



**THE CITY OF WINNIPEG**

# **BID OPPORTUNITY**

**BID OPPORTUNITY NO. 448-2017**

**BRADY ROAD RESOURCE MANAGEMENT FACILITY (BRRMF) DISPOSAL CELL  
CONSTRUCTION AND LEACHATE COLLECTION AND STORAGE TANKS**

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## **PART B - BIDDING PROCEDURES**

### **B1. CONTRACT TITLE**

B1.1 BRADY ROAD RESOURCE MANAGEMENT FACILITY (BRRMF) DISPOSAL CELL CONSTRUCTION AND LEACHATE COLLECTION AND STORAGE TANKS

### **B2. SUBMISSION DEADLINE**

B2.1 The Submission Deadline is 12:00 noon Winnipeg time, July 18, 2017.

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, a Site meeting will be held at 10:00 AM on July 5, 2017 at the current BRRMF Administration building to provide Bidders access to the Site.

B3.2 The Bidder is advised that the Contract Administrator or an authorized representative will tour the Site with the Bidders as part of the Site meeting.

B3.3 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 D3.1.

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/bidopp.asp>

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 10 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 B17.
- B7.9 No later claim by the Contractor for an addition to the Total Bid Price because of any other changes in the Work necessitated by the use of an approved equal or an approved alternative will be considered.

## **B8. BID COMPONENTS**

- B8.1 The Bid shall consist of the following components:
- (a) Form A: Bid;
  - (b) Form B: Prices;
  - (c) Bid Security
    - (i) Form G1: Bid Bond and Agreement to Bond, or  
Form G2: Irrevocable Standby Letter of Credit and Undertaking, or  
a certified cheque or draft;
- 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 shall be submitted enclosed and sealed in an envelope clearly marked with the Bid Opportunity number and the Bidder's name and address.
- B8.4.1 Samples or other components of the Bid 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.
- B8.5 Bidders are advised not to include any information/literature except as requested in accordance with B8.1.
- B8.6 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 B17.1(a).
- B8.7 Bids submitted by facsimile transmission (fax) or internet electronic mail (e-mail) will not be accepted.
- B8.8 Bids shall be submitted to:
- The City of Winnipeg  
Corporate Finance Department  
Materials Management Division  
185 King Street, Main Floor  
Winnipeg MB R3B 1J1

## **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 12 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 and the corporate seal, if the corporation has one, should be affixed;
  - (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.
- B9.5 If a Bid is submitted jointly by two or more persons, the word "Bidder" shall mean each and all such persons, and the undertakings, covenants and obligations of such joint Bidders in the Bid and the Contract, when awarded, shall be both joint and several.

## **B10. PRICES**

- B10.1 The Bidder shall state a price in Canadian funds for each item of the Work identified on Form B: Prices.
- B10.2 The quantities listed on Form B: Prices are to be considered approximate only. The City will use said quantities for the purpose of comparing Bids.
- B10.3 The quantities for which payment will be made to the Contractor are to be determined by the Work actually performed and completed by the Contractor, to be measured as specified in the applicable Specifications.
- B10.4 Payments to Non-Resident Contractors are subject to Non-Resident Withholding Tax pursuant to the Income Tax Act (Canada).

## **B11. DISCLOSURE**

- B11.1 Various Persons provided information or services with respect to this Work. In the City's opinion, this relationship or association does not create a conflict of interest because of this full

disclosure. Where applicable, additional material available as a result of contact with these Persons is listed below.

B11.2 The Persons are:

- (a) N/A
- (b) N/A

## **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. BID SECURITY**

B13.1 The Bidder shall provide bid security in the form of:

- (a) a 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 the form included in the Bid Submission (Form G1: Bid Bond and Agreement to Bond); or
- (b) an irrevocable standby letter of credit, in the amount of at least ten percent (10%) of the Total Bid Price, and undertaking 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 included in the Bid Submission (Form G2: Irrevocable Standby Letter of Credit and Undertaking); or
- (c) a certified cheque or draft payable to "The City of Winnipeg", in the amount of at least fifty percent (50%) of the Total Bid Price, drawn on a bank or other financial institution registered to conduct business in Manitoba.

B13.1.1 If the Bidder submits alternative bids, the bid security shall be in the amount of the specified percentage of the highest Total Bid Price submitted.

B13.1.2 All signatures on bid securities shall be original.

B13.1.3 The Bidder shall sign the Bid Bond.

B13.1.4 The Surety shall sign and affix its corporate seal on the Bid Bond and the Agreement to Bond.

B13.2 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 executed by the successful Bidder and the performance security furnished as provided herein. The bid securities of all other Bidders will be released when a Contract is awarded.

B13.2.1 Where the bid security provided by the successful Bidder is in the form of a certified cheque or draft pursuant to B13.1(c), it will be deposited and retained by the City as the performance security and no further submission is required.

B13.2.2 The City will not pay any interest on certified cheques or drafts furnished as bid security or subsequently retained as performance security.

B13.3 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 Bid Opportunity.

### **B14. OPENING OF BIDS AND RELEASE OF INFORMATION**

B14.1 Bids will be opened publicly, after the Submission Deadline has elapsed, in the office of the Corporate Finance Department, Materials Management Division, or in such other office as may be designated by the Manager of Materials.

B14.1.1 Bidders or their representatives may attend.

B14.1.2 Bids determined by the Manager of Materials, or his/her designate, to not include the bid security specified in B13 will not be read out.

B14.2 Following the Submission Deadline, the names of the Bidders and their Total Bid Prices (unevaluated, and pending review and verification of conformance with requirements) will be available on the 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/>

B14.3 After award of Contract, the name(s) of the successful Bidder(s) 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/>

B14.4 The Bidder is advised that any information contained in any Bid may be released if required by The Freedom of Information and Protection of Privacy Act (Manitoba), by other authorities having jurisdiction, or by law or by City policy or procedures (which may include access by members of City Council).

#### **B15. IRREVOCABLE BID**

B15.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 11 of Form A: Bid.

B15.2 The acceptance by the City of any Bid shall not release the Bids of the next two lowest evaluated responsive Bidders and these Bidders shall be bound by their Bids on such Work until a Contract for the Work has been duly executed and the performance security 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.

#### **B16. WITHDRAWAL OF BIDS**

B16.1 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.

B16.1.1 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.

B16.1.2 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 12 of Form A: Bid, and only such person, has authority to give notice of withdrawal.

B16.1.3 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 12 of Form A: Bid; and
- (c) if the notice has been given by any one of the persons specified in B16.1.3(b), declare the Bid withdrawn.

B16.2 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 B15.2 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, including the right to retain the Bidder's bid security.

#### **B17. EVALUATION OF BIDS**

B17.1 Award of the Contract shall be based on the following bid evaluation criteria:

- (a) compliance by the Bidder with the requirements of the 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.

B17.2 Further to B17.1(a), the Award Authority may reject a Bid as being non-responsive if the Bid is incomplete, obscure or conditional, or contains additions, deletions, alterations or other irregularities. The Award Authority may reject all or any part of any Bid, or waive technical requirements or minor informalities or irregularities, if the interests of the City so require.

B17.3 Further to B17.1(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.

B17.4 Further to B17.1(c), the Total Bid Price shall be the sum of the quantities multiplied by the unit prices for each item shown on Form B: Prices adjusted, if necessary, as follows:

- (a) If the lowest evaluated responsive Bid submitted by a responsible and qualified Bidder is within the budgetary provision of the Work, no adjustment will be made to the Total Bid Price; or
- (b) If the lowest evaluated responsive Bid submitted by a responsible and qualified Bidder exceeds the budgetary provision for the Work, the Total Bid Prices of all responsive Bids submitted by responsible and qualified Bidders will be adjusted by progressive deducting in the order listed, until a Total Bid Price within the budgetary provision is achieved:
  - (i) Items 3.A.1 i-iii. Area A (Manhole #1 to Manhole #2) in its entirety.
  - (ii) Items 3.B.1 i-iv, 3.B.2 i-iii and 3.B.3 i-ii. Area B (Manhole #2 to Manhole #3) in its entirety.
  - (iii) Items 3.C.1 i-vii, 3.C.2 i-vii, 3.C.3 i, 3.C.4 i-v, 3.C.5 i-ii, 3.C.6 i-x, 3.C.7 and 3.C.8. Area C (Storage Tank) in its entirety.

B17.4.1 Further to B17.1(a), in the event that a unit price is not provided on Form B: Prices, the City will determine the unit price by dividing the Amount (extended price) by the approximate quantity, for the purposes of evaluation and payment.

## **B18. AWARD OF CONTRACT**

B18.1 The City will give notice of the award of the Contract or will give notice that no award will be made.

B18.2 The City will have no obligation to award a Contract to a Bidder, even though one or all of the Bidders are determined to be responsible and qualified, and the Bids are determined to be responsive.

