



THE CITY OF WINNIPEG

BID OPPORTUNITY

BID OPPORTUNITY NO. 30-2015

SUPPLY AND DELIVERY OF TRAFFIC SIGNAL CANTILEVER POLES AND ARMS

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PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

B1.1 SUPPLY AND DELIVERY OF TRAFFIC SIGNAL CANTILEVER POLES AND ARMS

B2. SUBMISSION DEADLINE

B2.1 The Submission Deadline is 4:00 p.m. Winnipeg time, February 17, 2015.

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

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

B3. ENQUIRIES

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

B3.2 If the Bidder finds errors, discrepancies or omissions in the Bid Opportunity, or is unsure of the meaning or intent of any provision therein, the Bidder shall promptly notify the Contract Administrator of the error, discrepancy or omission at least five (5) Business Days prior to the Submission Deadline.

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

B3.4 Responses to enquiries which, in the sole judgment of the Contract Administrator, require a correction to or a clarification of the Bid Opportunity will be provided by the Contract Administrator to all Bidders by issuing an addendum.

B3.5 Responses to enquiries which, in the sole judgment of the Contract Administrator, do not require a correction to or a clarification of the Bid Opportunity will be provided by the Contract Administrator only to the Bidder who made the enquiry.

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

B4. CONFIDENTIALITY

B4.1 Information provided to a Bidder by the City or acquired by a Bidder by way of further enquiries or through investigation is confidential. Such information shall not be used or disclosed in any way without the prior written authorization of the Contract Administrator. The use and disclosure of the confidential information shall not apply to information which:

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

B4.2 The Bidder shall not make any statement of fact or opinion regarding any aspect of the Bid Opportunity to the media or any member of the public without the prior written authorization of the Contract Administrator.

B5. ADDENDA

B5.1 The Contract Administrator may, at any time prior to the Submission deadline, issue addenda correcting errors, discrepancies or omissions in the Bid Opportunity, or clarifying the meaning or intent of any provision therein.

- B5.2 The Contract Administrator will issue each addendum at least two (2) Business Days prior to the Submission Deadline, or provide at least two (2) Business Days by extending the Submission Deadline.
- B5.2.1 Addenda will be available on the Bid Opportunities page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/bidopp.asp>
- 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.
- B5.3 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 materials, equipment, methods and products specified in the Bid Opportunity.
- B6.2 Substitutions shall not be allowed unless application has been made to and prior approval has been granted by the Contract Administrator in writing.
- B6.3 Requests for approval of a substitute will not be considered unless received in writing by the Contract Administrator at least seven (7) Business Days prior to the Submission Deadline.
- B6.4 The Bidder shall ensure that any and all requests for approval of a substitute:
- (a) provide sufficient information and details to enable the Contract Administrator to determine the acceptability of the material, equipment, method or product as either an approved equal or alternative;
 - (b) identify any and all changes required in the applicable Work, and all changes to any other Work, which would become necessary to accommodate the substitute;
 - (c) identify any anticipated cost or time savings that may be associated with the substitute;
 - (d) certify that, in the case of a request for approval as an approved equal, the substitute will fully perform the functions called for by the general design, be of equal or superior substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the Contract;
 - (e) certify that, in the case of a request for approval as an approved alternative, the substitute will adequately perform the functions called for by the general design, be similar in substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the Contract.
- B6.5 The Contract Administrator, after assessing the request for approval of a substitute, may in his/her sole discretion grant approval for the use of a substitute as an “approved equal” or as an “approved alternative”, or may refuse to grant approval of the substitute.
- B6.6 The Contract Administrator will provide a response in writing, at least two (2) Business Days prior to the Submission Deadline, to the Bidder who requested approval of the substitute.
- B6.6.1 The Contract Administrator will issue an Addendum, disclosing the approved materials, equipment, methods and products to all potential Bidders. The Bidder requesting and obtaining the approval of a substitute shall be responsible for disseminating information regarding the approval to any person or persons he/she wishes to inform.
- B6.7 If the Contract Administrator approves a substitute as an “approved equal”, any Bidder may use the approved equal in place of the specified item.

- B6.8 If the Contract Administrator approves a substitute as an “approved alternative”, any Bidder bidding that approved alternative may base his/her Total Bid Price upon the specified item but may also indicate an alternative price based upon the approved alternative. Such alternatives will be evaluated in accordance with B14.
- B6.9 No later claim by the Contractor for an addition to the price(s) because of any other changes in the Work necessitated by the use of an approved equal or an approved alternative will be considered.
- B6.10 Notwithstanding B6.2 to B6.9, and in accordance with B7.6.1, deviations inconsistent with the Bid Opportunity document shall be evaluated in accordance with B14.1(a).

B7. BID SUBMISSION

- B7.1 The Bid shall consist of the following components:
- (a) Form A: Bid; and
 - (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.
- B7.6.1 All Samples received will be returned to Bidder at the Bidder's expense.
- 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.
- B7.9 Bids submitted by internet electronic mail (e-mail) will not be accepted.

B8. BID

- B8.1 The Bidder shall complete Form A: Bid, making all required entries.
- B8.2 Paragraph 2 of Form A: Bid shall be completed in accordance with the following requirements:
- (a) if the Bidder is a sole proprietor carrying on business in his/her own name, his/her name shall be inserted;
 - (b) if the Bidder is a partnership, the full name of the partnership shall be inserted;
 - (c) if the Bidder is a corporation, the full name of the corporation shall be inserted;
 - (d) if the Bidder is carrying on business under a name other than his/her own, the business name and the name of every partner or corporation who is the owner of such business name shall be inserted.
- B8.2.1 If a Bid is submitted jointly by two or more persons, each and all such persons shall identify themselves in accordance with B8.2.
- B8.3 In Paragraph 3 of Form A: Bid, the Bidder shall identify a contact person who is authorized to represent the Bidder for purposes of the Bid.
- B8.4 Paragraph 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 and the corporate seal, if the corporation has one, should be affixed;
 - (d) if the Bidder is carrying on business under a name other than his/her own, it shall be signed by the registered owner of the business name, or by the registered owner's authorized officials if the owner is a partnership or a corporation.
- B8.4.1 The name and official capacity of all individuals signing Form A: Bid should be printed below such signatures.
- B8.5 If a Bid is submitted jointly by two or more persons, the word "Bidder" shall mean each and all such persons, and the undertakings, covenants and obligations of such joint Bidders in the Bid and the Contract, when awarded, shall be both joint and several.

B9. PRICES

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

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, or if the Bidder does not carry on business in Manitoba, in the jurisdiction where the Bidder does carry on business; and
- (b) be financially capable of carrying out the terms of the Contract; and
- (c) have all the necessary experience, capital, organization, and equipment to perform the Work in strict accordance with the terms and provisions of the Contract.

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;
- (b) be fully capable of performing the Work required to be in strict accordance with the terms and provisions of the Contract;
- (c) have a written workplace safety and health program, if required, pursuant to The Workplace Safety and Health Act (Manitoba);
- (d) be a Regular Member of the American Galvanizers Association, Inc.;
- (e) shall produce evidence that the plant has been fully approved by the CWB to the requirements of CSA W47.1 Division 2.1 for welding of steel structures;
- (f) have demonstrated the ability to supply and deliver work(s) with Quality Control and Assurance Standards according to past contracted delivery requirements and timelines; and
- (g) have demonstrated the resources, facilities and capabilities to quickly and efficiently effect repairs or remediation to the satisfaction of contract administrators, or other customers, on issues with Work(s) on previous contract(s) to meet the specifications and requirements of the supplied Work, regardless of time of year or environmental conditions.

