



THE CITY OF WINNIPEG

BID OPPORTUNITY

BID OPPORTUNITY NO. 215-2012

BUS STOP UPGRADES 2012

TABLE OF CONTENTS

PART A - BID SUBMISSION

Form A: Bid	1
Form B: Prices	3

PART B - BIDDING PROCEDURES

B1. Contract Title	1
B2. Submission Deadline	1
B3. Site Investigation	1
B4. Enquiries	1
B5. Addenda	1
B6. Substitutes	2
B7. Bid Components	3
B8. Bid	3
B9. Prices	4
B10. Qualification	4
B11. Opening of Bids and Release of Information	5
B12. Irrevocable Bid	5
B13. Withdrawal of Bids	5
B14. Evaluation of Bids	6
B15. Award of Contract	6

PART C - GENERAL CONDITIONS

C0. General Conditions	1
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PART D - SUPPLEMENTAL CONDITIONS

General

D1. General Conditions	1
D2. Scope of Work	1
D3. Definitions	1
D4. Contract Administrator	1
D5. Contractor's Supervisor	1
D6. Notices	1

Submissions

D7. Authority to Carry on Business	2
D8. Safe Work Plan	2
D9. Insurance	2
D10. Performance Security	3
D11. Subcontractor List	3

Schedule of Work

D12. Commencement	3
D13. Substantial Performance	4
D14. Total Performance	4
D15. Liquidated Damages	4

Control of Work

D16. Job Meetings	5
D17. Prime Contractor – The Workplace Safety and Health Act (Manitoba)	5

Measurement and Payment

D18. Payment	5
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Warranty

D19. Warranty	5
Form H1: Performance Bond	6
Form H2: Irrevocable Standby Letter of Credit	8

PART E - SPECIFICATIONS

General

E1. Applicable Specifications and Drawings	1
GENERAL REQUIREMENTS	1
E2. Co-ordination with others	1
E3. Truck Weight Limits	1
E4. Pre-Construction Meeting	2
E5. Access	2
E6. Safety Precautions	2
E7. Site Conditions	2
E8. Existing Underground Structures	3
E9. Product Approvals	3
E10. Damage to Streets and Structures	3
E11. Permits, Notices, Licences, Certifications, Laws and Rules	4
E12. Sign Support Clamps	4
E13. Adjustment of Pavement and Boulevard Structures	4
E14. Removals	4
E15. Excavation and Site Grading	5
E16. Cast-In-Place Concrete	7
E17. Concrete filled Steel Bollard	10
E18. Concrete Sidewalk	11
E19. Concrete Curb Renewal	11
E20. Transit Passenger Shelters	12
E21. Topsoil and Finish Grading	16
E22. Sodding	17
E23. Electrical Works	17

PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

B1.1 BUS STOP UPGRADES 2012

B2. SUBMISSION DEADLINE

B2.1 The Submission Deadline is 12:00 p.m. Winnipeg time, April 2, 2012.

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 is advised that all stops are within no stopping zones. The contractor is to ensure that he does not block any bus stops or traffic.

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. 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.

B5.2.1 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/>

B5.2.2 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.

B5.2.3 The Bidder shall acknowledge receipt of each addendum in Paragraph 8 of Form A: Bid. Failure to acknowledge receipt of an addendum may render a Bid non-responsive.

B6. SUBSTITUTES

B6.1 The Work is based on the Plant, Materials and methods 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 five (5) 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 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.

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, only to the Bidder who requested approval of the substitute.

B6.6.1 The Bidder requesting and obtaining the approval of a substitute shall be entirely 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 B14.

B6.9 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.

B6.10 Notwithstanding B6.2 to B6.9, and in accordance with B7.7, deviations inconsistent with the Bid Opportunity document shall be evaluated in accordance with B14.1(a).

B7. BID COMPONENTS

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, to constitute a responsive Bid.

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 Bidders are advised not to include any information/literature except as requested in accordance with B7.1.

B7.7 Bidders are advised that inclusion of terms and conditions inconsistent with the Bid Opportunity document, including the General Conditions, will be evaluated in accordance with B14.1(a).

B7.8 If the Bid Submission is submitted by facsimile transmission, it shall be submitted to 204 949-1178.

B7.8.1 The Bidder is advised that the City cannot take responsibility for the availability of the facsimile machine at any time.

B7.8.2 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 10 of Form A: Bid shall be signed in accordance with the following requirements:
- (a) if the Bidder is a sole proprietor carrying on business in his/her own name, it shall be signed by the Bidder;
 - (b) if the Bidder is a partnership, it shall be signed by the partner or partners who have authority to sign for the partnership;
 - (c) if the Bidder is a corporation, it shall be signed by its duly authorized officer or officers;
 - (d) if the Bidder is carrying on business under a name other than his/her own, it shall be signed by the registered owner of the business name, or by the registered owner's authorized officials if the owner is a partnership or a corporation.
- B8.4.1 The name and official capacity of all individuals signing Form A: Bid should be printed below such signatures.
- B8.4.2 All signatures shall be original.
- 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.
- B9.2 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.
- 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.
- B9.4 Payments to Non-Resident Contractors are subject to Non-Resident Withholding Tax pursuant to the Income Tax Act (Canada).

B10. QUALIFICATION

- B10.1 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.
- B10.2 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>
- B10.3 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);

B10.4 Further to B10.3(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/Subcontractors has a workplace safety and health program meeting the requirements of The Workplace Safety and Health Act (Manitoba), by providing:

- (a) a valid COR certification number under the Certificate of Recognition (COR) Program administered by the Manitoba Construction Safety Association or by the Manitoba Heavy Construction Association's Safety, Health and Environment Program; or
- (b) a report or letter to that effect from an independent reviewer acceptable to the City. (A list of acceptable reviewers and the review template are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/> .

B10.5 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.

B10.6 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.

B11. OPENING OF BIDS AND RELEASE OF INFORMATION

B11.1 Bids will not be opened publicly.

B11.2 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/bidopp.asp>

B11.3 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/>

B11.4 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.

B12. IRREVOCABLE BID

B12.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 9 of Form A: Bid.

B12.2 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.

B13. WITHDRAWAL OF BIDS

B13.1 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.

- B13.1.1 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.
- B13.1.2 The City will assume that any one of the contact persons named in Paragraph 3 of Form A: Bid or the Bidder's authorized representatives named in Paragraph 10 of Form A: Bid, and only such person, has authority to give notice of withdrawal.
- B13.1.3 If a Bidder gives notice of withdrawal prior to the Submission Deadline, the Manager of Materials will:
- (a) retain the Bid until after the Submission Deadline has elapsed;
 - (b) open the Bid to identify the contact person named in Paragraph 3 of Form A: Bid and the Bidder's authorized representatives named in Paragraph 10 of Form A: Bid; and
 - (c) if the notice has been given by any one of the persons specified in B13.1.3(b), declare the Bid withdrawn.
- B13.2 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 B12.2 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.

B14. EVALUATION OF BIDS

- B14.1 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 B10 (pass/fail);
 - (c) Total Bid Price;
 - (d) economic analysis of any approved alternative pursuant to B6.
- B14.2 Further to B14.1(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.
- B14.3 Further to B14.1(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.
- B14.4 Further to B14.1(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.
- B14.4.1 If there is any discrepancy between the Total Bid Price written in figures, the Total Bid Price written in words and the sum of the quantities multiplied by the unit prices for each item, the sum of the quantities multiplied by the unit prices for each item shall take precedence.
- B14.4.2 Further to B14.1(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.

B15. AWARD OF CONTRACT

- B15.1 The City will give notice of the award of the Contract or will give notice that no award will be made.