B18.2.1 Without limiting the generality of B18.2, the City will have no obligation to award a Contract where:

- (a) the prices exceed the available City funds for the Work;
- (b) the prices are materially in excess of the prices received for similar work in the past;
- (c) the prices are materially in excess of the City's cost to perform the Work, or a significant portion thereof, with 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.

B18.3 The Work of this Contract is contingent upon Council approval of sufficient funding in the 2017 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.

B18.4 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 B17.

B18.4.1 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 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](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 the construction of disposal Cell 31, adjacent to and south of Cell 30, and the construction of the leachate collection and storage system, including a 300,000 litre leachate storage tank.

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

- (a) Project startup including mobilization to the Site.
- (b) Development, implementation, and maintenance of a Site specific SAFE Work Procedure.
- (c) Provision and maintenance of temporary facilities and controls.
- (d) Initial and ongoing topographic surveys for progress payment certificate quantities.
- (e) Excavation of Cell 31 to base grades and hauling of excavated materials to on-Site stockpile areas.
- (f) Construction of an engineered clay liner.
- (g) Supply and installation of geomembrane liner and geotextiles.
- (h) Supply and installation of leachate collection system piping.
- (i) Supply and installation of granular drainage blanket.
- (j) Supply and installation of gravity leachate pipe, air pipe for compressed air, manholes and clean-outs, as well as all mechanical and electrical component for the Leachate Collection System.
- (k) Construction of leachate storage tank, including road works, drainage works, reinforced concrete pad for leachate hauling trucks and base preparation for leachate tank and secondary containment tank.
- (l) Site restoration including topsoil installation.
- (m) Demobilization and closeout.

D2.3 The following shall apply to the Work:

- (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>

#### **D3. CONTRACT ADMINISTRATOR**

D3.1 The Contract Administrator is:

Mario Poveda, P.Eng.  
Environmental Engineer

Telephone No. 204 896-1209

Email Address [mpoveda@kgsgroup.com](mailto:mpoveda@kgsgroup.com)

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

**D4. CONTRACTOR'S SUPERVISOR**

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

**D5. OWNERSHIP OF INFORMATION, CONFIDENTIALITY AND NON DISCLOSURE**

D5.1 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.

D5.2 The Contractor shall not make any public announcements or press releases regarding the Contract, without the prior written authorization of the Contract Administrator.

D5.3 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.

D5.4 A Contractor who violates any provision of D5 may be determined to be in breach of Contract.

**D6. NOTICES**

D6.1 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 address or facsimile number identified by the Contractor in Paragraph 2 of Form A: Bid.

D6.2 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the City, except as expressly otherwise required in D6.3, D6.4 or elsewhere in the Contract, shall be sent to the attention of the Contract Administrator at the facsimile number identified in D3.1.

D6.3 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

D6.4 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

D6.5 Bids Submissions must not be submitted to the above facsimile numbers. Bids must be submitted in accordance with B8.

## **D7. FURNISHING OF DOCUMENTS**

- D7.1 Upon award of the Contract, the Contractor will be provided with five (5) complete sets of the Bid Opportunity. If the Contractor requires additional sets of the Bid Opportunity, they will be supplied to him/her at cost.

## **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, broad form property damage cover and products and completed operations, to remain in place at all times during the performance of the Work and throughout the warranty period;
  - (b) if applicable, Automobile Liability Insurance covering all motor vehicles, owned and operated and used or to be used by the Contractor directly or indirectly in the performance of the Work. The Limit of Liability shall not be less than \$2,000,000 inclusive for loss or damage including personal injuries and death resulting from any one accident or occurrence.
  - (c) an all risks Installation Floater carrying adequate limits to cover all machinery, equipment, supplies and/or materials intended to enter into and form part of any installation.
- D10.2 Deductibles shall be borne by the Contractor.
- D10.3 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.
- 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 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 If the bid security provided in his/her Bid was not a certified cheque or draft pursuant to B13.1(c), 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 letter of intent 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.

## **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 the date specified in the General Conditions for the return of the executed Contract.

## **SCHEDULE OF WORK**

### **D13. COMMENCEMENT**

D13.1 The Contractor shall not commence any Work until he/she is in receipt of a letter of intent from the Award Authority authorizing the commencement of the Work.

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

- (a) the Contract Administrator has confirmed receipt and approval of:
  - (i) evidence of authority to carry on business specified in D8;
  - (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; and
  - (vi) the Subcontractor list specified in D12.
- (b) the Contractor has attended a pre-construction meeting with the Contract Administrator, or the Contract Administrator has waived the requirement for a pre-construction meeting.

D13.3 The Contractor shall commence the Work on the Site within seven (7) Working Days of receipt of the letter of intent.

D13.3 The City intends to award this Contract by August 26, 2017.

D13.3.1 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.

#### **D14. CRITICAL STAGES**

D14.1 The Contractor shall achieve critical stages of the Work in accordance with the following requirements:

- (a) **October 15, 2017 – End of Cell 31 geomembrane installation-** The installation of the synthetic liner (HDPE geomembrane) in Cell 31 must be completed in accordance with the manufacturer recommendations and the Landfill's Environment Act Licence No. 3081R.
- (b) **November 15, 2017 – End of Cell 31 Construction -** The construction of Cell 31 must be completed by this date. The completion of the Cell 31 construction includes the excavation to required grades, re-compaction of clay surface, placement and testing of geomembrane and geotextiles, placement and testing of leachate collection pipes, installation of vertical manhole in sump for leachate collection, placement of leachate drainage material to final grades and all mechanical and electrical appurtenances related to final operation.

#### **D15. SUBSTANTIAL PERFORMANCE**

D15.1 The Contractor shall achieve Substantial Performance by February 22, 2018.

D15.2 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.

D15.3 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.

#### **D16. TOTAL PERFORMANCE**

D16.1 The Contractor shall achieve Total Performance by March 08, 2018.

D16.2 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.

D16.3 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.

#### **D17. LIQUIDATED DAMAGES**

D17.1 If the Contractor fails to achieve Critical Stages, Substantial Performance or Total Performance in accordance with the Contract by the day fixed herein for same, the Contractor shall pay the City the following amount per Calendar Day for each and every Calendar Day following the day fixed herein for same during which such failure continues:

- (a) Critical Stages – two thousand dollars (\$2,000);
- (b) Substantial Performance – one thousand one hundred dollars (\$1,100); and
- (c) Total Performance – one thousand one hundred dollars (\$1,100).

- D17.2 The amount specified for liquidated damages in D17.1 is based on a genuine pre-estimate of the City's damages in the event that the Contractor does not achieve Critical Stages, Substantial Performance or Total Performance by the day fixed herein for same.
- D17.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

## **CONTROL OF WORK**

### **D18. JOB MEETINGS**

- D18.1 Regular bi-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.
- D18.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever he/she deems it necessary.
- D18.3 Additional details of the project meetings are given in the Specification Section (01 31 19- Project Meetings)

### **D19. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)**

- D19.1 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).

### **D20. THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA) – QUALIFICATIONS**

- D20.1 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.

## **MEASUREMENT AND PAYMENT**

### **D21. PAYMENT**

- D21.1 Further to C12, the City may at its option pay the Contractor by direct deposit to the Contractor's banking institution.
- D21.2 Additional details on Measurement and Payment are given in specification Section 01 29 00 - Price and Payment Procedures

## **WARRANTY**

### **D22. WARRANTY**

- D22.1 Notwithstanding C13.2, the warranty period shall begin on the date of Total Performance and shall expire one (1) year thereafter, except where longer warranty periods are specified in the respective Specification sections, unless extended pursuant to C13.2.1 or C13.2.2, in which case it shall expire when provided for thereunder.
- D22.1.1 For the purpose of Performance Security, the warranty period shall be one (1) year.

- D22.2 Notwithstanding C13.2, the Contract Administrator may permit the warranty period for a portion or portions of the Work to begin prior to the date of Total Performance if a portion of the Work cannot be completed because of unseasonable weather or other conditions reasonably beyond the control of the Contractor but that portion does not prevent the balance of the Work from being put to its intended use.
- D22.2.1 In such case, the date specified by the Contract Administrator for the warranty period to begin shall be substituted for the date specified in C13.2 for the warranty period to begin.

