



**THE CITY OF WINNIPEG**

# **BID OPPORTUNITY**

**BID OPPORTUNITY NO. 1134-2015**

**ST. BONIFACE INDUSTRIAL PARK PHASE 2 – STAGE 1**

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## **PART B - BIDDING PROCEDURES**

### **B1. CONTRACT TITLE**

B1.1 ST. BONIFACE INDUSTRIAL PARK PHASE 2 – STAGE 1

### **B2. SUBMISSION DEADLINE**

B2.1 The Submission Deadline is 12:00 noon Winnipeg time, February 5, 2016.

B2.2 Bids determined by the Manager of Materials to have been received later than the Submission Deadline will not be accepted and will be returned upon request.

B2.3 The Contract Administrator or the Manager of Materials may extend the Submission Deadline by issuing an addendum at any time prior to the time and date specified in B2.1.

### **B3. SITE INVESTIGATION**

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

B3.2 The Bidder shall not be entitled to rely on any information or interpretation received at the Site investigation unless that information or interpretation is the Bidder's direct observation, or is provided by the Contract Administrator in writing.

### **B4. ENQUIRIES**

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

B4.2 If the Bidder finds errors, discrepancies or omissions in the Bid Opportunity, or is unsure of the meaning or intent of any provision therein, the Bidder shall notify the Contract Administrator of the error, discrepancy or omission, or request a clarification as to the meaning or intent of the provision at least five (5) Business Days prior to the Submission Deadline.

B4.3 Responses to enquiries which, in the sole judgment of the Contract Administrator, require a correction to or a clarification of the Bid Opportunity will be provided by the Contract Administrator to all Bidders by issuing an addendum.

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

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

### **B5. CONFIDENTIALITY**

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

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

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

## **B6. ADDENDA**

- B6.1 The Contract Administrator may, at any time prior to the Submission Deadline, issue addenda correcting errors, discrepancies or omissions in the Bid Opportunity, or clarifying the meaning or intent of any provision therein.
- B6.2 The Contract Administrator will issue each addendum at least two (2) Business Days prior to the Submission Deadline, or provide at least two (2) Business Days by extending the Submission Deadline.
- B6.2.1 Addenda will be available on the Bid Opportunities page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/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, to constitute a responsive Bid.
- 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

## **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) 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
- (b) 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
- (c) 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 City policy or procedures, by The Freedom of Information and Protection of Privacy Act (Manitoba), by other authorities having jurisdiction, or by law.

#### **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 B121 (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.
- 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 2016 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 development of St. Boniface Business Park Phase 2 – Stage 1; including all pertinent sewer, water, drainage, retention pond, grading, and pavement works.

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

- (a) Installation of Wastewater Sewers and Force Main
- (b) Installation of Land Drainage Sewers
- (c) Installation of Watermains
- (d) Retention Pond, Ditches, Lot Grading and Related Works
- (e) Concrete Pavement, Asphalt Pavement and Related Works
- (f) Parmalat Lot Line Connections

#### D3. DEFINITIONS AND ABBREVIATIONS

D3.1 When used in this Bid Opportunity:

- (a) **"Product"** means collectively machinery or assembled components specifically provided for the Work and standard Product such as motors, pumps, etc. designed and produced for a specific use.

D3.2 Notwithstanding C1.1, when used in this Bid Opportunity:

- (a) **"Material"** means collectively all materials and commodities required to be furnished under the Contract for the Work except those specifically provided for otherwise in the Contract documents.

D3.3 Abbreviations – Specifications. Methods, Standards

D3.3.1 General

AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
ARCA	Alberta Roofing Contractors Association
ASCE	American Society of Civil Engineers
ASTM	American Society for Testing and Materials
AWPA	American Wood Preservers Associations
AWS	American Welding Society
BCLMA	B.C. Lumber Manufacturer's Association
CAN	National Standard of Canada
CCA	Canadian Construction Association
CISC	Canadian Institute of Steel Construction
CITC	Canadian Institute of Timber Construction
CPCI	Canadian Prestressed Concrete Institute

CRCA	Canadian Roofing Contractors Association
CSA	Canadian Standards Association
CWB	Canadian Welding Bureau
ISO	International Organization for Standardization
NBC	National Building Code
PCI	Prestressed Concrete Institute
PMBC	Plywood Manufacturer's Association
SJI	Steel Joist Institute
SSPC	Steel Structures Painting Council
WCB	Worker's Compensation Board

D3.3.2 Utilities

API	American Petroleum Institute
AWWA	American Water Works Association
CGA	Canadian Gas Association
CGSB	Canadian General Standards Board
CSPI	Corrugated Steel Pipe Institute
IAO	Insurer's Advisory Organization
RTAC	Roads and Transportation Association of Canada
ULC	Underwriters Laboratories of Canada
USA	United States of America Standards (ASA)

D3.3.3 Mechanical

AFBMA	Anti Friction Bearing Manufacturer's Association
AGMA	American Gear Manufacturer's Association
AMCA	Air Moving and Conditioning Association
ANSI	American National Standards Institute
ACR	Air Conditioning and Refrigeration Institute
ASHRAE	American Society of Heating Refrigerating and Air Conditioning Engineers
NFPA	National Fire Protection Association
SAE	Society of Automotive Engineers

D3.3.4 Electrical

AIEE	American Institute of Electrical Engineers
CEC	Canadian Electrical Code
EEMAC	Electrical and Electronic Manufacturers Association of Canada
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronic Engineers
IES	Illuminating Engineers Society
IPCEA	Insulated Power Cable Engineer's Association
LEMA	Lighting Equipment Manufacturer's Association
NEC	National Electrical Code
NEMA	National Electrical Manufacturers Association
NESC	National Electrical Safety Code

D3.3.5 Use of Abbreviations

- (a) These abbreviations refer to Specifications, Methods and Standards issued by the respective Association, and the abbreviations are used in the specifications.
- (b) Alphanumeric designations following the abbreviations denote the specification, method, or standard.

D3.4 Abbreviations – Metric

D3.4.1 General

- (a) The specifications are metric and metric usage is based upon SI units in accordance with CSA Standard CAN/CSA-Z234.1 Canadian Metric Practice Guide. In this specification SI units are abbreviated in accordance with the Metric Units and Abbreviations below.

