



**THE CITY OF WINNIPEG**

# **BID OPPORTUNITY**

**BID OPPORTUNITY NO. 138-2018**

**SUPPLY AND DELIVERY OF ADJUSTABLE BIKE LANE PRECAST CURBS –  
MCDERMOT AVENUE AND BANNATYNE AVENUE BIKE LANES**

**Note to Bidders: Please be aware of revisions to B13.4**

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## **PART B - BIDDING PROCEDURES**

### **B1. CONTRACT TITLE**

B1.1 SUPPLY AND DELIVERY OF ADJUSTABLE BIKE LANE PRECAST CURBS – MCDERMOT AVENUE AND BANNATYNE AVENUE BIKE LANES

### **B2. SUBMISSION DEADLINE**

B2.1 The Submission Deadline is 4:00 p.m. Winnipeg time, August 29, 2018.

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

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

### **B3. ENQUIRIES**

B3.1 All enquiries shall be directed to the Contract Administrator identified in D3.1.

B3.2 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 promptly notify the Contract Administrator of the error, discrepancy or omission at least five (5) Business Days prior to the Submission Deadline.

B3.3 If the Bidder is unsure of the meaning or intent of any provision therein, the Bidder should request clarification as to the meaning or intent prior to the Submission Deadline.

B3.4 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.

B3.5 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.

B3.6 The Bidder shall not be entitled to rely on any response or interpretation received pursuant to B3 unless that response or interpretation is provided by the Contract Administrator in writing.

### **B4. CONFIDENTIALITY**

B4.1 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.

B4.2 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.

## **B5. ADDENDA**

- B5.1 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.
- B5.2 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.
- B5.3 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>
- B5.4 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.
- B5.5 The Bidder shall acknowledge receipt of each addendum in Paragraph 8 of Form A: Bid. Failure to acknowledge receipt of an addendum may render a Bid non-responsive.

## **B6. SUBSTITUTES**

- B6.1 The Work is based on the materials, equipment, methods and products specified in the Bid Opportunity.
- B6.2 Substitutions shall not be allowed unless application has been made to and prior approval has been granted by the Contract Administrator in writing.
- B6.3 Requests for approval of a substitute will not be considered unless received in writing by the Contract Administrator at least seven (7) Business Days prior to the Submission Deadline.
- B6.4 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 material, equipment, method or product 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 Contract;
  - (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 Contract.
- B6.5 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.
- B6.6 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.
- B6.6.1 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.

- B6.7 If the Contract Administrator approves a substitute as an “approved equal”, any Bidder may use the approved equal in place of the specified item.
- B6.8 If the Contract Administrator approves a substitute as an “approved alternative”, any Bidder bidding that approved alternative may base his/her Total Bid Price upon the specified item but may also indicate an alternative price based upon the approved alternative. Such alternatives will be evaluated in accordance with B16.
- B6.9 No later claim by the Contractor for an addition to the price(s) because of any other changes in the Work necessitated by the use of an approved equal or an approved alternative will be considered.

## **B7. BID SUBMISSION**

- B7.1 The Bid shall consist of the following components:
- (a) Form A: Bid;
  - (b) Form B: Prices.
- B7.2 Further to B7.1, the Bidder should include the written correspondence from the Contract Administrator approving a substitute in accordance with B6.
- B7.3 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.
- B7.4 The Bid Submission may be submitted by mail, courier or personal delivery, or by facsimile transmission.
- B7.5 If the Bid Submission is submitted by mail, courier or personal delivery, it shall be enclosed and sealed in an envelope clearly marked with the Bid Opportunity number and the Bidder's name and address, and shall be submitted to:
- The City of Winnipeg  
Corporate Finance Department  
Materials Management Division  
185 King Street, Main Floor  
Winnipeg MB R3B 1J1
- B7.5.1 Samples or other components of the Bid Submission which cannot reasonably be enclosed in the envelope may be packaged separately, but shall be clearly marked with the Bid Opportunity number, the Bidder's name and address, and an indication that the contents are part of the Bidder's Bid Submission.
- B7.6 If the Bid Submission is submitted by facsimile transmission, it shall be submitted to 204-949-1178.
- B7.6.1 The Bidder is advised that the City cannot take responsibility for the availability of the facsimile machine at any time.
- B7.7 Bidders are advised not to include any information/literature except as requested in accordance with B7.1.
- B7.8 Bidders are advised that inclusion of terms and conditions inconsistent with the Bid Opportunity document, including the General Conditions, will be evaluated in accordance with B16.1(a).
- B7.9 Bids submitted by internet electronic mail (e-mail) will not be accepted.