**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. 448-2017

BRADY ROAD RESOURCE MANAGEMENT FACILITY (BRRMF) DISPOSAL CELL CONSTRUCTION  
AND LEACHATE COLLECTION AND STORAGE TANKS

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. 448-2017

BRADY ROAD RESOURCE MANAGEMENT FACILITY (BRRMF) DISPOSAL CELL  
CONSTRUCTION AND LEACHATE COLLECTION AND STORAGE TANKS

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 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 Bid Opportunity shall govern over *The City of Winnipeg Standard Construction Specifications*.
- E1.3 The following are applicable to the Work:

Specification No.      Specification Title

#### **Division 01 – General Requirements**

01 11 00	Summary of Works
01 29 00	Price and Payment Requirements
01 31 19	Project Meetings
01 33 00	Submittal Procedures
01 35 29.06	Health and Safety Requirements
01 45 00	Quality Requirements
01 50 00	Temporary Facilities and Control
01 51 00	Temporary Utilities
01 55 26	Traffic Control
01 56 00	Temporary Barriers and Enclosure
01 61 00	Product Requirements
01 73 00	Execution Requirements
01 74 11	Cleaning
01 78 00	Closeout Submittals
01 79 00	Demonstration and Training
01 91 13	General Commissioning Requirements

#### **Division 14 – Conveying Equipment**

14 00 01	Davit Cranes
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#### **Division 22 – Plumbing**

22 11 17	Process Piping and Valves
22 15 00	Compressed Air Systems

#### **Division 23 – Heating, Ventilation and Air Conditioning (HVAC)**

23 07 15	Thermal Insulation for Piping
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**Division 26 – Electrical**

26 05 01	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 28	Secondary Grounding
26 05 29	Hangers and Supports for Electrical Systems
26 05 32	Outlet Boxes, Conduit Boxes and Fittings
26 05 34	Conduits, Conduit Fastenings, and Conduit Fittings
26 05 43	Installation of Cables in Trenches and Ducts
26 24 17	Panelboards Breaker Type
26 27 26	Wiring Devices
26 28 21	Moulded Case Circuit Breakers
26 29 03	Control Devices
26 29 10	Motor Starters to 600 V
26 41 00	Surge Protection Devices

**Division 31 – Earthwork**

31 23 33.01	Excavation
31 23 33.02	Fill
31 32 19.01	Geotextile
31 32 19.02	Geomembrane
31 32 19.03	Engineered Clay Liner

**Division 32 – Exterior Improvements**

32 21 00.01	Pumps (Pneumatic)
32 21 00.02	Pumps (Electric)

**Division 33 – Utilities**

33 56 13	Leachate Storage Tanks
33 56 13.01	Submersible Mixer

**Division 40 – Process Integration**

40 27 00	Leachate Collection System
40 91 00	Automation – Process Measurement Devices
40 95 13	Control Panels
40 95 74	Junction Boxes - Automation

<u>Drawing No.</u>	<u>Drawing Name/Title</u>
15-0107-014_CS	Cover Sheet and Drawing List
15-0107-014_INX	Index Page
15-0107-014_C01	Cell 31 Construction Existing Conditions
15-0107-014_C02	Cell 31 Construction Site Layout
15-0107-014_C03	Cell 31 Construction Subgrade
15-0107-014_C04	Cell 31 Construction Liner System (Top of Re-Compacted Clay/HDPE)
15-0107-014_C05	Cell 31 Construction Leachate Collection System (Top of Granular)
15-0107-014_C06	Cell 31 Construction Cross-Sections
15-0107-014_C07	Cell 31 Construction Liner and Leachate Collection System Details I
15-0107-014_C08	Cell 31 Construction Leachate Collection System Details II
15-0107-014_C09	Cell 31 Construction Leachate Collection System Pipe Cleanout Details

15-0107-014_C10	Cell 31 Construction Perimeter Tie-In Details I
15-0107-014_C11	Cell 31 Construction Perimeter Tie-In Details II
15-0107-014_C12	Cell 31 Construction Miscellaneous Details
15-0107-014_C13	General Site Plan
15-0107-014_C14	Leachate Tank and Access Rd Site Plan
15-0107-014_C15	Cell 31 Servicing Site Plan
15-0107-014_C16	North End Manhole Site Plan
15-0107-014_C17	Civil Works Details – 1
15-0107-014_C18	Civil Works Details – 2
15-0107-014_G01	Leachate Collection Sump System Details
15-0107-014_M01	Mechanical – Partial Site Plan
15-0107-014_M02	Mechanical – Leachate Tank Piping Plan
15-0107-014_M03	Mechanical – Leachate Tank Supply Piping Section
15-0107-014_M04	Mechanical – Leachate Loadout Piping Section
15-0107-014_M05	Mechanical – Leachate Storage Tank General Arrangement
15-0107-014_M06	Mechanical – Manhole MH02
15-0107-014_M07	Mechanical – Manhole MH03
15-0107-014_M08	Mechanical – Cell 31 Sump
15-0107-014_M09	Mechanical – Leachate Loadout Pump Detail
15-0107-014_M10	Mechanical – Sections
15-0107-014_M11	Mechanical – Details
15-0107-014_M12	Mechanical – Leachate Piping Schematic
15-0107-014_M13	Mechanical – Compressed Air Piping Schematic
15-0107-014_E01	Electrical – Single Line Diagrams
15-0107-014_E02	Electrical – Partial Site Plan
15-0107-014_E03	Electrical – Control Panel and Equipment List
15-0107-014_E04	Electrical – Panel Schedules
15-0107-014_E05	Electrical – P-01 Motor Schematic
15-0107-014_E06	Electrical – Schematic Diagrams
15-0107-014_E07	Electrical – Heat Trace Details
15-0107-014_E08	Electrical – Cable Tray Details
15-0107-014_E09	Electrical – Area Classifications
15-0107-014_E10	Electrical – Block Diagram

## **E2. SOILS INVESTIGATION REPORT AND CONSTRUCTION SURVEY**

- E2.1 Further to C3.1, geotechnical information for the work area exists and geotechnical investigation report is provided in Appendix A.
- E2.2 Construction and quantity survey will be responsibility of the Contractor. Additional details are given in Section 01 73 00 – Execution Requirements.

## **E3. ENVIRONMENTAL PROTECTION PLAN**

- E3.1 The Contractor shall plan and implement the Work of this Contract strictly in accordance with the requirements of the Environmental Protection Plan as herein specified.
- E3.2 All construction activities shall meet the terms of conditions of the Environment Act Licence No. 3081R for Brady Road Resource Management Facility. The licence is available on the City of Winnipeg Website at <http://www.winnipeg.ca/waterandwaste/pdfs/garbage/bradyLicence.pdf>
- E3.3 The Contractor is advised that at least the following Acts, Regulations, and By-laws apply to the Work and are available for viewing at the office of the Contract Administrator.

- (a) Federal

- (i) Canadian Environmental Assessment Act (CEAA) c.37
- (ii) Transportation of Dangerous Goods Act and Regulations c.34
- (b) Provincial
  - (i) The Dangerous Goods Handling and Transportation Act D12
  - (ii) The Endangered Species Act E111
  - (iii) The Environment Act c.E125
  - (iv) The Fire Prevention Act F80
  - (v) The Manitoba Heritage Resources Act H39.1
  - (vi) The Manitoba Noxious Weeds Act N110
  - (vii) The Manitoba Nuisance Act N120
  - (viii) The Public Health Act c.P210
  - (ix) The Workplace Safety and Health Act W210
  - (x) And current applicable associated regulations.  
(Note: Provincial regulations updated as of September 1999)
- (c) Municipal
  - (i) The City of Winnipeg By-law No. 1/2008
  - (ii) And any other applicable Acts, Regulations, and By-Laws.

E3.4 The Contractor is advised that the following environmental protection measures apply to the Work.

- (a) Materials Handling and Storage
  - (i) Construction materials shall be deposited or stored on areas approved by the Contract Administrator in advance.
- (b) Fuel Handling and Storage
  - (i) The Contractor shall obtain all necessary permits from Manitoba Conservation for the handling and storage of fuel products and shall provide copies to the Contract Administrator.
  - (ii) All fuel handling and storage facilities shall comply with The Dangerous Goods and Transportation Act Storage and Handling of Petroleum Products Regulation and any local land use permits.
  - (iii) Fuels, lubricants, and other potentially hazardous materials as defined in The Dangerous Goods and Transportation Act shall be stored and handled within the approved storage areas.
  - (iv) The Contractor shall ensure that all fuel storage containers are inspected daily for leaks and spillage.
  - (v) Products transferred from the fuel storage area(s) to specific Work Sites shall not exceed the daily usage requirement.
  - (vi) When servicing requires the drainage or pumping of fuels, lubricating oils or other fluids from equipment, a groundsheets of suitable material (such as HDPE) and size shall be spread on the ground to catch the fluid in the event of a leak or spill.
  - (vii) The area around storage Sites and fuel lines shall be distinctly marked and kept clear of snow and debris to allow for routine inspection and leak detection.
  - (viii) A sufficient supply of materials, such as absorbent material and plastic oil booms, to clean up minor spills shall be stored nearby on-site. The Contractor shall ensure that additional material can be made available on short notice.
- (c) Waste Handling and Disposal
  - (i) The construction area shall be kept clean and orderly at all times during and at completion of construction.
  - (ii) At no time during construction shall personal or construction waste be permitted to accumulate for more than one day at any location on the construction Site, other than at a dedicated storage area as may be approved by the Contract Administrator.

