified cheque or draft payable to "The City of Winnipeg", drawn on a bank or other financial institution registered to conduct business in Manitoba, in the amount of fifty percent (50%) of the Contract Price.

D11.1.1 Where the performance security is in the form of a certified cheque or draft, it will be deposited by the City. The City will not pay any interest on certified cheques or drafts furnished as performance security.

D11.2 The Contractor shall provide the City Solicitor with the required performance security within seven (7) Calendar Days of notification of the award of the Contract by way of Purchase Order and prior to the commencement of any Work on the Site.

D12. SUBCONTRACTOR LIST

D12.1 The Contractor shall provide the Contract Administrator with a complete list of the Subcontractors whom the Contractor proposes to engage (Form J: Subcontractor List) at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than seven (7) Calendar Days from notification of the award of Contract.

D13. DETAILED WORK SCHEDULE

D13.1 The Contractor shall provide the Contract Administrator with a detailed work schedule at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract.

D13.2 The detailed work schedule shall consist of the following:

- (a) a critical path method (C.P.M.) schedule for the Work;
 - (b) a Gantt chart for the Work based on the C.P.M. schedule;
- all acceptable to the Contract Administrator.

D13.3 Further to D13.2(a), the C.P.M. schedule shall clearly identify the start and completion dates of all of the following activities/tasks making up the Work as well as showing those activities/tasks on the critical path:

- (a) NDT agency preparation and submittal of inspection plan;
- (b) Preparations for NDT agency;
- (c) NDT testing agency on-site;
- (d) NDT agency preparation and submittal of draft inspection report;
- (e) Remove 2 – 500 mm pipe samples for DT on a single scheduled shutdown and replace with new pipe sections.
- (f) Remove 3 – 300 mm pipe samples for DT and replace with new piping on separate scheduled shutdowns.

D13.4 Further to D13.2(b), the Gantt chart shall show the time on a weekly basis, required to carry out the Work of each trade, or specification division. The time shall be on the horizontal axis, and the type of trade shall be on the vertical axis.

D13.5 The detailed work schedule shall be based on the following time constraints pertaining to work at the NEWPCC:

- (a) Standard working hours at the NEWPCC from 0700h to 1600h, Monday to Friday.

SCHEDULE OF WORK

D14. COMMENCEMENT

- D14.1 The Contractor shall not commence any Work until he/she is in receipt of a Purchase Order from the Award Authority authorizing the commencement of the Work.
- D14.2 The Contractor shall not commence any Work on the Site until:
- (a) the Contract Administrator has confirmed receipt and approval of:
 - (i) evidence that the Contractor is 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;
 - (ii) evidence of the workers compensation coverage specified in C6.15;
 - (iii) the Safe Work Plan specified in D9;
 - (iv) evidence of the insurance specified in D10;
 - (v) the performance security specified in D11;
 - (vi) the Subcontractor list specified in D12 and
 - (vii) the detailed work schedule specified in D13.
 - (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.
- D14.3 The Contractor shall commence the Work on the Site within fourteen (14) Working Days of receipt of the Purchase Order.
- D14.3 The City intends to award this Contract by January 31, 2018.
- D14.3.1 If the actual date of award is later than the intended date, the dates specified for Critical Stages, Substantial Performance, and Total Performance will be adjusted by the difference between the aforementioned intended and actual dates.

D15. CRITICAL STAGES

- D15.3 The Contractor shall achieve critical stages of the Work in accordance with the following requirements:
- (a) Removal and replacement of the two (2) 500 mm pipe samples for DT during a single scheduled shutdown must be completed no later than March 31, 2018.

D16. SUBSTANTIAL PERFORMANCE

- D16.1 The Contractor shall achieve Substantial Performance by June 30, 2018.
- D16.2 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.
- D16.3 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.

D17. TOTAL PERFORMANCE

- D17.1 The Contractor shall achieve Total Performance by August 31, 2018.
- D17.2 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.
- D17.3 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.

