



**THE CITY OF WINNIPEG**

# **TENDER**

**TENDER NO. 158-2021**

**SUPPLY AND DELIVERY OF DAVIT POLE AND ARM**

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## **PART B - BIDDING PROCEDURES**

### **B1. CONTRACT TITLE**

B1.1 SUPPLY AND DELIVERY OF DAVIT POLE AND ARM

### **B2. SUBMISSION DEADLINE**

B2.1 The Submission Deadline is 4:00 p.m. Winnipeg time, May 25, 2021.

B2.2 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 D5.1.

B3.2 If the Bidder finds errors, discrepancies or omissions in the Tender, 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 Responses to enquiries which, in the sole judgment of the Contract Administrator, require a correction to or a clarification of the Tender will be provided by the Contract Administrator to all Bidders by issuing an addendum.

B3.4 Responses to enquiries which, in the sole judgment of the Contract Administrator, do not require a correction to or a clarification of the Tender will be provided by the Contract Administrator only to the Bidder who made the enquiry.

B3.5 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.

B3.6 Any enquiries concerning submitting through MERX should be addressed to:  
MERX Customer Support  
Phone: 1-800-964-6379  
Email: merx@merx.com

### **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 Tender 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 Tender, or clarifying the meaning or intent of any provision therein.

- B5.2 The Contract Administrator will issue each addendum at least two (2) Business Days prior to the Submission Deadline, or provide at least two (2) Business Days by extending the Submission Deadline.
- B5.3 Addenda will be available on the MERX website at [www.merx.com](http://www.merx.com).
- B5.4 The Bidder is responsible for ensuring that he/she has received all addenda and is advised to check the MERX website for addenda regularly and shortly before the Submission Deadline, as may be amended by addendum.
- B5.5 The Bidder shall acknowledge receipt of each addendum in Paragraph 10 of Form A: Bid/Proposal. Failure to acknowledge receipt of an addendum may render a Bid non-responsive.
- B5.6 Notwithstanding B3, enquiries related to an Addendum may be directed to the Contract Administrator indicated in D5.

**B6. SUBSTITUTES**

- B6.1 The Work is based on the materials, equipment, methods and products specified in the Tender.
- 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 material, equipment, method or product as either an approved equal or alternative;
  - (b) identify any and all changes required in the applicable Work, and all changes to any other Work, which would become necessary to accommodate the substitute;
  - (c) identify any anticipated cost or time savings that may be associated with the substitute;
  - (d) certify that, in the case of a request for approval as an approved equal, the substitute will fully perform the functions called for by the general design, be of equal or superior substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the Contract;
  - (e) certify that, in the case of a request for approval as an approved alternative, the substitute will adequately perform the functions called for by the general design, be similar in substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the Contract.
- B6.5 The Contract Administrator, after assessing the request for approval of a substitute, may in his/her sole discretion grant approval for the use of a substitute as an “approved equal” or as an “approved alternative”, or may refuse to grant approval of the substitute.
- B6.6 The Contract Administrator will provide a response in writing, at least two (2) Business Days prior to the Submission Deadline, to the Bidder who requested approval of the substitute.
- B6.6.1 The Contract Administrator will issue an Addendum, disclosing the approved materials, equipment, methods and products to all potential Bidders. The Bidder requesting and obtaining the approval of a substitute shall be responsible for disseminating information regarding the approval to any person or persons he/she wishes to inform
- B6.7 If the Contract Administrator approves a substitute as an “approved equal”, any Bidder may use the approved equal in place of the specified item.

B6.8 If the Contract Administrator approves a substitute as an “approved alternative”, any Bidder bidding that approved alternative may base his/her Total Bid Price upon the specified item but may also indicate an alternative price based upon the approved alternative. Such alternatives will be evaluated in accordance with B16.

B6.9 No later claim by the Contractor for an addition to the price(s) because of any other changes in the Work necessitated by the use of an approved equal or an approved alternative will be considered.

## **B7. BID SUBMISSION**

B7.1 The Bid shall consist of the following components:

- (a) Form A: Bid/Proposal;
- (b) Form B: Prices.

B7.2 All components of the Bid shall be fully completed or provided, and submitted by the Bidder no later than the Submission Deadline, with all required entries made clearly and completely.

B7.3 The Bid shall be submitted electronically through MERX at [www.merx.com](http://www.merx.com).

B7.3.1 Bids will **only** be accepted electronically through MERX.

B7.4 Bidders are advised that inclusion of terms and conditions inconsistent with the Tender document, including the General Conditions, will be evaluated in accordance with B16.1(a).

## **B8. BID**

B8.1 The Bidder shall complete Form A: Bid/Proposal, making all required entries.

B8.2 Paragraph 2 of Form A: Bid/Proposal 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/Proposal, the Bidder shall identify a contact person who is authorized to represent the Bidder for purposes of the Bid.

B8.4 Paragraph 13 of Form A: Bid/Proposal 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/Proposal should be entered 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.

B9.1.2 Prices on Form B: Prices shall not include Environmental Handling Charges (EHC) or fees, which shall be extra where applicable.

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 The Bidder shall enter the Total Bid Price from Form B: Prices into the Total Bid Price field in MERX.

B9.4.1 Bidders are advised that the calculation indicated in B16.4 will prevail over the Total Bid Price entered in MERX.

## **B10. DISCLOSURE**

B10.1 Various Persons provided information or services with respect to this Work. In the City's opinion, this relationship or association does not create a conflict of interest because of this full disclosure. Where applicable, additional material available as a result of contact with these Persons is listed below.

B10.2 The Persons are:

- (a) n/a

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

B11.1 Further to C3.2, Bidders, by responding to this Tender, declare that no Conflict of Interest currently exists, or is reasonably expected to exist in the future.

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

- (a) other commitments;
- (b) relationships;
- (c) financial interests; or

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

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

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

**B11.4** Without limiting B11.3, the City may, in its sole discretion, waive any and all perceived, potential or actual Conflicts of Interest. The City's waiver may be based upon such terms and conditions as the City, in its sole discretion, requires to satisfy itself that the Conflict of Interest has been appropriately avoided or mitigated, including requiring the Bidder to put into place such policies, procedures, measures and other safeguards as may be required by and be acceptable to the City, in its sole discretion, to avoid or mitigate the impact of such Conflict of Interest.