- (iii) All resulting debris shall be deposited at a Waste Disposal Ground operating under the authority of the Manitoba Waste Management Facilities Regulation 37/2016. Exceptions are liquid industrial and hazardous wastes which may require special disposal methods (see SC:21.4 D).
  - (iv) Indiscriminate dumping, littering, or abandonment shall not take place.
  - (v) No on-site burning of waste is permitted.
  - (vi) Waste storage areas shall not be located so as to block natural drainage.
  - (vii) Run-off from a waste storage area shall not be allowed to cause siltation of a watercourse.
  - (viii) Waste storage areas shall be left in a neat and finished appearance and/or restored to their original condition to the satisfaction of the Contract Administrator.
  - (ix) Equipment shall not be cleaned near watercourses; contaminated water from onshore cleaning operations shall not be permitted to enter watercourses.
- (d) Dangerous Goods/Hazardous Waste Handling and Disposal
- (i) Dangerous goods/hazardous wastes are identified by, and shall be handled according to, The Dangerous Goods Handling and Transportation Act and Regulations.
  - (ii) The Contractor shall be familiar with The Dangerous Goods Handling and Transportation Act and Regulations.
  - (iii) The Contractor shall have on-site staff that is trained and certified in the handling of the dangerous/hazardous goods, when said dangerous/hazardous goods are being utilized on-site for the performance of the Work.
  - (iv) Different waste streams shall not be mixed.
  - (v) Disposal of dangerous goods/hazardous wastes shall be at approved hazardous waste facilities.
  - (vi) Liquid hydrocarbons shall not be stored or disposed of in earthen pits on-site.
  - (vii) Used oils shall be stored in appropriate drums, or tankage until shipment to waste oil recycling centres, incinerators, or secure disposal facilities approved for such wastes.
  - (viii) Used oil filters shall be drained, placed in suitable storage containers, and buried or incinerated at approved hazardous waste treatment and disposal facilities.
  - (ix) Dangerous goods/hazardous waste storage areas shall be located at least 100 metres away from the high water line and be dyked.
  - (x) Dangerous goods/hazardous waste storage areas shall not be located so as to block natural drainage.
  - (xi) Run-off from a dangerous goods/hazardous waste storage area shall not be allowed to cause siltation of a watercourse.
  - (xii) Dangerous goods/hazardous waste storage areas shall be left in a neat and finished appearance and/or restored to their original condition to the satisfaction of the Contract Administrator.
- (e) Emergency Response
- (i) The Contractor shall ensure that due care and caution is taken to prevent spills.
  - (ii) The Contractor shall report all major spills of petroleum products or other hazardous substances with significant impact on the environment and threat to human health and safety (as defined in Table 1 below) to Manitoba Conservation, immediately after occurrence of the environmental accident, by calling the 24-hour emergency phone number (204) 945-4888. The Contract Administrator shall also be notified.
  - (iii) The Contractor shall designate a qualified supervisor as the on-site emergency response co-ordinator for the project. The emergency response co-ordinator shall have the authority to redirect manpower in order to respond in the event of a spill.
  - (iv) The following actions shall be taken by the person in charge of the spilled material or the first person(s) arriving at the scene of a hazardous material accident or the on-site emergency response co-ordinator:

- (i) Notify emergency-response co-ordinator of the accident:
  - ◆ identify exact location and time of accident
  - ◆ indicate injuries, if any
  - ◆ request assistance as required by magnitude of accident (Manitoba Conservation 24-hour Spill Response Line (204) 945-4888, Police, Fire Department, Ambulance, company backup)
- (ii) Attend to public safety:
  - ◆ stop traffic, roadblock/cordon off the immediate danger area
  - ◆ eliminate ignition sources
  - ◆ initiate evacuation procedures if necessary
- (iii) Assess situation and gather information on the status of the situation, noting:
  - ◆ personnel on-site
  - ◆ cause and effect of spill
  - ◆ estimated extent of damage
  - ◆ amount and type of material involved
  - ◆ proximity to waterways, sewers, and manholes
- (iv) If safe to do so, try to stop the dispersion or flow of spill material:
  - ◆ approach from upwind
  - ◆ stop or reduce leak if safe to do so
  - ◆ dike spill material with dry, inert sorbet material or dry clay soil or sand
  - ◆ prevent spill material from entering waterways and utilities by diking
  - ◆ prevent spill material from entering manholes and other openings by covering with rubber spill mats or diking Resume any effective action to contain, clean up, or stop the flow of the spilled product.
- (v) The emergency response co-ordinator shall ensure that all environmental accidents involving contaminants shall be documented and reported to Manitoba Conservation according to The Dangerous Goods Handling and Transportation Act Environmental Accident Report Regulation 439/87.
- (vi) When dangerous goods are used on-site, materials for containment and cleanup of spill material (e.g. absorbent materials, plastic oil booms, and oversized recovery drums) shall be available on-site.
- (vii) Minor spills of such substances that may be contained on land with no significant impact on the environment may be responded to with in-house resources without formal notification to Manitoba Environment.
- (viii) City emergency response, 9-1-1, shall be used if other means are not available.
- (ix) The on-site emergency response coordinator shall contact The Canadian Coast Guard, Selkirk (204) 785-6030, if the spill material reaches and is on or in the Red or Assiniboine Rivers.

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**Table 1**  
**Spills that must be reported to the Manitoba Conservation as Environmental Accidents**

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<u>Classification</u>	<u>Hazard</u>	<u>Reportable Quantity/Level</u>
1	Explosives	All
2.1	Compressed Gas (flammable)	100 L <sup>+</sup>
2.2	Compressed Gas	100 L <sup>+</sup>
2.3	Compressed Gas (toxic)	All
2.4	Compressed Gas (corrosive)	All
3	Flammable Liquids	100 L
4	Flammable Solids	1 kg

5.1	PG** I & II PG III	Oxidizer Oxidizer	1 kg or 1 L 50 kg or 50 L
5.2		Organic Peroxide	1 kg or 1 L
6.1	PG I PG II & III	Acute Toxic Acute Toxic	1 kg or 1 L 5 kg or 5 L
6.2		Infectious	All
7		Radioactive	Any discharge or radiation level exceeding 10 mSv/h at the package surface and 200 uSv/h at 1 m from the package surface
8		Corrosive	5 kg or 5 L
9.1		Miscellaneous	50 kg (except PCB mixtures)
9.1		PCB Mixtures	500 g
9.2		Aquatic Toxic	1 kg or 1 L
9.3		Wastes (Chronic Toxic)	5 kg or 5 L

\* Container capacity (refers to container water capacity)

\*\* PG = Packing Group(s)

(f) Vegetation

- (i) Vegetation shall not be disturbed without written permission of the Contract Administrator. The Contractor shall protect plants or trees which may be at risk of accidental damage. Such measures may include protective fencing or signage and shall be approved in advance by the Contractor Administrator.
- (ii) Trees damaged during construction activities shall be examined by bonded tree care professionals; viable trees damaged during construction activities shall be pruned according to good practise by bonded tree care professionals. Damaged trees which are not viable shall be replaced at the expense of the Contractor.
- (iii) Trees identified to be at risk by the Contract Administrator are to be strapped with 25 x 100 x 2400 millimetre wood planks, or suitably protected as approved by the Contract Administrator.
- (iv) Herbicides and pesticides shall not be used adjacent to any surface watercourses.
- (v) All landowners adjacent to the area of application of herbicides or pesticides shall be notified prior to the Work.
- (vi) Trees or shrubs shall not be felled into watercourses.
- (vii) Areas where vegetation is removed during clearing, construction, and decommissioning activities, shall be revegetated as soon as possible in accordance with the landscaping plans forming part of the contract, or as directed by the Contract Administrator.

(g) Noise

- (i) Night work and/or work on Sundays and/or Statutory Holidays or Civic Holidays shall not be allowed throughout the duration of the project without prior consent from The City and the Contract Administrator.  
 The Contractor must request and receive approval from the Contract Administrator at least forty-eight (48) hours in advance of any Contract Work to be undertaken on Sundays and/or Statutory Holidays or Civic Holidays and at night. It will be the Contractor's responsibility to schedule work activities to minimize potential problems and/or to employ noise-reduction measure to lower noise to an acceptable level. Time extensions will not be granted on the basis of the Contractor being ordered to limit his activities at night.



The Contractor is advised that possible noise level problems may limit his work activities on Sundays and/or Statutory Holidays or Civic Holidays and at night.

- (ii) Construction activities which are approved to take place at night and/or Sundays and Statutory Holidays or Civic Holidays shall be in accordance with the Environment Act Licence.

"On Sundays and holidays, and between the hours of 11:00 p.m. to 7:00 a.m. local time from Monday to Saturday, during the construction of the Development, cease any construction activity which results in an Leq (1) sound level which exceeds the background level by 5 dBA in residential areas adjacent to the Development."

Leq(1) would be defined as follows:

Leq(1) (energy equivalent level) means the A-weighted sound level (as decibels <dBA> of a constant or steady sound, for a one hour period, which has a amount of acoustic energy equivalent to that contained in the sound being measured.