D18. LIQUIDATED DAMAGES

- D18.1 If the Contractor fails to achieve Critical Stages, Substantial Performance or Total Performance in accordance with the Contract by the days fixed herein for same, the Contractor shall pay the City the following amounts per Working Day for each and every Working Day following the days fixed herein for same during which such failure continues:
- (a) Critical Stages - one thousand dollars (\$1,000);
 - (b) Substantial Performance – one thousand dollars (\$1,000);
 - (c) Total Performance – one thousand dollars (\$1,000).
- D18.2 The amount specified for liquidated damages in **Error! Reference source not found.** is based on a genuine pre-estimate of the City's damages in the event that the Contractor does not achieve Substantial Performance by the day fixed herein for same.
- D18.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

CONTROL OF WORK

D19. JOB MEETINGS

- D19.1 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.
- D19.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever he/she deems it necessary.

D20. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)

- D20.1 Further to C6.24, 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).

D21. THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA) – QUALIFICATIONS

- D21.1 Further to B12.4, the Contractor/Subcontractor must, throughout the term of the Contract, have a Workplace Safety and Health Program meeting the requirements of The Workplace Safety and Health Act (Manitoba). At any time during the term of the Contract, the City may, at its sole discretion and acting reasonably, require updated proof of compliance, as set out in B12.4

D22. NEWPCC ACCESS/WORKING HOURS

- D22.1 Access to the interior of the NEWPCC is restricted to the following times with the exception noted in (c) below:
- (a) Monday to Friday, 8:00 am to 3:30 pm.
 - (b) Saturdays and Sundays, no access will be permitted.
 - (c) Work outside of normal working hours and on weekends will be permitted through advanced approval and only for work that must be coordinated outside of normal working hours. Provide a minimum of 72 hours advance notice so the City can schedule overtime.

MEASUREMENT AND PAYMENT

D23. INVOICES

- D23.1 Further to C12, the Contractor shall submit an invoice for each portion of Work performed. to:

The City of Winnipeg
Corporate Finance - Accounts Payable
4th Floor, Administration Building, 510 Main Street
Winnipeg MB R3B 1B9

Facsimile No.: 204-949-0864

Email: CityWpgAP@winnipeg.ca

- D23.2 Invoices must clearly indicate, as a minimum:
- (a) the City's purchase order number;
 - (b) date of delivery;
 - (c) delivery address;
 - (d) type and quantity of work performed;
 - (e) the amount payable with GST and MRST shown as separate amounts; and
 - (f) the Contractor's GST registration number.
- D23.3 The City will bear no responsibility for delays in approval of invoices which are improperly submitted.
- D23.4 Bid Submissions must not be submitted to the above facsimile number. Bids must be submitted in accordance with B8.**

D24. PAYMENT

- D24.1 Further to C12, the City may at its option pay the Contractor by direct deposit to the Contractor's banking institution.

WARRANTY

D25. WARRANTY

- D25.1 Warranty is as stated in C13.

FORM H1: PERFORMANCE BOND
(See D11)

KNOW ALL MEN BY THESE PRESENTS THAT

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

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

_____ dollars (\$_____)

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

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

BID OPPORTUNITY NO. 739-2017

**NORTH END SEWAGE TREATMENT PLANT (NEWPCC)
RETURN ACTIVATED SLUDGE PIPE ASSESSMENT
PILOT INSPECTION PROGRAM**

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: IRREVOCABLE STANDBY LETTER OF CREDIT
(PERFORMANCE SECURITY)**
(See D11)

(Date)

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

RE: PERFORMANCE SECURITY - BID OPPORTUNITY NO. 739-2017

**NORTH END SEWAGE TREATMENT PLANT (NEWPCC)
RETURN ACTIVATED SLUDGE PIPE ASSESSMENT
PILOT INSPECTION PROGRAM**

Pursuant to the request of and for the account of our customer,

(Name of Contractor)

(Address of Contractor)

WE HEREBY ESTABLISH in your favour our irrevocable Standby Letter of Credit for a sum not exceeding in the aggregate

Canadian dollars.