**B11.5** Without limiting B11.3, and in addition to all Contractual or other rights or rights at law or in equity or legislation that may be available to the City, the City may, in its sole discretion:

- (a) disqualify a Bidder that fails to disclose a perceived, potential or actual Conflict of Interest of the Bidder or any of its employees proposed for the Work;
- (b) require the removal or replacement of any employees proposed for the Work that has a perceived, actual or potential Conflict of Interest that the City, in its sole discretion, determines cannot be avoided or mitigated;
- (c) disqualify a Bidder or employees proposed for the Work that fails to comply with any requirements prescribed by the City pursuant to B11.4 to avoid or mitigate a Conflict of Interest; and
- (d) disqualify a Bidder if the Bidder, or one of its employees proposed for the Work, has a perceived, potential or actual Conflict of Interest that, in the City's sole discretion, cannot be avoided or mitigated, or otherwise resolved.

**B11.6** The final determination of whether a perceived, potential or actual Conflict of Interest exists shall be made by the City, in its sole discretion.

## **B12. QUALIFICATION**

**B12.1** The Bidder shall:



- (a) undertake to be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba, or if the Bidder does not carry on business in Manitoba, in the jurisdiction where the Bidder does carry on business; and
- (b) be financially capable of carrying out the terms of the Contract; and
- (c) have all the necessary experience, capital, organization, and equipment to perform the Work in strict accordance with the terms and provisions of the Contract.

B12.2 The Bidder and any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:

- (a) be responsible and not be suspended, debarred or in default of any obligations to the City. A list of suspended or debarred individuals and companies is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <https://www.winnipeg.ca/matmgt/Templates/files/debar.pdf>

B12.3 The Bidder and/or any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:

- (a) have successfully carried out work similar in nature, scope and value to the Work; and
- (b) be fully capable of performing the Work required to be in strict accordance with the terms and provisions of the Contract; and
- (c) have a written workplace safety and health program, if required, pursuant to The Workplace Safety and Health Act (Manitoba);
- (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 time lines;
- (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.

B12.4 The Bidder shall comply with the specifications stated in the Section PART E - SPECIFICATIONS. The Bidder shall insure material supplied and processes shall meet the CSA, ASTM, ASME requirements stated in this Tender. Deviations and/or substitute material will not be accepted. The Bidder shall be able to supply all documentation referencing the CSA, ASTM specifications and standards.

B12.5 The Bidder shall submit, within three (3) Business Days of a request by the Contract Administrator, proof satisfactory to the Contract Administrator of the qualifications of the Bidder and of any proposed Subcontractor.

#### **Requested Samples and Documentation**

B12.6 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.

B12.6.1 The Bidder is responsible for all freight costs associated with the delivery and return of any requested sample(s) as described in B12.6.

B12.7 The Bidder may be considered as non-responsive if requested information and / or sample as described in B12.5 and B12.6 is not received within the time frame specified.

B12.8 Unsolicited samples will be returned at Bidder's expense.

- B12.9 The Bidder will be notified by the Contract Administrator whether the bid samples and / or technical documentation had any noted deficiencies.
- B12.10 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.
- B12.11 The Bidder shall provide, on the request of the Contract Administrator, full access to any of the Bidder's equipment and facilities to confirm, to the Contract Administrator's satisfaction, that the Bidder's equipment and facilities are adequate to perform the Work.

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

- B13.1 Bids will not be opened publicly.
- B13.2 Following the Submission Deadline, the names of the Bidders and their Total Bid Prices (unevaluated and pending review and verification of conformance with requirements) will be available on the MERX website at [www.merx.com](http://www.merx.com).
- B13.3 After award of Contract, the name(s) of the successful Bidder(s) and their Contract amount(s) will be available on the MERX website at [www.merx.com](http://www.merx.com).
- B13.4 The Bidder is advised that any information contained in any Bid may be released if required by The Freedom of Information and Protection of Privacy Act (Manitoba), by other authorities having jurisdiction, or by law or by City policy or procedures (which may include access by members of City Council).
- B13.4.1 To the extent permitted, the City shall treat as confidential information, those aspects of a Bid Submission identified by the Bidder as such in accordance with and by reference to Part 2, Section 17 or Section 18 or Section 26 of The Freedom of Information and Protection of Privacy Act (Manitoba), as amended.

### **B14. IRREVOCABLE BID**

- B14.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 11 of Form A: Bid/Proposal.
- B14.2 The acceptance by the City of any Bid shall not release the Bids of the next two lowest evaluated responsive Bidders and these Bidders shall be bound by their Bids on such Work until a Contract for the Work has been duly formed and the Contract securities have been furnished as herein provided, but any Bid shall be deemed to have lapsed unless accepted within the time period specified in Paragraph 11 of Form A: Bid/Proposal.

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

- B15.1 A Bidder may withdraw his/her Bid without penalty at any time prior to the Submission Deadline.

### **B16. EVALUATION OF BIDS**

- B16.1 Award of the Contract shall be based on the following bid evaluation criteria:
- (a) compliance by the Bidder with the requirements of the Tender, or acceptable deviation therefrom (pass/fail);
  - (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B12 (pass/fail);
  - (c) Total Bid Price;
  - (d) economic analysis of any approved alternative pursuant to B6.
- B16.2 Further to B16.1(a), the Award Authority may reject a Bid as being non-responsive if the Bid Submission is incomplete, obscure or conditional, or contains additions, deletions, alterations or

other irregularities. The Award Authority may reject all or any part of any Bid, or waive technical requirements or minor informalities or irregularities if the interests of the City so require.

- B16.3 Further to B16.1(b), the Award Authority shall reject any Bid submitted by a Bidder who does not demonstrate, in his/her Bid or in other information required to be submitted, that he/she is qualified.
- B16.4 Further to B16.1(c), the Total Bid Price shall be the sum of the quantities multiplied by the unit prices for each item shown on Form B: Prices.
- B16.4.1 Further to B16.1(a), in the event that a unit price is not provided on Form B: Prices, the City may determine the unit price by dividing the Amount (extended price) by the approximate quantity, for the purposes of evaluation and payment.
- B16.4.2 Bidders are advised that the calculation indicated in B16.4 will prevail over the Total Bid Price entered in MERX.
- B16.5 This Contract will be awarded as a whole.