## **B8. BID**

- B8.1 The Bidder shall complete Form A: Bid, making all required entries.
- B8.2 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.
- B8.2.1 If a Bid is submitted jointly by two or more persons, each and all such persons shall identify themselves in accordance with B8.2.
- B8.3 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.
- B8.4 Paragraph 11 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.
- B8.4.1 The name and official capacity of all individuals signing Form A: Bid should be printed below such signatures.
- B8.5 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.

## **B9. PRICES**

- B9.1 The Bidder shall state a price in Canadian funds for each item of the Work identified on Form B: Prices.
- B9.1.1 The price on Form B: Prices shall include:
- (a) duty;
  - (b) freight and cartage;
  - (c) Provincial and Federal taxes [except the Goods and Services Tax (GST) and Manitoba Retail Sales Tax (MRST, also known as PST), which shall be extra where applicable] and all charges governmental or otherwise paid;
  - (d) profit and all compensation which shall be due to the Contractor for the Work and all risks and contingencies connected therewith.
- B9.2 The quantities listed on Form B: Prices are to be considered approximately only. The City will use said quantities for the purpose of comparing Bids.

B9.3 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. DISCLOSURE**

B10.1 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.

B10.2 The Persons are:

- (a) Barkman Concrete Ltd.
  - (i) Assisted in the Adjustable Bike Lane Curb pilot project and provided high level cost estimates for City budgeting purposes.

## **B11. CONFLICT OF INTEREST AND GOOD FAITH**

B11.1 Bidders, by responding to this Bid Opportunity, declare that no Conflict of Interest currently exists, or is reasonably expected to exist in the future.

B11.2 Conflict of Interest means any situation or circumstance where a Bidder or employee of the Bidder proposed for the Work has:

- (a) other commitments;
- (b) relationships;
- (c) financial interests; or
- (d) involvement in ongoing litigation;

that could or would be seen to:

- (i) exercise an improper influence over the objective, unbiased and impartial exercise of the independent judgment of the City with respect to the evaluation of Bids or award of the Contract; or
- (ii) compromise, impair or be incompatible with the effective performance of a Bidder's obligations under the Contract;
- (e) has contractual or other obligations to the City that could or would be seen to have been compromised or impaired as a result of its participation in the Bid Opportunity process or the Work; or
- (f) has knowledge of confidential information (other than confidential information disclosed by the City in the normal course of the Bid Opportunity process) of strategic and/or material relevance to the Bid Opportunity process or to the Work that is not available to other bidders and that could or would be seen to give that Bidder an unfair competitive advantage.

B11.3 In connection with its Bid, each entity identified in B11.2 shall:

- (a) avoid any perceived, potential or actual Conflict of Interest in relation to the procurement process and the Work;
- (b) upon discovering any perceived, potential or actual Conflict of Interest at any time during the Bid Opportunity process, promptly disclose a detailed description of the Conflict of Interest to the City in a written statement to the Contract Administrator; and
- (c) provide the City with the proposed means to avoid or mitigate, to the greatest extent practicable, any perceived, potential or actual Conflict of Interest and shall submit any additional information to the City that the City considers necessary to properly assess the perceived, potential or actual Conflict of Interest.



- B11.4 Without limiting B11.3, the City may, in its sole discretion, waive any and all perceived, potential or actual Conflicts of Interest. The City's waiver may be based upon such terms and conditions as the City, in its sole discretion, requires to satisfy itself that the Conflict of Interest has been appropriately avoided or mitigated, including requiring the Bidder to put into place such policies, procedures, measures and other safeguards as may be required by and be acceptable to the City, in its sole discretion, to avoid or mitigate the impact of such Conflict of Interest.
- B11.5 Without limiting B11.3, and in addition to all contractual or other rights or rights at law or in equity or legislation that may be available to the City, the City may, in its sole discretion:
- (a) disqualify a Bidder that fails to disclose a perceived, potential or actual Conflict of Interest of the Bidder or any of its employees proposed for the Work;
  - (b) require the removal or replacement of any employees proposed for the Work that has a perceived, actual or potential Conflict of Interest that the City, in its sole discretion, determines cannot be avoided or mitigated;
  - (c) disqualify a Bidder or employees proposed for the Work that fails to comply with any requirements prescribed by the City pursuant to B11.4 to avoid or mitigate a Conflict of Interest; and
  - (d) disqualify a Bidder if the Bidder, or one of its employees proposed for the Work, has a perceived, potential or actual Conflict of Interest that, in the City's sole discretion, cannot be avoided or mitigated, or otherwise resolved.
- B11.6 The final determination of whether a perceived, potential or actual Conflict of Interest exists shall be made by the City, in its sole discretion.