D3.4.2	Linear Measure	
	Metre	m
	Millimetre	mm
	Kilometre	km
	Micrometer	micro-m
D3.4.3	Area	
	Square metre	m <sup>2</sup>
	Square millimetre	mm <sup>2</sup>
	Hectare	ha
D3.4.4	Volume	
	Cubic metre	m <sup>3</sup>
	Litre	L
D3.4.5	Mass and Density	
	Kilogram	kg
	Gram	g
	Tonne	t
	Kilogram per metre	kg/m
	Gram per metre	g/m
	Kilogram per square metre	kg/m <sup>2</sup>
	Gram per square metre	g/m <sup>2</sup>
	Kilogram per cubic metre	kg/m <sup>3</sup>
D3.4.6	Temperature	
	Degree Celsius	°C
D3.4.7	Force, Pressure, Stress	
	Newton	N
	Kilonewton	kN
	Pascal	Pa
	Kilopascal	kPa
	Megapascal	MPa
D3.4.8	Velocity, Rate of Flow	
	Metre per second	m/s
	Metre per hour	m/h
	Kilometre per hour	km/h
	Litre per second	L/s
	Cubic metre per second	m <sup>3</sup> /s
D3.4.9	Power, Energy, Heat, Work	
	Watt	W
	Kilowatt	kW
	Kilowatt hour	kWh
	Joule	J
D3.4.10	Electricity	

Ampere  
Volt

A  
V

**D4. CONTRACT ADMINISTRATOR**

D4.1 The Contract Administrator is Stantec Consulting Ltd., represented by:  
Paul Sunderland, P.Eng.  
Project Manager

Telephone No. 204 489-5900  
E-mail paul.sunderland@stantec.com

D4.2 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.

D4.3 Bids Submissions must be submitted to the address in B8.8

**D5. CONTRACTOR'S SUPERVISOR**

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

**D6. OWNERSHIP OF INFORMATION, CONFIDENTIALITY AND NON DISCLOSURE**

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

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

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

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

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

**D7. NOTICES**

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

D7.2 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the City, except as expressly otherwise required in D7.3, D7.4 or elsewhere in the Contract, shall be sent to the attention of the Contract Administrator at the facsimile number or email address identified in D4.1.

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

The City of Winnipeg

Chief Financial Officer

Facsimile No.: 204 949-1174

- D7.4 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications required to be submitted or returned to the City Solicitor shall be sent to the following facsimile number:

The City of Winnipeg  
Legal Services Department  
Attn: Director of Legal Services

Facsimile No.: 204 947-9155

**D7.5 Bids Submissions must be submitted to the address in B8.8**

**D8. FURNISHING OF DOCUMENTS**

- D8.1 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**

**D9. AUTHORITY TO CARRY ON BUSINESS**

- D9.1 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.

**D10. SAFE WORK PLAN**

- D10.1 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.
- D10.2 The Safe Work Plan should be prepared and submitted in the format shown in the City's template which is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/Safety/default.stm>

**D11. INSURANCE**

- D11.1 The Contractor shall provide and maintain the following insurance coverage:
- (a) Wrap Up Liability insurance in an amount of no less than five million dollars (\$5,000,000) inclusive per occurrence written in the name of the Contractor, Subcontractors, Consultants, sub-consultants and The City of Winnipeg, covering bodily injury, personal injury, property damage and products and completed operations consistent with industry standard insurance policy wordings. Wrap Up Liability insurance to also include evidence of contractual liability, cross liability, and 24 months completed operations
  - (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 \$3,000,000 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.

D11.2 Deductibles shall be borne by the Contractor.

D11.3 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.

D11.4 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.

## **D12. PERFORMANCE SECURITY**

D12.1 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.

D12.1.1 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.

D12.2 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.

## **D13. SUBCONTRACTOR LIST**

D13.1 The Contractor shall provide the Contract Administrator with a complete list of the Subcontractors whom the Contractor proposes to engage (Form J: Subcontractor List).

## **D14. DETAILED WORK SCHEDULE**

D14.1 The Contractor shall provide the Contract Administrator with a detailed work schedule at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in the General Conditions for the return of the executed Contract.

D14.2 The detailed work schedule shall consist of the following:

- (a) A Gantt chart for the Work

D14.3 The construction schedule shall be updated monthly against actual progress of the Work by the Contractor.

D14.4 If, in the opinion of the Contract Administrator, any construction schedule is inadequate as a control tool or if it does not show the Work being fully completed by contract completion date,

the Contract Administrator may reject it and the Contractor shall provide a construction schedule and work program that is acceptable to the Contract Administrator.

## **SCHEDULE OF WORK**

### **D15. COMMENCEMENT**

D15.1 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.

D15.2 The Contractor shall not commence any Work on the Site until:

- (a) the Contract Administrator has confirmed receipt and approval of:
  - (i) evidence of authority to carry on business specified in D9;
  - (ii) evidence of the workers compensation coverage specified in C6.15;
  - (iii) the Safe Work Plan specified in D10;
  - (iv) evidence of the insurance specified in D11;
  - (v) the performance security specified in D12; and
  - (vi) the Subcontractor list specified in D13.
  - (vii) the detailed work schedule in D14
- (b) the Contractor has attended a pre-construction meeting with the Contract Administrator, or the Contract Administrator has waived the requirement for a pre-construction meeting.

D15.3 The Contractor shall commence the Work on the Site within seven (7) Working Days of receipt of the letter of intent.

D15.3 The City intends to award this Contract by April 1, 2016

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

### **D16. CRITICAL STAGES**

D16.1 The Contractor shall achieve critical stages of the Work in accordance with the following requirements:

- (a) Underground servicing to be completed by June 15, 2016
- (b) Pavement works, including 1<sup>st</sup> lift of asphalt, completed by July 31, 2016
- (c) Retention pond works including outlet pipe and excluding sodding, completed by July 31, 2016
- (d) Surface course asphalt (2<sup>nd</sup> lift) completed by October 1, 2016. Time delay between 1<sup>st</sup> and 2<sup>nd</sup> lift of asphalt is to minimize surface damage resulting from Parmalat construction works.
- (e) Retention pond sodding to be completed by October 15, 2016.
- (f) 3.0 metre wide multi-use asphalt path and boulevard sodding to be completed by July 31, 2017.

### **D17. SUBSTANTIAL PERFORMANCE**

D17.1 The Contractor shall achieve Substantial Performance by October 1, 2016.

D17.2 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.

- D17.3 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.

**D18. TOTAL PERFORMANCE**

- D18.1 The Contractor shall achieve Total Performance by July 31, 2017.
- D18.2 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.
- D18.3 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.