(h) Dust

- (i) Dust control practices implemented by the Contractor during construction shall include regular street cleaning and dampening of construction access roads and work areas with water or approved chemicals at an adequate frequency to prevent the creation of dust.
- (ii) Only water or chemicals approved by the Contract Administrator shall be used for dust control. The use of waste petroleum or petroleum by-products is not permitted.
- (iii) The Contractor shall ensure that trucks which are used to haul excavated material and backfill material to and from the work site utilize tarpaulin covers during transport to prevent material from falling onto the street and creating dust.

#### **E4. SITE DEVELOPMENT AND RESTORATION**

##### **E4.1 Description**

E4.2 This Specification shall cover all aspects of the Site Development and restoration Work, including but not limited to mobilization and demobilization, erection, maintenance and removal of safety fencing, traffic control and signage, sediment control Works, snow clearing, removal of debris, office facilities, general access development, access maintenance and removal, and Site restoration. Additional details are given in Section 01 50 00 – Temporary Facilities and Control, Section 01 56 00 – Temporary Barriers and Enclosures, Section 01 55 26 – Traffic Control, Section 01 51 00 – Temporary Utilities, Section 01 73 00 – Execution Requirement and CW3010 – Clearing and Grubbing.

##### **E4.3 Materials**

###### **E4.3.1 Equipment**

All equipment, implements, tools and facilities used shall be of a size and type as required to complete the Work in a reasonable time, approved by the Contract Administrator. The Contractor shall keep all equipment in good Working order, and have sufficient standby equipment available at all times, as required.

##### **E4.4 Construction Methods**

###### **E4.4.1 Site and Construction Access**

- (a) The Contractor shall be responsible to develop suitable Site access. This includes, but is not limited to, temporary removal and reinstallation of safety fencing, any landscaping and grading repairs, restoration of vegetation, etc. necessary to restore any Site and construction access areas to their pre-existing condition. Prior to commencing construction the Contractor shall submit their site access plan to the Contract Administrator for approval.
- (b) The Contractor is responsible for obtaining and paying for all required permits and permissions that are necessary for Site access.

#### E4.4.2 Safety Fence

The Contractor shall erect and maintain for the duration of the project a safety fence, acceptable to the Contract Administrator, to restrict access to the Site. The fencing shall enclose the entire Site with appropriate gates or openings that are closed at the end of each Work day. The installed fencing shall consist of Dupont Number L70 orange plastic safety fence or approved equal in accordance with B7, with a mesh spacing of 45 mm, constructed as shown in the contract drawings. Upon completion of the Work, the fence shall be removed and disposed of off Site.

#### E4.4.3 Environmental Regulations

- (a) The Contractor shall adhere to all relevant Federal and Provincial environmental regulations.
- (b) The Contractor shall ensure that sufficient supplies of suitable spill kits are on-site to cleanup minor spills, should they occur. The Contractor shall supply the name, address and phone number of a local supplier, where additional kits are available on short notice.
- (c) The Contractor shall ensure that all terms and conditions of the Environment Act Licence No. 3081R are satisfied.

#### E4.4.4 General Site Cleanup and Restoration

- (a) All areas of the construction Site shall be restored to a condition at least equivalent to its original condition prior to initiation of Work. This may include, but is not necessarily limited to the Contractor's lay down area, the removal of the Contract Administrator Site trailer, and removal of all temporary fencing.

#### E4.4.5 Topsoil and Sod

All topsoil and sodding Work shall be performed in accordance with CW 3510. Topsoil and Sodding Work shall include all existing grassed areas disturbed by the Contractor during construction (outside of the pay quantities listed on the Form B). The Contractor shall restore all areas disturbed during construction to existing condition or better, using topsoil and sod at his own cost.

#### E4.5 Method of Measurement and Payment

E4.5.1 The Site development and restoration will be measured and paid for at the Contract Lump Sum Price for "Site Development and Restoration", which price shall be payment in full for supplying all materials and for performing all operations herein described and all other items incidental to the Work included in this Specification.

50% of the Site Development and Restoration unit price will be paid on the first progress payment following commencement of the work on the specific Site being developed.

The remaining 50% of the Site Development and Restoration unit price will be paid when Contractor achieves Total Performance.

### E5. COLD WEATHER REQUIREMENTS

#### E5.1 Description

- (a) Should any concrete Work or the construction, testing and inspection of the Leachate Storage Tank be required to be carried out when the mean daily temperature is below 5°C or anticipated to be below 5°C within the next 24 hours, cold weather requirements will be specified herein.
- (b) All freshly placed concrete shall be protected from the elements and from defacements due to construction operations.

#### E5.2 Construction Methods

- (a) The following are minimum requirements for protecting concrete and the leachate storage tank during and after placement during freezing weather, but mere adherence to these requirements will not relieve the Contractor of the necessity for producing concrete which has not been weakened or injured by frost or freezing, the proper and acceptable installation, inspection and testing of the leachate storage tank, or replacing such damaged Work at no additional expense to the City;
  - (i) Before any concrete is placed, all ice, snow, and frost shall be completely removed from all formwork, and other surfaces against which concrete temperatures of such surfaces raised above 7°C for twenty-four (24) hours minimum prior to concreting. Where concrete Work is to come in contact with the earth, the surface of the earth shall be completely free of frost when concrete is placed thereon.
  - (ii) Concrete aggregates and water shall be heated to not over 80°C. Concrete shall be not less than 20°C or more than 30°C in temperature when deposited. Concrete when placed during freezing weather, or if freezing is anticipated during curing period, shall be fully enclosed and the temperature of same maintained at not less than 20°C for five (5) days nor less than 5°C for an additional five (5) days.
  - (iii) Heating enclosures shall be strong and wind-proof, well ventilated with heating units so located as to prevent local overheating or drying of the concrete or damage from combustion gases to the concrete or to the leachate storage tank. Only indirect fired heaters will be accepted. Units must be vented outside the enclosure. No direct fired units will be accepted.
  - (iv) The Contractor shall inform the Contract Administrator well in advance as to the methods of enclosure and frost protection he proposes to employ.

### E5.3 Measurement and Payment

- E5.3.1 Cold weather requirements shall be considered incidental to the construction of cast-in-place concrete or the construction, inspection and testing of the leachate storage tank, no measurement or payment will be made for this item.

## E6. LEACHATE TRANSIT GRAVITY PIPE

### E6.1 Description

- (a) This Specification refers to the leachate transit pipe from manhole MH01 to manhole MH03, near the leachate storage tank and the leachate pipe from Cell 31 sump to the connection with the leachate transit gravity pipe.
- (b) This Specification shall amend and supplement Standard Specifications CW 2130
- (c) 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.

### E6.2 Materials

#### E6.2.1 Handling and Storage of Materials

All materials shall be handled and stored in a careful and Workman-like manner, to the satisfaction of the Contract Administrator.

#### E6.2.2 Testing and Approval

All materials supplied under this Specification shall be subject to inspection and testing by the Contract Administrator or by the Testing Laboratory designated by the Contract Administrator. There shall be no charge to the City for any materials supplied for testing purposes.

#### E6.2.3 High Density Polyethylene (HDPE) Pipe

Leachate transit gravity pipe shall be HDPE pipe. The Contractor shall provide 200 mm dia DR11 HDPE pipe in accordance with the following requirements:

- (a) High Density Polyethylene Pipe shall be manufactured from pressure rated black polyethylene compound material that meets or exceeds ASTM D3350 cell classification 345464C with PE 4710 Polyethylene resin.
- (b) Pipe shall have a hydrostatic design basis (HDB) of 1600 psi at 73<sup>o</sup>F and hydrostatic strength (HDS) of 800 psi at 73<sup>o</sup>F.
- (c) Polyethylene pipe shall be iron pipe size (ips) or Ductile Iron.
- (d) The pipe shall be manufactured of Type III high density (S.G. =0.941 to 0.955) resin compound of the type qualified as PE 4710.
- (e) Pipe shall conform to the current CSA Standards B137.0, Definitions, General Requirements and Methods of Testing for Thermoplastic Pressure Piping, and B137.1, Polyethylene Pipe, Tubing and Fittings for Cold Water Pressure Services or ASTM F714 Polyethylene Pipe based on Outside Diameter.
- (f) The pipe shall be made from virgin compound (with the exception that it may contain clean rework compound generated in the manufacturer's own plant from resin compound of the same class and type from the same raw material supplier) having 100,000 hours of stress resistance at a minimum pressure of 11MPa for PE 4710 resin. The minimum wall thickness of the pipe shall be not less than 19.9mm.
- (g) The pipe shall be permanently and legibly marked as per the applicable standard in such a way as not to lower the quality of the pipe.
- (h) High Density Polyethylene pipe identification shall be placed on each length of pipe and shall include pipe size, manufacturer's trademark or name, date of manufacture, series or DR rating, Canadian Standards Association, NSF International Certification or Water Quality Association (WQA) complete with certification trademark logo and the CSA;ASTM specification to which the pipe is certified. Certification of polyethylene pipe using NSF shall be to both NSF 61 and NSF 14 requirements. Certifiers must be accredited by the Standards Council of Canada (SCC) and by the American National Standards Institute (ANSI).
- (i) Pipeline flange connection materials shall consist of a polyethylene stub end, an epoxy coated ductile iron or all stainless steel back-up ring drilled in accordance with the current AWWA Standard C110, Standard for Gray-Iron and Ductile Iron Fittings, a reinforced rubber gasket and all stainless steel nuts, bolts and washers. Pipe lengths shall not exceed 12 m.