**B17. AWARD OF CONTRACT**

- B17.1 The City will give notice of the award of the Contract or will give notice that no award will be made.
- B17.2 The City will have no obligation to award a Contract to a Bidder, even though one or all of the Bidders are determined to be qualified, and the Bids are determined to be responsive.
- B17.2.1 Without limiting the generality of B17.2, the City will have no obligation to award a Contract where:
- (a) the prices exceed the available City funds for the Work;
  - (b) the prices are materially in excess of the prices received for similar work in the past;
  - (c) the prices are materially in excess of the City's cost to perform the Work, or a significant portion thereof, with its own forces;
  - (d) only one Bid is received; or
  - (e) in the judgment of the Award Authority, the interests of the City would best be served by not awarding a Contract.
- B17.3 Where an award of Contract is made by the City, the award shall be made to the qualified Bidder submitting the lowest evaluated responsive Bid, in accordance with B16.
- B17.4 Further to Paragraph 7 of Form A: Bid/Proposal and C4, the City may issue a purchase order to the successful Bidder in lieu of the execution of a Contract.
- B17.4.1 The Contract Documents, as defined in C1.1(p), 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.
- B17.5 Following the award of Contract, a Bidder will be provided with information related to the evaluation of his/her Bid upon written request to the Contract Administrator.

## **PART C - GENERAL CONDITIONS**

### **C0. GENERAL CONDITIONS**

- C0.1 The *General Conditions for the Supply of Goods* (Revision 2020-01-31) are applicable to the Work of the Contract.
- C0.1.1 The General Conditions for the Supply of Goods are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at [http://www.winnipeg.ca/matmgt/gen\\_cond.stm](http://www.winnipeg.ca/matmgt/gen_cond.stm)
- C0.2 A reference in the Tender 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 supply and delivery of davit pole and arm from date of award until February 28, 2022, 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 Proponent within ninety (90) Calendar Days prior to the expiry date of the Contract. The City shall incur no liability to the Proponent as a result of such negotiations.

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

D2.1.3 Bidders are advised that, in future, the City may be participating in collaborative procurement initiatives with other levels of government. Accordingly, extensions to this Contract may not be exercised.

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

D2.3 Notwithstanding D2.1, in the event that operational changes result in substantial changes to the requirements for Work, the City reserves the right to alter the type or quantity of work performed under this Contract, or to terminate the Contract, upon thirty (30) Calendar Days written notice by the Contract Administrator. In such an event, no claim may be made for damages on the ground of loss of anticipated profit on Work.

#### **D3. COOPERATIVE PURCHASE**

D3.1 The Contractor is advised that this is a cooperative purchase.

D3.2 The Contract Administrator may, from time to time during the term of the Contract, approve other public sector organizations and utilities, including but not limited to municipalities, universities, schools and hospitals, to be participants in the cooperative purchase.

D3.3 The Contract Administrator will notify the Contractor of a potential participant and provide a list of the delivery locations and estimated quantities.

D3.4 If any location of the potential participant is more than ten (10) kilometers beyond the boundaries of the City of Winnipeg, the Contractor shall, within fifteen (15) Calendar Days of the written notice, notify the Contract Administrator of the amount of any additional delivery charge for the location.

D3.5 If any additional delivery charges are identified by the Contractor, the potential participant may accept or decline to participate in the cooperative purchase.

D3.6 The Contractor shall enter into a Contract with each participant under the same terms and conditions as this Contract except:

- (a) supply under the Contract shall not commence until the expiry or lawful termination of any other Contract(s) binding the participant for the same goods;
- (b) a participant may specify a duration of Contract shorter than the duration of this Contract;
- (c) a participant may specify that only some items under this Contract and/or less than its total requirement for an item are to be supplied under its Contract; and
- (d) any additional delivery charge identified and accepted in accordance with clause D3.4 and D3.5 will apply.

D3.7 Each participant will be responsible for the administration of its Contract and the fulfilment of its obligations under its Contract. The City shall not incur any liability arising from any such Contract.

D3.8 No participant shall have the right or authority to effect a change in the Contract, or of any other participant in this Contract.

#### **D4. DEFINITIONS**

D4.1 When used in this Tender:

- (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;
- (f) “**ETL**” means Electrical Testing Laboratory, a Division of Intertek Group;
- (g) “**ITE**” means Institute of Transportation Engineers;
- (h) “**SSPC**” means The Society for Protective Coatings.

#### **D5. CONTRACT ADMINISTRATOR**

D5.1 The Contract Administrator is:

Vic Hucko  
Asset Standards and Contract Specialist  
Telephone No.: 204-986-4191  
Email Address: vhucko@winnipeg.ca

#### **D6. NOTICES**

D6.1 Except as provided for in C20.4, 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/Proposal.

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 or elsewhere in the Contract, shall be sent to the attention of the Contract Administrator identified in D5.

D6.3 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.

## **SCHEDULE OF WORK**

### **D8. COMMENCEMENT**

D8.1 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.

D8.2 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 E6;
- (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 E5).

D8.3 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 D8.2.

D8.4 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.

D8.4.1 Lower grade steel shall not be acceptable (despite favourable published mill test results).

D8.5 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.

D8.6 The Contractor shall not commence any Work until:

- (a) the Contract Administrator has confirmed receipt and approval of:
  - (i) evidence of authority to carry on business specified in D7;
  - (ii) evidence of the workers compensation coverage specified in C6.17;
- (b) the Contract Administrator has received and approved all requested samples;
- (c) the Contract Administrator has confirmed receipt and issued approvals for all details listed in D8.2;
- (d) the Contractor has attended a meeting with the Contract Administrator, or the Contract Administrator has waived the requirement for a meeting;
- (e) a Purchase Order has been received from the City of Winnipeg Public Works Stores personnel noting quantity of material required;

- (f) the Contract Administrator has confirmed receipt and issued approvals for mill test certificates within the timeline specified in D8.4 and D8.5.

## **D9. DELIVERY**

- D9.1 Prior to shipping, all required documentation must have been received and approved by the Contract Administrator
- D9.2 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
- D9.3 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.
- D9.4 The Contractor shall provide delivery date notification to City Stores personnel at least two (2) Business Days before delivery.
- D9.4.1 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 D9.4.
- D9.5 Good shall be delivered between 8:00 a.m. and 2:30 p.m. on Business Days.
- D9.6 A bill of lading shall be prepared by the Contractor and clearly identify all components being delivered.
- D9.7 Cap plates and bolts shall be installed hand-tight to applicable components prior to delivery.
- D9.7.1 All covers shall be installed and complete in every respect. All access panel fasteners shall be installed hand-tight prior to delivery.
- D9.8 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.
- D9.8.1 Structure styles shall not be mixed when bundled.
- D9.9 Weight limit on item bundles: maximum 4,000 lbs. / 2 Tonnes.
- D9.10 Wood blocking with dimensions of not less than 3" x 3" must be placed and secured between different bundles of items.
- D9.11 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.
- D9.12 Maximum Loaded Height shall be not more than 8' / 2.5 metres above flatbed deck or 14' / 4.25 metres above grade (when delivered on high-bed deck).
- D9.13 City Stores personnel shall off-load goods at the delivery location. Bundled items moved by City personnel shall be unloaded by forklift unit.
- D9.13.1 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.