- B15.2 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.
- B15.2.1 Without limiting the generality of B15.2, 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.
- B15.3 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 B14.
- B15.3.1 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.
- B15.4 Notwithstanding C4, the City will issue a Purchase Order to the successful Bidder in lieu of the execution of a Contract.
- B15.5 The Contract, as defined in C1.1, in its entirety shall be deemed to be incorporated in and to form a part of the Purchase Order notwithstanding that it is not necessarily attached to or accompany said Purchase Order.

PART C - GENERAL CONDITIONS

C0. GENERAL CONDITIONS

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

PART D - SUPPLEMENTAL CONDITIONS

GENERAL

D1. GENERAL CONDITIONS

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

D2. SCOPE OF WORK

D2.1 The Work to be done under the Contract shall consist of redevelopment of existing bus stops including construction of concrete bases, curb and sidewalk, supply and installation of sod, electrical connections to Manitoba Hydro.

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

- (a) Supply and install concrete sidewalk,
- (b) Concrete curb renewal,
- (c) Supply and install CIP concrete base for heated shelter,
- (d) Supply and install concrete filled steel bollards,
- (e) Supply and install heated shelters,
- (f) Supply and install power pedestals,
- (g) Electrical work at shelters,
- (h) Electrical connection to Manitoba Hydro,
- (i) Supply and install topsoil and sod.

D3. DEFINITIONS

D4. CONTRACT ADMINISTRATOR

D4.1 The Contract Administrator is McGowan Russell Group Inc., represented by:

Jackie Wilkie
Vice President

200-120 Fort Street, Winnipeg, MB R3C 1C7

Telephone No. 204 956-0396

Facsimile No. 204 956-1265

D4.2 At the pre-construction meeting, Ms. Wilkie 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 B7.5.

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. NOTICES

D6.1 Except as provided for in C23.2.2, all notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the Contractor

shall be sent to the address or facsimile number identified by the Contractor in Paragraph 2 of Form A: Bid.

D6.2 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the City, except as expressly otherwise required in D6.3, D6.4 or elsewhere in the Contract, shall be sent to the attention of the Contract Administrator at the facsimile number identified in D4.1.

D6.3 Notwithstanding C21., all notices of appeal to the Chief Administrative Officer shall be sent to the attention of the Chief Financial Officer at the following facsimile number:

The City of Winnipeg
Chief Financial Officer

Facsimile No.: 204 949-1174

D6.4 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications required to be submitted or returned to the City Solicitor shall be sent to the following facsimile number:

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

Facsimile No.: 204 947-9155

SUBMISSIONS

D7. AUTHORITY TO CARRY ON BUSINESS

D7.1 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.

D8. SAFE WORK PLAN

D8.1 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.

D8.2 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>

D9. INSURANCE

D9.1 The Contractor shall provide and maintain the following insurance coverage:

- (a) commercial general liability insurance, in the amount of at least two million dollars (\$2,000,000.00) inclusive, with The City of Winnipeg added as an additional insured, with a cross-liability clause, such liability policy to also contain contractual liability, unlicensed motor vehicle liability, non-owned automobile liability and products and completed operations, to remain in place at all times during the performance of the Work and throughout the warranty period;
- (b) if applicable, Automobile Liability Insurance covering all motor vehicles, owned and operated and used or to be used by the Contractor directly or indirectly in the performance of the Work. The Limit of Liability shall not be less than \$2,000,000 inclusive for loss or

damage including personal injuries and death resulting from any one accident or occurrence;

- (c) all risks installation floater, carrying adequate limits to cover all machinery, equipment, supplies and/or materials intended to enter into and form part of any installation.

D9.2 Deductibles shall be borne by the Contractor.

D9.3 The Contractor shall provide the Contract Administrator with a certificate(s) of insurance, in a form satisfactory to the City Solicitor, at least two (2) Business Days prior to the commencement of any Work but in no event later than seven (7) Calendar Days from notification of the award of Contract by Purchase Order.

D9.4 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.

D10. PERFORMANCE SECURITY

D10.1 If the Contract Price exceeds twenty-five thousand dollars (\$25,000.00), the Contractor shall provide and maintain performance security until the expiration of the warranty period in the form of:

- (a) a performance bond of a company registered to conduct the business of a surety in Manitoba, in the form attached to these Supplemental Conditions (Form H1: Performance Bond), in the amount of fifty percent (50%) of the Contract Price; or
- (b) an irrevocable standby letter of credit issued by a bank or other financial institution registered to conduct business in Manitoba and drawn on a branch located in Winnipeg, in the form attached to these Supplemental Conditions (Form H2: Irrevocable Standby Letter of Credit), in the amount of fifty percent (50%) of the Contract Price; or
- (c) a certified cheque or draft payable to "The City of Winnipeg", drawn on a bank or other financial institution registered to conduct business in Manitoba, in the amount of fifty percent (50%) of the Contract Price.

D10.1.1 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.

D10.2 The Contractor shall provide the City Solicitor with the required performance security within seven (7) Calendar Days of notification of the award of the Contract by way of Purchase Order and prior to the commencement of any Work on the Site.

D11. SUBCONTRACTOR LIST

D11.1 The Contractor shall provide the Contract Administrator with a complete list of the Subcontractors whom the Contractor proposes to engage (Form J: Subcontractor List) at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than seven (7) Calendar Days from notification of the award of Contract.

SCHEDULE OF WORK

D12. COMMENCEMENT

D12.1 The Contractor shall not commence any Work until he/she is in receipt of a Purchase Order from the Award Authority authorizing the commencement of the Work.

D12.2 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 D7;
 - (ii) evidence of the workers compensation coverage specified in C6.15;

- (iii) the Safe Work Plan specified in D8;
 - (iv) evidence of the insurance specified in D9;
 - (v) the performance security specified in D10; and
 - (vi) the Subcontractor list specified in D11.
- (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.

D12.3 The Contractor shall commence the Work on the Site within seven (7) Working Days of receipt of the Purchase Order.

D12.4 The City intends to award this Contract by April 9, 2012

D12.4.1 If the actual date of award is later than the intended date, the dates specified for Critical tages, Substantial Performance, and Total Performance will be adjusted by the difference between the aforementioned intended and actual dates.

D13. SUBSTANTIAL PERFORMANCE

D13.1 The Contractor shall achieve Substantial Performance by July 3, 2012.

D13.2 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.

D13.3 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.

D14. TOTAL PERFORMANCE

D14.1 The Contractor shall achieve Total Performance by July 16, 2012.

D14.2 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.

D14.3 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.

D15. LIQUIDATED DAMAGES

D15.1 If the Contractor fails to achieve Substantial Performance in accordance with the Contract by the day fixed herein for Substantial Performance, the Contractor shall pay the City one thousand dollars (\$1,000.00) per Calender Day for each and every Working Day following the day fixed herein for Substantial Performance during which such failure continues.

D15.2 The amount specified for liquidated damages in D15.1 is based on a genuine pre-estimate of the City's damages in the event that the Contractor does not achieve Substantial Performance by the day fixed herein for same.

D15.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

D15.4 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

CONTROL OF WORK

D16. JOB MEETINGS

D16.1 Regular weekly job meetings will be held at the Site. These meetings shall be attended by a minimum of one representative of the Contract Administrator, one representative of the City and one representative of the Contractor. Each representative shall be a responsible person capable of expressing the position of the Contract Administrator, the City and the Contractor respectively on any matter discussed at the meeting including the Work schedule and the need to make any revisions to the Work schedule. The progress of the Work will be reviewed at each of these meetings.

D16.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever he/she deems it necessary.

D17. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)

D17.1 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).