This Standby Letter of Credit may be drawn on by you at any time and from time to time upon written demand for payment made upon us by you. It is understood that we are obligated under this Standby Letter of Credit for the payment of monies only and we hereby agree that we shall honour your demand for payment without inquiring whether you have a right as between yourself and our customer to make such demand and without recognizing any claim of our customer or objection by the customer to payment by us.

The amount of this Standby Letter of Credit may be reduced from time to time only by amounts drawn upon it by you or by formal notice in writing given to us by you if you desire such reduction or are willing that it be made.

Partial drawings are permitted.

We engage with you that all demands for payment made within the terms and currency of this Standby Letter of Credit will be duly honoured if presented to us at:

(Address)

and we confirm and hereby undertake to ensure that all demands for payment will be duly honoured by us.

All demands for payment shall specifically state that they are drawn under this Standby Letter of Credit.

Subject to the condition hereinafter set forth, this Standby Letter of Credit will expire on

(Date)

It is a condition of this Standby Letter of Credit that it shall be deemed to be automatically extended from year to year without amendment from the present or any future expiry date, unless at least 30 days prior to the present or any future expiry date, we notify you in writing that we elect not to consider this Standby Letter of Credit to be renewable for any additional period.

This Standby Letter of Credit may not be revoked or amended without your prior written approval.

This credit is subject to the Uniform Customs and Practice for Documentary Credit (2007 Revision), International Chamber of Commerce Publication Number 600.

(Name of bank or financial institution)

Per: _____
(Authorized Signing Officer)

Per: _____
(Authorized Signing Officer)

PART E - SPECIFICATIONS

GENERAL

E1. APPLICABLE SPECIFICATIONS AND DRAWINGS

E1.1 These Specifications shall apply to the Work.

E1.2 The following existing site drawings with notes added are applicable to the Work.

Existing

<u>Drawing No.</u>	<u>Drawing Name/Title</u>
NEP-1080-R2	Secondary Treatment Expansion, Oxygen Reactor tanks, Mechanical East-West Gallery, Plans Above EI 2.200 & Sections
NEP-1413-R4	Secondary Treatment Expansion, Secondary Clarifiers - Mechanical, RAS Pipe Gallery, Plan Above EI 0.075
NEP-1414-R4	Secondary Treatment Expansion, Secondary Clarifiers - Mechanical, RAS Pipe Gallery, Part Plan Above EI 0.075 & Sections

E1.3 The following piping isometric drawings are applicable to the Work.

Piping

<u>Isometric No.</u>	<u>Drawing Name/Title</u>
ISO-001-RA	Samples 1 to 6 Typical Piping Isometric
ISO-002-RA	Sample 7 Existing Piping Isometric
ISO-003-RA	Sample 8 Existing Piping Isometric
ISO-004-RA	Sample 9 Existing Piping Isometric

E1.4 The pipe samples to be tested are presented in the drawings listed above, and on the photos attached in Appendix B. These photos are applicable to the Work.

E2. DESCRIPTION OF THE WORK

E2.1 Provide NDT inspection as specified for 9 pipe sections shown on the drawings, and photos in Appendix B, as follows:

- (a) 6 – 500mm pipe sections, including end flanges and grooved-joint couplings (Samples 1 to 6).
- (b) 3 – 300mm pipe sections including end flanges (Samples 7 – 9).

E2.2 Provide all site support services required by the NDT agency to complete their work. This will primarily include scaffolding to access sample piping to be tested.

E2.3 After NDT inspection is completed, provide DT inspection for 11 pipe sections described as follows (See drawings for sample locations and Appendix B for sample photos):

- (a) 2 – 500mm pipe sections. A single process shutdown will be required to remove and replace the two pipe section as they are currently in service. 2 of 6 samples on which NDT was performed will be selected for removal, replacement and DT (Samples 1 - 6).