D9.14 Goods shall be inspected by the Contract Administrator or designated representative upon receipt.

#### **D10. LIQUIDATED DAMAGES**

D10.1 If the Contractor fails to achieve delivery of the goods within the time specified in D9.1 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.

D10.2 The amount specified for liquidated damages in D10.1 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.

D10.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

#### **D11. COVID-19 SCHEDULE DELAYS**

D11.1 The City acknowledges that the schedule for this Contract may be impacted by the COVID-19 pandemic. Commencement and progress of the Work shall be performed by the Contractor with due consideration to the health and safety of workers and the public, directives from health authorities and various levels of government and in close consultation with the Contract Administrator.

D11.2 If the Contractor is delayed in the performance of the Work by reason of the COVID-19 pandemic, the Work schedule may be adjusted by a period of time equal to the time lost due to such delay and costs related to such delay will be determined as identified herein.

D11.3 A minimum of 7 Calendar Days prior to the commencement of Work, the Contractor shall declare whether COVID-19 will affect the start date. The Contractor shall provide sufficient evidence that the delay is directly related to COVID-19, including but not limited to evidence related to availability of staff, availability of Material or work by others.

D11.4 For any delay related to COVID-19 and identified after Work has commenced, the Contractor shall within 7 Calendar Days of becoming aware of the anticipated delay declare the additional delay and shall provide sufficient evidence as indicated in D11.3. Failure to provide this notice will result in no additional time delays being considered by the City.

D11.5 The Work schedule, including the durations identified in D9 where applicable, will be adjusted to reflect delays accepted by the Contract Administrator.

D11.6 Any time or cost implications as a result of COVID-19 and in accordance with the above, as confirmed by the Contract Administrator, shall be documented in accordance with C7.

#### **D12. ORDERS**

D12.1 The Contractor shall provide a local Winnipeg telephone number or a toll-free telephone number at which orders for delivery may be placed.

D12.2 It is expected that the City will place one (1) order for the quantities stated in Form B for the initial contract.

#### **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

Send Invoices to [CityWpgAP-INVOICES@winnipeg.ca](mailto:CityWpgAP-INVOICES@winnipeg.ca)

Send Invoice Inquiries to [CityWpgAP-INQUIRIES@winnipeg.ca](mailto:CityWpgAP-INQUIRIES@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.

### **D15. PAYMENT**

D15.1 Further to C10, the City may at its option pay the Contractor by direct deposit to the Contractor's banking institution.

### **D16. PAYMENT SCHEDULE**

D16.1 Further to C10, payment shall be in Canadian funds net thirty (30) Calendar Days after receipt and approval of the Contractor's invoice.

## **WARRANTY**

### **D17. WARRANTY**

D17.1 Warranty is as stated in C11.

## D18. THIRD PARTY AGREEMENTS

- D18.1 In the event that funding for the Work of the Contract is provided to the City of Winnipeg by the Government of Manitoba and/or the Government of Canada, the following terms and conditions shall apply, as required by the applicable funding agreements.
- D18.2 Further to D18.1, in the event that the obligations in D18 apply, actual costs legitimately incurred by the Contractor as a direct result of these obligations ("Funding Costs") shall be determined by the actual cost to the Contractor and not by the valuation method(s) outlined in C7.4. In all other respects Funding Costs will be processed in accordance with Changes in Work under C7.
- D18.3 For the purposes of D18:
- (a) "**Government of Canada**" includes the authorized officials, auditors, and representatives of the Government of Canada; and
  - (b) "**Government of Manitoba**" includes the authorized officials, auditors, and representatives of the Government of Manitoba.
- D18.4 Indemnification By Contractor
- D18.4.1 In addition to the indemnity obligations outlined in C15 of the General Conditions for Goods, the Contractor agrees to indemnify and save harmless the Government of Canada and the Government of Manitoba and each of their respective Ministers, officers, servants, employees, and agents from and against all claims and demands, losses, costs, damages, actions, suit or other proceedings brought or pursued in any manner in respect of any matter caused by the Contractor or arising from this Contract or the Work, or from the goods or services provided or required to be provided by the Contractor, except those resulting from the negligence of any of the Government of Canada's or the Government of Manitoba's Ministers, officers, servants, employees, or agents, as the case may be.
- D18.5 Records Retention and Audits
- D18.5.1 The Contractor shall maintain and preserve accurate and complete records in respect of this Contract and the Work, including all accounting records, financial documents, copies of contracts with other parties and other records relating to this Contract and the Work during the term of the Contract and for at least six (6) years after Total Performance. Those records bearing original signatures or professional seals or stamps must be preserved in paper form; other records may be retained in electronic form.
- D18.5.2 In addition to the record keeping and inspection obligations outlined in C6 of the General Conditions for Goods, the Contractor shall keep available for inspection and audit at all reasonable times while this Contract is in effect and until at least six (6) years after Total Performance, all records, documents, and contracts referred to in D18.5.1 for inspection, copying and audit by the City of Winnipeg, the Government of Manitoba and/or the Government of Canada and their respective representatives and auditors, and to produce them on demand; to provide reasonable facilities for such inspections, copying and audits, to provide copies of and extracts from such records, documents, or contracts upon request by the City of Winnipeg, the Government of Manitoba, and/or the Government of Canada and their respective representatives and auditors, and to promptly provide such other information and explanations as may be reasonably requested by the City of Winnipeg, the Government of Manitoba, and/or the Government of Canada from time-to-time.
- D18.6 Other Obligations
- D18.6.1 The Contractor consents to the City providing a copy of the Contract Documents to the Government of Manitoba and/or the Government of Canada upon request from either entity.
- D18.6.2 If the Lobbyists Registration Act (Manitoba) applies to the Contractor, the Contractor represents and warrants that it has filed a return and is registered and in full compliance

with the obligations of that Act, and covenants that it will continue to comply for the duration of this Contract.

D18.6.3 The Contractor shall comply with all applicable legislation and standards, whether federal, provincial, or municipal, including (without limitation) labour, environmental, and human rights laws, in the course of providing the Work.

D18.6.4 The Contractor shall properly account for the Work provided under this Contract and payment received in this respect, prepared in accordance with generally accepted accounting principles in effect in Canada, including those principles and standards approved or recommended from time-to-time by the Chartered Professional Accountants of Canada or the Public Sector Accounting Board, as applicable, applied on a consistent basis.