MEASUREMENT AND PAYMENT

D18. PAYMENT

D18.1 Further to C12, the City may at its option pay the Contractor by direct deposit to the Contractor's banking institution.

WARRANTY

D19. WARRANTY

D19.1 Notwithstanding C13.2, the warranty period shall begin on the date of Total Performance and shall expire one (1) year thereafter, except where longer warranty periods are specified in the respective Specification sections, unless extended pursuant to C13.2.1 or C13.2.2, in which case it shall expire when provided for thereunder.

D19.1.1 For the purpose of Performance Security, the warranty period shall be one (1) year.

D19.2 Notwithstanding C13.2, the Contract Administrator may permit the warranty period for a portion or portions of the Work to begin prior to the date of Total Performance if a portion of the Work cannot be completed because of unseasonable weather or other conditions reasonably beyond the control of the Contractor but that portion does not prevent the balance of the Work from being put to its intended use.

D19.2.1 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 D10)

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. 215-2012

BUS STOP UPGRADES 2012

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 D10)

(Date)

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

RE: PERFORMANCE SECURITY - BID OPPORTUNITY NO. 215-2012
BUS STOP UPGRADES 2012

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 (1993 Revision), International Chamber of Commerce Publication Number 500.

(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>Specification No.</u>	<u>Specification Title</u>
L1.1	Site Works - Layout Plan
L1.2	Site Works - Layout Plans
L1.3	Site Works - Shelter Layout Plans
TS-2	Design & Layout - 8'x20' Shelters
E1.0	Electrical Plans

GENERAL REQUIREMENTS

E2. CO-ORDINATION WITH OTHERS

- E2.1 The Contractor is to ensure that all electrical work is coordinated with the electrical contractor for shelter and sign installation hired under separate contract by the City of Winnipeg. This is to include, but is not limited to, wiring of new shelters and signs, and connections for new shelters and signs.
- E2.2 The Contractor is to ensure that all signage work is coordinated with the signage work contractor hired under separate contract by the City of Winnipeg. This is to include, but is not limited to, supply and installation of new concrete bases, removal of existing bases, and relocation of electrical conduit.
- E2.3 The Contractor is to ensure that all shelter work is coordinated with the shelter work Contractor hired under separate contract by the City of Winnipeg. This is to include, but is not limited to, supply and installation of new concrete bases, removal of existing bases, and relocation of electrical conduit.

E3. TRUCK WEIGHT LIMITS

- E3.1 The City shall not pay for any portion of Material which results in the vehicle exceeding the maximum gross vehicle weight allowed under *The City of Winnipeg Traffic By-Law*, unless such vehicle is operating under special permit.

E4. PRE-CONSTRUCTION MEETING

E4.1 The Contractor shall not begin the Work under this Contract until a pre-construction meeting has been held between representatives of the Contractor, the City of Winnipeg and the Contract Administrator.

E5. ACCESS

E5.1 Further to C6.3 of the General Conditions, the Contractor shall provide adequate safety protection for pedestrians and vehicular traffic exposed to the Work environment under this Contract.

E5.2 All access is to be on City Streets and as directed by Contract Administrator.

E5.3 Access to the Site as required by the Contractor shall be provided, maintained and restored (to as good as or better than existing condition) by the Contractor at his own expense and approved by the Contract Administrator.

E5.4 The Contractor's operations shall be limited to the minimum area necessary for undertaking the Work and he shall be responsible for all damage resulting from his work on private property. The Contractor shall take such measures as are necessary to ensure safe and convenient pedestrian ingress and egress is maintained to private properties while he is working near them. Any damage caused by the negligence of the Contractor or his Subcontractors to the adjacent works or properties, shall be promptly repaired by him at his own expense, to the satisfaction of the Contract Administrator.

E5.5 All necessary precautions shall be exercised by the Contractor so as not to remove, disturb, or damage any existing trees, shrubs, sod, pavements, streets, roads, boulevards, poles, hydrants, water pipes, gas pipes, electrical wires, cables, conduits, sewers or other existing facilities and equipment at the Site of the Work. For all damage incurred in the performance of the Work (either directly or indirectly), the Contractor shall either replace and repair such damage, whichever may be deemed necessary in the opinion of, and acceptable to, the City and the owners, and the cost of which shall be borne entirely by the Contractor. The Contractor shall also indemnify and save harmless the City from all claims made directly or indirectly against it in respect to any such damage.

E6. SAFETY PRECAUTIONS

E6.1 Further to Section C6.3 of the General Conditions, the Contractor shall provide adequate safety protection for pedestrians and vehicular traffic exposed to the Work environment under this Contract.

E6.2 The Contractor must maintain safe pedestrian access to the Site at all times during construction.

E6.3 The Contractor must restrict vehicular access to the access lanes indicated on the plans and as directed on Site by the Contract Administrator.

E7. SITE CONDITIONS

E7.1 The Contractor and all Subcontractors shall examine the Site and make themselves familiar with the existing conditions (both above and below grade) and nature of Work to be done.

E7.2 Surface and sub-surface conditions shown on the Drawings and included herein are provided for general information and variations there from shall not affect the terms of the Contract.

E7.3 The Contractor shall set all necessary control lines, benchmarks, survey, elevation stakes and layout in accordance with the individual Site conditions and in consultation with the Contract Administrator.

E8. EXISTING UNDERGROUND STRUCTURES

- E8.1 The Contractor's attention is drawn to the existing underground lines or services that may be located in the area of the Work.
- E8.2 The Contractor shall take all necessary precautions when performing the Work to ensure that no damage is done to these existing services.
- E8.3 No responsibility will be assumed by the City for correctness or completeness of the Drawings, when provided, with respect to the existing utilities, pipes or other objects either underground or on the surface; the City shall not be liable for the incorrectness and inadequacy thereof. It shall be the responsibility of the Contractor to determine the location of all such utilities, pipes and other objects and to make good any damage done to them.
- E8.4 All costs in connection with this item including location of the existing service, repairs to any existing services damaged by the construction operation, etc. shall be included in the unit prices bid for supply and installation of the items included under this Contract.
- E8.5 The Contractor will be required to make his own arrangements in connection with the temporary use of lighting, power, gas, sewer, water or other utilities, and pay all costs in connection therewith.
- E8.6 All necessary permits, fees and other like expenses as well as the cost of temporary connections to existing facilities shall be arranged and paid for by the Contractor.

E9. PRODUCT APPROVALS

- E9.1 The Contractor shall, following award, prepare a complete list of all material to be used on the project and submit the list to the Contract Administrator 72 hours prior to start of construction.
- E9.2 The Contractor shall only use material which has been approved by Specification CW3710 or by the Contract Administrator. The list shall give the product, the manufacturer and the supplier.
- E9.3 Other than required to be done by the Contractor under the Work of this Contract, all necessary precautions shall be exercised by the Contractor so as not to remove, disturb, or damage any existing plant material, pavements, streets, roads, boulevard, poles, hydrants, water pipes, gas pipes, electrical wires, cables, conduits, sewers or other existing facilities and equipment at the Site of the Work. For all damage incurred thereto in the performance of the Work, the Contractor shall upon instructions from the Contractor Administrator and to the satisfaction of the City, either replace or repair such damage, whichever may be deemed necessary in the opinion of, and acceptable to, the City. All costs of replacement or repair shall be borne entirely by the Contractor. The Contractor shall also indemnify and safe harmless the City from all claims made directly or indirectly against it in respect to any such damage.
- E9.4 All workmanship and materials furnished and supplied under this Specification are subject to close and systematic inspection and testing by the Contract Administrator. The Contract Administrator reserves the right to reject any materials or Works which are not in accordance with the requirements of the Specifications.
- E9.5 The Contractor shall wholly be responsible for the supply, safe storage, and handling of all materials set forth in this specification, and the control of all operations incidental thereto notwithstanding any inspection or approval that may have been previously given.