**D19. LIQUIDATED DAMAGES**

- D19.1 If the Contractor fails to achieve Substantial Performance or Total Performance in accordance with the Contract by the days fixed herein for same, the Contractor shall pay the City the following amounts per Working Day for each and every Working Day following the days fixed herein for same during which such failure continues:
- (a) Substantial Performance - \$4,000
  - (b) Total Performance - \$4,000
- D19.2 The amount specified for liquidated damages in D19.1 is based on a genuine pre-estimate of the City's damages in the event that the Contractor does not achieve Substantial Performance or Total Performance by the days fixed herein for same.
- D19.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

**D20. SCHEDULED MAINTENANCE**

- D20.1 The Contractor shall perform the following scheduled maintenance in the manner and within the time periods required by the Specifications:
- (a) Street cleaning as specified in E21.
- D20.2 Determination of Substantial Performance and Total Performance shall be exclusive of scheduled maintenance identified herein. All scheduled maintenance shall be completed prior to the expiration of the warranty period. Where the scheduled maintenance cannot be completed during the warranty period, the warranty period shall be extended for such period of time as it takes the Contractor to complete the scheduled maintenance.

**CONTROL OF WORK**

**D21. JOB MEETINGS**

- D21.1 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.

D21.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever he/she deems it necessary.

**D22. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)**

D22.1 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).

**D23. THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA) – QUALIFICATIONS**

D23.1 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**

**D24. INVOICES**

D24.1 Further to C12, the Contractor shall submit an invoice for each portion of Work performed. to:

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

Facsimile No.: 204-949-0864  
Email: [CityWpgAP@winnipeg.ca](mailto:CityWpgAP@winnipeg.ca)

D24.2 Invoices must clearly indicate, as a minimum:

- (a) the City's purchase order number;
- (b) date of delivery;
- (c) delivery address;
- (d) type and quantity of work performed;
- (e) the amount payable with GST and MRST shown as separate amounts; and
- (f) the Contractor's GST registration number.

D24.3 The City will bear no responsibility for delays in approval of invoices which are improperly submitted.

D24.4 Bids Submissions must be submitted to the address in B8.8

**D25. PAYMENT**

D25.1 Further to C12, the City may at its option pay the Contractor by direct deposit to the Contractor's banking institution.

## **WARRANTY**

### **D26. WARRANTY**

- D26.1 Notwithstanding C13.2, the warranty period shall begin on the date of Substantial Performance and shall expire one (1) year thereafter unless extended pursuant to C13.2.1 or C13.2.2, in which case it shall expire when provided for thereunder.
- D26.2 Notwithstanding C13.2 or D26.1, the Contract Administrator may permit the warranty period for a portion or portions of the Work to begin prior to the date of Substantial Performance if:
- (a) 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.
- D26.2.1 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 D12)

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. 1134-2015

ST. BONIFACE INDUSTRIAL PARK PHASE 2 – STAGE 1

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 D12)

\_\_\_\_\_  
(Date)

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

RE: PERFORMANCE SECURITY - BID OPPORTUNITY NO. 1134-2015

ST. BONIFACE INDUSTRIAL PARK PHASE 2 – STAGE 1

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:

<u>Drawing No.</u>	<u>Drawing Name/Title</u>
--------------------	---------------------------

C-001	Title Page and Drawing List
C-101	General Layout
C-102	General Layout
C-103	Lot Grade Plan
C-104	Lot Grade Plan
C-201	Mazenod Road – Street_01 to 175m N of Street_01
C-202	Mazenod Road – 175m N of Street_01 to 325m N of Street_01
C-203	Mazenod Road – 325m N of Street_01 to Camiel Sys Street
C-204	Street_01 – 100m W of Mazenod Road to 100m E of Mazenod Road
C-205	Street_01 – 100m E of Mazenod Road to 325m E of Mazenod Road
C-206	Street_01 – 325m E of Mazenod Road to 550m E of Mazenod Road
C-207	Street_01 – 550m E of Mazenod Road to Ray Marius Road
C-208	Ray Marius Road – Street_01 to 175m N of Street_01
C-209	Ray Marius Road – 175m N of Street_01 to Camiel Sys Street
C-501	Retention Pond and Outfall Details

#### E2. GEOTECHNICAL REPORT

- E2.1 Further to C3.1, the geotechnical report is provided to aid the Contractor's evaluation of the pavement structure and/or existing soil conditions. The geotechnical report is contained in Appendix A.

### GENERAL REQUIREMENTS

#### E3. OFFICE FACILITIES

- E3.1 Contract Administrator's Field Office
- (a) The Contractor shall supply office facilities meeting the following requirements:
- Provide a field office for the exclusive use of the Contract Administrator.
  - Locate the field office within the Contractor's working area.
  - Submit details of the office, its contents and its proposed location to the Contract Administrator and obtain the Contract Administrator's approval.

- (iv) The Contract Administrator's field office shall be separate from the Contractor's office or any other structure.
- (v) Provide all weather vehicle access and parking space for two vehicles for Contract Administrator's use.
- (vi) Provide power and heating fuel for Contract Administrator's office for the duration of the work.
- (vii) The Contract Administrator's office shall be in accordance with the following:
  - (i) Windproof, weatherproof and insulated
  - (ii) Minimum floor area 11m<sup>2</sup>
  - (iii) Thermostatically controlled heat
  - (iv) Ventilated adequately
  - (v) Illuminated for office work
  - (vi) Window area at least 1 m<sup>2</sup>
  - (vii) Window screen and shade
  - (viii) Screen door and lockable exterior door
  - (ix) Minimum 2 electrical receptacles

#### **E4. FIELD ENGINEERING**

##### **E4.1 General**

- (a) The Contract Administrator will provide detailed layout in accordance with Section 3.15 of CW 1130, limited as follows:
  - (i) The Contractor shall be responsible for the correctness of the elevations and dimensions from the references provided by the Contract Administrator.
  - (ii) The layout of the Work shall be in accordance with the detailed work schedule, as described in D14.
  - (iii) If the Contractor requests a change in layout procedure or sequence, he shall submit the request to the Contract Administrator, giving a minimum of 48 hours' notice of new or revised activities, unless otherwise agreed between the Contract Administrator and the Contractor.
  - (iv) The notice requesting a change shall be extended to 96 hours whenever a long weekend is involved.

##### **E4.2 Major Structures**

- (a) The Contract Administrator will provide a baseline, reference points, and a benchmark.

##### **E4.3 Trenching and Underground Pipe, Grading, Curb and Gutter**

- (a) The Contract Administrator will provide a layout survey, including offset grade stakes and grade sheets.