D18.6.5 The Contractor represents and warrants that no current or former public servant or public office holder, to whom the Value and Ethics Code for the Public Sector, the Policy on Conflict of Interest and Post Employment, or the Conflict of Interest Act applies, shall derive direct benefit from this Contract, including any employment, payments, or gifts, unless the provision or receipt of such benefits is in compliance with such codes and the legislation.

D18.7 The Contractor represents and warrants that no member of the House of Commons or of the Senate of Canada or of the Legislative Assembly of Manitoba is a shareholder, director or officer of the Contractor or of a Subcontractor, and that no such member is entitled to any benefits arising from this Contract or from a contract with the Contractor or a Subcontractor concerning the Work.

## 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, Luminaires, and Traffic Signals 2013, 6 <sup>th</sup> Edition
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 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>
158-2021_Drawing_ST-111-R2.pdf	Access Panel
158-2021_Drawing_ST-136-R1.pdf	Double Davit Arms
158-2021_Drawing_ST-161-Sht1-R3.pdf	Light Duty Davit Pole Shaft, Sheet 1
158-2021_Drawing_ST-161_Sht2-3.pdf	Light Duty Davit Pole Shaft, Sheet 2
158-2021_Drawing_ST-164-R1.pdf	Cover for Wiring Access Panel
158-2021_Drawing_ST-169-R0.pdf	Light Duty Davit Arms
158-2021_Drawing_TS-IMP1-R0.pdf	Impact Test Setup
158-2021_Table_TS-RPD1.pdf	Pole and Davit Interconnecting Dimensions

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. In every instance where a brand

name or design specification is used, the City will also consider approved equals and/or approved alternatives in accordance with B6.

## **E2. GOODS**

- E2.1 The Contractor shall supply and delivery of davit pole and arm in accordance with the requirements hereinafter specified.
- E2.2 **Item No. 1** – 13' Light Duty Davit Shaft Pole shall be as per Work Item Specification Details contained in E3 to E23.
- (a) Notwithstanding details on Drawing No. 158-2021\_Drawing\_ST-111-R2, the terminal strip bracket (Item Detail 2) and the associated saddle bracket (Item Detail 10) are not required to be supplied with any pole.
- E2.3 **Item No. 2** – 8' Single Davit Arm. shall be as per Work Item Specification Details contained in E3 to E22 and E24.
- E2.4 **Item No. 3** – 12' Single Davit Arm shall be as per Work Item Specification Details contained in E3 to E22 and E24.
- E2.5 **Item No. 4** – 16' Single Davit Arm shall be as per Work Item Specification Details contained in E3 to E22 and E24.
- E2.6 **Item No. 5** – 8' Double Davit Arm shall be as per Work Item Specification Details contained in E3 to E22 and E24.
- E2.7 **Item No. 6** – 12' Double Davit Arm shall be as per Work Item Specification Details contained in E3 to E22 and E24.

## **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 poles and arms and associated components including non-metallic 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. EQUIPMENT**

- E4.1 All equipment used by the Contractor shall be of a type approved by the Contract Administrator and shall be kept in good working order.

## **E5. PRE-PRODUCTION SAMPLE ITEM REQUIREMENT**

- E5.1 Within the period specified in E5.4, the Contract Administrator may require 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.
- E5.1.1 The Contract Administrator may request an 'un-finished pre-production sample unit' for inspection.
- E5.2 Any pre-production sample unit described in E5.1 is to be considered separately from any other sample provided during the bid process (as detailed throughout **PART B - BIDDING PROCEDURES**).
- E5.3 The Contractor is responsible for paying all transportation charges for all sample unit(s).

### **Sample Unit Supply Period**

- E5.4 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.
- E5.4.1 By mutual agreement, the initial sample unit supply period may be changed.
- E5.5 The Contractor shall notify the Contract Administrator of any deviations in the sample unit from the requirements of the Contract.
- E5.6 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.
- E5.7 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.
- E5.8 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.
- E5.9 For each sample unit that receives the condition state of Approved Subject to Changes, 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 their re-worked sample unit within 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.
- E5.9.1 By mutual agreement, the re-worked sample unit supply period may be changed.
- E5.10 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 E5.7) within seven (7) Calendar days.
- E5.10.1 By mutual agreement, the rejected sample unit supply period may be changed.
- E5.11 The Contractor shall not supply additional sample unit(s) until that sample unit under review has been approved in writing by the Contract Administrator.
- E5.12 Contractors shall have only one (1) opportunity to re-submit a sample unit for Approval.
- E5.12.1 For all samples re-submitted, either a Condition state of 'Approved as submitted' or "Rejected" will be applied.
- E5.13 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.
- E5.14 The Contract Administrator remains the sole authority to allow the Contractor to provide a second re-submission of re-worked pre-production samples.
- E5.15 If supplied unfinished, the sample unit will be returned to the Contractor at the Contractor's expense.
- E5.16 If the finished sample unit is Approved as submitted, that sample unit shall be deemed to be the first delivered under the Contract and payment will be made accordingly.

- E5.16.1 If the finished sample unit either approved subject to change(s) or rejected, the sample unit will be returned to the Contractor at the Contractor's expense, and no payment will be made.

## **E6. SHOP DRAWINGS**

- E6.1 Within the period stated in D8.2, 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.
- E6.2 Shop Drawings shall accurately reflect materials, dimensions and tolerances as shown on City-supplied Certified Detailed Drawings.
- E6.3 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.
- E6.4 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.
- E6.5 Shop Drawings shall indicate the total weight and center of gravity of each component for lifting and rigging purposes.

## **E7. CONSTRUCTION METHODS**

- E7.1 Sufficient reinforced access panels and wiring holes shall be provided for wiring of the structures as shown on the Drawings.
- E7.2 If applicable, traffic signal support structures shall be so fabricated that erection can be achieved by means of bolted connections.

## **E8. MATERIALS**

- E8.1 The Contractor shall be responsible for the supply, safe storage, and handling of all materials set forth in this Specification.
- E8.2 All materials used for fabrication of traffic signal support structures shall be new, previously unused material.
- E8.3 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.
- E8.4 **Handling and Storage of Materials**
- E8.4.1 All materials shall be handled in a careful and workmanship-like manner, to the satisfaction of the Contract Administrator.
- E8.5 **Structural Steel**
- E8.5.1 Structural steel for all components of the traffic signal support structures shall be in accordance with CSA Standard G40.21 M (latest edition).
- E8.5.2 The grade supplied shall be in accordance with the grades shown on the Drawings.
- E8.5.3 For purposes of hot-dip galvanizing, the silicon content in the steel shall be controlled as follows:
- (a) For monotubular steel shafts, to within 0 to 0.03%, or from 0.15 to 0.22%.
  - (b) For base, flange and gusset plates and other miscellaneous steel, below 0.30%.