B10.4 The Bidder shall submit, within three (3) Business Days of a request from the Contract Administrator, proof satisfactory to the Contract Administrator of the qualifications of the Bidder and of any proposed Subcontractor.

Requested Samples and Documentation

B10.5 The Bidder shall supply within twenty-eight (28) Calendar Days of a request from the Contract Administrator samples and / or technical documentation specific to any item or assembly that would be included in the deliverables for inspection and testing.

B10.5.1 The Bidder is responsible for all freight costs associated with the delivery and return of any requested sample(s) as described in B10.5.

- B10.6 The Bidder may be considered as non-responsive if requested information and / or sample as described in B10.4 and B10.5 is not received within the time frame specified.
- B10.7 Unsolicited samples will be returned at Bidder's expense.
- B10.8 The Bidder will be notified by the Contract Administrator whether the bid samples and / or technical documentation had any noted deficiencies.
- B10.9 The Bidder shall provide within fourteen (14) Calendar days a re-worked bid sample and / or technical documentation addressing any previous deficiencies noted by the Contract Administrator.
- B10.10 The Bidder shall provide within twenty-eight (28) Business days of a 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 or evaluated prices) will be available on the Closed Bid Opportunities (or Public/Posted Opening & Award Results) page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt>
- 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 C21, the time and date of receipt of any notice withdrawing a Bid shall be the time and date of receipt as determined by the Manager of Materials.
- 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 therefrom (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 Submission is incomplete, obscure or conditional, or contains additions, deletions, alterations or other irregularities. The Award Authority may reject all or any part of any Bid, or waive technical requirements or minor informalities or irregularities if the interests of the City so require.

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.

B14.5 This Contract will be awarded as a whole.

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 and Paragraph 6 of Form A:Bid, the City may issue a purchase order to the successful Bidder in lieu of the execution of a Contract.
- B15.5 The Contract Documents, as defined in C1.1(n)(ii), in their entirety shall be deemed to be incorporated in and to form a part of the purchase order notwithstanding that they are not necessarily attached to or accompany said purchase order.

PART C - GENERAL CONDITIONS

C0. GENERAL CONDITIONS

- C0.1 The *General Conditions for the Supply of Goods* (Revision 2008 05 26) are applicable to the Work of the Contract.
- C0.1.1 The *General Conditions for the Supply of Goods* are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at http://www.winnipeg.ca/matmgt/gen_cond.stm
- C0.2 A reference in the Bid Opportunity to a section, clause or subclause with the prefix “**C**” designates a section, clause or subclause in the *General Conditions for Supply of Goods*.

PART D - SUPPLEMENTAL CONDITIONS

GENERAL

D1. GENERAL CONDITIONS

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

D2. SCOPE OF WORK

D2.1 The Work to be done under the Contract shall consist of the supply and delivery of traffic signal cantilever poles and arms from date of award of Contract until March 31, 2016, with the option of four (4) mutually agreed upon one (1) year extensions.

D2.1.1 The City may negotiate the extension option with the Contractor within sixty (60) Calendar Days prior to the expiry date of the Contract. The City shall incur no liability to the Contractor as a result of such negotiations.

D2.1.2 Changes resulting from such negotiations shall become effective on April 1st of the respective year. Changes to the Contract shall not be implemented by the Contractor without written approval by the Contract Administrator.

D2.2 The Work shall be done on an "as required" basis during the term of the Contract.

D2.2.1 The type and quantity of Work to be performed under this Contract shall be as authorized from time to time by the Contract Administrator and/or Users.

D2.2.2 Notwithstanding C7, the City shall have no obligation under the Contract to purchase any quantity of any item in excess of its actual operational requirements.

D3. DEFINITIONS

D3.1 When used in this Bid Opportunity:

(a) **AASHTO** means American Association of State Highway Transportation Officials;

(b) **ASME** means American Society of Mechanical Engineers

(c) **ASTM** means American Society for Testing and Materials

(d) **CSA** means Canadian Standards Association

(e) **CWB** means Canadian Welding Bureau

D4. CONTRACT ADMINISTRATOR

D4.1 The Contract Administrator is:

Jonathan Foord, E.I.T

Asset Management Engineer

Telephone No.: 204-986-6619

Email: jfoord@winnipeg.ca

D5. OWNERSHIP OF INFORMATION, CONFIDENTIALITY AND NON DISCLOSURE

D5.1 The Contract, all deliverables produced or developed, and information provided to or acquired by the Contractor are the property of the City and shall not be appropriated for the Contractors own use, or for the use of any third party.

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

- D5.3 The following shall be confidential and shall not be disclosed by the Contractor to the media or any member of the public without the prior written authorization of the Contract Administrator;
- (a) information provided to the Contractor by the City or acquired by the Contractor during the course of the Work;
 - (b) the Contract, all deliverables produced or developed; and
 - (c) any statement of fact or opinion regarding any aspect of the Contract.
- D5.4 A Contractor who violates any provision of D5 may be determined to be in breach of Contract.

D6. RETURNED GOODS

- D6.1 Further to C.7 and C.11, The Contract Administrator or his/her designate shall inform the Contractor of the item(s) being returned and the reason for the return. The Contractor shall provide the Contract Administrator with Return Material Authorization (RMA) including shipping instructions, within five (5) Calendar Days of the request.
- D6.1.1 The Contractor shall be responsible for all transportation charges on returned goods and further to C.8 the goods will be held at the Contractor's risk pending instruction.
- D6.2 Further to D6.1, the RMA shall include the following information, as a minimum:
- (a) Company name, if different than Contractor, and ship to addresses;
 - (b) Written authorization for the return and for a collect shipment;
 - (c) Preference of carrier / shipping method, a contact person with either a local Winnipeg telephone number or a toll-free telephone number;
 - (d) A contact person, responsible for the returned goods, with a toll-free telephone number.
- D6.3 The Contract Administrator shall provide, as a minimum:
- (a) The City department returning the goods, including an address and contact information for pick up;
 - (b) The City account number; if applicable;
 - (c) The City of Winnipeg's Department and address;
 - (d) Two (2) copies of the written authorization / RMA, one (1) copy on the outside and (1) one within the package;
 - (e) Total number of packages, weight and dimensions.

D7. NOTICES

- D7.1 Notwithstanding C21.3, 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

SUBMISSIONS

D8. AUTHORITY TO CARRY ON BUSINESS

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

SCHEDULE OF WORK

D9. COMMENCEMENT

- D9.1 The Contractor shall not commence any Work until he/she is in receipt of a notice of award from the City authorizing the commencement of the Work.
- D9.2 Within twenty-one (21) Calendar days of the date recorded on the notice of award from the City, the Contractor must send to the Contract Administrator the required documents and samples as noted below:
- (a) shop drawings for all manufactured components as noted in E7;
 - (b) welding procedures for all welded components;
 - (c) photocopies of CWB of CSA 47.1-03 certifications of fabricators that will be responsible for manufacturing the steel poles; and
 - (d) any requested pre-production samples and / or documentation (please note process and timeline in E6).
- D9.3 If required, within seven (7) Calendar days, the Contractor must re-address all deficiencies and / or requests noted by Contract Administrator for details listed in D9.1.
- D9.4 For each purchase order issued and within forty-two (42) Calendar days of the date recorded on the purchase order from the City, the Contractor must provide to the Contract Administrator copies of mill test certificates for all steel utilized.
- D9.4.1 Lower grade steel shall not be acceptable (despite favourable published mill test results).
- D9.5 Within twenty-eight (28) Calendar days of the Contract Administrator advising the Contractor that the original mill certificates are unacceptable, the Contractor must re-submit new mill test certificates for all steel utilized.
- D9.6 The Contractor shall not commence any Work until:
- (a) The Contractor is in receipt of a notice of award from the City authorizing the commencement of the Work; and
 - (b) the Contract Administrator has confirmed receipt and issued approvals for all details listed in D9.1; and
 - (c) within twenty-eight (28) Calendar Days of the Contract Administrator's request, the Contractor has attended a meeting with the Contract Administrator, or the Contract Administrator has waived the requirement for a meeting; and
 - (d) a Purchase Order has been received from the City of Winnipeg Public Works Stores personnel noting quantity of material required (please note D2.2); and
 - (e) the Contract Administrator has confirmed receipt and issued approvals for mill test certificates within the timeline specified in D9.4 and D9.5.