E10. DAMAGE TO STREETS AND STRUCTURES

- E10.1 The Contractor's attention is drawn to the following existing Site features to be retained and protected to the City of Winnipeg Standards:

- | | | |
|------------------|-------------------|---------------------------|
| a) trees, shrubs | e) light standard | i) hydro towers and poles |
| b) curbs | f) fire hydrants | j) catch basins |

c) sidewalk
d) sod

g) street signs
h) signal poles

k) curb inlets
m) underground services including
land drainage sewer

E11. PERMITS, NOTICES, LICENCES, CERTIFICATIONS, LAWS AND RULES

E11.1 The Contractor shall give all necessary notices, obtain all necessary permits and pay all fees in order that the Work may be carried out. The Contractor shall submit all plans required by any inspection authority and obtain approval of same before proceeding with the Work, and pay any cost attached to the inspection of such plans.

E11.2 The Contractor shall comply with all laws, ordinances, rules, and regulations that would relate to the Works.

E12. SIGN SUPPORT CLAMPS

E12.1 The Contractor shall install all new sign support clamps at the locations as shown on the Drawings or as directed by the Contract Administrator. The City shall supply all sign support clamps.

E12.2 All existing sign support clamps removed during construction are to be replaced or returned to the City if not required.

E12.3 All costs in connection with the installation of sign support clamps are incidental to the unit prices bid.

E13. ADJUSTMENT OF PAVEMENT AND BOULEVARD STRUCTURES

E13.1 Further to CW 3210 all existing surface utilities within the area of new sidewalk, interlocking paving and full depth patching of existing pavement are to be adjusted to meet finish grades.

E13.2 Adjustment of pavement and boulevard structures is incidental to the Work with the exception of manholes, catch basins and curb and gutter inlets noted on the drawings as requiring significant adjustment. The adjustment of these structures is to be measured and paid for at the contract unit price per unit adjusted in accordance with CW 3210 including replace, remove or add precast concrete riser sections and compacted granular backfill as required.

E13.3 All surface utilities are to be provided with cast in place concrete isolation collars as per standard City of Winnipeg details and as per the Drawings. Collar dimensions and forms are to be confirmed on Site by Contract Administrator prior to construction. Installation of new and renewal of existing isolation collars are incidental to the Work.

E14. REMOVALS

E14.1 Further to Specification CW 3110 and due to the extent and nature of underground services in the street right-of-way, the Contractor shall be permitted to use only backhoe type equipment when excavating sub-grade material.

E14.2 Further to Specifications CW 3230 and CW 3235, the Contractor shall sawcut and remove existing concrete sidewalk paving as shown on the Drawings and as directed by the Contract Administrator. The removal shall include all existing concrete and base course where applicable.

DESCRIPTION

E14.3 This Specification shall cover the removal and/or relocation of existing:

- (a) Concrete sidewalk;
- (b) Patio slabs;
- (c) Asphalt;

(d) Shelters;

- E14.4 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all Work hereinafter specified.

EQUIPMENT

- E14.5 All equipment shall be of a type approved by the Contract Administrator and shall be kept in good working order.

CONSTRUCTION METHODS

- E14.6 The Contractor shall restrict his activities strictly to within the limits of the Works, unless receiving prior written approval from the Contract Administrator.
- E14.7 The Contractor shall breakout, remove and dispose of existing concrete shelter base for installation of new including protection of existing wiring and conduit for use in new base.
- E14.8 The Contractor shall remove, patio slabs where shown on the drawings. Disposal of sand setting bed and base as required for new construction is incidental to the Work.
- E14.9 Contractor to relocate existing waste receptacles and benches to remain as shown on the drawings. Store in safe location during construction. Relocation of site furniture is incidental to the Work.
- E14.10 The Contractor shall ensure that upon completion of the removal operations, the Site shall be left free of any hazardous depressions and in a neat condition.
- E14.11 If required and at locations directed by the Contract Administrator, the Contractor shall excavate and remove unsuitable subgrade material and replace it with compacted granular material in accordance with Specification CW3110.

MEASUREMENT AND PAYMENT

- E14.12 Removal of concrete sidewalk paving will be measured and paid for at the contract square metre price for "Sawcut, remove and dispose of concrete sidewalk", measured as specified herein, which price shall be payment in full for supplying all materials and performing all operations herein described and all other items incidental to the Work included in this Specification.
- E14.13 Removal, stockpiling and delivery of existing patio slabs will be measured and paid for at the contract square metre price for "Remove and deliver patio slabs", measured as specified herein, which price shall be payment in full for supplying all materials and performing all operations herein described and all other items incidental to the Work included in this Specification.
- E14.14 Removal of asphalt will be measured and paid for at the contract square metre price for "Remove and dispose of asphalt", measured as specified herein, which price shall be payment in full for supplying all materials and performing all operations herein described and all other items incidental to the Work included in this Specification.
- E14.15 Relocation of existing shelter shall be measured on a unit basis. The number to be paid for shall be the total number of units placed in accordance with this Specification and the Construction Drawings, as determined by the Contract Administrator.

E15. EXCAVATION AND SITE GRADING

GENERAL

- E15.1 The "General Conditions and Supplemental Conditions" of this Specification and all documents listed in the Tender shall apply to and govern all phases of the Work hereinafter specified and/or shown on the Drawings.

SCOPE OF WORK

- E15.2 The Work of this section comprises the furnishing of all labour, equipment and materials required to complete the Site grading and related Work including, but not necessarily confined to, the following:
- (a) Excavation and Grading of the existing Site to the design requirements noted on the Drawings, approved on Site by the Contract Administrator, less the appropriate surface finish allowance.

PROTECTION

- E15.3 Prevent damage to surface or underground utility lines, sods, existing trees to remain, etc. which are to remain. The Contractor shall take special care to protect the existing trees, including root systems and trunks. Make good any damage.

REMOVALS

- E15.4 The Contractor shall restrict his activities strictly to within the limits of the Works, unless receiving prior written approval from the Contract Administrator. The Contractor shall take all precautions to prevent damage to traffic structures, pole lines, adjacent property and he shall be liable for any damages occurring in the performance of this Work.
- E15.5 The Contractor shall load and haul all rubbish and all other surface litter from the Site and dispose of these materials at dumps located by the Contractor and approved by the Contract Administrator. Any materials dropped or spilled on any streets during the hauling operations shall be promptly cleaned up by and at the expense of the Contractor, to the satisfaction of the Contract Administrator.
- E15.6 The Contractor shall ensure that upon completion of the removal operations, the Site is left in a neat condition free from debris, etc.

MATERIALS

- E15.7 Excavated or graded material to be approved before use as fill for grading work. Protect such approved material from contamination.

EARTHWORK AND GRADING

- E15.8 The Contractor shall construct the Site within the limits indicated to the design elevations and gradients noted on the Drawings, less the appropriate surface treatment depths specified and shall excavate, remove and dispose of all unsuitable materials of whatever nature encountered.
- E15.9 The Contractor shall construct all subgrades in accordance with Specification CW 3110. This shall include the use of sheep's foot or other suitable compaction equipment as approved by the Contract Administrator to achieve a minimum compaction of 98% Standard Proctor Density below concrete sidewalk, and 95% Standard Proctor Density in all other areas disturbed under this Contract.
- E15.10 The Contractor is advised that there may be a surplus of fill on the Site after the design subgrade level has been achieved. All surplus material will be disposed of as previously stated. No direct payment will be made for disposing of surplus fill as all costs for this Work shall be included in the lump sum price for Excavation and Grading.
- E15.11 Following earth moving, rough grading and compaction, the Work areas shall be fine graded to provide a maximum deviation of 50mm in 10m from the design grade with no low areas that hold water. The finished surface of all disturbed areas shall be dragged and smoothed in such a manner that there are no loose soil particles greater than 50mm in maximum dimensions.
- E15.12 The Contractor shall construct the subgrade surface to the following depths below the design grades shown on the Drawings for each area:

- | | | |
|----|------------------------------------|-------|
| 1. | Sod | 100mm |
| 2. | Concrete Sidewalk | 150mm |
| 3. | Concrete Sidewalk with Unit Paving | 223mm |

E15.13 The Contractor is advised that all Work under this section is incidental to the unit prices bid under this contract.