- (b) 3 – 300mm pipe sections. Partial plant process shutdowns will be required to remove and replace these pipe sections as they are currently in service (Samples 7 – 9).
- (c) 3 – 300mm smaller pipe sections currently being stored at premises on Logan Ave in Winnipeg (Samples 10 – 12).
- (d) 3 – 250/300mm WAS pipe sections currently being stored at the NEWPCC in the secondary treatment area maintenance shop basement (Samples 13 – 15).

E2.4 Provide all support services required by the DT agency. This will include:

- (a) Removing and replacing 2 – 500mm pipe sections during a scheduled process shutdown.
- (b) Removing and replacing 3 – 300mm pipe sections from service and replacing them with new pipe sections during individually scheduled process shutdowns.
- (c) Delivering all 11 samples to the DT agency.
- (d) Once all DT inspection has been completed, and confirmed by the Contract Administrator, dispose of the sample pipe off-site.

E3. NDT AGENCY QUALIFICATIONS

E3.1 NDT services shall be provided by PICA Corporation in Edmonton, Alberta, or a firm of equal qualifications. Their contact information is as follows:

- (a) Bus: 1-780-469-4463
- (b) email - info@picacorp.com

E4. NDT AGENCY WORK

E4.1 Perform NDT inspection of in-service Samples 1 to 9 to detect internal corrosion in piping components. Measure wall thicknesses to quantify metal loss due to internal corrosion.

E4.2 Provide a detailed inspection plan outlining the methods and procedures to be used for NDT inspection. Submit detailed inspection plan in draft format for review. Following receipt of draft review comments, revise plan as required and submit in final format for review and approval. Allow 10 working days for review of each submittal.

E4.3 NDT methods to be utilized include the following. Additional methods may be proposed by the NDT agency to supplement the methods listed below, subject to review and approval. NDT inspection tools may only be applied from the exterior of in-service piping.

- (a) Straight beam ultrasonic (UT)
- (b) Phased array ultrasonic (PA)
- (c) Electromagnetic through transmission (ETT)
- (d) Guided wave ultrasonic (GW)

E4.4 NDT methods shall be applied to piping system components in accordance with the following guidelines, with references to Figures in Appendix A. Alternate application of NDT methods may be proposed by the NDT agency, subject to review and approval.

- (a) Straight pipes: ETT, GW and UT
 - (i) Inspect straight pipes using ETT and GW methods to identify areas of localized corrosion. Apply ETT and GW methods over the maximum length and circumference of each straight pipe section that can be accessed using the inspection tools.
 - (ii) Measure wall thickness of each straight pipe section using a minimum of 24 UT measurements in a general grid pattern as illustrated in Figure 1, to establish the baseline wall thickness of the pipe.
 - (iii) Measure wall thicknesses in areas of localized corrosion identified in (i) above using UT measurements in a dense grid pattern that covers the localized thin area as

illustrated in Figure 1. Dense grid spacing shall be 8 mm, with minimum of 5 inspection points in each direction of grid.

- (b) Elbows: UT
 - (i) Measure wall thickness of each elbow using a minimum of 24 UT measurements in a general grid pattern as illustrated in Figure 2, to establish the baseline wall thickness.
 - (ii) Measure wall thicknesses in areas of localized corrosion identified in (i) above using UT measurements in a dense grid pattern that covers the localized thin area as illustrated in Figure 2. Dense grid spacing shall be 8 mm, with minimum of 5 inspection points in each direction of grid.
- (c) Circumferential butt weld joints: PA
 - (i) Measure wall thickness at welds and in weld heat-affected zones using PA as illustrated in Figure 3. Inspect welds for defects using PA in accordance with requirements of ASME B31.3. Characterize types of weld defects found, specifically those caused by original fabrication versus those caused by corrosion in service.
- (d) Spiral weld and longitudinal weld seams: UT or PA
 - (i) Measure wall thickness at welds and in weld heat-affected zones using UT as illustrated in Figures 4 and 5. At intervals along weld length, obtain thickness profiles across weld heat-affected zones using a minimum of 3 inspection points, spaced 8 mm apart, on either side of weld.
 - (ii) If feasible, utilize PA inspection for spiral-weld and longitudinal weld seams in manner similar to circumferential butt-weld joint inspection outlined in (c) above.