D10. ORDERS

- D10.1 The Contractor shall provide a local Winnipeg telephone number or a toll-free telephone number at which orders for delivery may be placed.
- D10.2 It is expected that the value of a minimum order of items would be \$20,000, unless mutually agreed upon at the time of ordering.

D11. DELIVERY

- D11.1 Prior to shipping, all required documentation must have been received and approved by the Contract Administrator.

- D11.2 Goods shall be delivered on an "as required" basis during the term of the Contract, f.o.b. destination, freight prepaid, to:
- Public Works Stores
1277 Pacific Avenue
Winnipeg, MB
- D11.3 Goods shall be delivered within one hundred twenty (120) Calendar Days of the placing of an order, unless otherwise allowed by the User at the time of ordering.
- D11.4 The Contractor shall provide delivery date notification to City Stores personnel at least two (2) Business Days before delivery.
- D11.4.1 Failure to provide that pre-notification may result in the inability to offload goods on arrival. Offloading delays as a result of the failure of the Contractor providing pre-notification may extend the delivery timeframe, and may result in Liquidated Damages being assessed for every Calendar day beyond the delivery period specified in D11.4.
- D11.5 Good shall be delivered between 9:00 a.m. and 2:30 p.m. on Business Days.
- D11.6 A bill of lading shall be prepared by the Contractor and clearly identify all components being delivered.
- D11.7 Cap plates, bolts, and pipe penetration plugs shall be installed hand-tight to applicable components prior to delivery.
- D11.7.1 All covers shall be installed and complete in every respect. All access panel fasteners shall be installed hand-tight prior to delivery.
- D11.8 For ease of unloading, similar-sized structures shall be arranged as bundles. Each bundle shall consist of layers of structures, with each layer having not more than four (4) structures wide (horizontally) and each bundle not having more than three (3) layers of structures high (vertically). No bundle shall consist of more than 12 structures.
- D11.8.1 Structure styles shall not be mixed when bundled.
- D11.9 Weight limit on item bundles: maximum 4,000 lbs. / 2 Tonnes.
- D11.10 Wood blocking with dimensions of not less than 3 inches x 3 inches must be placed and secured between different bundles of items.
- D11.11 The bundles of components shall be placed and positioned on timber blocking during loading and secured with nylon ropes during transportation. Use of steel banding directly against hot-dip galvanized surfaces shall not be permitted.
- D11.12 Maximum Loaded Height shall be not more than 8 feet / 2.5 metres above flatbed deck or 14 feet / 4.25 metres above grade (when delivered on high-bed deck).
- D11.13 City Stores personnel shall off-load goods at the delivery location. Bundled items moved by City personnel shall be unloaded by forklift unit.
- D11.13.1 If the goods cannot be unloaded by a 4,000 lb / 2 Tonne capacity forklift, the Contractor shall supply all necessary equipment and personnel to offload the goods as directed. The Contractor may need to arrange alternate means to lift and move items on delivery. This may involve the use of nylon ropes, canvas straps or other approved methods. Use of steel chains and steel hooks directly in contact with hot-dip galvanized surfaces shall not be permitted.
- D11.14 Goods shall be inspected by the Contract Administrator or designated representative upon receipt.

D12. LIQUIDATED DAMAGES

- D12.1 If the Contractor fails to achieve delivery of the goods within the time specified in D11. Delivery the Contractor shall pay the City seven hundred eight dollars (\$708.00) per Calendar Day for each and every Calendar Day until the goods have been delivered.
- D12.2 The amount specified for liquidated damages in D12.1 is based on a genuine pre-estimate of the City's damages in the event that the Contractor does not achieve delivery by the day fixed herein for same.
- D12.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

D13. RECORDS

- D13.1 The Contractor shall keep detailed records of the goods supplied under the Contract.
- D13.2 The Contractor shall record, as a minimum, for each item listed on Form B: Prices:
- (a) user name(s) and addresses;
 - (b) order date(s);
 - (c) delivery date(s); and
 - (d) description and quantity of goods supplied.
- D13.3 The Contractor shall provide the Contract Administrator with a copy of the records for each quarter year within fifteen (15) Calendar Days of a request of the Contract Administrator.

MEASUREMENT AND PAYMENT

D14. INVOICES

- D14.1 Further to C10, the Contractor shall submit an invoice for each order delivered to:
- The City of Winnipeg
Corporate Finance - Accounts Payable
4th Floor, Administration Building, 510 Main Street
Winnipeg MB R3B 1B9
Facsimile No.: 204- 949-0864
Email: CityWpgAP@winnipeg.ca
- D14.2 Invoices must clearly indicate, as a minimum:
- (a) the City's purchase order number;
 - (b) date of delivery;
 - (c) delivery address;
 - (d) type and quantity of goods delivered;
 - (e) the amount payable with GST, MRST, and any applicable environmental handling charges/fees identified and shown as separate amounts; and
 - (f) the Contractor's GST registration number.
- D14.3 The City will bear no responsibility for delays in approval of invoices which are improperly submitted.
- D14.4 Bids Submissions must be submitted to the address in B7.5

D15. PAYMENT

D15.1 Further to C10, payment shall be in Canadian funds net thirty (30) Calendar Days after receipt and approval of the Contractor's invoice.

D15.2 Further to C10, the City may at its option pay the Contractor by direct deposit to the Contractor's banking institution.

D16. PURCHASING CARD

D16.1 The Contractor shall allow Users to charge items to their purchasing cards at no extra cost.

D16.2 The Contractor's credit card website/gateway shall have appropriate current Payment Card Industry Data Security standards (PCI DSS) certification, (<https://www.pcisecuritystandards.org/index.shtml>). The credit card gateway shall meet the credit card data security requirements outlined by the Payment Card Industry Security Standards Council (PCI SSC) for service providers and/or software vendors.

WARRANTY

D17. WARRANTY

D17.1 Notwithstanding C11, the warranty period for each item of Work supplied shall begin on the date of successful delivery and expire two (2) years thereafter unless extended pursuant to C11.3, in which case it shall expire when provided for thereunder.

PART E - SPECIFICATIONS

GENERAL

E1. APPLICABLE SPECIFICATIONS AND DRAWINGS

E1.1 These Specifications shall apply to the Work.