E8.5.4 The Contractor is advised that copies of mill test certificates showing the chemical and physical properties of all structural steel to be supplied under this Specification must be supplied to the Contract Administrator and be found acceptable prior to commencement of fabrication.

E8.5.5 Steel shall not be acceptable unless the mill test certificate states the grade to be in accordance with the grades stated on the Drawings. Lower grade steel shall not be acceptable (despite favourable published mill test results). Items fabricated without steel certification shall be rejected.

E8.5.6 All costs resulting from any changes or due to failure to have submissions reviewed shall be borne by the Contractor.

## E8.6 **Welding Consumables**

E8.6.1 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 shielded metal arc welding and flux-cored arc welding processes, respectively.

## E8.7 **Miscellaneous Materials**

E8.7.1 Miscellaneous material incidental to this Work shall be as approved by the Contract Administrator.

E8.7.2 Miscellaneous fasteners shall be in accordance with the type and dimensions shown on the drawings.

E8.7.3 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. **FABRICATION**

E9.1 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 2013, 6th Edition, plus all subsequent revisions.

E9.2 The punching of identification marks on the members shall not be allowed.

E9.3 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.

E9.4 Dimensions and fabrication details that control the field matching of parts shall receive careful attention.

E9.5 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.

E9.6 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.

E9.7 All holes shall be free of burrs and rough edges for inner and outer faces.

## E10. **COMPONENTS**

### E10.1 **Access Panel Cover Fasteners**

E10.1.1 Hex Bolts for securing the access panel covers shall be in accordance with ASTM F593 Type 316 stainless steel, fully threaded.

E10.1.2 The Tamper Proof Cup Washer shall be in aluminum in accordance with ASTM B209 Grade 3003-H14.

## **E10.2 Miscellaneous Materials**

E10.2.1 Miscellaneous material incidental to this Work shall be as approved by the Contract Administrator.

## **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. Care shall be taken to ensure that excess weld material does not hamper functionality of structure.

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. This requirement is significant on intermating slip areas on davit shaft and davit arm due to tight tolerances post galvanizing.

E11.6 Each signal support structure shall have a raised structure identification number with a welding electrode (as noted in E15.1).

## **E12. SURFACE PREPARATION AND CLEANING**

E12.1 Surface preparation and cleaning of materials prior to hot-dip galvanizing shall be in accordance with SSPC Specification SP6, "Commercial Blast Cleaning," unless otherwise specified herein.

E12.2 The Contractor shall ensure that all exterior surfaces are blast cleaned prior to pickling to achieve the minimum zinc coating mass of 610 g/m<sup>2</sup>. All welding and provision of holes is to be completed prior to surface preparation and cleaning, except where shown on the Drawings.

E12.2.1 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/m<sup>2</sup>.

E13.4 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".

E13.5 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.

- E13.6 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.
- E13.7 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.
- E13.8 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 intermating or mounting surfaces, access panel openings and locations where fasteners are attached.
- E13.9 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" color and luster. Galvanizing with parts of the structure having dull grey coating or streaks or mottled appearance shall not be acceptable.
- E13.9.1 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.
- E13.10 The Contractor shall verify the thickness of galvanized coatings as directed by the Contract Administrator and have these readings available for review.
- E13.11 All threaded components shall be re-threaded after the structures have been hot-dip galvanized.
- 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. Structure Identification Numbering is covered separately for each item in this Specification.
- E15.2 For tracking purposes on each purchase order issued, the City shall supply to the Contractor rectangular self-adhesive bar-coded labels and label tracking forms.
- E15.3 The labels shall be placed on the vertical (shaft) and horizontal (arm) components after galvanizing and touch-up is complete under conditions and in positions as noted below.
- E15.3.1 The barcode labels shall be applied when surface temperatures are greater than 10 degrees Celsius.
- E15.3.2 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.

- E15.3.3 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°s to the left and placed vertically centered across the same octagonal face of the pole shaft.
- E15.3.4 Davit arms: the position of the barcode label on the davit 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 davit arm as the structure identification number.
- E15.4 All adhesive labels shall be affixed prior to shipment.
- E15.5 For each barcode label affixed, details regarding each structure shall be recorded on a form supplied by the City.
- E15.6 All unused labels (as described in E15.2) and all completed barcode forms (as described in E15.5) 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 unused labels and completed forms.

## **E16. QUALITY CONTROL**

### **E16.1 General**

- E16.1.1 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.
- E16.1.2 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.

### **E16.2 Welding Qualifications**

- E16.2.1 The Contractor 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.
- E16.2.2 Approved welding procedures shall be submitted to the Contract Administrator prior to fabrication of any steel items.

## **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:
- (a) Agency name and street address;
  - (b) Copy of Agency's CWB Certification;
  - (c) Contact person's name and job title;

- (d) Email address;
- (e) Daytime telephone number;
- (f) Fax number;
- (g) Inspector's name;
- (h) Inspector's Certifications; and
- (i) 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, 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:

- (a) Visual inspection of 100% of welds;
- (b) Magnetic particle testing of a random 10% of seam welds;
- (c) Magnetic particle testing of a random 25% of base plate welds;
- (d) Visual inspection of 100% of all surface preparation prior to shipping for hot-dip galvanizing; and
- (e) Visual inspection of 100% 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 by in-house inspectors and by outside 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:

- (a) Summary of inspection dates;
- (b) Description of items inspected;
- (c) Scope of inspections;
- (d) Specifications governing inspection;
- (e) Description of test methods;
- (f) Summary of inspection results; and
- (g) 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 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. 13' LIGHT DUTY DAVIT SHAFT POLES**

- E23.1 The Contractor shall supply and deliver 13' traffic signal light duty davit shaft poles that are suitable for use with current and future inventory of davit arms of 8', 12' and 16' reach and double davit arms of 8' and 12' reach.
- (a) Notwithstanding details on 158-2021\_Drawing\_ST-111-R2, the terminal strip bracket (Item Detail 2) and the associated saddle bracket (Item Detail 10) are not required to be supplied with any pole.