E4.5 Provide local surface preparation on sample components as required for NDT inspection.

E4.6 Record locations of all NDT inspection points with permanent marking on component surfaces. Provide a unique tag number at each marking, so that NDT inspection records can be accurately cross-referenced by others to marked inspection points.

E4.7 Provide a written report documenting the NDT inspection results of each of the 9 samples.

E5. NDT SUPPORT SERVICES

E5.1 Provide scaffolding as required by the NDT agency to complete their work. The scaffolding system shall permit the NDT agency to complete their work without delay and move from one pipe sample to the next as efficiently as possible.

E5.2 The NDT agency will be testing 3 – 300mm and 6 - 500mm in-service pipe samples. These samples are shown on the drawings, and photos in Appendix B.

E6. CITY'S NDT PHASE RESPONSIBILITY

E6.1 Provide site access during on-site work and NDT testing.

E6.2 Provide site safety training to Contractor personnel as required.

E6.3 Confirm access to the RAS gallery where NDT is proposed (6 – 500 mm RAS pipe samples, and 3 – 300 mm RAS pipe samples,) will not conflict with operations. Assist in scheduling a time suitable to operations for this work.

E7. DT AGENCY QUALIFICATIONS

E7.1 DT services shall be provided by Testlabs International in Winnipeg, Manitoba, or a firm of equal qualifications. Their contact information is as follows:

- (a) Bus: 1 204-953-3800
- (b) email - testlabs@testlabs.ca

E8. DT AGENCY WORK

- E8.1 Immediately following removal of each pipe sample, perform visual inspection for corrosion on interior of pipes/valves remaining in place at points of sample disconnection.
- E8.2 Receive the 11 pipe samples from the Contractor.
- E8.3 Cut and open the pipe samples as required for inspection.
- E8.4 Clean the pipe samples as required for final inspection.
- E8.5 Section and clean the samples to reveal inside surfaces of pipes and welds circumferential joint welds and longitudinal/spiral manufacturing welds), and inspect visually. Use further examination techniques (stereomicroscopy, scanning electron microscopy, etc.) as may be required.
- E8.6 Identify mode(s) of metal loss at pipe walls and welds.
- E8.7 Quantify wall thickness losses.
- E8.8 Prepare metallurgical cross sections as required to assess depth of corrosion/pitting/erosion.
- E8.9 Assess microstructure of pipe to confirm material type, and identify potential weld zone anomalies or other manufacturing defects.
- E8.10 Provide a written report documenting the DT inspection findings of each of the 11 pipe samples. Cross-reference findings from the removed pipe section samples (five (5) from sample nos. 1-9 outlined in the drawings) with the inspection point tagging system utilized in the NDT inspection report described in section E4. Provide conclusions regarding pipe corrosion mechanisms and correlation between NDT inspection results and DT inspection findings. Provide recommendations for future corrosion allowance and remedial actions recommended, given the RAS piping is planned to be in service until year 2027.