##### **E4.4 Reference Points and Layout**

- (a) Further to section 3.15 of CW 1130, the Contract Administrator will set all grade lines and benchmarks by means of stakes or marks, and the Contractor shall make the completed work conform to the lines and marks thus indicated.
- (b) The Contract Administrator shall supply the surveyor and the survey equipment necessary to set the above noted stakes and marks.
- (c) The Contract Administrator shall be notified immediately of the disturbance of any stakes or marks. The cost of correcting any errors existing out of neglect of the Contractor to so notify the Contract Administrator shall be borne entirely by the Contractor, as well as the cost of replacing any disturbed stakes or marks. The cost to replace the control line stakes or marks shall be at \$250.00 per hour, to be paid to the Contract Administrator.

- (d) Before commencing work, the Contractor shall satisfy himself as to the meaning and correctness of all stakes and marks and no claims shall be entertained by the Contract Administrator on account of any alleged inaccuracies.

#### E4.5 Construction Stakes and Materials

- (a) The Contractor shall provide construction stakes including laths and hubs and any other required materials including flagging, ribbon, markers, chalk, etc,

### **E5. QUALITY CONTROL AND TESTING**

#### E5.1 General

- (a) The Contractor is totally responsible for the quality of Material and Product which he provides for the Work.
- (b) The Contractor is responsible for quality control and shall perform such inspections and tests as are necessary to ensure the Work conforms to the requirements of the Contract documents.
- (c) During the progress of the Work, a sufficient number of tests shall be performed by the Contractor to determine the Material, Product, and installation meet the specified requirements.
- (d) Minimum requirements regarding quality control are specified in various sections of the specifications, however, the Contractor shall perform as many inspections and tests as are necessary to ensure that the Work conforms to the requirements of the Contract documents.
- (e) Testing shall be in accordance with pertinent codes and regulations, and with selected standards of the American Society for Testing and Materials (ASTM) and Canadian Standards Association (CSA).
- (f) Product testing, mill tests and laboratory reports to demonstrate that the Material supplied by the Contractor meet the specifications are specified under various sections of the Contract.

#### E5.2 Quality Control Testing by the Contractor

- (a) The Contractor shall retain the services of an independent testing agency under supervision of a registered professional engineer, and pay the cost of testing services for quality control including, but not limited to, the following:
  - (i) Sieve analysis of sands and aggregates to be supplied to the Work.
  - (ii) Aggregates and mix designs for soil cement base course.
  - (iii) Aggregates and mix designs for asphaltic concrete.
  - (iv) Aggregates and mix design for Portland Cement concrete.
  - (v) Standard Proctor Density curves for backfill materials.
  - (vi) Standard Proctor Density curves for approved borrow materials.
  - (vii) Compaction control tests for backfill and embankment material (excluding Roadwork Compaction)
  - (viii) Any product testing that is required and is specified under various sections of the specifications.
- (b) The Contractor shall promptly process and distribute all required copies of test reports and test information and related instructions to all of his Subcontractors and suppliers to ensure that all necessary retesting and replacement of construction can proceed without delay.
- (c) The Contractor shall promptly provide the Contract Administrator with copies of all test results.

#### E5.3 Quality Assurance Testing by the Contractor

- (a) The Contractor shall retain and pay for the services of an independent testing agency for testing for quality assurance, for the City's purposes.

The tests include:

- (i) Subgrade, Sub-base, Base, and Asphalt Compaction Testing
  - (ii) Concrete Testing (Air, Slump, and Compressive Strength)
  - (iii) Asphalt Core Sampling
- (b) The Contractor's testing agency and the Contract Administrator may inspect and test Material, Product, and the Work for conformance with the requirements of the contract; however, they do not undertake to check the quality of the Work on behalf of the Contractor nor to provide quality control.
- (c) Inspections and tests by the Contractor's testing agency and by the Contract Administrator do not relieve the Contractor of his responsibility to supply Material and Product and to perform the work in accordance with the requirements of the Contract.
- (d) The Contract Administrator, at his discretion, may order or perform any additional inspections and tests for purposes of his own or for purposes of the owner.
- (e) The Contractor shall coordinate with the Contract Administrator the scheduling of testing and inspection by the Contractor's testing agencies or by the Contract Administrator, to enable testing to be done as necessary, without delay, and the Contractor shall notify the Contract Administrator sufficiently in advance of operations to allow for such inspection and tests by the Contract Administrator's or the Contractor's testing agency.

#### E5.4 Retesting

- (a) When tests on Material, Product or completed portions of the Work carried out by the Contractor or the Contractor's testing agency yield results not meeting the requirements of the Contract documents, the Contractor, in addition to carrying out remedial work or replacement of the Material or Product shall provide for retesting of the remedied work and the replacement Material and Product. All retesting shall be at the Contractor's expense.
- (b) In every case where the Contractor has submitted test results which fail to meet the requirements of the Contract documents, the Contractor shall submit within a practical and reasonable time, results of a retest showing that the results are in accordance with the requirements of the Contract documents.
- (c) If the Contractor fails or refuses to do remedial work or replace unacceptable Material or Product, the Contract Administrator may refuse to certify payment, in addition of any other remedies the City may have.

### **E6. MATERIAL AND INSTALLATION**

#### E6.1 Quality

- (a) Material and Product supplied and installed shall be new.
- (b) Material and Product supplied shall conform to these specifications and to specified standards.
- (c) Workmanship shall be the best quality, executed by workmen experienced and skilled in their respective trades.
- (d) Ensure full cooperation among all trades and coordination of the Work with continuous supervision
- (e) Use Product for which replacement parts and service are readily available.
- (f) Use Product of one manufacturer for Product of the same type or classification. Do not mix different manufacturer's Product in the Work or in parts of the Work.

#### E6.2 Manufacturer's Instructions

- (a) Unless otherwise specified, comply with the Manufacturer's/Supplier's instructions for Material or Product and installation methods.
- (b) Notify the Contract Administrator in writing of any conflict between these Contract specifications and the instructions of the Manufacturer/Supplier.

### E6.3 Fastenings

- (a) Provide metal fastenings and accessories in the same texture, colour and finish as the base metal in which they occur. Prevent electrolytic action between dissimilar metals. Use non-corrosive fasteners, anchors and spacers for securing exterior work, or work that may be located in a corrosive atmosphere.
- (b) Space anchors within limits of load bearing or shear capacity and ensure that they provide positive permanent anchorage.
- (c) Space fastenings evenly and lay out neatly.