E15.14 All work covered under this specification is incidental to unit prices bid for:

- (a) Concrete sidewalk;
- (b) Topsoil and sod.

E16. CAST-IN-PLACE CONCRETE

GENERAL

E16.1 The "General Conditions and Supplemental Conditions" of this Specification and all documents listed in the Quotation shall apply to and govern all phases of the Work hereinafter specified and/or shown on the Drawings.

WORK INCLUDED

E16.2 The Work of this section comprises the furnishing of all labour, equipment and materials required to complete the supply and installation of cast-in-place concrete slabs and footings as shown on the drawings and as hereinafter specified, including, but not necessarily confined to the following:

- (a) Excavation.
- (b) Granular Fill work as required.
- (c) Supply, erection and removal of all formwork as required.
- (d) Design of concrete mixes.
- (e) Supply, placing and curing of concrete of base for heated shelters as shown on the Drawings. Co-ordinate manufacturer of sign structure as required.
- (f) Supply, placing and curing of concrete base for power pedestal. Co-ordinate manufacturer of pedestal.
- (g) Co-ordination of the installation of all electrical and other items to be installed in the concrete works by other trades.
- (h) Detailing, supply and placing of reinforcing.
- (i) Clean-up.

MATERIALS

E16.3 Concrete for cast-in-place power pedestal and shelter, as follows:

Cement: Type 50
Max. Coarse Aggregate: 20mm
Min Compressive Strength at 28 days +35Mpa
Min. Cement Content: 310 kg/cu.m
Max. Water Cement Ratio: 0.45
Class of Exposure: C-2
Max. Slump: 90mm ± 20mm
Air Content: 5 to 8%
Flyash content: Max. 15% of Cementitious Material

E16.4 Fine aggregate shall consist of natural sand or manufactured sand and shall conform to all requirements of CAN3.A23.1.

- E16.5 Coarse aggregate shall consist of hard, strong, uncoated durable particles of crushed stone, gravel or approved combination thereof and shall be free from an excess of thin, elongated or soft pieces, frozen lumps, vegetable matter or other deleterious matter, and shall conform with all the requirements of CAN3-A23.1. Maximum size of coarse aggregate shall be 20 mm.
- E16.6 Water for concrete shall be clean and free from injurious amounts of oil, acid, alkali, salts, silt, organic matter or other deleterious matter. The quality of the water shall be equal to or better than that of potable water.
- E16.7 A non-detergent type of air-entraining admixture, supplied in liquid form, shall be metered into the mix. The total air in the placed concrete shall be 5 – 8%
1. Reinforcing steel shall be grade 400 deformed bars. Detailing of reinforcing steel shall be in accordance with ACI 315. All bars, which require bending, shall be bent in shops.
- E16.8 All reinforcing steel shall be straight, clean and free from paint oil, mill scale, excess rust and any injurious defects, which may affect its strength or bond.
- E16.9 Ends of reinforcing steel intended for bonding that are to be left exposed for some time shall be protected from injury, oils or moisture.
- E16.10 Bonding agent shall be Sternson ST 431 Epoxy Bonding Agent.
- E16.11 The City may engage a fully qualified Inspecting Engineer and Testing Laboratory to:
- (a) Inspect the pile excavations to determine that they have been augured to the specified depth, are of the specified size, are clean and level, and meet the design criteria.
 - (b) Take test cylinders during concrete placing and carry out compression tests to determine whether concrete produced complies with these Specifications.
 - (c) Take compaction tests of compacted granular subbase and subgrade material.
 - (d) Submit reports to the Contract Administrator of all materials, concrete, and caisson tests and inspections.
- E16.12 Three concrete test cylinders to be taken for pile cast. One cylinder from each group shall be tested at 7 days, one at 14 days and the remainder at 28 days. Sampling and testing procedures shall be according to CAN3-A23.1 latest edition.
- E16.13 Anchor bolts to be stainless steel bolts in sizes, quantity and shape as shown on the Drawings and as required by sign manufacturer. Anchor bolts to include nuts and washers for base installation. Ensure bolts are installed as per sign manufacturer's requirements. Supply and installation of anchor bolts is incidental to the unit prices bid for concrete bases

CONCRETE BASES

- E16.14 The concrete base shall be cast no later than 24 hours after the excavation has been completed.
- E16.15 The reinforcing cage shall be placed in the pile excavation prior to starting the concreting. Spacers shall be provided to keep the reinforcing cage in its correct location.
- E16.16 Reinforcement shall be clean, and free from all coatings, including ice, loose rust, dried concrete, which tend to reduce bond.
- E16.17 Reinforcement shall be formed accurately and secured in pile shaft and to required ties and spacers with annealed wire ties or suitable clips so that position and concrete cover, as called for on drawings is assured.
- E16.18 Reinforcing bars kinked, twisted, bent past a right angle, or reduced in cross section, will be rejected.
- E16.19 Concrete consistency shall be such that concrete works readily into corners and around reinforcement without segregation of materials or the collection of free water on the surface.

- E16.20 Do not place concrete until excavations have been inspected.
- E16.21 Place concrete using "elephant trunk" or special chutes which will prevent segregation of materials, ensure a practically continuous flow of concrete at the delivery end, and limit the vertical height of free fall of the concrete to 3 metres.
- E16.22 Concrete placing shall be continuous from bottom to top of base, and puddling or rodding carried on constantly to bring air bubbles to the surface and produce a uniform, homogeneous structure.
- E16.23 Mechanical vibration shall be carried out continuously during placing of concrete in piles.
- E16.24 Work concrete completely around reinforcement by rodding, spading and mechanical vibration. Vibrators shall vibrate at not less than 5000 impulses per minute and shall be operated by personnel experienced and qualified in their use.
- E16.25 Finish exposed base tops smooth and level at elevations shown on Drawings.
- E16.26 Concrete shall be kept moist for at least the first 7 days after placing and the temperature of the concrete maintained above 10°C during this time.
- E16.27 If upper soil stratum is dry and there is danger of the concrete losing moisture thereto, water shall be added to the soil by forming a depression around the base top and ponding continuously for a period of 7 days.
- E16.28 Whenever the temperature of the surrounding air is below or is likely to fall below 5°C during the 4 day period immediately following concrete placing, artificial heating, housing and/or protective covering shall be provided for the pile tops to maintain concrete temperature at or above 10°C.
- E16.29 No dependence shall be placed on salt or other chemicals for the prevention of freezing.