E9. DT AGENCY - SUPPORT SERVICES

- E9.1 Once NDT work has been completed, and the NDT agency has left the site, the Contractor shall schedule the 3 – 300 mm pipe sample removal/replacement shutdowns with the Contract Administrator.
 - E9.1.1 For each shutdown, the Contractor shall review their written detailed construction plans with the Contract Administrator and obtain written authorization from the Contract Administrator at least five (5) Business Days prior to the start of the pipe removal/replacement Work.
 - E9.1.2 Each shutdown shall be completed within an eight (8) hour continuous time period during normal working hours unless authorized otherwise by the Contract Administrator.
 - E9.1.3 Allow a minimum of seven (7) Calendar Days between shutdowns to allow for treatment process recovery.
 - E9.1.4 The Contractor shall perform pipe sample removals/replacements sequentially unless authorized otherwise by the Contract Administrator.
- E9.2 During each process shutdown the contractor shall be responsible for the following:
 - (a) Cleanup of RAS spillage into the RAS gallery during the shutdown. Use City flushing water hoses to clean RAS spillage into nearby floor drains.
 - (b) Although the City will work to shut down RAS flows into the pipe sample to be removed, the existing isolation valves may not seal completely. The Contractor will be required to address this leakage as required to complete this work.

- (c) Remove the designated pipe sample during each shutdown. Pipe samples removed shall be cut into sections no longer than two (2) meters to facilitate handling during their removal from the site, and to assist the DT agency as well in handling the samples.
 - (d) At the points of sample disconnection, clean the interior of remaining in-place pipes and valves to permit visual inspection of the remaining in-place components by the DT agency.
 - (e) Replace the pipe sample removed with a new pipe section. Specifications for replacement piping are outlined in E9.6.
 - (f) Existing pipe supports can be reused to support the new pipe sections, as outlined in E9.6.
 - (g) Provide temporary support of existing piping system during removal of sample pipe sections.
 - (h) When the pipe sample has been removed and replaced, indicate to the City, the process is ready to be placed back into service.
 - (i) For the pipe samples removed, gravity drain the sludge, cap the pipe ends with a plastic bag closure that will prevent leakage. Do not disturb the sludge that did not gravity drain from the pipe.
 - (j) Deliver the pipe samples promptly to the DT agency for inspection.
- E9.3 After the NDT agency has submitted their draft report, the Contract Administrator will indicate which 2 of the 6 – 500 mm pipe sections tested the Contractor shall remove and replace.
- E9.4 During the shutdown for the 2 - 500mm pipe sample replacements, provide the services listed in section E9.2 above.
- E9.4.1 For the shutdown, the Contractor shall review their written detailed construction plan with the Contract Administrator and obtain written authorization from the Contract Administrator at least five (5) Business Days prior to the start of the pipe removal/replacement Work.
- E9.4.2 The shutdown shall be completed within an eight (8) hour continuous time period during normal working hours unless authorized otherwise by the Contract Administrator.
- E9.4.3 Allow a minimum of seven (7) Calendar Days between shutdowns to allow for treatment process recovery.
- E9.5 In addition to the five (5) in-service pipe samples removed from the plant, (3 – 300mm and 2 – 500mm) cap the ends of the 3 previously removed WAS pipe samples and the 3 previously removed 300mm pipe samples currently in storage locally and deliver them to the DT agency listed in E8 for inspection.
- E9.6 Replacement piping for removed samples shall be provided in accordance with the following specifications.
- E9.6.1 Materials for samples 1 to 6 replacement piping:
- (a) Pipe:
 - (i) 500 mm, carbon steel, ASTM A106-B, ERW, XS wall thickness
 - (b) Flanges:
 - (i) 500 mm, carbon steel, ASTM A105, B16.5, slip-on, 150#
 - (ii) Flange gaskets: full face, neoprene, 3 mm thick
 - (iii) Flange bolting: ASTM A307 zinc coated bolts, ASTM A563 Gr. A zinc coated heavy hex nuts.

- (c) Couplings:
 - (i) 500 mm, roll-grooved flexible coupling, ductile iron, ASTM A536 Gr. 65-45-12, epoxy coated, EPDM flush-type gasket, zinc plated carbon steel bolts and heavy hex nuts.
 - (ii) Acceptable product: Victaulic AGS Style W77 or approved equal in accordance with B7.
- (d) Drain connections:
 - (i) 50 mm, thredolet, carbon steel, ASTM A105, 3000#.
 - (ii) 50 mm, pipe, carbon steel, ASTM A106-B, ERW, schedule 80, threaded ends.
 - (iii) 50 mm, ball valve, full port, 2 piece, NPT, 316 SS, RTFE seats, 1000 psi WOG at 200 F, blowout-proof stem, lockable lever handle, MAS G2 or approved equal in accordance with B7.
 - (iv) Provide 316 stainless steel threaded plug in valve outlet.