## **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, or if the Bidder does not carry on business in Manitoba, in the jurisdiction where the Bidder does carry on business; 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 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.

B12.5 The Bidder shall provide, on the request of the Contract Administrator, full access to any of the Bidder's equipment and facilities to confirm, to the Contract Administrator's satisfaction, that the Bidder's equipment and facilities are adequate to perform the Work.

### **B13. OPENING OF BIDS AND RELEASE OF INFORMATION**

B13.1 Bids will not be opened publicly.

B13.2 Following the Submission Deadline, the names of the Bidders and their Total Bid Prices (unevaluated, and pending review and verification of conformance with requirements or evaluated prices) will be available on the Closed Bid Opportunities (or Public/Posted Opening & Award Results) page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt>

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

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

B13.4.1 To the extent permitted, the City shall treat as confidential information, those aspects of a Bid Submission identified by the Bidder as such in accordance with and by reference to Part 2, Section 17 or Section 18 or Section 26 of The Freedom of Information and Protection of Privacy Act (Manitoba), as amended.

### **B14. IRREVOCABLE BID**

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

B14.2 The acceptance by the City of any Bid shall not release the Bids of the next two lowest evaluated responsive Bidders and these Bidders shall be bound by their Bids on such Work for the time period specified in Paragraph 9 of Form A: Bid.

### **B15. WITHDRAWAL OF BIDS**

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

B15.1.1 Notwithstanding C21, the time and date of receipt of any notice withdrawing a Bid shall be the time and date of receipt as determined by the Manager of Materials.

B15.1.2 The City will assume that any one of the contact persons named in Paragraph 3 of Form A: Bid or the Bidder's authorized representatives named in Paragraph 11 of Form A: Bid, and only such person, has authority to give notice of withdrawal.

B15.1.3 If a Bidder gives notice of withdrawal prior to the Submission Deadline, the Manager of Materials will:

- (a) retain the Bid until after the Submission Deadline has elapsed;
- (b) open the Bid to identify the contact person named in Paragraph 3 of Form A: Bid and the Bidder's authorized representatives named in Paragraph 11 of Form A: Bid; and
- (c) if the notice has been given by any one of the persons specified in B15.1.3(b), declare the Bid withdrawn.

B15.2 A Bidder who withdraws his/her Bid after the Submission Deadline but before his/her Bid has been released or has lapsed as provided for in B14.2 shall be liable for such damages as are

imposed upon the Bidder by law and subject to such sanctions as the Chief Administrative Officer considers appropriate in the circumstances. The City, in such event, shall be entitled to all rights and remedies available to it at law.

## **B16. EVALUATION OF BIDS**

B16.1 Award of the Contract shall be based on the following bid evaluation criteria:

- (a) compliance by the Bidder with the requirements of the Bid Opportunity, or acceptable deviation therefrom (pass/fail);
- (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B12 (pass/fail);
- (c) Total Bid Price;
- (d) economic analysis of any approved alternative pursuant to B6.

B16.2 Further to B16.1(a), the Award Authority may reject a Bid as being non-responsive if the Bid Submission is incomplete, obscure or conditional, or contains additions, deletions, alterations or other irregularities. The Award Authority may reject all or any part of any Bid, or waive technical requirements or minor informalities or irregularities if the interests of the City so require.

B16.3 Further to B16.1(b), the Award Authority shall reject any Bid submitted by a Bidder who does not demonstrate, in his/her Bid or in other information required to be submitted, that he/she is responsible and qualified.

B16.4 Further to B16.1(c), the Total Bid Price shall be the sum of the quantities multiplied by the unit prices for each item shown on Form B: Prices.

B16.4.1 Further to B16.1(a), in the event that a unit price is not provided on Form B: Prices, the City may determine the unit price by dividing the Amount (extended price) by the approximate quantity, for the purposes of evaluation and payment.

B16.5 This Contract will be awarded as a whole.

## **B17. AWARD OF CONTRACT**

B17.1 The City will give notice of the award of the Contract or will give notice that no award will be made.

B17.2 The City will have no obligation to award a Contract to a Bidder, even though one or all of the Bidders are determined to be responsible and qualified, and the Bids are determined to be responsive.

B17.2.1 Without limiting the generality of B17.2, the City will have no obligation to award a Contract where:

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

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

B17.3.1 Following the award of contract, a Bidder will be provided with information related to the evaluation of his/her Bid upon written request to the Contract Administrator.