PLACING OF CONCRETE FOR SLAB

- E16.30 Placing of concrete shall be in accordance with CAN3-A23.1
- E16.31 No concrete shall be placed until formwork, insulation, reinforcing steel, sleeves, hangers, anchors, inserts, etc., required to be built into the concrete have been inspected by the Contract Administrator.
- E16.32 Before placing concrete on bearing strata, notify the Contract Administrator so that she may make an inspection of the exposed bearing surface.
- E16.33 No concrete shall be placed in water or upon frozen surfaces.
- E16.34 Before placing any concrete, all debris shall be removed, forms shall be thoroughly oiled except where form oil will be detrimental to the finished surface. Equipment shall be cleaned or of hardened concrete and foreign material.
- E16.35 All concrete shall be thoroughly vibrated during pouring. Precautions shall be taken to prevent separation or loss of ingredients while transporting the concrete. At no time shall concrete be allowed to a free fall of more than 1.5 m.
- E16.36 Conveying equipment shall be on temporary runways built over the floor system and runway supports shall not bear upon the fresh concrete.
- E16.37 Placement of concrete shall be carried out as a continuous operation until the placing of an individual section is completed. Concrete shall be carefully worked around reinforcement and embedded fixtures, along surfaces and into corners of forms. Vibrators shall be used, and operated under experienced supervision; forms must be constructed to withstand their action.
- E16.38 The Contractor is advised that no joints will be allowed in the slab except as directed on Site in conjunction with the Contract Administrator.

COLD WEATHER CONCRETING

- E16.39 The protection of concrete and concreting operations during cold weather shall be in accordance with CSA A23.1
- E16.40 Equipment for heating concrete after placement must be in operation before pouring is commenced. Provide sufficient thermometers to be placed in accordance with the Contract Administrator's instructions. Tarpaulins shall not be placed directly on the surface of slabs. Indirect light units only shall be used.

CLEAN UP AND DAMAGE

- E16.41 Immediately on completion of base, shelter base, and slab, Contractor shall remove from Site all equipment, timbers, shores, excavated material, unused concrete, rubbish, etc., caused by his operations, and leave the Site clean.
- E16.42 The Contractor shall be responsible for making good all areas damaged by his operations in connection with this Contract regardless of the limits of the Contract as shown on the Drawings.

MEASUREMENT AND PAYMENT

- E16.43 Supply and Installation of concrete base for power pedestal will be measured and paid for at the contract unit price per item for "Supply and install concrete base for power pedestal", measured as specified herein, which price shall be payment in full for supplying all materials and performing all operations herein described and all other items incidental to the Work included in this Specification.
- E16.44 Supply and Installation of concrete base for heated shelters will be measured and paid for at the contract unit price per square metre for "Supply and install concrete base for heated shelters", measured as specified herein, which price shall be payment in full for supplying all materials and performing all operations herein described and all other items incidental to the Work included in this Specification.

E17. CONCRETE FILLED STEEL BOLLARD

DESCRIPTION

- E17.1 Work under this section shall include all labour, materials, equipment and services necessary for the installation of:
- (a) Concrete Filled Steel Bollard

GENERAL DELIVERY AND STORAGE

- E17.2 Store units in a protected location immediately upon arrival on the Site.
- E17.3 Remove and replace any units which have been damaged during transportation.

PRODUCTS

- E17.4 Concrete Bases specified under Section E16 of this Specification.

MATERIALS

- E17.5 Steel pipe for bollards shall be 150mm diameter Schedule 40 steel pipe, 1210mm long c/w 75mm long, 12.5mm dia. steel bar anchors welded to base of pipe at 90 degree angle.
- E17.6 Hot-dipped galvanized after fabrication.
- E17.7 Paint black after galvanizing process. Use approved paint and primer.

INSTALLATION

- E17.8 Bollards shall be installed in locations as indicated on the Construction Drawings.
- E17.9 Bollards to be installed as per City of Winnipeg Specifications and details.
- E17.10 Protect and maintain Bollards, including accessories, until acceptance of project Work.
- E17.11 Immediately remove from Site, damaged furnishing and accessories. Replace, repair, re-finish, or otherwise make good to approval of Contract Administrator.

MEASUREMENT AND PAYMENT

- E17.12 The supply and installation of Steel Bollards will be measured on a unit basis for each item, as follows:
 - (a) Supply and Install Concrete Filled Steel Bollard
The number to be paid for will be the total number placed in accordance with this Specification and accepted by the Contract Administrator, as computed by the Contract Administrator.
 - (b) The supply and installation of Steel Bollards will be paid for at the Contract Unit Price for each item, which price shall be payment in full for supply of all materials and performing all operations herein described and for all other items incidental to the Work included in this Specification as follows:
- E17.13 Supply and Install Concrete Filled Steel Bollards

E18. CONCRETE SIDEWALK

- E18.1 All Work in this section shall be to City of Winnipeg Specification CW 3325 for Supply and Installation of Concrete Sidewalk.
- E18.2 Blockouts for all paving bands in sidewalk to be constructed as per the Drawings. All forming is incidental to the unit price bid for concrete sidewalk.
- E18.3 Thickened edge of sidewalk will be incidental to the unit prices bid for concrete sidewalk.
- E18.4 Where concrete sidewalk is to be installed as an overlay over existing concrete a bonding agent is to be used to ensure adhesion of concrete overlay to substrate. Concrete overlay is to be a minimum of 73mm thick and the surface elevation is to match the existing adjacent paving.

MEASUREMENT AND PAYMENT

- E18.5 Supply and installation of concrete sidewalk will be measured and paid for at the contract square metre price for "Supply and install concrete sidewalk", measured as specified herein, which price shall be payment in full for supplying all materials including compacted base course as required and performing all operations herein described and all other items incidental to the Work included in this specification.

E19. CONCRETE CURB RENEWAL

- E19.1 All work to be in accordance with CW 3240.

MEASUREMENT AND PAYMENT

- E19.2 Further to CW 3240 item 4.3 Concrete Curb Renewal:
 - E19.2.1 Items of work:
 - E19.2.2 Concrete Curb Renewal
 - (i) 150mm ht. Barrier Curb as per SD 206A

E20. TRANSIT PASSENGER SHELTERS

DESCRIPTION

- E20.1 The Work of this specification comprises the furnishing of all labour, equipment and materials required to complete the supply, fabrication and erection of the transit passenger shelters and related Work as shown on the Drawings and as hereinafter specified, including, but not necessarily confined to the following:
- (a) Supply and installation of heated shelters as per design Drawings.
 - (b) Coordination with electrical contractor for disconnect of existing shelters and reconnect of new and relocated shelters.
 - (c) Coordination with site works contractor.

GENERAL DELIVERY AND STORAGE

- E20.2 The fabrication and installation of shelters as specified in this Section shall include the following:
- (a) Contractor to examine existing concrete base prior to removal of existing shelter and determine if size of base is adequate for new shelter installation;
 - (b) Any existing fixtures remaining in the concrete base must be removed and the concrete repaired in a manner approved by the Contract Administrator;
 - (c) Drill existing concrete base and install all columns, glazing, doors, roof structures, and lighting units; and
 - (d) Provide electrical wiring, diagrams for wiring and access for lighting and heaters to electrical contractor. All wiring runs must be hidden from view within the shelter structure and must be vandalism proof.
 - (e) Provide a detailed parts list to Winnipeg Transit including product number, product description, colour and options for all components of the shelters.

- E20.3 Prior to proceeding with shop fabrication, take all necessary field measurements to verify dimensions or calculations from Drawings.

DESIGN / SHOP DRAWINGS

- E20.4 The Contractor shall submit dimensioned detailed design drawings within five (5) Business Days when called by the Contract Administrator. The drawings shall show all details of construction, fastenings, lighting, materials and colours for each shelter type.
- E20.5 The Contractor shall submit stamped engineer's drawings by date indicated in the Critical Stages. Engineer's drawings shall show all details of construction and fastenings for erections and shall be as specified or approved.
- E20.6 The Contractor must provide a complete set of shelter assembly instructions for each shelter with a Section in English within five (5) Business Days when called by the Contract Administrator.