### E6.4 Delivery and Storage

- (a) Deliver, store and maintain packaged Material and Product with manufacturer's seals and labels intact.
- (b) Prevent damage and soiling of Material and Product.
- (c) Store Material and Product in accordance with instructions of the Manufacturer/Supplier.
- (d) Provide suitable areas or buildings where storage is weatherproof, if dry areas are recommended by the Manufacturer/Supplier.
- (e) Product shall have name plates displaying Product data and serial numbers.
- (f) Comply with Workplace Hazardous Materials Information Systems (WHMIS) requirements.

## **E7. CONSTRUCTION OF RETENTION POND AND LOT GRADING**

### E7.1 Construction of Retention Pond

#### E7.1.1 Description

- (a) This work shall include excavation and disposal of excavated material, compaction, and cleanup, all as shown on the Drawings. The work to be done by the Contractor under this specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies, and all things necessary for the satisfactory performance and completion of all work as hereinafter specified.

#### E7.1.2 Equipment

- (a) All equipment shall be of a type approved by the Contract Administrator and shall be kept in good working order.

#### E7.1.3 Construction Methods

- (a) At the locations shown on the Drawings, the Contractor shall provide all the equipment, labour, and material, necessary to construct the retention pond.
- (b) Excavation shall be unclassified excavation and shall include the excavation and satisfactory disposal of all earth, gravel, sandstone, loose detached rock or boulders, shale, cemented gravel or hard pan, disintegrated stone, rock in ledge or mass formation and any or all other material of whatever character which may be encountered.
- (c) The Contractor shall excavate the storage facility and fine grade to the line and grades as shown on the Drawing and/or as set out by the Contract Administrator in the field.
- (d) Excavated material from the retention pond construction shall be disposed of by the placement, grading and compaction of the material to the lines and grades shown on the Drawing or as directed by the Contract Administrator.
- (e) These items of work shall mean the required removal of all material encountered within the full limits of the work area, and shall include compaction of the material in disposal areas as stipulated in this clause.

- (f) Upon completion of all excavation and material disposal, the excavation and the disposal areas shall be trimmed to the line and grades shown on the Drawings, or as located in the field by the Contract Administrator, graded and bladed smooth.
- (g) The Contractor shall spread the excavated material where shown on the Drawings or specified by the Contract Administrator in uniform layers. Each layer shall be compacted to a density of not less than ninety (90%) percent of Standard Proctor and shall not exceed 200 mm compacted thickness. If this density cannot be attained by earth moving equipment during the course of disposal, the fill material shall be specifically compacted with sheep's foot compacting equipment until the specified density is reached.
- (h) In the event that the excavation/fill material is frozen, the Contractor shall break up all frozen material in such a manner that no frozen lumps with a dimension greater than 150 mm shall be placed on the fill site.
- (i) The Contractor shall stockpile surplus excavated clay material, which is judged suitable by the Contract Administrator for pavement subgrade construction as directed by the Contract Administrator.
- (j) The Contractor is responsible for rough grading the disposal area.
- (k) A tolerance of plus or minus 100mm locally will be allowed from the contours and elevation as shown on the Drawings for all areas to be rough graded.
- (l) The Contractor shall take all steps necessary, including the provision of sufficient pumping capacity, to keep the excavation free of water so that the lake can be constructed.

#### E7.1.4 Quality Control

- (a) All workmanship and all Materials furnished and supplied under this specification are subject to close and systematic inspection and testing by the Contract Administrator including all operations from the selection and production of Materials through to final acceptance of the work. The Contractor shall be wholly responsible for the control of all operations incidental thereto notwithstanding any inspection or approval that may have been previously given. The Contract Administrator reserves the right to reject any materials or works, which are not in accordance with requirements of this specification.

#### E7.1.5 Method of Measurement

- (a) Excavation and Disposal
  - (i) Measurement of this item shall be the volume in cubic meters excavated, that has been pre-determined by the Contract Administrator by means taking existing ground elevation cross-sections and comparing them to proposed finished ground elevations. This volume has been stated in the specifications and will not be reconfirmed by resurveying.

#### E7.1.6 Basis of Payment

- (a) Excavation and Disposal
  - (i) Construction of the retention pond excavation and disposal shall be paid for at the Contract Unit Price per cubic meter for "Excavation and Disposal" as measured herein which price shall include all costs in connection with the excavation of all material from the storage facility, the disposal of all excavation material, compaction, fine grading, maintenance of haul roads, traffic control, dewatering and clean-up.
- (b) The final clay grade is to be confirmed with the Contract Administrator. The clay is to be cut 0.1 m below design grade above the normal water level to allow for topsoil placement.

#### E7.1.7 Erosion Control Berm

- (a) Upon completion of retention pond excavation, the Contractor must install a 0.3 metre high erosion control berm located at the top of 7:1, for the entire perimeter of the constructed lake. The final berm construction is to be confirmed with the Contract Administrator.

## E7.2 Outfalls at Retention Pond

### E7.2.1 Description

- (a) This work shall include excavation for the supply and installation of corrugated steel pipe, disposal of excavated material, installation of grouted riprap and concrete collar, levelling and trimming of the pond bank, and clean-up, all as shown on the Drawings.
- (b) The work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies and all things necessary for and incidental to the satisfactory performance and completion of all work as hereinafter specified.

### E7.2.2 Materials

- (a) All Materials supplied under this Specification shall be of a type approved by the Contract Administrator, and shall be subject to inspection and testing by the Contract Administrator.

### E7.2.3 Equipment

- (a) All equipment shall be a type approved by the Contractor Administrator and shall be kept in good working order.

### E7.2.4 Construction Methods

- (a) At the locations shown on the Drawings, the Contractor shall supply all the equipment, labour and materials necessary to install the corrugated steel pipe outfalls to the retention pond.
- (b) The pipe shall be of a size and type and gauge as shown on the Drawings and shall be aluminized, Type II CSP with a step bevel cut at the outlet.
- (c) Following completion of installing the outfall culverts fieldstone riprap shall be supplied and placed around the culvert outlets as shown on the Drawings. The riprap shall be supplied and placed around the culvert outlets as shown on the Drawings. The riprap shall be grouted together using concrete as specified in Table CW2160.1 Section B for "skin coats".
- (d) Hand excavation trimming will be required so that the riprap may be placed on an adequate foundation.

### E7.2.5 Quality Control

- (a) All workmanship and all Materials furnished and supplied under this Specification are subject to close and systematic inspection and testing by the Contract Administrator including all operations from the selection and production of materials through to final acceptance of the Work. The Contractor shall be wholly responsible for the control of all operations incidental thereto notwithstanding any inspection or approval that may have been previously given. The Contract Administrator reserves the right to reject any Materials or works, which are not in accordance with the requirements of this Specification.