E1.2 The following are applicable to the Work:

<u>Specification No.</u>	<u>Specification Title</u>
	AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaries, and Traffic Signals 2009
ASME B18.2.2	Nuts for General Applications: Machine Screw Nuts, Hex, Square, Hex Flange, and Coupling Nuts (Inch Series)
ASTM A123	Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
ASTM A143	Standard Practice For Safeguarding Against Embrittlement of Hot-Dip Galvanized Structural Steel Products and Procedure for Detecting Embrittlement
ASTM A325	Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 KSI Minimum Tensile Strength
ASTM B209	Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate
ASTM F436	Standard Specification for Hardened Steel Washers
ASTM A563	Standard Specification for Carbon and Alloy Steel Nuts
ASTM F593	Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs
ASTM F2329	Standard Specification for Zinc Coating, Hot-Dip, Requirements for Application to Carbon and Alloy Steel Bolts, Screws, Washers, Nuts, And Special Threaded Fasteners
ASTM A780	Standard Practice For Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings
CSA G40.21M	General Requirements for Rolled or Welded Structural Quality Steel/ Structural Quality Steel
CSA W47	Certification of Companies for Fusion Welding Of Steel
CSA W48	Filler Metals and Allied Materials for Metal Arc Welding
CSA W59	Welded Steel Construction (Metal Arc Welding)

<u>Drawing No.</u>	<u>Drawing Name/Title</u>
	<i>City of Winnipeg Standard Drawings for Traffic Signal Structures dated Jan 14, 2013</i>
30-2015 Drawing Standard Traffic Signal Structures Sht 1	Cover Sheet
30-2015 Drawing Standard Traffic Signal Structures Sht 2	Base Load Tables and Attachment Data
30-2015 Drawing Standard Traffic Signal Structures Sht 5	Attachment Configurations for Medium Duty Structures - 8', 12' & 16' Arms
30-2015 Drawing Standard Traffic Signal Structures Sht 6	Attachment Configurations for Medium Duty Structures - 8', 12' & 16' Arms with Extension

30-2015 Drawing Standard Traffic Signal Structures Sht 7	Attachment Configurations for Medium Duty Structures - 21' & 26' Arms
30-2015 Drawing Standard Traffic Signal Structures Sht 8	4', 8', 12', 16' Traffic Signal & Pedestrian Corridor Arms
30-2015 Drawing Standard Traffic Signal Structures Sht 9	21' & 26' Traffic Signal Arms
30-2015 Drawing Standard Traffic Signal Structures Sht 11	Medium Duty Shaft
30-2015 Drawing Standard Traffic Signal Structures Sht 12	Double Medium Duty Shaft
30-2015 Drawing Standard Traffic Signal Structures Sht 13	Vertical Extension to 10.7m (35')
30-2015 Drawing Standard Traffic Signal Structures Sht 17	Access Panel Details
30-2015 Drawing ST-164 Sht 1	Access Panel Cover
30-2015 Drawing TS-IMP1	Impact Test Setup

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

E2. GOODS

E2.1 The Contractor shall supply and deliver traffic signal cantilever poles in accordance with the requirements hereinafter specified.

E2.2 **Item No.1** – Arm Cantilever 4ft shall consist of:

- (a) One (1) 1.220 m (4') Signal Arm – Structure Type Code **4**, including all associated hardware as per Work Item Specification Details contained in E3 to E23 and as shown on 30-2015_Drawing_Standard_Traffic_Signal_Structures_Sht8.pdf of the City of Winnipeg Standard Drawings for Traffic Signal Structures dated January 10, 2014.

E2.3 **Item No.2** – Arm Cantilever 8ft shall consist of:

- (a) One (1) 2.438 m (8') Signal Arm – Structure Type Code **8**, including all associated hardware as per Work Item Specification Details contained in E3 to E23 and as shown on 30-2015_Drawing_Standard_Traffic_Signal_Structures_Sht8.pdf of the City of Winnipeg Standard Drawings for Traffic Signal Structures dated January 10, 2014.

E2.4 **Item No.3** – Arm Cantilever 12ft shall consist of:

- (a) One (1) 3.658 m (12') Signal Arm – Structure Type Code **12**, including all associated hardware as per Work Item Specification Details contained in E3 to E23 and as shown on 30-2015_Drawing_Standard_Traffic_Signal_Structures_Sht8.pdf of the City of Winnipeg Standard Drawings for Traffic Signal Structures dated January 10, 2014.

E2.5 **Item No.4** – Arm Cantilever 16ft shall consist of:

- (a) One (1) 4.877 m (16') Signal Arm – Structure Type Code **16**, including all associated hardware as per Work Item Specification Details contained in E3 to E23 and as shown on 30-2015_Drawing_Standard_Traffic_Signal_Structures_Sht8.pdf of the City of Winnipeg Standard Drawings for Traffic Signal Structures dated January 10, 2014.

E2.6 Item No.5 – Arm Cantilever 21ft shall consist of:

- (a) One (1) 6.401 m (21') Signal Arm – Structure Type Code **21**, including all associated hardware as per Work Item Specification Details contained in E3 to E23 and as shown on 30-2015_Drawing_Standard_Traffic_Signal_Structures_Sht9.pdf of the City of Winnipeg Standard Drawings for Traffic Signal Structures dated January 10, 2014.

E2.7 Item No.6 – Arm Cantilever 26ft shall consist of:

- (a) One (1) 7.925 m (26') Signal Arm – Structure Type Code **26**, including all associated hardware as per Work Item Specification Details contained in E3 to E23 and as shown on 30-2015_Drawing_Standard_Traffic_Signal_Structures_Sht9.pdf of the City of Winnipeg Standard Drawings for Traffic Signal Structures dated January 10, 2014.

E2.8 Item No.7 – Pole Medium Duty Cantilever Shaft shall consist of:

- (a) One (1) Medium Duty Shaft – Structure Type Code **M**, including all associated hardware as per Work Item Specification Details contained in E3 to E23 and as shown on 30-2015_Drawing_Standard_Traffic_Signal_Structures_Sht5.pdf of the City of Winnipeg Standard Drawings for Traffic Signal Structures dated January 10, 2014, except as noted below.
- (b) One (1) non-metal access panel cover as shown on 30-2015_Drawing_Standard_Traffic_Signal_Structures_Sht17 dated January 10, 2014 is required. Drawing notes stating the non-metal access panel cover as being supplied by others shall be superseded by this notation, and must be supplied by the successful bidder. The non-metal access panel cover shall be securely affixed to the access panel by the specified fasteners when delivered. The access panel cover details are shown on 30-2015 Drawing ST-164 Sht1.pdf dated April 26, 2004.
- (c) Notwithstanding details on 30-2015_Drawing_Standard_Traffic_Signal_Structures_Sht17.pdf, the terminal strip bracket (Item 2) and Keeper Bracket (Item 10) are not required to be supplied with any pole.
- (d) The shaft opening at the pole arm flange plate shall be the same size as the flange plate opening. All sharp edges where cable is routed shall be made smooth as to not damage cable through long-term wearing that occurs when the cable jacket rubs on routed edges.

E2.9 Item No.8 – Pole Double Medium Duty Cantilever Shaft shall consist of:

- (a) One (1) Double Medium Duty Shaft – Structure Type Code **DM**, including all associated hardware as per Work Item Specification Details contained in E3 to E23 and as shown on 30-2015_Drawing_Standard_Traffic_Signal_Structures_Sht5.pdf of the City of Winnipeg Standard Drawings for Traffic Signal Structures dated January 10, 2014, except as noted below.
- (b) One (1) non-metal access panel cover as shown on 30-2015_Drawing_Standard_Traffic_Signal_Structures_Sht17 dated January 10, 2014 is required. Drawing notes stating the non-metal access panel cover as being supplied by others shall be superseded by this notation, and must be supplied by the successful bidder. The non-metal access panel cover shall be securely affixed to the access panel by the specified fasteners when delivered. The access panel cover details are shown on 30-2015 Drawing ST-164 Sht1.pdf dated April 26, 2004.
- (c) Notwithstanding details on 30-2015_Drawing_Standard_Traffic_Signal_Structures_Sht17.pdf, the terminal strip bracket (Item 2) and Keeper Bracket (Item 10) are not required to be supplied with any pole.
- (d) The shaft opening at the pole arm flange plate shall be the same size as the flange plate opening. All sharp edges where cable is routed shall be made smooth as to not damage cable through long-term wearing that occurs when the cable jacket rubs on routed edges.