- B17.4 Notwithstanding C4 and Paragraph 5 of Form A: Bid, the City may issue a purchase order to the successful Bidder in lieu of the execution of a Contract.
- B17.5 The Contract Documents, as defined in C1.1(n) (ii), in their entirety shall be deemed to be incorporated in and to form a part of the purchase order notwithstanding that they are not necessarily attached to or accompany said purchase order.

## PART C - GENERAL CONDITIONS

### C0. GENERAL CONDITIONS

- C0.1 The *General Conditions for the Supply of Goods* (Revision 2008 05 26) are applicable to the Work of the Contract.
- C0.1.1 The *General Conditions for the Supply of Goods* 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 Supply of Goods*.

## **PART D - SUPPLEMENTAL CONDITIONS**

### **GENERAL**

#### **D1. GENERAL CONDITIONS**

D1.1 In addition to the *General Conditions for the Supply of Goods*, 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 supply and delivery of precast adjustable bike lane curbs and precast curb end units.

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

D3.1 The Contract Administrator is:  
Mark Doucet  
Transportation Facilities Planning Engineer – Transportation Division  
Telephone No.: 204- 986-7774  
Email Address: mdoucet@winnipeg.ca

#### **D4. OWNERSHIP OF INFORMATION, CONFIDENTIALITY AND NON DISCLOSURE**

D4.1 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.

D4.2 The Contractor shall not make any public announcements or press releases regarding the Contract, without the prior written authorization of the Contract Administrator.

D4.3 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.

D4.4 A Contractor who violates any provision of 0 may be determined to be in breach of Contract.

#### **D5. NOTICES**

D5.1 Notwithstanding C21.3, all notices of appeal to the Chief Administrative Officer shall be sent to the attention of the Chief Financial Officer.

### **SUBMISSIONS**

#### **D6. AUTHORITY TO CARRY ON BUSINESS**

D6.1 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.

## **D7. INSURANCE**

- D7.1 The Contractor shall provide and maintain the following insurance coverage:
- (a) commercial general liability insurance, in the amount of at least two million dollars (\$2,000,000.00) inclusive, with The City of Winnipeg added as an additional insured; such liability policy to also contain a cross-liability clause, non-owned automobile liability and products and completed operations cover, to remain in place at all times during the performance of the Work;
  - (b) if applicable, Automobile Liability Insurance covering all motor vehicles, owned and operated and used or to be used by the Contractor directly or indirectly in the performance of the Work. The Limit of Liability shall not be less than \$2,000,000 inclusive for loss or damage including personal injuries and death resulting from any one accident or occurrence.
- D7.2 Deductibles shall be borne by the Contractor.
- D7.3 The Contractor shall provide the Contract Administrator with a certificate(s) of insurance, in a form satisfactory to the City Solicitor, at least two (2) Business Days prior to the commencement of any Work but in no event later than the date specified in C4 for the return of the executed Contract.
- D7.4 The Contractor shall not cancel, materially alter, or cause the policy to lapse without providing at least thirty (30) Calendar Days prior written notice to the Contract Administrator.

## **D8. PERFORMANCE SECURITY**

- D8.1 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.
- D8.2 The Contractor shall provide the City Solicitor with the required performance security within seven (7) Calendar Days of notification of the award of the Contract and prior to the commencement of any Work.

## **D9. DETAILED WORK SCHEDULE**

- D9.1 The Contractor shall provide the Contract Administrator with a detailed work schedule (Form L: Detailed Work Schedule) within ten (10) Business Days from the date of Award of the Work.

## **SCHEDULE OF WORK**

### **D10. COMMENCEMENT**

- D10.1 The Contractor shall not commence any Work until he/she is in receipt of a notice of award from the City authorizing the commencement of the Work.
- D10.2 The Contractor shall not commence any Work until:
- (a) the Contract Administrator has confirmed receipt and approval of:

- (i) evidence of authority to carry on business specified in D6;
  - (ii) evidence of the workers compensation coverage specified in C6.16;
  - (iii) evidence of the insurance specified in D7;
  - (iv) the performance security specified in D8;
  - (v) the detailed work schedule specified in D9;
- (b) the Contractor has attended a meeting with the Contract Administrator, or the Contract Administrator has waived the requirement for a meeting.

#### **D11. DELIVERY**

D11.1 Goods shall be delivered by October 19, 2018, f.o.b. destination, freight prepaid to:

Wes Delaney  
495 Archibald Street; Winnipeg, MB  
204.795.4292

D11.2 The Contractor shall confirm each delivery with the Contract Administrator or his/her designate, at least two (2) Business Days before delivery.

D11.3 Goods shall be delivered between 8:30 a.m. and 2:30 p.m. on Business Days.