### E7.2.6 Method of Measurement

- (a) Construction of the outfalls at the retention pond will be measured on a unit price basis for each outfall constructed in accordance with the Drawings and this Specification and accepted by the Contract Administrator.

### E7.2.7 Basis of Payment

- (a) Payment will be made at the unit price bid for each outfall and shall include all labour, materials and equipment necessary to excavate, supply and install the corrugated

steel pipe, install the concrete collar, supply and install riprap all as shown on the Drawings; levelling and trimming of the pond bank where required and clean-up.

### E7.3 Lot Grading

#### E7.3.1 Description

- (a) This section specifies requirements for grading for lots, easements and general site grading.
- (b) The work includes:
  - (i) Grading, in accordance with the cross sections and elevations shown on the drawings and as staked by the Contract Administrator.
  - (ii) Excavation of organic materials and stockpiling or placing in fill areas on site, or hauling to disposal.
  - (iii) Excavation of common excavation materials from areas on-site that are to be cut, hauled and placed in fill areas on-site or hauling to disposal.
  - (iv) Excavation and hauling stockpiled and excess material to disposal areas.
- (c) The Contractor shall carry out the earthwork and grading required to leave all building lots that have been serviced to a uniform grade following installation of services, suitable to accept basement excavation material. Refer to Appendix B.
- (d) All costs in connection with this item of work including excavation, hauling, disposal, grading existing piles, fill and grading, shall be paid for in the Unit Price Bid per square metre for lot grading. Approximate areas and amounts of cuts and fill are shown on the cut/fill plan. No claims will be received in regard to any quantity disputes arising from the cut/fill drawing as the drawing is a guide only. There is no maximum depth of excavation or fill represented by the term "lot grading" in this private contract and therefore the Contractor shall satisfy himself with the quantities and depths of excavation required to meet the specified lot grading as per the cut/fill plan that follows this section and based on the lot grade plan.
- (e) The Contract Administrator shall set the grades shown in the details above at no charge only once. If additional grade staking is requested, the Contractor will be charged for the survey crew at the hourly rates specified in Section E4.

### E8. COOPERATION AND COORDINATION

#### E8.1 Description

- (a) Unlike a typical new development project, this project will have multiple contractors in the vicinity of the construction site. This specification shall cover requirements for the cooperation and coordination between the Contractor and other contractors using the site.

#### E8.2 Parmalat

- (a) Parmalat is an on-going project located on the large private property west of the new Mazonod Road. The Parmalat project is already underway and will be continuing through the construction schedule. Maintaining access for Parmalat and the various contractors working on that project is important and is described in more detail in section E20.

#### E8.3 Lift Station

- (a) The construction of the lift station shown on Sheet C-202 is another project that will coincide with the construction schedule of this project. The contractors for this project will also be using the temporary gravel access road described in E20. The Contractor is required to coordinate with the lift station contractor and maintain their access to the site, particularly during the time of the pavement works. See E20 for the method of maintaining access through different stages of this project.

#### E8.4 Manitoba Hydro

- (a) Manitoba Hydro is expected to install the 200mm gas line shown on Sheets C-201 and C-202 in late June 2016. This timing is expected to be in the midst of the surface works operations for this project. While the clearance of the gas line to the road appears to be adequate to avoid a conflict, the Contractor is expected to cooperate and coordinate with the Manitoba Hydro sub-contractor, including access to the boulevard. In the boulevard, relocation of mud piles and/or supply/equipment stockpiles may be necessary. The east boulevard in this area is to be rough graded close to design grades prior to Manitoba Hydro entering the site.

#### E8.5 Measurement and Payment

- (a) All costs associated with the work outlined in this specification shall be paid in items E26 to E29, E40 and E41 of the Form B: Prices.

### E9. FORCE MAIN

#### E9.1 General

- (a) All force main pipe used on this project shall be DR-17 High Density Polyethylene (HDPE).
- (b) The pipe shall be laid to the grade and alignment staked out on the ground by the Contract Administrator.

#### E9.2 Aqueduct Crossing

- (a) At the location of the aqueduct, the force main must be contained within a steel encasement pipe for the entire length shown in the Drawings.
- (b) The carrier and encasement pipe assembly, including spacers and anodes, shall be installed as per the detail shown in the Drawings.
- (c) The steel encasement pipe shall be in accordance with the following:
  - (i) Installed through trenchless methods
  - (ii) 407mm outside diameter
  - (iii) Black steel, ASTM A53

#### E9.3 Testing

- (a) The line shall be tested for leakage. Unless otherwise specified, the test pressure shall be 700 kPa. The pipe shall be pressurized until a minimum of 24 hours has passed since the line was filled with water. The lines shall be pressurized at the test pressure, and over a four hour period. At hourly intervals sufficient make-up water shall be added to return the line to the test pressure in order to compensate for pipe expansion while under pressure. At the end of this four hour period, the pressure shall be brought up to the test pressure, and over a period not exceeding two hours, the amount of make-up water required to bring the line back up to the test pressure shall be measured. The amount must not exceed the allowable amount. If the amount exceeds the allowable, a minimum of eight hours shall be allowed to pass before the procedure may recommence. Leakage shall be found and corrected, until the pipe passes the test.

#### E9.4 Appurtenances

- (a) The term appurtenances applies to the following:
  - (i) Crosses
  - (ii) Tees
  - (iii) Bends
  - (iv) Reducers
  - (v) Caps
- (b) Polyethylene (PE) appurtenances shall be used only in conjunction with PE pipe. The appurtenances shall be manufactured in accordance with the same specifications as the PE

pipe, and shall be of the same equivalent series rating as the pipe with which the appurtenances are used. PE appurtenances shall be injection moulded for force mains 300 mm diameter or less

#### E9.5 Joints

- (a) The HDPE joints shall be as follows:
  - (i) Flanged with appropriate full face rubber gasket epoxy coated ductile iron back-up ring and stainless steel nuts and bolts.
  - (ii) Thermal butt fusion, socket fusion in accordance with polyethylene pipe manufacturer's recommendations and using equipment approved by the manufacturer for joining polyethylene pipe.

#### E9.6 Accessories

- (a) Adaptors and couplings required to join two different types of pipe shall be of type compatible with the pipes being used and installed in accordance with the manufacturer's recommendations, and shall be subject to the approval of the Contract Administrator.