E2.10 Item No.9 – Pole Vertical Cantilever Extension to 35ft shall consist of:

- (a) One (1) Vertical Extension to 10.7 m (35') - Structure Type Code **E**, including all associated hardware as per Work Item Specification Details contained in E3 to E23 and as shown on 30-2015 Drawing_Standard_Traffic_Signal_Structures_Sht13 dated January 10, 2014.

E3. GENERAL

E3.1 Description

- E3.1.1 The Work covered under this document shall be understood to include all operations related to the supply, fabrication, and delivery of new steel traffic signal support structures and associated components including non-metal access panel covers.
- E3.1.2 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies, and all things necessary for and incidental to the satisfactory performance and completion of the Work as hereinafter specified.

E4. CERTIFIED DETAILED DRAWINGS

- E4.1 The City-supplied engineer certified detailed drawings include a material list and all dimensions and tolerances applicable to all critical dimensions. On the drawings, details are included for every element of the traffic signal structure. Some of the critical details include:

- E4.1.1 Base plate;
- E4.1.2 4¾ inch x 24 inch (38 circuit) access panel detail;
- E4.1.3 4¾ inch x 24 inch access panel cover; and
- E4.1.4 Tamper proof cup washer.

E5. EQUIPMENT

- E5.1 All equipment used by the Contractor shall be of a type approved by the Contract Administrator and shall be kept in good working order.

E6. PRE-PRODUCTION SAMPLE ITEM REQUIREMENT

- E6.1 Within the period specified in E6.4, the Contract Administrator may require the Contractor to supply one (1) pre-production 'sample unit' of any item (or part of item) that has been bid for detailed inspection and testing prior to delivery of order.
- E6.1.1 The Contract Administrator may request an 'un-finished pre-production sample unit' for inspection.
- E6.2 Any pre-production sample unit described in E6.1 is to be considered separately from any other sample provided during the bid process (as detailed throughout **PART B - Bidding Procedures**).
- E6.3 The Contractor is responsible for paying all transportation charges for all sample unit(s).

Sample Unit Supply Period

- E6.4 The Contractor shall supply any requested pre-production sample unit within twenty-one (21) Calendar days following the notification by the Contract Administrator. Failure to supply the sample unit within the prescribed period may result in cancellation of the order.
- E6.4.1 By mutual agreement, the initial sample unit supply period may be changed.
- E6.5 The Contractor shall notify the Contract Administrator of any deviations in the sample unit from the requirements of the contract.

- E6.6 The condition state of the pre-production sample unit shall be based on meeting the essential requirements of this specification and other specifications as noted in E1.2. All items supplied thereafter shall perform equal to or better than the approved pre-production sample unit.
- E6.7 The Contract Administrator will inspect the sample unit. Upon completion of the inspection, one of the following condition states will apply:
- (a) Approved as submitted;
 - (b) Approved Subject to Changes, or
 - (c) Rejected.
- E6.8 For each sample unit that receives the condition state of Approved as submitted, the Contractor shall supply similar item(s) in fulfillment of each order that will be expected to perform similarly to the sample unit that was approved.
- E6.9 For each sample unit that receives the condition state of Approved Subject to Change, the Contractor is required to promptly make all changes that the Contract Administrator has requested which are consistent with the Bid Opportunity. Following notification of condition state of that sample unit, the Contractor shall re-submit the re-worked sample unit within seven (7) Calendar days to the Contract Administrator for re-inspection and approval unless otherwise directed by the Contract Administrator. When re-submitting the sample unit, the Contractor shall notify the Contract Administrator in writing of any and all changes other than those requested by the Contract Administrator.
- (a) By mutual agreement, the re-worked sample unit supply period may be changed.
- E6.10 For each sample unit that receives the condition state of Rejected, the Contract Administrator may instruct the Contractor to re-submit another pre-production sample unit for inspection (as mentioned in E6.7) within seven (7) Calendar days.
- (a) By mutual agreement, the rejected sample unit supply period may be changed.
- E6.11 The Contractor shall not supply additional sample unit(s) until that sample unit under review has been approved in writing by the Contract Administrator.
- E6.12 Contractors shall have only one (1) opportunity to re-submit a sample unit for Approval.
- (a) For all samples re-submitted, either a Condition state of 'Approved as submitted' or "Rejected" will be applied.
- E6.13 Should any re-submitted sample unit receive the Condition state of 'Rejected', it shall be understood that the Contractor has failed to demonstrate necessary experience and equipment to perform the Work in strict accordance with the terms and provisions of the Contract, and the City may consider canceling the award of Contract.
- E6.14 The Contract Administrator remains the sole authority to allow the Contractor to provide a second re-submission of re-worked pre-production samples.
- E6.15 If supplied unfinished, the sample unit will be returned to the Contractor.
- E6.16 If the finished sample unit is approved as submitted, that sample unit will be deemed to be the first delivered under the Contract and payment will be made accordingly.
- E6.16.1 If the finished sample unit either approved subject to change(s) or rejected, the sample unit will be returned to the Contractor, and no payment will be made.

E7. SHOP DRAWINGS

- E7.1 Within the period stated in D9.1, the Contractor shall submit to the Contract Administrator, shop drawings sealed by a Professional Engineer, registered or licensed to practice in the Province of Manitoba, in triplicate for approval prior to any fabrication. Shop drawings shall be complete

and shall include all information such as material specifications, weld sizes, bills of material, welding procedures, design criteria, etc.

- E7.2 Shop Drawings shall accurately reflect materials, dimensions and tolerances as shown on City-supplied Certified Detailed Drawings.
- E7.3 Approval of shop drawings by the Contract Administrator will be for general agreement only and in no case will the Contractor be relieved of the responsibility for completeness or adequacy of fabrication materials and procedures.
- E7.4 No fabrication shall commence until shop drawings have been reviewed and approved by the Contract Administrator and returned to the Contractor. All costs resulting from any changes or due to failure to have shop drawings so reviewed shall be borne by the Contractor.
- E7.5 Shop drawings shall indicate the total weight and center of gravity of each component for lifting and rigging purposes.

E8. CONSTRUCTION METHODS

- E8.1 Sufficient reinforced access panels and wiring holes shall be provided for wiring of the structures as shown on the Drawings.
- E8.2 The traffic signal support structures shall be so fabricated that erection can be achieved by means of bolted connections.

E9. MATERIALS

- E9.1 The Contractor shall be responsible for the supply, safe storage, and handling of all materials set forth in this Specification.
- E9.2 All materials used for fabrication of traffic signal support structures shall be new, previously unused material.
- E9.3 The Contractor shall be responsible for making a thorough inspection of materials to be supplied under this Contract. All material shall be free of surface imperfections and other defects.