D11.4 The Contractor shall off-load goods as directed at the delivery location.

#### **D12. VERIFICATION OF GOODS**

D12.1 All goods, formwork, and procedures shall be subject to inspection and verification by the Contract Administrator.

D12.2 The Contractor shall provide written notice to the Contract Administrator forty eight (48) hours in advance of the first concrete pour. No charge shall be made to the City for any delays or loss of production caused by such inspection and verification.

#### **D13. LIQUIDATED DAMAGES**

D13.1 If the Contractor fails to achieve delivery of the goods within the time specified in D11.1 Delivery the Contractor shall pay the City two hundred fifty dollars (\$250) per Calendar Day for each and every Calendar Day until the goods have been delivered.

D13.2 The amount specified for liquidated damages in D13.1 is based on a genuine pre-estimate of the City's damages in the event that the Contractor does not achieve Delivery by the day fixed herein for same.

D13.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

#### **MEASUREMENT AND PAYMENT**

##### **D14. INVOICES**

D14.1 Further to C10, the Contractor shall submit an invoice for each order delivered 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)

- D14.2 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 goods delivered;
  - (e) the amount payable with GST, MRST, and any applicable environmental handling charges/fees identified and shown as separate amounts; and
  - (f) the Contractor's GST registration number.
- D14.3 The City will bear no responsibility for delays in approval of invoices which are improperly submitted.
- D14.4 **Bid Submissions must not be submitted to the above facsimile number. Bids must be submitted in accordance with B7.**
- D15. PAYMENT**
- D15.1 Further to C10, the City may at its option pay the Contractor by direct deposit to the Contractor's banking institution.
- D16. PAYMENT SCHEDULE**
- D16.1 Further to C10, payment shall be in Canadian funds net thirty (30) Calendar Days after receipt and approval of the Contractor's invoice.

## **WARRANTY**

### **D17. WARRANTY**

- D17.1 Warranty is as stated in C11.

**FORM H1: PERFORMANCE BOND**  
(See D8)

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. 138-2018

SUPPLY AND DELIVERY OF ADJUSTABLE BIKE LANE PRECAST CURBS – MCDERMOT AVENUE  
AND BANNATYNE AVENUE BIKE LANES

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)



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)



**FORM L: DETAILED WORK SCHEDULE**  
(See D9)

**SUPPLY AND DELIVERY OF ADJUSTABLE BIKE LANE PRECAST CURBS – MCDERMOT AVENUE  
AND BANNATYNE AVENUE BIKE LANES**

For each item of Work, indicate the proposed date that each cumulative percentage to be completed will be achieved.					
Items of Work	Percentage of Work Completed				
	Start	25%	50%	75%	100%

## **PART E - SPECIFICATIONS**

### **GENERAL**

#### **E1. APPLICABLE SPECIFICATIONS AND DRAWINGS**

E1.1 These Specifications shall apply to the Work.

E1.2 The following are applicable to the Work:

<u>Drawing No.</u>	<u>Drawing Name/Title</u>
T-3478	Adjustable Curb and End Unit Details

E1.3 Bidders are reminded that requests for approval of substitutes as an approved equal or an approved alternative shall be made in accordance with B6.

#### **E2. GOODS**

E2.1 The Contractor shall supply precast concrete curbs in accordance with the requirements hereinafter specified.

#### **E3. SHOP DRAWINGS**

E3.1 Description

- (a) The Contractor shall submit specified shop drawings to the Contract Administrator in accordance with CW 1110.

#### **E4. FABRICATION**

E4.1 General

E4.1.1 Concrete curbs must be fabricated at a facility certified by the Canadian Precast/Prestressed Concrete Institute (CPCI) and according to the latest version of CSA A23.4, Precast Concrete – Materials and Construction.

E4.2 References

E4.2.1 All reference standards and related specifications shall be current issue or the latest version at the date of tender advertisement. References shall consist of:

- (b) CSA A23.1, Concrete Materials and Methods of Concrete Construction
- (c) CSA A23.2, Methods of Test and Standard Practices for Concrete
- (d) CSA G30.18, Billet-Steel Bars for Concrete Reinforcement
- (e) CAN/CSA G164, Hot Dip Galvanizing of Irregularly Shaped Articles
- (f) ASTM C 260, Standard Specification for Air Entraining Admixtures for Concrete
- (g) ASTM C 494, Standard Specification for Chemical Admixtures for Concrete
- (h) ASTM C 1017, Standard Specification for Chemical Admixtures for Use in Producing
- (i) Flowing Concrete

E4.3 Materials

E4.3.1 Concrete

- (b) Concrete shall meet the requirements of CSA A23.1, Exposure Class C-1, Air Content Category 1 for hardened concrete and shall have a minimum compressive strength of 40 MPA at 28 days.