#### E9.7 By-Pass Assembly

- (a) The force main by-pass assembly shall be installed according to the detail shown in the Drawings.

### **E10. RIP RAP**

#### E10.1 Rip Rap Channel

- (a) Further to CW 3615, the rip rap channel located at the northeast section of the retention pond shall be random stone rip rap, and shall be installed as per the detail provided in the Drawings. Any alterations to the channel must be approved by the Contract Administrator before proceeding.
- (b) Installation of rip rap channel will be measured on a square metre basis and paid for at the Contract Unit Price for "Rip Rap Channel".

#### E10.2 Rip Rap Pads

- (a) Further to CW 3615 and E7.2.4 c), the rip rap pads to be installed for the culvert crossing Mazonod Road are to be installed as shown on the Drawings.
- (b) Installation of rip rap pads will be measured on a square metre basis and paid for at the Contract Unit Price for "300mm Thick Rip Rap Pad".

### **E11. DITCHES**

#### E11.1 Description

- (a) Further to CW 3110, the pay item "Ditch Excavation" shall include excavation and disposal of excavated material, removal of trees and fine grading of side slopes and ditch bottom.

#### E11.2 Construction Methods

- (a) At the locations shown on the Drawings, the Contractor shall provide all the equipment, labour, and material, necessary to construct the ditches.
- (b) The final grade shall be in accordance with CW 3520 and approved by the Contract Administrator.

#### E11.3 Method of Measurement

- (a) Measurement of this item shall be the linear metres of ditch excavated, measured along the centre line of the ditch, that has been pre-determined by the Contract Administrator.

**E11.4 Basis of Payment**

- (a) Construction of the ditches shall be paid for at the Contract Unit Price per linear metre for "Ditch Excavation" as measured herein which price shall include all costs in connection with the excavation of all material, the disposal of all excavation material, removal of trees and fine grading of slopes and ditch bottom.

**E12. ULTRA FLO CULVERTS**

**E12.1 General**

- (a) Further to CW 3610, install Ultra Flo ® CSP Culverts in accordance with the manufacturer's instructions or as directed by the Contract Administrator.

**E13. INSTALLATION OF STRAW WATTLES**

**E13.1 Description**

- (a) Straw wattles are required to be installed as erosion control measures to mitigate any deleterious materials from entering the Land Drainage System. Straw wattles shall be placed around both catch basins on Mazenod Road near Station 10+66, as seen in the Drawings

**E13.2 Materials**

- (a) The straw wattles shall be Stenlog or other biodegradable straw wattles.

**E13.3 Construction Methods**

- (a) Install 300mm Stenlog or other straw wattle sediment control material in accordance with the manufacturer's specifications around the outside of catch basin.
- (b) Install straw wattles so that no gaps exist between the soil and the bottom of the wattle, and the ends of adjacent wattles are overlapped 150mm minimum to prevent water and sediment passing. Achieve a tight seal between the wattle segments.
- (c) Use 300mm wooden stakes to fasten straw wattle to the soil. Place stakes on each side of the straw wattle, lying across the natural fibre twine, spaced 1200mm on centre. Leave 30mm to 50mm of wood stake exposed above the wattle.
- (d) Avoid damage to wattles. Damaged areas of wattles should be cut and tied off, then treated as terminal ends.
- (e) Do not remove straw wattle until directed by Contract Administrator.

**E13.4 Measurement and Payment**

- (a) The erosion control through use of straw wattles shall be paid as a lump sum, including both catch basins, at the Contract Unit Price for "Erosion Control for Catch Basins at 10+66.31" as measured herein which price shall include all costs in connection with supply and installation of straw wattles.

**E14. TEMPORARY SWALE**

**E14.1 Description**

- (a) Further to CW 3110, this specification shall cover the construction of the temporary swale, located as shown in the Drawings.

**E14.2 Measurement and Payment**

- (a) Measurement of this item shall be the linear metres of the temporary swale excavated, measured along the centre line of the swale, that has been pre-determined by the Contract Administrator.
- (b) Construction of the temporary swale shall be paid for at the Contract Unit Price per linear metre for "Temporary Swale" as measured herein which price shall include all costs in

connection with the excavation of all material, the disposal of all excavation material, and the grading of the swale.

## **E15. RE-DIRECTING EXISTING DRAINAGE TO DITCH**

### **E15.1 Description**

- (a) Further to CW 3110, this specification shall cover the re-directing of existing drainage to the new ditch, at the location shown in the Drawings.

### **E15.2 Construction Methods**

- (a) The Contractor shall perform the work as directed by the Contract Administrator.

### **E15.3 Measurement and Payment**

- (a) Measurement of this item shall be the linear metres of existing drainage that is to be re-directed, that has been pre-determined by the Contract Administrator.
- (b) The re-directing of the existing drainage shall be paid for at the Contract Unit Price per linear metre for "Re-Direct Existing Drainage to New Ditch" as measured herein which price shall include all costs in connection with the excavation of all material, the disposal of all excavation material, and general grading.

## **E16. MULTI-USE ASPHALT PATH**

### **E16.1 Description**

- (a) Further to CW 3110 and CW 3410, this specification shall cover the construction of the 3.0 metre wide multi-use asphalt right-of-way path as shown in the Drawings, and shall include 75mm of asphalt paving, 50mm of 19mm limestone base course, 150mm of 50mm limestone sub-base, supply and installation of geotextile, excavation, subgrade compaction and all works associated with sod restoration on existing section of Mazenod.

### **E16.2 Construction Methods**

- (a) Construction of the 3.0 metre wide multi-use path shall begin in the 2017 construction year and construction must not commence until the trench compaction conditions described in E16.5 are approved by the Contract Administrator.

### **E16.3 Method of Measurement**

- (a) Measurement of this item shall be the linear metres of asphalt path constructed, measured along the centre line of the path, as pre-determined by the Contract Administrator.

### **E16.4 Basis of Payment**

- (a) Construction of the asphalt path shall be paid for at the Contract Unit Price per linear metre for "3.0m Multi-Use Asphalt Right-of-Way Path" as measured herein which price shall include all costs in connection with asphalt paving, supply and installation of base course, supply and installation of sub-base, supply and installation of geotextile fabric, excavation, subgrade compaction and all works associated with sod restoration on existing section of Mazenod.