Handling and Storage of Materials

- E9.4 All materials shall be handled in a careful and workmanship-like manner, to the satisfaction of the Contract Administrator.
 - E9.4.1 Structural Steel
 - (a) Structural steel for all components of the traffic signal support structures shall be in accordance with CSA Standard G40.21 M (latest edition).
 - (b) The grade supplied shall be in accordance with the grades shown on the Drawings and based on mill specification certificates approved by the Contract Administrator.
 - (c) For purposes of hot-dip galvanizing, the silicon content in the steel shall be controlled as follows:
 - (i) For monotubular steel shafts, to within 0 to 0.03%, or from 0.15 to 0.22%.
 - (ii) For base, flange and gusset plates and other miscellaneous steel, below 0.30%.
 - (d) All costs resulting from any changes or due to failure to have submissions reviewed shall be borne by the Contractor.
 - E9.4.2 Welding Consumables
 - (a) The selection, supply, storage and maintenance of electrodes and fluxes for all processes shall be according to CSA W59 requirements (latest edition) and CSA W48

(latest edition). Only controlled hydrogen designation electrodes and low hydrogen wire consumables shall be used for the SMAW and flux-cored arc welding processes, respectively.

E9.4.3 Miscellaneous Materials

- (a) Miscellaneous material incidental to this Work shall be as approved by the Contract Administrator.
- (b) Miscellaneous fasteners shall be in accordance with the type and dimensions shown on the drawings.
- (c) Steel pipe for miscellaneous tenons and pipe penetrations shall be in accordance with ASTM A53 (latest edition), Grade B, Schedule 40 unless otherwise shown on the Drawings.

E9.4.4 Flange Bolts, Nuts and Washers

- (a) Flange bolts shall be in accordance with ASTM A325 (latest edition) Type 1, complete with one heavy hex nut, one heavy jam nut, and two washers, galvanized.
- (b) Heavy hex nuts shall be in accordance ASTM A563, Grade DH, galvanized.
- (c) Heavy jam nuts shall be galvanized and meet the dimensional requirements of ASME B18.2.2 (latest edition).
- (d) Washers shall be in accordance with ASTM F436, Type 1, galvanized.
- (e) Galvanized nuts shall be overtapped to the minimum amount required for fastener assembly. The nuts shall be lubricated with a lubricant containing a visible dye. The lubricant shall be clean and dry to the touch.

E9.4.5 Plugs for Pipe Penetrations

- (a) Plugs for pipe penetrations shall be low-density polyethylene. Plugs shall be UV stabilized, black in colour, sized to fit the pipe penetration, and complete with tapered ribs to achieve a friction fit at temperatures ranging from -40 °C to +40 °C. One plug shall be supplied for every pipe penetration.

E9.4.6 Access Panel Cover Fasteners

- (a) Hex Bolts for securing the access panel covers shall be in accordance with ASTM F593 Type 316 stainless steel, fully threaded.
- (b) The Tamper Proof Cup Washer shall be in aluminum in accordance with ASTM B209 Grade 3003-H14.

E9.4.7 Hot-Dip Galvanizing

- (a) Hot-dip galvanizing of structural steel shall be in accordance with ASTM A123 (latest edition) for a minimum net retention of 610 g/m².
- (b) Flange Bolts, Nuts and Washers shall be hot-dip galvanized in accordance with ASTM F2329 (latest edition).

E10. FABRICATION

E10.1 All fabrication shall be carried out in accordance with this Specification and the Contract Drawings, as well as AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaries, and Traffic Signals - 2009 - 5th Edition, plus all subsequent revisions.

E10.2 The punching of identification marks on the members will not be allowed.

E10.3 Any damage to members during fabrication shall be drawn to the attention of the Contract Administrator in order that the Contract Administrator may approve remedial measures.

E10.4 Dimensions and fabrication details that control the field matching of parts shall receive careful attention.

- E10.5 All portions of the Work shall be neatly finished. Shearing, cutting, clipping, and machining shall be done neatly and accurately. Finished members shall be true to line, free from twists, bends, sharp corners, and edges.
- E10.6 Cut edges shall be true and smooth and free from excessive burrs or ragged breaks. Re-entrant cuts shall be avoided wherever possible. If used, they shall be filleted by drilling prior to cutting.
- E10.7 All holes shall be free of burrs and rough edges for inner and outer faces.

E11. WELDING

- E11.1 Welding of steel structures shall be in accordance with CSA W59, "Welded Steel Construction."
- E11.2 All seams shall be continuously welded and free from any slag, splatter and excess weld material. Longitudinal welds shall be a minimum of 60% penetration, except where noted on the drawings, which shall be 100% penetration. All circumferential groove welds shall be 100% penetration with an internal backup strip provided.
- E11.3 Longitudinal seam welds in horizontal supports shall be located at the top of the horizontal members.
- E11.4 Welds joining monotubular column or arm elements to base or flange plates shall be unequal leg welds, with the long leg of the weld along the column or arm. The termination of the longer weld leg shall contact the shaft's surface at approximately a 30° angle.
- E11.5 All welds shall be ground smooth and flush with the adjacent surface prior to hot-dip galvanizing. Care shall be taken to ensure that excess weld material does not hamper functionality of structure.
- E11.6 Each signal support structure shall be provided with a raised structure identification number with a welding electrode (as noted in E15.1).

E12. SURFACE PREPARATION AND CLEANING

- E12.1 The Contractor shall ensure that all exterior surfaces are suitably prepared to achieve the minimum zinc coating mass of 610 g/m². All welding and provision of holes is to be completed prior to surface preparation and cleaning, except where shown on the Drawings.
- E12.1.1 Sandblasting and cleaning of signal structures is the preferred method of preparing surfaces for hot-dip galvanizing.

E13. HOT-DIP GALVANIZING

- E13.1 All exterior surfaces of the structures shall be hot-dip galvanized in accordance with the requirements of this Specification.
- E13.2 The hot-dip galvanizing plant shall be a Regular Member of the American Galvanizers Association, Inc.
- E13.3 Hot-dip galvanizing of structural steel shall be in accordance with ASTM A123 (latest edition) for a minimum net retention of 610 g/m².
- E13.4 Flange Bolts, Nuts and Washers shall be hot-dip galvanized in accordance with ASTM F2329 (latest edition).
- E13.4.1 All threaded components shall be re-threaded after hot-dip galvanizing.
- E13.5 The contractor shall safeguard against embrittlement of the fabricated steel in accordance with ASTM A143 (latest edition) "Standard Practice for Safeguarding against Embrittlement of Hot-Dip Galvanized Structural Steel Products and Procedure for Detecting Embrittlement".

- E13.6 Adequate venting and drainage holes shall be provided in enclosed sections for hot-dip galvanizing. The galvanizing facilities shall be consulted regarding the size and location of these holes. Holes shall be provided by drilling not burning. The location and size of all venting and drainage holes shall be shown on the Contractor's shop drawings. All venting and drainage holes for hot-dip galvanizing shall be plugged with non-corroding tapered plugs after the galvanizing process.
- E13.7 Prior to fabrication, the dimensional limitations on the size and shape imposed by the galvanizing facilities shall be determined for hot-dip galvanizing the signal structures.
- E13.8 The galvanizing coating on outside surfaces of signal structures shall be generally smooth and free of blisters, lumpiness and runs. In particular, the outside surfaces of the bottom 2.5 m of the vertical support members shall have a smooth finish equal to the finish on hot-dipped galvanized handrails.
- E13.9 After hot dip galvanizing, all sharp edges and shards of galvanizing material on the exterior of shafts shall be removed. The same standard of care shall apply to all accessible interior surfaces including any flanged or mounting surfaces, access panel openings and locations where fasteners are attached.
- E13.10 In addition to the provision of corrosion protection by the galvanized coating, the aesthetic appearance of the structure after hot-dip galvanizing shall be a criterion in the acceptance or rejection of the galvanized coating. The galvanized coating on the entire structure shall have a uniform "silver" colour and lustre. Galvanizing with parts of the structure having dull grey coating or streaks or mottled appearance shall not be acceptable.
- E13.10.1 If the galvanizing is rejected for aesthetic reasons, the Contractor shall rectify the appearance by applying spray-on molten zinc metallizing with 85/15 zinc/aluminum alloy. The metallizing shall be carried out in the shop before the structure is delivered.
- E13.11 The Contractor shall verify the thickness of galvanized coatings as directed by the Contract Administrator and have these readings available for review.
- E13.12 The drain holes located on the underside of the arm near the flange shall be left open.
- E13.13 The structures shall be stored on timber blocking after hot-dip galvanizing.
- E13.14 Hot-dip galvanized structures in storage shall be arranged in such a way to allow adequate venting of the bundle and minimize the presence of moisture in contact with the structures.