- (c) The maximum nominal size of coarse aggregate shall be 20mm and meet the grading requirements of CSA A23.1, Table 11, and Group 1. Coarse aggregate shall be uniformly graded and not more than 1% shall pass a 75 mm sieve. Coarse aggregate shall consist of crushed stone or gravel or a combination thereof, having hard, strong, durable particles free from elongation, dust, shale, earth, vegetable matter or other injurious substances.
  - (i) Test of the coarse aggregate shall not exceed the limits for standard requirements prescribed in CSA A.23.1, Table 12, for concrete exposed to freezing and thawing.
- (d) Fine aggregate shall meet the grading requirements of CSA A23.1, Table 10, FA1. Fine aggregate shall be uniformly graded and not more than 3% shall pass a 75 mm sieve. Fine aggregate shall consist of sand, stone, screenings, other inert materials with similar characteristics or a combination thereof, having clean, hard, strong, uncoated grains free from injurious amounts of dust, lumps, shale, alkali, organic matter, loam or other deleterious substances.
  - (i) Tests of fine aggregates shall not exceed the limits for standard requirements prescribed in CSA A23.1, Table 12.
- (e) Air entraining admixtures shall conform to the requirements of ASTM C 260.
- (f) Chemical admixtures shall conform to the requirements of ASTM C 494 or C 1017 for flowing concrete.
- (g) Cementitious materials shall conform to the requirements of CSA A3001.
- (h) Should the Contractor choose to include silica fume in the concrete mix design, the substitution of silica fume shall not exceed 8% by mass of cement.
- (i) Should the Contractor choose to include fly ash in the concrete mix design, the fly ash shall be Class CI and the substitution shall not exceed 25% by mass of cement.

#### E4.3.2 Reinforcing Steel

- (a) The Contractor shall supply the reinforcing steel. The reinforcing steel shall conform to the requirements of CSA G30.18 Grade 400W.
- (b) The 15M Deformed Galvanized Rebar Dowels shall be manufactured as per the CW 3230 and 450mm in length.

#### E4.3.3 Lifting Anchors

- (a) The Contractor shall supply and embed galvanized Starcon Anchors product number 09-1030550, or approved equal in accordance with B6.

#### E4.3.4 Waterproofing Sealant

- (a) The Contractor shall supply and apply Techniseal Proseries Waterproofing Sealant (W7), or approved equal in accordance with B6, to all surfaces of the curbs.
- (b) Application shall be according to manufacturer's specifications.

#### E4.3.5 Steel Sign Post Collars

- (a) Steel sign post collars shall be supplied by Public Works.
- (b) Steel sign post collars shall be embedded into the precast curb end units during concrete pour.

#### E4.4 Replacement of Damaged Materials

- (a) All material supplied by the Contractor that in the opinion of the Contract Administrator has been damaged or otherwise rendered unusable by improper storage or handling by the Contractor shall be replaced by the Contractor at his own expense.

#### E4.5 Submittals

- E4.5.1 The Contractor shall submit to the Contract Administrator for review and approval, at least fourteen (14) Calendar Days prior to the commencement of any scheduled Work.

(a) Mix Design Statement

- (i) Provide a "Mix Design Statement" for concrete to be used certifying constituent materials and mixing proportions. Supply reasonable evidence to the Contract Administrator that the mix proportions selected will produce concrete meeting specified strength, workability and yield.
- (ii) Any change in the constituent materials of any approved mix design shall require submission of a new concrete mix design statement, and mix design test data. If, during the progress of the Work, the concrete supplied is found to be unsatisfactory for any reason, including poor workability, the Contract Administrator may require the Contractor to make any necessary adjustments and associated resubmissions.

E4.6 Construction Methods

E4.6.1 General

- (a) The Contractor shall ensure that the concrete is properly batched, mixed, placed and cured.
- (b) The precast concrete curbs shall be constructed as shown on the Drawings

E4.6.2 Tolerances

- (a) Cross sectional dimensions throughout the entire length of the curb shall not vary from those shown on the Drawings by more than 5 mm.
- (b) The locations of the reinforcing steel shall not vary from those shown on the Drawings by more than 5 mm.
- (c) For the horizontal alignment, the maximum deviation from a straight line parallel to the centreline of a unit shall be 5 mm.
- (d) The bottom surface of curbs at the bearing areas shall be in a true level plane, which does not vary by more than 5 mm from a true straight edge placed in any direction across the bearing area.