### **E23.2 Materials**

- E23.2.1 The octagonal pole shaft walls of the traffic signal light duty pole shaft shall be fabricated from 7 Gauge structural steel meeting as a minimum the requirements of the ASTM A570 Grade 50 (50 ksi Design Yield Strength).

**NOTE:** Steel shall not be acceptable unless the mill test certificate states the grade to be 50 ksi minimum yields. Lower grade steel shall not be acceptable (despite favorable published mill test yield results) and pole shafts fabricated without steel certification shall be rejected.

- E23.2.2 The 7 Gauge structural steel used in the pole shaft shall have silicon content as per E8.5.3. Other steel components shall have silicon content controlled as required to prevent detrimental galvanizing effects
- E23.2.3 The base plate material shall be steel meeting the requirements of CSA G40.21 44W.
- E23.2.4 The access panel cover shall be non-metal.
- E23.2.5 Type 316 stainless steel (non-magnetic) hardware shall be used for:
- (a) The 1/4" x 1 1/2" long grounding bolt and the two grounding bolt nuts inside the access panel; and
  - (b) The two 3/8" x 2 1/2" long hex head bolts which fasten the access panel cover to the wiring access panel.
- E23.2.6 Aluminum shall be used for the tamper-proof cup washers (158-2021\_Drawing\_ST-164-R1), associated with the wiring access panel.

### E23.3 Design Features

- E23.3.1 Each traffic signal light duty davit pole shaft shall be complete in all respects. Shaft shall be of shell type construction, octagonal in cross-section and uniformly tapered.
- E23.3.2 **Base Plate:** Each davit pole shaft will be base mounted and therefore suitable for installation on a concrete foundation, break away base or on a steel screw-in base using 1" anchor bolts or connecting bolts.
- (a) Light duty davit pole shaft shall have base plate as shown on 158-2021\_Drawing\_ST-161\_Sht1-R3. The base plate shall be G40.21 44W steel, 1" thick, 12" square, having 1 3/8" wide slotted bolt holes designed to suit 1" anchor bolts which are spaced on a bolt square ranging from 6 3/4" to 8 1/8" square (9 1/2" to 11 1/2" bolt circle). The base plate shall have an octagonal center opening slightly larger than 7" "across flats" into which the bottom portion of the pole shaft wall shall be inserted and welded. The base plate corners shall be chamfered 1/8". Flame access slots (if necessary) shall radiate from the anchor bolt holes to the outer corners of the base plate and shall be 1/4" maximum width; and
  - (b) Pole shaft shall be welded to the base plate by means of both interior and exterior continuous circumferential fillet welds. The interior weld shall be ground smooth prior to applying the protective coating (galvanizing). The tolerance for alignment of the base plate to the pole shaft shall be plus or minus one inch at the top of the pole shaft from perpendicular to the base plate.

**NOTE:** Prior to shipping the final products, the manufacturer shall submit to the Contract Administrator copies of TS-RPD1 which is a table of measurements of the pole stub dimensions as described in E23.3.3(d). The sample size for this table shall not be less than 10% of the order of randomly selected and identified poles.

- E23.3.3 **Davit Pole Shafts:** The davit pole shall consist of a straight shaft, which tapers uniformly from the base plate to the upper end of shaft.
- (a) The davit pole shaft (158-2021\_Drawing\_ST-161\_Sht1-R3) shall support a davit arm by means of a slip joint which permits feed through of internal wires.
  - (b) NOTE: The davit arms currently in the City's stock must intermate with the light duty davit pole shafts being supplied.
  - (c) Overall height of the davit shaft from the top opening to the bottom of the base plate shall be 13' (+1", -0");
  - (d) The exterior dimensions measured "across the flats" of the davit shaft, after welds are cleaned of slag, splatter and excess weld material. (but prior to galvanizing), shall be as follows:
    - (i) exterior dimensions "across flats" at top of the shaft shall be 4 5/16" (+0", -1/8); and
    - (ii) exterior dimensions "across flats" at the bottom of the shaft shall be 7" (+0", -1/8).

- (e) Davit pole shafts shall have detailed, repeatable, close tolerance dimensions. The slip joint, at the top of the davit shafts, will make interchange-ability possible with davit arms currently in the City's stock.
- (f) Each davit pole shaft must be able to accept 8' davit arms, 12' davit arms, 16' davit arms and 8' and/or 12' double davit arms.

E23.3.4

**4¾" wide x 24" (38 circuit) wiring access panel:** Each pole shall be provided with a 4¾" wide x 24" long (38 circuit) wiring access panel for termination of signal control cables. The (38 circuit) wiring access panel, upper and lower mounting brackets arrangement is shown on attached 158-2021\_Drawing\_ST-111-R2. The (38 circuit) wiring access panel shall be located at a height of 46" ( $\pm 2$ ") measured from centerline of panel to bottom of base plate. The (38 circuit) access panel shall have a minimum clear opening of 4¾" wide x 24" long except at the corners (which are rounded as per 158-2021\_Drawing\_ST-111-R2). The (38 circuit) access panel shall be fabricated either of one continuous length of steel plate formed into a ring and welded at the junction, or may be formed of two symmetrical halves welded at the top and bottom of the panel opening.

- (a) Upper Mounting Bracket and the Electrical Grounding Bolt: An upper mounting bracket shall be provided with a ¼" x 1½" long full-threaded Type 316 stainless steel grounding bolt and two stainless steel hexagonal nuts, for the connection of ground wire(s). The grounding bolt shall be installed in a drilled and tapped\* hole as shown on the upper mounting bracket, its threaded portion facing outwards, and its head welded to the rear of the upper mounting bracket. The threads of the grounding bolt shall be kept clean and free of welding splatter etc. and shall either be protected during galvanizing, or rethreaded after. The upper mounting bracket shall have two ⅜" - 16 UNC (Unified Standard Coarse Thread) General Purpose U-type nuts installed (Auveco Part Number 10054, or equal). A lower mounting bracket shall also be installed as shown with one ⅜" - 16 UNC General Purpose U -type nut to fasten the access panel cover. Three U-type nuts are required: two fasten the access panel cover, the other secures the non-supplied terminal strip mounting bracket to the upper mounting bracket. The three U-nuts must be installed after galvanizing. All three U-nuts shall be installed "edgewise" (that is, with the fold of the U-nut facing the side of the access panel ring, not facing the top or bottom of the ring). Three corresponding Type 316 stainless steel full-thread hexagonal head bolts (9/16" across flats) are required. Two (2) stainless steel full-thread hexagonal head bolts (9/16" across flats); both ⅜" x 2½" long shall fasten the cover to the wiring access panel. A stainless steel full-thread hexagonal head bolt (also 9/16" across flats), ⅜" x 2½" long shall secure the non-supplied terminal strip bracket to the upper mounting bracket.
- (b) Prior to galvanizing, all sharp edges within the (38 circuit) access panel shall be ground smooth to eliminate any sharp edges or corners. The lower perimeter edge of the access panel ring, upper mounting bracket and lower mounting bracket shall be so treated.