E14. HOT-DIP GALVANIZING DEFECT REPAIR

- E14.1 In the event that repairs to the galvanizing coating are required, repair materials and practices shall be supplied and performed in accordance with ASTM A780 (latest edition) "Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings".
- E14.2 Other defects and contaminants in the galvanizing coating, such as heavy dross protrusions, flux inclusions and ash inclusions shall be grounds for rejection of the galvanizing coating system.

E15. STRUCTURE IDENTIFICATION AND LABELS

- E15.1 Each signal support structure shall be provided with a raised structure identification number with a welding electrode. The signal support structure identification number shall be placed before hot-dip galvanizing.
- E15.2 The format of the raised structure identification shall conform to the following format XX – YR – ST – ### where:
- E15.2.1 XX shall be the abbreviation or logo of the Contractor's firm.
- E15.2.2 YR shall be the last two (2) digits of the year of manufacture.

- E15.2.3 ST shall be the structure type code as indicated on the Drawings.
- E15.2.4 ### shall be a unique item number starting with "001" and proceeding consecutively for each additional component of that type during the year of manufacture.
- E15.3 Each character of the raised structure identification number shall be approximately 25 mm wide by 40 mm tall, with a 10 mm space between each character. The weld profile shall be a smooth half round bead approximately 2 mm tall by 3 mm wide.
- E15.3.1 For horizontal (arm type) components, the raised structure identification number shall be provided approximately 500 mm from the flange plate and located on the top-side of the arm.
- E15.3.2 For vertical (shaft and straight pole type) components, the raised structure identification number shall be provided approximately 500 mm from the base plate and located on the same side as the access panel.
- E15.4 For tracking purposes on each purchase order issued, the City shall supply to the Contractor rectangular self-adhesive bar-coded labels. These labels shall be placed on the horizontal (arm) and vertical (shaft) components after galvanizing and touch-up is complete under conditions and in positions as noted below:
- E15.4.1 The barcode labels shall be applied when surface temperatures are greater than 10 degrees Celsius.
- E15.4.2 The flat surface where the barcode label will be affixed shall be cleaned using rubbing alcohol and after a drying period shall be free of dust or other loose material.
- E15.4.3 Cantilever arms: the position of the barcode label on the cantilever arm shall be affixed 0.3 metres from the raised structure identification number. The barcode label shall be centered in line on the same narrow octagonal face of the cantilever arm as the identification number.
- E15.4.4 Pole shafts: the position of the barcode label on the pole shaft shall be affixed 0.1 metre above the access panel opening on the same octagonal pole face as the opening. The barcode label shall be horizontally centered across the octagonal face of the pole. If the edges of the horizontal barcode label will overhang the mounting surface on the pole shaft, the barcode label shall be rotated 90 degrees to the left and placed vertically centered across the same octagonal face of the pole shaft
- E15.5 All adhesive labels shall be affixed prior to shipment.
- E15.6 For each barcode label affixed, details regarding each structure shall be recorded on a form supplied by the City.
- E15.7 All unused labels (as described in E15.4) and all completed barcode forms (as described in E15.6) shall be re-packaged and returned to the Contract Administrator. The Contractor shall contact the Contract Administrator for instructions on the best method to return the completed forms and unused labels.

E16. QUALITY CONTROL

- E16.1 All workmanship and all materials furnished and supplied under this Specification are subject to close and systematic inspection and testing by the Contract Administrator, including all operations from the selection and production of materials, through to final acceptance of the Work. The Contractor shall be wholly responsible for the control of all operations incidental thereto notwithstanding any inspection approval that may have been previously given. The Contract Administrator reserves the right to reject any materials or Works that are not in accordance with the requirements of this Specification.

E17. QUALITY ASSURANCE

- E17.1 In addition to the Contractor's own Quality Control testing, all materials, welding procedures and steel fabrication including hot-dip galvanizing shall be inspected and tested for compliance with the Specifications and Drawings.
- E17.2 For each purchase order issued and within seventy-five (75) Calendar days of the date recorded on the purchase order, the Contractor shall hire an independent testing agency certified by the Canadian Welding Bureau to carry out shop fabrication inspection and testing of the coating system before the structures are approved ready for installation.
- E17.3 The Contractor shall immediately provide to the Contract Administrator contact information of the hired independent testing agency. That information shall include:
- E17.3.1 Agency name and street address
 - E17.3.2 Copy of Agency's CWB Certification
 - E17.3.3 Contact person's name and job title
 - E17.3.4 Email address
 - E17.3.5 Daytime telephone number
 - E17.3.6 Fax number
 - E17.3.7 Inspector's name
 - E17.3.8 Inspector's Certifications
 - E17.3.9 Date that the first inspection occurred
- E17.4 The hired inspector shall have access to all of the fabricator's normal quality control records for this Contract, specified herein.

E18. INSPECTION AND TESTING REPORTS

- E18.1 For each purchase order issued and within one hundred twenty (120) Calendar days of the date recorded on the purchase order, the Contractor's inspector shall prepare and submit dated reports detailing inspections and tests conducted and results. Inspections and testing requirements are detailed in E18.2. Full-colour, high-resolution photographic images showing units in various stages of fabrication should be included in these reports.
- E18.2 Inspection and testing reports shall include results from:
- E18.2.1 Visual inspection of 100 percent of welds
 - E18.2.2 Magnetic particle testing of a random 10 percent of seam welds
 - E18.2.3 Magnetic particle testing of a random 25 percent of base plate welds
 - E18.2.4 Visual inspection of 100 percent of all surface preparation prior to shipping for hot-dip galvanizing
 - E18.2.5 Visual inspection of 100 percent of all hot-dip galvanizing and coating thickness prior to shipping
- E18.3 Within forty-five (45) Calendar days of agency hire date, the independent testing agency shall inspect, test and prepare an interim report on all materials, welding procedures and steel fabrication processes including hot-dip galvanizing, noting compliance or non-compliance with these specifications and drawings.
- E18.3.1 Copies of inspection and test reports (both all inspectors) shall be prepared as described in E20.

E19. INSPECTION REPORT DETAILS

E19.1 At time of order delivery, the independent testing agency shall deliver to the Contract administrator all completed inspection reports which includes the following information and features:

- E19.1.1 Summary of inspection dates
- E19.1.2 Description of items inspected
- E19.1.3 Scope of inspections
- E19.1.4 Specifications governing inspection
- E19.1.5 Description of test methods
- E19.1.6 Summary of inspection results
- E19.1.7 Photographs representative of inspection findings

E19.2 All completed inspection reports shall be signed and sealed by a Level III Canadian Welding Bureau Certified Welding Inspector.