E6.2.4 The joints shall be as follows:

- (a) Thermal butt fusion, socket fusion in accordance with the pipe manufacturer's recommendations and using equipment
- (b) Flanged with appropriate full face rubber gasket epoxy coated ductile iron back-up ring and all stainless steel nuts and bolts when used with polyethylene pipe.

E6.2.5 HDPE Pipe Fittings

HDPE pipe fittings shall be manufactured of the same equivalent series rating and in accordance with the same specifications as the HDPE pipe.

E6.2.6 Leachate Transit Gravity Pipe Cleanout Assembly

- (a) HDPE cleanout assembly shall be installed as shown on the drawings

E6.2.7 Prefabricated HDPE Manhole Assembly

- (a) Manhole shall be prefabricated 1200 dia DR 15.5 HDPE manholes by ISCO Industries or approved equal.
- (b) The manhole shall be designed and fabricated in accordance with ASTM F 1759-97 and Specifications for High Density Polyethylene Manholes attached in Appendix B

- (c) Manholes shall be manufactured with butt fused bottom, flanged manhole connections and ladder in accordance with the drawings
- (d) The manhole shall be manufactured considering high water table (at grade) with a lip on the bottom to allow anchoring in place during manhole installation
- (e) Manhole should have a H-20 rated fiberglass bolted cover.

E6.2.8 Marker Posts

Marker posts shall be installed around manholes as shown on the drawings

E6.2.9 Equipment

All equipment, implements, tools and facilities used shall be of a size and type as required to complete the Work in a reasonable time, approved by the Contract Administrator. The Contractor shall keep all equipment in good Working order, and have sufficient standby equipment available at all times, as required.

E6.2.10 Encasement Pipe at Road Crossing

Encasement pipe under road crossing shall be in 300 mm DR11 HDPE pipe in accordance with the drawings.

E6.3 Construction Methods

E6.3.1 Leachate transit HDPE pipe shall be installed using trenchless method in accordance with CW 2130.

E6.3.2 HDPE manhole shall be installed in accordance with ASTM D 2321, the manufacturer's specifications and the following:

- (a) Manhole shall be installed in backfill consisting of Class 1 or Class 2 material as defined in ASTM D 2321 with minimum compaction to 90% standard Proctor density. The backfill should extend 1.2 m from the perimeter of the manhole for the full height of the manhole.
- (b) Manhole should be anchored in place with the reinforced concrete slab installed over the bottom lip

E6.4 Shop Drawings

Submit prepared shop drawings for the HDPE pipe and manholes in accordance with Clause 1.5 of CW 1110 and Section 01 33 00 – Submittal Procedures

E6.5 Field Testing

E6.5.1 Leachate Transit Pipe Testing

- (a) All tests and television inspection shall be carried out from manhole to manhole as directed by the Contract Administrator.
- (b) Deflection testing may be conducted in conjunction with the television inspection however the sewer jet shall not be in operation during the television inspection.

E6.5.2 Deflection Testing

- (a) Leachate transit pipe shall be tested for deflection using a rigid mandrel sized to pass a maximum deflection (deformation of the pipe diameter) of 5%. No allowance shall be made for pipe wall thickness tolerances or out of round due to heat, shipping, or other external cause.
- (b) The inspection shall be conducted no earlier than thirty (30) calendar days after the backfill has been placed to final grade, and provided in the opinion of the Contract Administrator that sufficient water densification or rainfall has occurred to thoroughly settle the soil throughout the entire trench depth. If densification cannot be achieved in the time after installation of the pipe and backfill prior to the project completion date, then the mandrel size shall be increased to pass a maximum deflection of 4%.

- (c) The mandrel shall be carefully pulled through the sewer by the Contractor. Any sections of sewer that does not allow the mandrel to pass shall be considered to have failed the deflection test and shall be uncovered, repaired or replaced at the Contractor's sole expense and the section tested again.

#### E6.5.3 Television Inspection

- (a) Television inspection shall be between manholes or other appropriate locations as directed by the Contract Administrator.
- (b) The Contract Administrator shall be present at all times during the television inspection of the sewer and will indicate to the Contractor what data shall be logged and retained for his records.
- (c) The television inspection shall be performed by persons skilled and qualified in the use of CCTV inspection equipment.
- (d) The Contractor shall provide an air conditioned viewing room large enough to accommodate a minimum of three people for the purpose of viewing the monitor (minimum size 17 inch diagonal) while the inspection is in progress.
- (e) The image shall be clear and sharp enough to enable those viewing the monitor to easily see the interior condition of the sewer being inspected. The Contractor shall deliver to the Contract Administrator a complete typed television inspection report and one VHS format videotape recording of the inspected sewer.

#### E6.5.4 Infiltration Test

- (a) Prior to testing the pipe shall be cleaned as described in Part E12.5 of this Section and all accumulated water removed from the sewer.
- (b) Over a continuous 24 hour period, the Contract Administrator shall observe the amount of accumulated infiltration.
- (c) Zero leakage is permitted throughout the specified test period for all piping

#### E6.5.5 Exfiltration Test

- (a) The Contractor shall install water tight bulkheads in a suitable manner to isolate the section of sewer being tested from the remainder of the sewer system.
- (b) The test section shall be filled with water and left to stand for 24 hours prior to commencing the test, in order to allow for absorption into the pipe walls.
- (c) Following the absorption period, the lines shall be filled until there is a head of 1 metre over the interior crown of the pipe measured at the highest point of the test section or water in the manhole is 1.0 metre above static ground water level whichever is greater, or to the level determined by the Contract Administrator. The Contract Administrator shall observe the drop in water level over a 2 hour period.
- (d) Zero leakage is permitted throughout the specified test period for all piping
- (e) Any sections of sewer that contain defects or deficiencies shall be considered to have failed the inspection and shall be uncovered, repaired or replaced at the Contractor's sole expense and the section televised again.

#### E6.5.6 Cleaning

#### E6.5.7 Leachate Transit Gravity Pipe Cleaning

- (a) The sewer pipe and manholes shall be thoroughly cleaned upon completion of the Work and prior to deflection testing or television inspection.
- (b) The sewer and manhole(s) shall be cleaned with high velocity sewer cleaning equipment which shall remove all foreign materials from the sewer and related structures.
- (c) All dirt, sand, rocks, grease and other solid or semisolid material resulting from the cleaning operation shall be removed at the downstream manhole of the section being

cleaned and disposed of as directed by the Contract Administrator. Passing material from manhole section to manhole section will not be permitted.

- (d) Acceptance of the sewer cleaning shall be made upon the successful completion of the television inspection and shall be to the satisfaction of the Contract Administrator. If the television inspection shows the cleaning to be unsatisfactory, the Contractor shall be required to again and televise the sewer until the cleaning is shown to be satisfactory.

E6.5.8 Method of Measurement and Payment

E6.5.9 Supply and Installation of Leachate Transit Pipe

- (a) The supply and installation of leachate transit pipe shall be measured on a linear basis. The length to be paid for shall be the total number of linear meters of pipe, measured from the tie-in point to the tip of the manufactured bevelled end section, horizontally above the center of the pipe installed in accordance with this Specification and acceptable to the Contract Administrator.
- (b) Beveling the end section of pipe, where applicable, shall be considered incidental to the installation of the leachate transit pipe and no separate payment will be made.
- (c) Field testing shall be considered incidental to the installation of the leachate transit pipe and no separate payment will be made.
- (d) Supply and installation of leachate transit pipe will be paid for at the Contract Unit Price for "Items of Work" listed below, measured specified herein, which price shall be payment in full for supplying all materials and performing all operations described and all other items incidental to the Work included in this Specification.

**Items of Work:** Supply and Installation of Leachate Transit Gravity Pipe

- a) 200 mm diameter DR11 HDPE

**E7. DRAINAGE PIPE**

E7.1.1 Description

- (a) This Specification refers to the drainage pipe from the leachate tank containment and the drainage pipe from the track loading pad.
- (b) This Specification shall amend and supplement Standard Specifications CW 2130
- (c) 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.

E7.1.2 Materials

E7.1.3 Handling and Storage of Materials

All materials shall be handled and stored in a careful and Workman-like manner, to the satisfaction of the Contract Administrator.