E9.6.2 Materials for samples 7 to 9 replacement piping:

- (a) Pipe:
 - (i) 300 mm, 316L stainless steel, ASTM A312, seamless, schedule 10S, roll-grooved ends.
- (b) Fittings:
 - (i) 300 mm, grooved end, ductile iron, ASTM A536 Gr. 65-45-12, enamel coating.
 - (ii) Elbow fittings shall be long radius type to match radius of existing sample elbows.
 - (iii) Acceptable product: Victaulic or approved equal in accordance with B7.
- (c) Flanges:
 - (i) 250 mm and 300 mm, grooved end to flange adapter, class 125/150, ductile iron, ASTM A536 Gr. 65-45-12, enamel coating, EPDM gasket.
 - (ii) Acceptable product: Victaulic Vic-Flange Adapter Style 741 or approved equal in accordance with B7.
- (d) Couplings:
 - (i) 250 mm and 300 mm: Roll-groove rigid coupling, ductile iron, ASTM A536 Gr. 65-45-12, enamel coating, EPDM flush-type gasket, zinc plated carbon steel bolts and heavy hex nuts.
 - (ii) Acceptable product: Victaulic Zero-Flex Style 07 or approved equal in accordance with B7.
- (e) Drain connections:
 - (i) 50 mm socket weldolet, 316L stainless steel, ASTM A182. 3000#.
 - (ii) 50 mm pipe, 316L stainless steel, ASTM A312, seamless, schedule 40S, plain end, minimum length.
 - (iii) 50 mm ball valve, full port, 3 piece, socket weld, 316 stainless steel, RTFE seats, 1000 psi WOG at 200 F, blowout-proof stem, lockable lever handle, MAS G3 or approved equal in accordance with B7.
 - (iv) Provide 316L stainless steel nipple and threaded cap on valve outlet.

E9.6.3 Fabrication and erection of replacement piping shall comply with the following requirements:

- (a) Replacement pipe spool configuration and dimensions shall match existing. Field confirm existing dimensions.
- (b) Fabrication and erection of piping shall be in accordance with the applicable requirements of ASME Process Piping Code B31.3, and Canadian and Provincial Acts and Regulations.

- (c) Contractor is to have a current QA/QC pressure piping program approved by the Authority having Jurisdiction.
- (d) Welding shall be performed by certified welders or welding machine operators holding a current pressure welder's authorization issued by or acceptable to the Authority having Jurisdiction. The welder or welding machine operator shall not perform welding utilizing procedure for which he has not been duly authorized.
- (e) Submit Welding Procedure Specifications (WPS), and matching Procedure Qualification Records (PQR), to the Contract Administrator for approval. Procedures shall not be submitted for approval until they have been registered with or accepted by the Authority having Jurisdiction. Evidence of this registration or acceptance shall accompany each WPS and PQR submitted to the Contract Administrator.
- (f) The use of backing rings for welded joints is prohibited.
- (g) After completion of fabrication, piping shall be free of loose scale, weld spatter, oil, grease, and other foreign material. Each pipespool shall be visually inspected to ensure proper cleanliness.
- (h) Longitudinal seams in adjoining lengths of welded pipe shall be staggered and located to clear openings and external attachments.
- (i) Protection of flange face surface finish is required. Precautions shall be taken throughout handling and fabrication operations to protect the gasket surface finish of the flanges.
- (j) All stainless steel welds shall be pickled and passivated, and all traces of heat tint around welds shall be removed.
- (k) All grinding and buffing wheels used on stainless steel shall be only those specifically recommended by the manufacturer for such use. Carbon steel bristle wire brushes shall not be used on stainless steel.