E19.3 The date on any inspection report shall be no later than the date when each order was successfully delivered to the City.

E19.4 All copies of inspection reports shall be prepared as described in E20.

E20. REPORT FORMATS

E20.1 All inspection reports shall be available in PDF format.

E20.2 Inspection reports shall be sent to the Contract Administrator's email account as email message attachments. Please note that there is a 15 megabyte email message size limit (including attachments). If necessary, the inspection report may need to be sent using multiple email messages.

E20.2.1 Alternatively, reports may be stored on a file storage server that an internet-connected workstation would be able to access. The reporting agency would need to provide login details via email message to the Contract Administrator to allow access to these stored files. Copies of stored file reports would be retrieved and placed on the City's computer network. All inspection reports and related files on the file storage service shall remain accessible for a minimum of 90 Calendar days following each order delivery.

E21. UNACCEPTABLE WORK

E21.1 Welds that are found by any of the inspection and testing methods to be inadequate and unsatisfactory shall be repaired in accordance with CSA W59 and then retested. The cost of the repairs and the cost of the retest shall be paid for by the Contractor.

E21.2 Defects in hot-dip galvanizing shall be rectified as directed by the Contract Administrator in accordance with Section E14.1.

E21.3 No repair shall be made until agreed to by the Contract Administrator.

E22. TESTING

E22.1 Notwithstanding the Contractor's own quality control testing of all materials, the Contract Administrator may arrange for inspection of welding procedures and steel fabrication to ascertain compliance with the Specifications and Drawings.

E22.2 A testing agency may be engaged to work with the Contract Administrator to carry out shop inspections and fabrication testing of the work throughout the manufacturing process. The

Contractor shall cooperate fully with the testing firm. The firm shall have access to all the Contractor's normal quality control records associated with this Contract.

- E22.3 Testing may include radiographic inspection and magnetic particle inspection, as determined by the Contract Administrator. Weld inspection shall be carried out in accordance with the requirements of CSA W59-03. Welds found by any of the inspection methods to be inadequate and unsatisfactory shall be repaired in accordance with CSA W59-03 and then retested. The cost of the repairs and the cost of the retest shall be paid for by the Contractor. No repair shall be made until agreed to by the Contract Administrator.

E23. NON-METAL ACCESS PANEL COVER

- E23.1 The "non-metal" type access panel cover shall be strong, durable, ultraviolet stabilized, tamper proof and not subject to breakage or deformation under temperatures ranging from -50° C to $+50^{\circ}$ C.
- E23.2 The intended function of the access panel cover is to:
- (a) Prevent access to the interior of the access panel when secured with the supplied hex head bolts.
 - (b) Prevent/limit the ingress of water, snow, or items.
 - (c) Withstand acts of vandalism caused by impact or prying.
 - (d) Provide a service lifetime similar to the pole.
 - (e) Maintain integrity and intended function of the cover when bolts tightly fasten the access panel cover to the pole.
- E23.3 The Contractor shall install the access panel covers prior to final delivery.
- E23.4 The access panel cover material shall be a homogenous colour throughout. The cover material colour shall be similar to the galvanized pole. Painted covers are not acceptable.
- E23.5 For each order of poles placed, the Contractor shall supply one (1) additional non-metal Access Panel Cover for each multiple of 20 poles ordered.** (Example: If 61 to 80 total poles ordered, 4 additional covers shall be supplied. For 81 to 100 total poles ordered, 5 additional covers shall be supplied.)

Access Panel Cover Label and Details

- E23.6 A label identifying the manufacturer and year of manufacture shall be permanently formed or etched into the inside face of the access panel cover with a minimum 10 mm character height. The format is as follows:
- E23.6.1 XX – YR where XX shall be the abbreviation or logo of the Contractor's firm, followed by a dash, followed by YR which shall be the last two (2) digits of the year of manufacture
- E23.6.2 No other logos or wordings shall be permitted on the exterior faces of the cover.
- E23.7 The access panel cover shall have a smooth and continuous circumferential perimeter flange. When mounted, the flange shall overlap the outside edge of the access panel ring sufficiently to prevent driven snow or rain entry into the access panel. The flange shall be located no greater than 1/4 inch (6 mm) from the outside edge of the access panel ring. The flange depth shall be a minimum of 3/4 inch (19 mm) on the left and right sides (greater is preferred) and 7/16 inch (11 mm) on the top and bottom (greater is preferred).
- E23.7.1 Flat access panel covers will be rejected.
- E23.8 The access panel cover shall have a smooth and continuous internally extruded ring. The ring shall be located between 1/8 inch (3 mm) and 1/4 inch (6 mm) from the inside of the clear opening of the pole's access panel ring. The width and depth of the internal ring extrusion shall be sufficient as to provide rigidity to the cover, to channel rogue moisture away from the

terminal strip, and not interfere with the mounting of the access cover. The ring shall have a maximum 5/8 inch (16 mm) width and a maximum depth of 3/8 inch (10 mm) and not less than 1/4 inch (6 mm) depth.

- E23.9 Any additional extrusions into the pole access opening shall be limited to 3/8 inch (10 mm). Extrusions exterior to the plane of the access panel's opening shall be limited to 3/4 inch (19 mm) and shall be functional.
- E23.10 The cover shall bear down onto the access panel ring and lay flush against the entire perimeter of the access panel ring when the cover is attached;
- E23.11 The access panel cover shall be fabricated of material with a minimum thickness of 1/8 inch (3 mm).
- E23.12 All edges on the access panel cover shall be smooth;
- E23.13 The cover shall be secured to the access panel by two 3/8 inch (10 mm) diameter by 2.5 inches (63.5 mm) long, fully threaded hexagonal head Type 316 stainless steel bolts (hex head bolts, 9/16 inch across flats).
- E23.14 The two holes in the cover for the mounting bolts shall be circular, 1/2 inch (13 mm) diameter and centered over the upper and lower bracket mounting holes both vertically and horizontally as shown in the Drawings.
- E23.15 The Contractor shall install the access panel covers prior to final delivery
- E23.16 A sample of the proposed alternate cover shall be provided to the Contract Administrator for inspection and testing prior to approval in accordance with B6 and E23.

Access Panel Cover Impact Testing

The impact test represents a potential act of vandalism.

- E23.17 The access panel cover will be cold soaked for 4 hours at - 30 degrees Celsius prior to testing.
- E23.18 The impact test (as shown on 30-2015 Drawing TS-IMP1) involves elevating to a horizontal position a pendulum consisting of a 10 lb weight mounted on one end of 6 foot arm, and releasing the pendulum to rotate through a 90 degree arc to its lowest vertical resting point to impact the centre of the access panel cover face which is affixed to the access panel opening on the signal pole using the supplied hex bolts (as illustrated in Drawings). After being struck one time, the access panel cover will be examined for deformation or cracking. The access panel cover will be found unacceptable if cracking appears, or deformation occurs that affects the required functionality as per E23.1 and E23.2.
- E23.19 **Approved Access Panel Covers:** The following "non-metal" products are approved provided they continue to meet all the specifications in section E23.
 - E23.19.1 Valmont West Coast PVC Access Cover 2004 Drawing: 230 – CO - 5x25 – PVC
 - E23.19.2 Nova Pole Access Panel – latest approved version
 - E23.19.3 Patriot Sales Inc. Light Pole Access Cover Plate 2007 Drawing: PSI.09102007 Rev. A
 - E23.19.4 Power-Lite Industries Inc. – PWL-11, latest revision.