MATERIALS

- E20.7 The shelters must include fully transparent walls using glazing panels with a minimum of structure between glazing panels as shown on the Drawings.
- E20.8 Glazing is to be tempered glass, minimum 3/8" (in) thickness, designed for outdoor glazing use. A full width horizontal blue safety line at approximately the middle of the glazing, minimum 1" (inch) in height, must be included on all sheets. "**No Smoking**" logo should be incorporated into the glazing on all walls.
- E20.9 The shelters are to be equipped with translucent barrel vaulted roofs of 1/4" (in) gray tint polycarbonate.

- E20.10 The shelters structural components must be aluminium, with columns to be ¼" (in) thick aluminium 6061-T6 structural tubing, cut sheet plates to be aluminium 6061-T6, and torsion bars to be aluminium 6360-T6. Diameter of posts and torsion bars as per shelter size.
- E20.11 All fasteners and all mounting hardware use to fasten the shelter to the concrete base at ground level must be stainless steel or approved equal in accordance with B6.
- E20.12 The shelter legs must include a base plate with adjustable stainless steel bolts and rods for levelling to accommodate installations on poured concrete pads with imperfections or the slope of the pad surface. Adjustment capabilities must be a minimum of 6" (in). Shelter mounting to the concrete base must meet all applicable codes and regulations governing structures in the public right-of-way
- E20.13 Convection heaters are to be DBS Sloped Aluminum Draft Barrier 2.4m long DBS24202CA–2000 watt, 240 volt clear anodized Stelpro with DBST12 anti-vandal thermostat and all required relays for linking heaters together. One heater per bench in heated shelters.
- E20.14 Heated shelters must have aluminium skirting between the glass and the concrete shelter pads to prevent the entry of wind around the perimeter. The bottom perimeter skirting must be designed with sufficient opening to allow water to drain out of the low side of the shelter. The skirting must allow for easy removal with simple hand tools to allow the quick replacement of glass panels.
- E20.15 Heated shelters have electric lighting fixtures; two (2) self-ballasted mini-spiral lamps 13W 120V 60Hz 225mA housed inside a light channel with a white translucent polycarbonate panel that follows the curvature of the roof line. Number of channels varies with shelter size. All lighting materials and fixtures installed in the shelters shall be CSA compliant and installed in a manner that meets all Canadian electrical codes.
- E20.16 Benches for heated shelters are to be stainless steel 304 or better with mounting brackets for heaters as per the Drawings. Contractor to provide shop drawings for all components.
- E20.17 Door closures shall be LCN 4040 Super Smoothie Series (certified under ANSI Standard A156.4, grade one, UL and ULC listed) with all weather hydraulic fluid tested from -130 F to 130 F manufactured by LCN Closures PO Box 100 121 W. Railroad Ave. Princeton, Illinois 61356-0100. Contact Noble Locksmith Limited at (204) 942-3703 for more information.
- E20.18 8' x 20' passenger shelters:
- (a) The Contractor shall provide all 6" diameter columns, glazing, roof structures (including torsion bars and connecting fins), fasteners and supplies necessary for the installation of 8' x 20' shelter on site on concrete bases.
 - (a) The 8' x 20' dimensions are nominal outside roof dimensions, the actual length and width dimensions may vary by ± 9 inches. Minimum headroom within shelter and at entrances must be 84 inches.
 - (b) The shelters must be equipped with two (2) doors, glazing with aluminium trims on top and bottom only, pivots and door handles. Door handles are to be jug handle type on inside to allow for pulling the door open and flat plate type on outside to allow for pushing the door open. Door configuration for each location to be as specified on the Drawings or as directed by the Contract Administrator. Doors may be on any wall, shelter design is to be flexible in adjusting for Site conditions. Doors to be hinged, on pivot type hinges, to open inwards, with door closures. Safety stops are to be provided at the top and bottom of the door attached to the shelter frame and / or mounted to the concrete base to prevent damage to walls during opening and closing. Doors are to be equipped with door fibre brush sweeps on bottom. Doors to be 36 ¾" wide x minimum 82 7/8" tall.
 - (c) 8'x20' shelters to have two (2) benches and two (2) heaters.
 - (d) 8'x20' shelters to have two (2) light channels inside the shelter.

CLEAN MATERIAL

E20.19 All aluminium and steel components shall be free of oil, mill scale, rust, pits and other surface defects. All weld splatter and burrs must be ground smooth.

WORKMANSHIP

E20.20 Proportion items to meet the National Building Code, the Manitoba Building Code and local conditions specifically relating to wind and snow loading. Items shall support loads recommended by the Code unless specific loads are indicated on the Drawings.

E20.21 Fabricate all Work to shape and size with sharp lines, angles and smooth surfaces as defined in the Drawings. Connections shall be securely welded, bolted or riveted. Welds shall be dressed smooth on exposed surfaces. Rabbets, lugs and brackets shall be provided so that the Work can be assembled in a neat substantial manner. Thickness of metal and design of assembly and support shall give ample strength and stiffness.

E20.22 All portions of the Work shall be neatly finished. Exposed ends and edges of metal shall be smooth. The shelters wall, roof and joints exposed to the weather shall be formed to exclude water or to drain.

E20.23 Insofar as possible, the Work is to be fitted and assembled in the Contractor's shop and delivered to the Site in largest practical sections.

E20.24 Fabricate Work in strict accordance with shop drawings. Shop Drawings are to be based on details, sizes, materials shown on Drawings and specified herein.

E20.25 Welding: All welding shall conform to the requirements of the current CSA Standard W.59 and the fabricator shall be fully approved by the Canadian Welding Bureau, in conformance with the requirements of the current CSA Standard W.47. Welding shall be done by currently licensed welders only and certified to design welds.

E20.26 Manufacturer shall be a member of the Canadian Welding Bureau, or governing body where manufacture is in another country, and certified to design welds

E20.27 Welding splatter and other fabrication burrs where exposed shall be ground or filed smooth and left ready for subsequent operations.

E20.28 Assembly: Material intended for use in the various assemblies shall be straight, clean, sharply defined profiles, assembled in such a way that no disfigurements will show in the finished work, or impair the strength.

E20.29 Finish: Fabricated material Work shall be delivered with shop coat primer paint or E coated and other paint finish as specified. Following installation, apply a touch up coat of shop primer or galvanizing and paint to match finish to all surfaces where finish has been removed and to installation devices such as bolts, screws, welds and the like.

QUALITY CONTROL

E20.30 All workmanship and all material furnished and supplied under this Section 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 Section.

FABRICATION

E20.31 Fabrication shall be carried out in accordance with these Specifications and Drawings which form a part of this Contract.

E20.32 The shelters must be designed to stand without any glazing.

- E20.33 The shelter must be constructed to resist damage from vandalism and must be simple to maintain and clean.
- E20.34 The shelters must be designed for easy assembly and must not require any drilling, thread tapping, welding, or painting of structural members or glazing support fixtures.
- E20.35 Fasteners used in accessible locations must be of tamper proof design.
- E20.36 Connection plates between shelter roof and columns must be easily accessible and not enclosed.
- E20.37 The Shelter end caps of the roof are to be aluminium big fin assemblies.
- E20.38 Roofs must be shipped to site fully assembled and sealed.

PAINTING

- E20.39 Shelters and components, except for glazing and polycarbonate, must be powder painted as all units will be installed in a corrosive environment., Colour to be PM211S11 (sparkle silver) by Protech.
- E20.40 Clean all metal thoroughly and apply recommended primer.
- E20.41 All aluminium shall be sanded prior to powder painting.
- E20.42 Apply all materials under adequate illumination, spread evenly and flow on smoothly without runs or sags.
- E20.43 All coats must be thoroughly dry before applying succeeding coats.
- E20.44 All Work where a coat of material has been applied must be inspected and approved by the Contract Administrator before the application of the succeeding specified coat, otherwise no credit for the coat applied will be given, and the Contractor shall then assume the responsibility and recoat the Work in question. Report each coat applied to the Contract Administrator when completed for inspection and approved to comply with the above. Where manufacture is not in Winnipeg the Contractor is to supply digital photos via email of each step for review and approval prior to proceeding to next step.