E9.6.4 Inspection and testing of replacement piping shall comply with the following requirements:

- (a) Inspection and testing shall be in accordance with ASME B31.3, Category D fluid service.
- (b) Visual weld inspection shall be performed by a specialist qualified in accordance with CSA 178.1 and 178.2.
- (c) Acceptance criteria for welds shall follow ASME B31.3, Section 341.3.2, Table 341.3.2. Any rejected welds shall be repaired or replaced.
- (d) Fabricated pipe spools shall be hydrostatically pressure tested to 1034 kPa (150 psig). Hydrostatic testing may be performed at the Contractor's fabrication shop.
- (e) Perform inspection and testing prior to painting.

E9.6.5 Exterior and interior finish of samples 1 to 6 replacement piping:

- (a) Exterior finish
 - (i) Apply epoxy finish to the exterior of all piping components in accordance with AWWA C210.
 - (ii) Provide a 3 year warranty from project substantial performance date for entire painting system.
 - (iii) Conform to manufacturer requirements regarding:
 - ◆ Surface preparation including sand blasting.
 - ◆ Conditions under which painting system can be applied.
 - ◆ Prime and final coat thicknesses.
 - (iv) Acceptable Product: Two (2) coats Devoe Bar Rust 235, 6 mil DFT per coat or approved equal in accordance with B7.
 - (v) Exterior finish coat color to match existing piping.

- (b) Interior finish
 - (i) Carbon steel pipe, fittings and flanges shall be internally lined with shop-applied epoxy coating in accordance with AWWA C210. Holiday testing required.
 - (ii) Conform to manufacturer requirements regarding:
 - ◆ Surface preparation including sand blasting.
 - ◆ Conditions under which painting system can be applied.
 - ◆ Prime and final coat thicknesses.
 - (iii) Acceptable Products: Two (2) prime coats Devoe Bar Rust 236, 6 mil DFT per coat, with Devoe Devgrip 238 abrasion resistant finish coat, 6 mil DFT. Total lining 18 mil DFT.
 - (iv) On roll-grooved pipe and fitting ends, interior finish shall be continuous over roll-grooved end, up to and including coupling gasket sealing surface.

E9.6.6 Pipe supports for replacement piping shall comply with the following:

- (a) Existing pipe supports can be re-used unless indicated otherwise. Visually examine the condition of all existing pipe supports for signs of damage and deterioration and report all findings to the Contract Administrator. Replace existing pipe supports that are not deemed by the Contract Administrator to be in suitable condition for re-use.
- (b) If modifications to existing supports are required to accommodate the new pipe sections, the Contractor shall make the required adjustments to ensure the support is providing reliable support.
- (c) Provide neoprene rubber isolation pad between stainless steel piping and existing carbon steel pipe hangers.
- (d) Provide steel saddle with neoprene rubber isolation pad between stainless steel pipe and existing steel support posts. Attach new steel saddle to support post with continuous weld and paint saddle to match existing post.

E10. CITY'S DT PHASE RESPONSIBILITY

E10.1 Provide site access during on-site work.

E10.2 Provide site safety training to Contractor personnel as required.

E10.3 Provide access to and permit the Contractor to operate the Mechanical Maintenance Shop and RAS Gallery cranes to lift piping materials to and from the basement and RAS piping gallery below.

E10.4 Assist in scheduling four (4) process shutdown times acceptable to City Operations staff, consisting of one (1) shutdown for the for 2 – 500mm samples and three (3) shutdowns for the 3 – 300 mm samples to be removed from service and replaced with new pipe sections. Each of the shutdowns will be performed on separate days.

E10.5 For each of four (4) process shutdowns:

- (a) Close valves to shut down process flow upstream and downstream of each pipe sample to be removed and replaced.
- (b) Provide flushing water hoses for the Contractor to use in washing down RAS pipe contents discharged into the RAS gallery during removal and replacement of the RAS pipe sample.
- (c) Operate process valves to place the system that was shutdown, back into service.