### **E16.5 Trench Compaction after Gas Line Installation**

- (a) In the 2017 construction year prior to asphalt path construction, where asphalt path subgrade has been disturbed by gas line installation (refer to Drawings), the trench resulting from installation of the gas line shall be compacted by the Contractor to a minimum of 95% Standard Proctor Density.
- (b) All costs resulting from testing of the sub-grade will be at the expense of the Contractor
- (c) All costs associated with this trench compaction shall be paid for at the Contract Unit Price per linear metre for "Gas Line Trench Re-Compaction for Multi-Use Path".

## **E17. ASPHALT TURNAROUND**

### **E17.1 Description**

- (a) Further to CW 3110 and CW 3410, this specification shall cover the construction of the temporary asphalt turnaround as shown in the Drawings, and shall include
  - (i) 75mm of asphalt paving, 150mm of 19mm limestone base course, 450mm of 50mm limestone sub-base, supply and installation of geotextile, excavation and subgrade compaction.
  - (ii) For area of turnaround located inside the 11.5m wide future road excavation limit: build base structure to match future design elevations of the roadway, as shown in the Drawings.

### **E17.2 Method of Measurement**

- (a) Measurement of this item shall be the square metres, in plan view, of the temporary turnaround constructed, as pre-determined by the Contract Administrator.

### **E17.3 Basis of Payment**

- (a) Construction of the turnaround shall be paid for at the Contract Unit Price per square metre for "Temporary Asphalt Turnaround" as measured herein which price shall include all costs in connection with asphalt paving, supply and installation of base course, supply and installation of sub-base, supply and installation of geotextile fabric, excavation and subgrade compaction.

## **E18. UTILITY CONDUITS**

### **E18.1 Description**

- (a) Further to CW 2030, this specification shall cover the installation of all underground utility conduits to be installed by the Contractor.

### **E18.2 Layout**

- (a) Survey and layout of all stakes and grades for utility conduit installation to be provided by Manitoba Hydro.

### **E18.3 Measurement and Payment**

- (a) Measurement of this item shall be the linear metres of utility conduit installed, as pre-determined by the Contract Administrator. This item shall be paid for at the Contract Unit Price per linear metre for "Utility Conduit Installation" as measured herein which price shall include all costs in connection with excavation, conduit installation, bedding, backfill and compaction.

## **E19. CONCRETE ROAD WORKS**

### **E19.1 Description**

- (a) Further to CW 3110, this specification shall cover additional construction staging and methods for the installation of the concrete road works.

### **E19.2 Staging**

- (a) To minimize disruption to Parmalat activities the Contractor is to use a 3-day Concrete mixture for the concrete road works.
- (b) To accommodate access for Parmalat during concrete road works The Contractor shall adhere to E20 for access staging. The concrete staging is as follows:
  - (i) Stage 1 – Install easterly 5 m lane of concrete.

- (ii) Stage 2 – Once easterly 5 m lane is cured and Parmalat access maintained (E20), Install westerly 5 m lane of concrete.
- (iii) Stage 3 – Once all concrete has cured the gravel access road is to be adjusted as described in E20.

#### E19.3 Measurement and Payment

- (a) All costs associated with the work described in this specification shall be included in the Contract Unit Price for “Construction of 200 mm Concrete Pavement (Reinforced)”.

### **E20. MAINTAINING ACCESS FOR PARMALAT AND REMOVAL OF EXISTING GRAVEL ROAD**

#### E20.1 Description

- (a) This specification shall cover the requirements for the maintaining of access for Parmalat, including the removal of the existing gravel road to off-site

#### E20.2 Construction Methods

- (a) Unless otherwise directed by the Contract Administrator, the maintaining of access to Parmalat shall be conducted according to this specification.
- (b) At the beginning of the project to allow for LDS and WWS installation, the Contractor is to remove the existing gravel road from STA 11+15 to 12+55 (as shown on Sheets C-201 and C-202), including disposal of material off-site.
- (c) The existing gravel road from STA 12+55 to 13+14, which provides access to the northerly Parmalat entrance, must be maintained at all times to permit Parmalat construction access and egress. Some adjustment of this gravel road may be required to facilitate the installation of the new force main and LDS.
- (d) Upon completion of the underground works and commencement of the surface works, the temporary gravel access road from STA 12+55 to 13+14 must be moved multiple times in order to allow for surface works construction, however the new location of the temporary cannot be located above the existing feeder main or aqueduct. The staging for maintaining Parmalat access during surface works construction is as follows:
  - (i) Stage 1 – Before surface works begin, the Contractor shall move the existing gravel access road from STA 12+55 to 13+14 into the west boulevard of the proposed road. This will require pushing the limestone to the west and providing additional limestone for acceptable remediation.
  - (ii) Stage 2 – Once the easterly 5 m lane of concrete has fully cured (See E19), the Contractor is to move the temporary gravel access road so that it accesses the easterly 5 m concrete road section, but allows for installation of concrete road works in the westerly 5 m lane of concrete. Moving of the gravel road shall be conducted in the same manner as Stage 1.
  - (iii) Stage 3 – Once all concrete works are sufficiently cured, the Contractor shall move the temporary gravel access road back into the west boulevard to provide for asphalt road works. The Contractor shall install an asphalt ramp in the concrete gutter to provide access to Parmalat and minimize damage to the gutter.
  - (iv) Stage 4 – Upon completion and inspection of all asphalt road works, the remainder of the temporary gravel road from STA 12+85 to 13+14 is to be removed including disposal off-site (or to the Parmalat site if directed by the Contract Administrator). The temporary asphalt curb ramp is to be removed at this time as well. The temporary gravel access road is to remain from STA 12+55 to 12+85, or as otherwise directed by the Contract Administrator.

#### E20.3 Measurement and Payment

- (a) All costs associated with the work described in this specification shall be paid for at the Contract Unit Price for the items “Maintaining Access for Parmalat” and “Remove Existing Parmalat Gravel Road and Dispose Off-Site”

## **E21. STREET CLEANING**

### **E21.1 Description**

- (a) This specification shall cover requirements for maintaining clean streets.

### **E21.2 Removal of Mud and Dirt**

- (a) Large mud or dirt deposits are to be removed with a loader upon direction by the Contract Administrator at a frequency of every two weeks. This estimate was completed by the Contract Administrator and is subject to change.
- (b) The mud can be deposited on the vacant future lots
- (c) Care shall be taken to avoid damage to the asphalt or curbs

### **E21.3 Street Sweeping**

- (a) Upon completion of the mud and dirt removal with the loader, the street is to be cleaned with a mechanical self-propelled street sweeper, or as otherwise approved by the Contract Administrator.
- (b) The Contractor shall remove all debris and fine materials from the road for the sweeping to be considered complete. Sweeping is subject to approval by the Contract Administrator.