INSTALLATION AND CO-ORDINATION WITH OTHERS

- E20.45 The Contractor is advised of the following:
 - (a) The Contract Administrator will notify the Contractor of installation date of each location with a minimum of three (3) working days prior to installation. Contractor is to have a listing of all completed and pending work prepared for each site meeting.
 - (b) Contractor to coordinate with electrical contractor and site contractor for removal or relocation of existing shelter and installation of new shelters.
 - (c) All new shelters to be installed on existing bases. Salvage existing bolt assemblies for reuse.
 - (d) Contractor to coordinate electrical connection for heaters, including all necessary coring, trenching, conduit, wiring, and backfill and surface repair as per the Drawings.
 - (e) Any damage to the shelters, incurred during fabrication, delivery, installation etc., is to be repaired to the satisfaction of the Contract Administrator within three (3) working days of installation at the Contractors cost.
 - (f) The Contractor is to work cooperatively with any other City crews or Contractors working in the same area(s).
 - (g) Contractor not to undertake Work in bus stop areas during the rush hour time periods between 06:00-09:00 and 15:00 -18:00.

- (h) Contractor to supply a field repair kit including primer, paint, custom fastenings, and hardware to Winnipeg Transit for each shelter installed.

PROJECT MANAGEMENT

- E2.7 Further to D4, in addition to the Contractor's supervisor, the Contractor is to ensure that a qualified representative of the manufacturer who participated in the design of the shelters and signs is in attendance at the meetings listed herein and as requested by the Contract Administrator during construction.
- E2.8 The manufacturer's representative is to have full authority to make changes to the designs and knowledge to adjust design requirements in the field.
- E2.9 The manufacturer's representative is to be in Winnipeg for:
 - (a) delivery, installation and review of prototypes;
 - (b) site meetings twice per month during installation of shelters and signs;
 - (c) substantial performance inspection;
 - (d) total performance inspection.
- E2.10 Provision of any personnel by the Contractor is incidental to the unit prices bid and no separate measurement or payment will be made.

DELIVERY AND STORAGE LOCATION

- E2.11 The Contractor shall be responsible for the storage of boxes and heated shelters in a protected site immediately upon arrival in Winnipeg. The location of this protective storage site is to be determined by and is the responsibility of the Contractor. The Transit Base and Yard will **NOT** be available for storage.
- E2.12 Contractor to store existing shelters that have been removed and salvaged for reinstallation in same location as new shelters.
- E2.13 The Contractor shall remove any units which have been damaged during transportation and replace them.
- E2.14 Delivery and storage by the Contractor is incidental to the unit prices bid and no separate measurement or payment will be made.

METHOD OF MEASUREMENT

- E2.15 Supply and installation of heated shelters shall be measured on a per item basis as specified herein and as measured and accepted by the Contract Administrator.

BASIS OF PAYMENT

- E2.16 Supply and installation of heated shelters will be paid for at the contract unit price for 'Supply and install heated shelters' measured and specified herein, which price shall be payment in full for performing all operations herein described and all other items incidental to the Work included in this specification.

E21. TOPSOIL AND FINISH GRADING

- E21.1 All Work to be to CW 3510.

MEASUREMENT AND PAYMENT

- E21.2 There shall be no separate measurement for the Work associated with this Specification.
- E21.3 Payment for Work specified under this Specification is to be included with the price for Sodding.

E22. SODDING

E22.1 All Work to be to CW 3510.

MEASUREMENT AND PAYMENT

E22.2 Sodding will be measured on an area basis. The area to be paid for shall be the total number of square meters sodded and maintained in accordance with this Specification and accepted by the Contract Administrator, as computed from measurements made by the Contract Administrator. Sodding will be paid for at the Contract Unit Price per square metre for 'Supply and Install Sod', measured as specified herein, which price shall be payment in full for completing all operations herein described and all other items incidental to the Work included in this Specification.

E23. ELECTRICAL WORKS

GENERAL PROVISIONS

E23.1 Refer also to Drawings.

E23.2 Disconnect all shelters and signs on Site to be relocated or removed. Coordinate with signage and site works contractors for timing of work and site access requirements.

E23.3 All sites to be left in a safe manner for installation of new Work.

E23.4 Furnish all labour, new material, equipment and services for the complete installation of the electrical Work as shown on the plans and specified. Complete system to operate to total satisfaction of the responsible professional engineer.

E23.5 Conform with all Codes and pay all permits and Fees. Upon completion, present a "Certificate of Approval" for electrical Work from the Inspection Department.

E23.6 Examine the Site and local conditions affecting the Work under this contract.

E23.7 Install all Work promptly and in advance of concrete pouring and/or construction.

E23.8 The Contractor shall be responsible to make good all "Cutting and Patching" required by his section of the Contract. Include all trenching, backfilling and surface repair. Contractor to push wires where possible at all locations.

E23.9 All Work shall be executed in a first class and workmanlike manner. All supports, hangers, and securing devices shall be solid and substantial. All Work shall be laid out neatly in its mechanical appearance. It shall be logically arranged for simplicity of installation and accessibility.

E23.10 Provide corrected "as-built" drawings on completion of the project. All underground services shall be indicated on as-builts and dimensioned.

E23.11 Provide shop drawings for approval of all major electrical items. Provide three (3) copies of manufacturers maintenance instructions bound in hard covered book for each piece of major electrical equipment.

E23.12 Identify circuits/equipment with lamacoid nameplates.

E23.13 All electrical apparatus shall be properly grounded according to the latest edition of the "Canadian Electrical Code"

E23.14 All equipment, wiring, conduit, grounding, seals, etc., shall be in compliance with the latest edition of the "Canadian Electrical" and local "Codes". Wiring in finished grade shall be in rigid PVC conduits, complete with ground conductor.

- E23.15 Wiring shall be copper, RWU-90, insulated, minimum #12 AWG.
- E23.16 Wire and connect to signs and shelters where indicated. Provide lockable, weatherproof disconnect switches for each sign as shown on the drawings. Locate as directed on Site.
- E23.17 Co-ordinate installation with Manitoba Hydro and City of Winnipeg. Installation to conform with all utility requirements.
- E23.18 Obtain all permits and inspections. Provide copies of all paperwork to the Contract Administrator prior to completion of the Work.
- E23.19 Installation of signs and shelters will be provided under separate contract. Coordinate for electrical connection requirements and timing of installation.
- E23.20 Provide ground rod and grounding connections to suit Manitoba Hydro and City of Winnipeg Inspection Department.
- E23.21 All distribution equipment to be weather proof.
- E23.22 The Contractor shall carefully examine all drawings relating to the Work, to be certain that the Work under this Contract can be carried out and, prior to the submission of his/her Bid in accordance with B4, report at once to the Contract Administrator any defect, discrepancy, omission or interference affecting the work of this section or the guarantee of same.
- E23.23 The Contractor shall be responsible for any damage caused the City or their Contractors by improperly carrying out this contract.
- E23.24 The Contractor shall guarantee the satisfactory operation of all work and apparatus included and installed under this section for a period of twelve (12) calendar months after the final acceptance of the project.

MEASUREMENT AND PAYMENT

- E23.25 Electrical Work for each location will be measured and paid on a lump sum basis which price shall be payment in full for completing all operations herein described and all other items incidental to the Work included in this Specification.