E4.6.3 Forms

- (a) Steel forms shall be used. The faces of the forms shall be smooth so as to impart a good finish to the concrete. Particular care shall be taken to ensure the verticality and rigidity of the form ends that produce surfaces that will be in contact with each other after installation. Forms shall produce precast concrete curb units that conform to the shape, lines and dimensions as shown on the Drawings and within the tolerances described in E4.6.2.
- (b) Forms shall be designed for the rate and method of concrete placement.
- (c) The faces of the forms shall be treated with a release agent to ensure that stripping may be carried out without damage to the concrete. Care shall be taken to prevent the release agent from coming in contact with any reinforcing steel or embedded materials.
- (d) Forms shall include temporary openings to facilitate the removal of all foreign substances prior to placing the concrete.

E4.6.4 Installation of Embedded Materials

- (a) Embedded materials shall be placed in the positions as indicated on the Drawings and fixed securely to the forms to ensure that there is no displacement during placing or vibrating of the concrete.

E4.6.5 Reinforcing Steel

- (a) Reinforcing steel shall be placed accurately in the positions shown on the Drawings, and shall be retained in such positions by means of bar accessories and wires so that the bars shall not be moved out of alignment during or after the depositing of

concrete. Bar accessories shall be galvanized or shall be made from non-rusting material.

- (b) Reinforcing steel shall be kept free of all foreign materials in order to ensure a positive bond between the concrete and steel. The Contractor shall remove any material that has been deposited on the reinforcing steel before concrete is placed.
- (c) Intersecting bars shall be tied positively at each intersection.

#### E4.6.6 Depositing of Concrete

- (a) The temperature of the mixed concrete shall not be less than 15°C and not more than 25°C at the time of placing in the forms. Aggregates may be heated to a temperature of not more than 65°C. The heating apparatus and housing for the aggregates shall be sufficient to heat the aggregates uniformly without the possibility of the occurrence of hot spots that may burn the materials. The water may be heated to a temperature of not more than 65°C.
- (b) Concrete shall be deposited carefully and vibrated so that it fills the forms completely and makes complete contact with all reinforcing bars and embedded materials.
- (c) The Contractor shall provide sufficient personnel to deposit and vibrate the concrete and shall ensure that each batch of concrete is vibrated properly into place as it is deposited.
- (d) Buckets, chutes and other equipment used to deposit concrete in the forms shall be positioned as close to the top of the forms as possible to minimize the free fall of the concrete.
- (e) Depositing of concrete shall be a single continuous complete operation so that each barrier shall be monolithic without joints.
- (f) Before any concrete may be deposited, the interior of the forms shall be cleaned of all chips, earth, shavings, sawdust, rubbish or other foreign substances.

#### E4.6.7 Vibrating Concrete

- (a) Vibrators shall be of sturdy construction, adequately powered and capable of transmitting to the concrete not less than 3,600 impulses per minutes when operating under load. The vibration shall be sufficiently intense to cause the concrete to flow or settle readily into place and to visibly affect the concrete over a radius of at least 450 mm from the vibrator when used in concrete having a 25 mm slump.
- (b) A sufficient number of vibrators shall be employed so that at the required rate of placement, vibration and complete compaction are obtained throughout the entire curb. At least one extra vibrator shall be on hand for emergency use.
- (c) Internal vibrators shall be constantly moving vertically in the concrete and shall be applied at points uniformly spaced that are not farther apart than the radius over which the vibrator is visibly effective. Internal vibrators shall be applied close enough to the forms to vibrate the surface concrete effectively but care shall be taken to avoid displacing or damaging the forms.
- (d) The vibration shall be of sufficient duration and intensity to thoroughly consolidate the concrete but shall not be continued so as to cause segregation or draw a pool of grout from the surrounding area.

#### E4.6.8 Concrete Finish

- (a) Immediately after the removal of the forms, all defects in the concrete shall be repaired as directed by the Contract Administrator, provided the defects are not extensive enough to cause rejection of the curb. Should the top surface exhibit excessive laitance or any other deleterious effects, the Contractor shall repair the concrete to the satisfaction of the Contract Administrator.
- (b) Honeycomb, if any, shall be repaired as soon as the forms are taken off. When approved by the Contract Administrator, repairs shall be accomplished by: removing all aggregate that is loose or that is not bonded thoroughly to the surrounding

concrete; washing the sound concrete with clean water; using a wire brush to remove any loose particles; applying an approved epoxy resin to the dried areas; and applying a cementitious mortar. The cementitious mortar shall have the same quality and mix as that used for the concrete. Patched areas shall be rubbed flush with the surrounding surface after the cementitious mortar has hardened.