E7.1.4 Testing and Approval

All materials supplied under this Specification shall be subject to inspection and testing by the Contract Administrator or by the Testing Laboratory designated by the Contract Administrator. There shall be no charge to the City for any materials supplied for testing purposes.

E7.1.5 Stainless Steel (SS) Pipe

Drainage pipes from the leachate tank containment and track loading pad shall be stainless steel pipes. The Contractor shall provide 250 mm dia Schedule 40S stainless steel pipe in accordance with ASTM-A240 and ASTM A778, and the following requirements:

- (a) Stainless steel type 304 or approved equivalent
- (b) Nominal wall thickness of schedule 40S or approved equivalent
- (c) Finish on completed pipe shall be as specified in ASTM A778
- (d) Fittings shall be of the same schedule as the pipe
- (e) All required flanges shall be welded flanges.
- (f) Contractor shall coordinate flange fitting dimensions with flange fitting on the HDPE manhole

E7.1.6 Catch Basin

- (a) Catch basin at the track loading pad shall be ABT Polydrain 611 with H-20 Class D composite frame and cover. The catch basin shall have stainless steel filter or stainless steel trash basket.

E7.1.7 Gate Valve

A gate valve shall be installed on the drainage pipe from the leachate tank containments as shown on the drawings and in accordance with following:

- (a) Gate valve shall be 250 mm dia stainless steel valve in accordance with the Section 2.7 of CW 2110.
- (b) Direction of valve closing shall be clockwise.

E7.1.8 Flexible Expansion Joint

- (a) Flexible Expansion Joints shall be 250 mm dia EBAA Iron Inc. Flex-Tend Flexible Expansion Joint or approved equivalent
- (b) Flexible expansion joints shall be installed in the locations indicated on the drawings and shall be manufactured of ductile iron conforming to the material requirements of ASTM A536 and ANSI/AWWA C153/A21.53. Foundry certification of material shall be readily available upon request.
- (c) Each flexible expansion joint shall be pressure tested prior to shipment against its own restraint to a minimum of 350 psi (250 psi for flexible expansion joints 2 inch and 30 inches diameter and larger.) A minimum 2:1 safety factor, determined from the published pressure rating, shall apply. Factory Mutual Approval for the 3 inch through 12 inch sizes is required.
- (d) Each flexible expansion joint shall consist of an expansion joint designed and cast as an integral part of a ball and socket type flexible joint, having a minimum per ball deflection of: 20°, 2" - 12"; 15°, 14" - 36"; 12°, 42"-48" and 4-inches minimum expansion. Additional expansion sleeves shall be available and easily added or removed at the factory or in the field. Both standardized mechanical joint and flange end connections shall be available.
- (e) Expansion shall take place in the centre sleeve of the flexible joint. Flexible joint shall provide unobstructed, uniform flow at full deflection of the ball joint.
- (f) All internal surfaces (wetted parts) shall be lined with a minimum of 15 mils of fusion bonded epoxy conforming to the applicable requirements of ANSI/AWWA C213. Sealing gaskets shall be constructed of EPDM. The coating shall meet ANSI/NSF-61.
- (g) Exterior surfaces shall be coated with a minimum of 6 mils of fusion bonded epoxy conforming to the applicable requirements of ANSI/AWWA C116/A21.16.
- (h) Appropriately sized polyethylene sleeves, meeting ANSI/AWWA C105/A21.5, shall be included for direct buried applications.
- (i) Manufacturer's certification of compliance to the above standards and requirements shall be readily available upon request. The Contract Administrator shall reserve the right to inspect the manufacturer's facility for compliance.

E7.1.9 Equipment



All equipment, implements, tools and facilities used shall be of a size and type as required to complete the Work in a reasonable time, approved by the Contract Administrator. The Contractor shall keep all equipment in good Working order, and have sufficient standby equipment available at all times, as required.

## E7.2 Construction Methods

### E7.2.1 Bedding

- (a) Ensure bedding is thoroughly tamped and that the pipe is uniformly supported throughout and completed in accordance with CW 2030, unless otherwise indicated by the Contract Administrator

### E7.2.2 Backfill

- (a) Backfill around the pipe shall be Type 2 material placed in lifts not thicker than 300-mm, alternating from side to side. Work must be completed in accordance with CW 2030, unless otherwise indicated by the Contract Administrator.
- (b) Backfill above the pipe shall be Type 2 material placed in lifts not thicker than 300-mm, alternating from side to side. Work must be completed in accordance with CW 2030, unless otherwise indicated by the Contract Administrator.

### E7.2.3 Flexible Expansion Joint

- (a) Flexible Expansion Joints shall be installed such that the joint is in its shortest possible position, so as to maximize the expansion potential of the joint.

### E7.2.4 ABT Polydrain catch basin shall be installed in accordance with the manufacturer's recommendations.

## E7.3 Shop Drawings

Submit prepared shop drawings for the: SS pipe, gate valve, flexible expansion joints, and catch basin in accordance with Clause 1.5 of CW 1110 and Section 01 33 00 – Submittal Procedures..

## E7.4 Field Testing

### E7.4.1 Drainage Pipe Testing

- (a) All tests and television inspection shall be carried out from manhole to manhole as directed by the Contract Administrator.
- (b) Deflection testing may be conducted in conjunction with the television inspection however the sewer jet shall not be in operation during the television inspection.

### E7.4.2 Television Inspection

- (a) Television inspection shall be between manholes or other appropriate locations as directed by the Contract Administrator.
- (b) The Contract Administrator shall be present at all times during the television inspection of the sewer and will indicate to the Contractor what data shall be logged and retained for his records.
- (c) The television inspection shall be performed by persons skilled and qualified in the use of CCTV inspection equipment.
- (d) The Contractor shall provide an air conditioned viewing room large enough to accommodate a minimum of three people for the purpose of viewing the monitor (minimum size 17 inch diagonal) while the inspection is in progress.
- (e) The image shall be clear and sharp enough to enable those viewing the monitor to easily see the interior condition of the sewer being inspected. The Contractor shall deliver to the Contract Administrator a complete typed television inspection report and one VHS format videotape recording of the inspected sewer.

### E7.4.3 Infiltration Test

- (a) Prior to testing the pipe shall be cleaned and all accumulated water removed from the sewer.
- (b) Over a continuous 24 hour period, the Contract Administrator shall observe the amount of accumulated infiltration.
- (c) Zero leakage is permitted throughout the specified test period for all piping

#### E7.4.4 Exfiltration Test

- (a) The Contractor shall install water tight bulkheads in a suitable manner to isolate the section of sewer being tested from the remainder of the sewer system.
- (b) The test section shall be filled with water and left to stand for 24 hours prior to commencing the test, in order to allow for absorption into the pipe walls.
- (c) Following the absorption period, the lines shall be filled until there is a head of 1 metre over the interior crown of the pipe measured at the highest point of the test section or water in the manhole is 1.0 metre above static ground water level whichever is greater, or to the level determined by the Contract Administrator. The Contract Administrator shall observe the drop in water level over a 2 hour period.
- (d) Zero leakage is permitted throughout the specified test period for all piping
- (e) Any sections of sewer that contain defects or deficiencies shall be considered to have failed the inspection and shall be uncovered, repaired or replaced at the Contractor's sole expense and the section televised again.

#### E7.5 Method of Measurement and Payment

##### E7.5.1 Supply and Installation of Drainage Pipe

- (a) The supply and installation of new drainage pipe shall be measured on a linear basis. The length to be paid for shall be the total number of linear meters of pipe, measured from the tie-in point to the tip of the manufactured bevelled end section, horizontally above the center of the pipe installed in accordance with this Specification and acceptable to the Contract Administrator.
- (b) Beveling the end section of pipe, where applicable, shall be considered incidental to the installation of the outfall pipe and no separate payment will be made.
- (c) Field testing shall be considered incidental to the installation of the drainage pipe and no separate payment will be made.
- (d) Supply and installation of new SS pipe will be paid for at the Contract Unit Price for "Items of Work" listed below, measured specified herein, which price shall be payment in full for supplying all materials and performing all operations described and all other items incidental to the Work included in this Specification.

**Items of Work:** Supply and Installation of Drainage Pipe

- b) 250 mm diameter SS Schedule 40S

##### E7.5.2 Supply and Installation of Flexible Expansion Joints

- (a) Measurement and Payment will be on a per Unit basis. The units to be paid for shall be the total number of flexible expansion joints 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 fittings.

**Items of Work:** Supply and Installation of Pipe Fittings

- a) 250 mm diameter flexible expansion joint

##### E7.5.3 Supply and Installation of Catch Basin

- (a) Measurement and Payment will be on a per Unit basis. The units to be paid for shall be the total number of catch basins 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 pipe connection, as required, to install the catch basin.