- (c) All objectionable fins, projections, offsets, streaks, and other surface imperfections shall be removed totally to the Contract Administrator's satisfaction by approved means.
- (d) The concrete surface shall be wetted down thoroughly and all air pockets larger than 6 mm in diameter and other surface cavities shall be filled carefully with the approved cementitious mortar. When sufficiently dry, the surface shall be rubbed down to leave a smooth and uniform finish. Cement washes of any kind will not be allowed.
- (e) If, in the Contract Administrator's opinion, repairs to the concrete are not satisfactory or will be detrimental to the strength or long term durability of the curb, the Contractor shall, at this own expense and as directed by the Contract Administrator replace the curb.

#### E4.6.9 Curing

- (a) Concrete shall be either moist cured for a minimum of 72 hours from the time of casting or steam cured until the concrete has reached a strength of 25 MPa.
- (b) If steam curing is used, steam shall not be applied until after the initial set has taken place. Initial set will be considered to have taken place 4 hours after the completion of concrete placing.
- (c) During steam curing, the rise in the ambient air temperature shall not exceed 20°C per hour to a maximum temperature of 60°C.
- (d) Once curing has been completed, the temperature of the concrete shall not be allowed to fall at a rate exceeding 20°C per hour.
- (e) The curbs shall not be subjected to freezing temperatures before reaching the design strength of 40 MPa. The curbs, including any patched areas, shall be properly cured within the plant a minimum of three (3) days before being subjected to freezing conditions. The Contractor shall monitor the rate of cooling and avoid thermal shock from prematurely subjecting the curb to freezing temperatures.

#### E4.6.10 Handling and Storage

- (a) The Contractor shall be responsible for storage of the curb from the completion of their fabrication until they are procured by the City of an Installation Contractor engaged by the City. The Contractor may have to store, free of charge, all or portions of the fabricated materials past the procurement date specified in the contract documents, for a period of up to twenty eight (28) Calendar Days.
- (b) During handling and storage, care shall be exercised to avoid twisting, cracking or other distortion that may result in damage to the curbs.

#### E4.6.11 Loading, Transporting, Unloading and Stockpiling

- (a) During loading, transporting, unloading and stockpiling of the curbs, the Contractor shall be responsible for protecting the curbs. Any damaged corners or surfaces of the curbs are to be regarded as honeycomb and repaired in accordance with E4.6.8.
- (b) Care shall be exercised during the loading, transporting, unloading and stockpiling of the precast concrete curbs to avoid twisting, cracking or other distortion that may result in damage to the curb. The Contractor shall visually inspect the curbs once they have been loaded onto the truck making the pick-up. Extensive cracking of the curbs during these operations will be basis for rejection by the Contract Administrator.
- (c) It is the Contractor's responsibility to ascertain the actual weight of the curbs prior to transporting.

#### E4.7 Quality Management

E4.7.1 Qualified Testing Personnel

- (a) The Contractor shall be responsible for quality control testing and all testing shall be completed by qualified personnel who are certified at the time of testing as ACI CSA based Concrete Field Testing Technicians Grade 1.

E4.8 Methods of Measurement

E4.8.1 Fabrication of precast adjustable bike lane curb will be measured on a Contract unit basis and the number to be paid for will be the total number of curbs fabricated as accepted by the Contract Administrator.

E4.8.2 Fabrication of precast adjustable bike lane curb end units will be measured on a Contract unit basis and the number to be paid for will be the total number of curbs fabricated as accepted by the Contract Administrator.

E4.8.3 The supply and placement of embedded 15M Deformed Galvanized Rebar Dowels are considered incidental to the work and no separate measurement will be made for this work.

E4.9 Basis of Payment

E4.9.1 Fabrication of Precast Adjustable Bike Lane Curb will be paid for at the Contract Unit Price per curb for Supply and Delivery of Precast Adjustable Bike Lane Curb with Drainage Channel (Complete with 450mm 15M Deformed Galvanized Rebar Dowels, 2 each), measured as specified herein, which price will be payment in full for performing all operations herein described and all other items incidental to the Work.

E4.9.2 Fabrication of Precast Adjustable Bike Lane Curb End Units will be paid for at the Contract Unit Price per curb end unit for Supply and Delivery of Precast Adjustable Bike Lane Curb End Unit (Complete with 450mm 15M Deformed Galvanized Rebar Dowels, 3 each), measured as specified herein, which price will be payment in full for performing all operations herein described and all other items incidental to the Work.

E4.9.3 The supply of 450mm 15M Deformed Galvanized Rebar Dowels are considered incidental to and no separate measurement will be made for this work.