**Items of Work:** Supply and Installation of Catch Basin at Track Loading Pad

- a) ABT 611 Catch Basin c/w Frame and Cover

**E7.5.4** Supply and Installation of Gate Valve

- (a) Measurement and Payment will be on a per Unit basis. The units to be paid for shall be the total number of valves 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 pipe adjustments in both ends, as required, to install the gate valve.

**Items of Work:** Supply and Installation of Gate Valve

- b) 250mm SS gate Valve

**E8. GEOTEXTILE (FOR CIVIL WORKS)**

**E8.1** Description

- E8.1.1 This Specification shall cover the supply and placement of the geotextile fabric below the road and the grouted riprap.

**E8.2** Materials

- E8.2.1 Each geotextile roll to be used shall be tagged to provide product identification for inventory and quality control purposes.

- E8.2.2 Geotextile rolls shall be furnished with suitable wrapping for protection against moisture and extended exposure from the sun, and contamination from dirt, dust, and any other deleterious materials. The geotextile shall remain wrapped in a protective covering until it is used.

- E8.2.3 Non-woven geotextile fabric shall meet or exceed the following requirements:

Parameter	Test Method	Minimum Criteria
Grab Tensile Strength	ASTM D4632	900 N
Mullen Burst	ASTM D3786	2600 kPa
Puncture	ASTM D4833	550 N
Trapezoidal Tear	ASTM D4533	350 N
Apparent Opening Size	ASTM D4751	1.2 mm
Permittivity	ASTM D4491	1.2 sec <sup>-1</sup>
Flow Rate	ASTM D4491	60 L/sec/m <sup>2</sup>

- E8.2.4 Suitable products shall be Amoco 4553, Layfield LP 8, Emco R080, Geotex 801, Terrafix 600R, Armtec 250, Mirafi 180 N, Trevira 011/250, or approved equivalent in accordance with B6.

**E8.3** Construction Methods

- E8.3.1 Geotextiles shall consist of non-woven fabric.

- E8.3.2 All Work related to the geotextile storage, handling, and installation shall comply with the procedures and recommendations of the manufacturers, and as accepted by the Contract Administrator.
- E8.3.3 The fabric shall be loosely laid in order to allow conformity to the bedding surface. Folds and wrinkles in the fabric shall be avoided. Pins, nails or weights shall be installed to hold the fabric in place such that placement of fill material will not excessively stretch or tear the fabric and seam overlaps will be maintained.
- E8.3.4 The fabric shall be overlapped in a downstream direction (upstream panel overtop of downstream panel) at all joints a minimum of 600 mm. The overlap shall be pinned or secured as approved by the Contract Administrator.
- E8.3.5 A minimum of 300 mm of material shall be placed over the fabric prior to equipment passage.
- E8.3.6 Granular fill material and riprap shall be placed on the geotextile in such a manner that the geotextile is not damaged, torn, excessively stretched, or punctured.
- E8.3.7 Any damaged geotextile, as identified by the Contract Administrator, shall be repaired immediately at the Contractors own cost. All fill material shall be cleared a minimum of 1 m around the damaged area. The damaged area shall be covered with a geotextile patch that shall be large enough to be sewn or overlapped a minimum of 600 mm onto the undamaged geotextile.
- E8.4 Measurement and Payment
- E8.4.1 The supply and placement of geotextile, and related Work specified herein will be measured on an area basis and paid for at the Contract Unit Price for "Geotextile". The area to be paid for shall be the total number of square metres of ground covered by geotextile, placed in accordance with this Specification, accepted and measured by the Contract Administrator.
- E8.4.2 Overlap at all joints shall be considered a single layer of geotextile for measure and payment purposes.
- E8.4.3 Geotextile used for repairs will be excluded from the quantity paid.

## **E9. GROUTED RIPRAP**

### **E9.1 Description**

- E9.1.1 This Specification shall amend and supplement Standard Specification CW 3615.

### **E9.2 Materials**

#### **E9.2.1 Riprap**

- (a) Rock for riprap shall consist of hard, dense, durable rock. The rock shall be angular crushed limestone, resistant to the action of air and water and suitable in all other respects for the purpose intended.
- (b) The stones shall range in size from 100mm to 300mm in diameter with 75% by count between 200mm and 300mm and 25% by count between 100mm and 200mm.
- (c) Crushed limestone when subjected to the Los Angeles abrasion test shall have a loss of not more than thirty-two percent (32%).
- (d) Crushed limestone when subjected to the Magnesium Sulphate Soundness test shall have a loss of not more than eighteen percent (18%).
- (e) The sample material shall be crushed to 37.5 mm maximum aggregate size and tested in accordance with ASTM C131 – Resistance to Degradation of Small size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine and ASTM C88 – Soundness of Aggregates by Use of Magnesium Sulphate.

- (f) The rock for riprap shall be approved by the Contract Administrator prior to riprap installation.

E9.2.2 Geotextile

- (a) Geotextile shall be as per E8.

E9.2.3 Grout

- (a) Grout shall be as per CW 3615.

E9.2.4 Construction Methods

E9.2.5 Riprap

- (a) Installation of 300mm grouted riprap shall be as per Clause 9.3 of CW 3615. Total depth of concrete and riprap to be as shown on the drawings.
- (b) Riprap shall not be dropped onto the geotextile from a height greater than 300mm.
- (c) Any geotextile damaged during placement of the riprap shall be replaced as directed by the Contract Administrator at the Contractors expense.

E9.2.6 Method of Measurement and Payment

E9.2.7 Grouted Riprap

- (a) As per Clauses 12.2 and 13.2 of CW 3615

**E10. LEACHATE TANK FOUNDATION**

E10.1 Description

- E10.1.1 This Specification covers preparation of Subgrade, supply and placement of sub-base and base course materials and other related works. It shall supplement City of Winnipeg Standard Specification CW 3110.

E10.2 Materials

E10.2.1 Sub-Base Materials

- (a) Sub-base material shall be crushed aggregate, crushed granite or crushed limestone.
- (b) Sub-base material shall be well-graded and conform to the grading requirements of Table CW 3110.1 of CW 3110 for 150 millimetre crushed sub-base materials.
- (c) Sub-base material when subjected to the abrasion test will have a loss of not more than 40% when tested in accordance with grading 1 of ASTM C535, Test for Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
- (d) Sub-base material shall be approved by the Contract Administrator.

E10.2.2 Base Materials

- (a) Base course material shall consist of sound, hard, durable crushed rock or crushed gravel, free from soft and deleterious material.
- (b) Sub-base material shall be well-graded and conform to the grading requirements of Table CW 3110.1 of CW 3110 for 50 millimetre crushed materials.
- (c) 50 millimetre crushed base material when subjected to the abrasion test will have a loss of not more than 40% when tested in accordance with grading A of ASTM C131, Test for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
- (d) Base material shall be approved by the Contract Administrator.

E10.2.3 Geotextile

- (a) Geotextile shall be as per E8.

E10.2.4 Quality Assurance Testing

- (a) Material quality assurance testing shall be as per Clause 2.6 of CW 3110.

E10.3 Construction Methods

E10.3.1 Excavation

- (a) Excavation shall be as per Section 31 23 33.01 – Excavation, and Clause 3.2 of CW 3110

E10.3.2 Preparation of Sub-Grade

- (a) Compact the sub-grade after the bottom of the excavation has been approved by the Contract Administrator.
- (b) Compact areas of suitable sub-grade material, the full width of the excavation, to a minimum of 95% Standard Proctor Density.
- (c) Sub-base material shall not be placed over frozen subsoil.

E10.3.3 Placement of Sub-Base

- (a) Sub-Base shall be placed as per Clause 3.4 of CW3110.

E10.3.4 Placement of Base Course Materials

- (a) Place and compact base course material to a minimum 150 millimetres thickness and to a minimum of 100% Standard Proctor Density.
- (b) Level the compacted base course to the finished base course elevation, as shown on the drawing.
- (c) Spread base course material uniformly to avoid segregation, free of pockets of fine and coarse material.

E10.3.5 Quality of Sub-grade, Sub-base and Base Course

- (a) The quality of Sub-grade, sub-base and base course shall be controlled as per Clause 3.10 of CW 3110.

E10.4 Method of Measurement and Payment

E10.4.1 Excavation

- (a) As per Clause 4.3 of CW3110

E10.4.2 Preparation of Sub-grade

- (a) As per Clause 4.4 of CW 1110.

E10.4.3 Geotextile

- (a) As per E8

E10.4.4 Base and Sub-Base Materials

- (a) The supplying, placing and compaction of sub-base and base material will be measured on a weight basis and paid for at the Contract Unit Price per tonne for the “1 m of 50 mm Compacted Base Course ” and “2 m of 150 mm Compacted Sub-Base Course”. The weight to be paid for will be the total number of tonnes of sub-base and base material supplied and placed in accordance with this specification, accepted and measured by the Contract Administrator.
- (b) The weight to be paid for will be the total number of tonnes of crushed sub-base material as measured on a certified weigh scale.
- (c) No measurement or payment will be made for materials rejected by the Contract Administrator.