**NOTE:** all tapped holes shall be checked / re-worked post-galvanizing for compliance to the dimensions shown in the pole specification for the mounting screw thread sizes.

E23.3.5

**Cover for the (38 Circuit) Wiring Access Panel:** The (38 circuit) access panel shall be provided with a flanged, weatherproof non-metal cover.

**NOTE:** The access panel cover as detailed in 158-2021\_Drawing\_ST-164-R1 shall be a non-metal cover.

- (a) The "non-metal" type access panel cover shall be strong, durable, resistant to impact damage by acts of vandalism, ultraviolet stabilized, tamper proof and not subject to breakage or deformation under temperatures ranging from -50° C to +50° C.
- (b) The intended function of the access panel cover is to:
  - (i) Prevent access to the interior of the access panel when secured with the supplied hex head bolts.
  - (ii) Prevent/limit the ingress of water, snow, and other items.
  - (iii) Withstand acts of vandalism caused by impact, or prying.
  - (iv) Provide a service lifetime similar to the pole.



- (v) Must maintain integrity of cover when bolts tightly fasten the access panel cover to the pole.
- (c) The Contractor shall install the access panel covers prior to final delivery
- (d) 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.
- (e) For each order of poles placed, the Contractor shall supply one (1) additional non-metal Access Panel Cover for each group 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**

- (f) 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  $\frac{3}{8}$ " character height. The format is as follows:
  - (i) 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.
  - (ii) No other logos or wordings shall be permitted on the exterior faces of the cover.
- (g) 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 sufficient to prevent driven snow or rain entry into the access panel, even at 25.6 psf design wind pressure. The flange shall be located no greater than  $\frac{1}{4}$ " from the outside edge of the access panel ring. The flange depth shall be a minimum of  $\frac{3}{4}$ " on the left and right sides (greater is preferred) and  $\frac{7}{16}$ " on the top and bottom (greater is preferred). Flat covers will be rejected.
- (h) The cover shall have a smooth and continuous internally extruded ring. The ring shall be located between  $\frac{1}{8}$ " and  $\frac{1}{4}$ " 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 interior of the pole shaft, and not interfere with the mounting of the access cover. The ring shall have a maximum  $\frac{5}{8}$ " width and a maximum depth of  $\frac{3}{8}$ " and not less than  $\frac{1}{4}$ " depth.
- (i) Any additional extrusions into the pole access opening shall be limited to  $\frac{3}{8}$ ". Extrusions exterior to the plane of the access panel's opening shall be limited to  $\frac{3}{4}$ " and shall be functional.
- (j) 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;
- (k) The cover shall be fabricated of material with a minimum thickness of  $\frac{1}{8}$ ".
- (l) All edges on the cover shall be smooth;
- (m) The cover shall be secured to the access panel by two  $\frac{3}{8}$ " x  $2\frac{1}{2}$ " long, fully threaded hexagonal head Type 316 stainless steel bolts (hex head bolts,  $\frac{9}{16}$ " across flats), each bolt complete with tamper proof cup washer (158-2021\_Drawing\_ST-164-R1). The tamper proof cup washer shall have an internal diameter of  $1\frac{3}{16}$ ".
- (n) The two holes in the cover for the mounting bolts shall be circular,  $\frac{1}{2}$ " diameter and centered over the upper and lower bracket mounting holes both vertically and horizontally to match the U-nuts;
- (o) The Contractor shall install the access panel covers prior to final delivery;
- (p) Unless previously approved in E23.3.7, a sample of the proposed alternate cover shall be provided to the Contract Administrator for inspection prior to approval in accordance with B6.

#### **E23.3.6**

**Access panel Cover Impact Testing:** The impact test involves elevating to a horizontal position a pendulum consisting of a 10 lb weight mounted on one end of 6' arm, and releasing the pendulum to rotate through a 90° 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 E23.3.5(a) and E23.3.5(b).

- (a) The access panel cover will be cold soaked for 4 hours at - 30 degrees Celsius prior to testing.

**E23.3.7 Approved Access Panel Covers:** The following “non-metal” products are approved provided they continue to meet all the specifications in section E23.3.5.

- (a) Valmont West Coast PVC Access Cover 2004 Drawing: 230 – CO - 5x25 – PVC
- (b) Patriot Sales Inc. Light Pole Access Cover Plate 2007 Drawing: PSI.09102007 Rev. A
- (c) Power-Lite Industries Inc. – PWL-11, latest revision.

#### **E23.4 Certified Detailed Drawings**

**E23.4.1** The 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 light duty davit pole shaft (for use with davit arms of 8', 12' and 16' horizontal reach), including:

- (a) Base plate;
- (b) 4<sup>3</sup>/<sub>4</sub>" x 24" (38 circuit) access panel detail;
- (c) 4<sup>3</sup>/<sub>4</sub>" x 24" access panel cover; and
- (d) Tamper proof cup washer.

**E23.4.2** Structure Identification Number

**E23.4.3** 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.

**E23.4.4** The format of the raised structure identification number shall conform to the following format “XX – YR – ###” where:

- (a) “XX” shall be the abbreviation or logo of the Contractor’s firm.
- (b) “YR” shall be the last two (2) digits of the year of manufacture.
- (c) “###” shall be a unique item number starting with “001” and proceeding consecutively for each additional component of that type during the year of manufacture.

**E23.4.5** 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.

**E23.4.6** The raised structure identification number shall be provided approximately 300mm from the base plate and located on the same side as the access panel.

- (a) The position of the structure identification number shall be shown on the approved shop drawings.

**E23.4.7** Prior to shipping, City-supplied self-adhesive structure labels must be affixed to finished items and structure details recorded as described in E15.

#### **E23.5 Design Standards**

**E23.5.1 AASHTO Standards:** The traffic signal light duty davit pole shaft for use with designated davit arms is designed in accordance with the 2013 6<sup>th</sup> edition and latest revisions of The American Association of State Highway and Transportation Officials (AASHTO) Standard Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals.

**E23.5.2 Wind Loading:** The traffic signal light duty davit pole shaft is designed to withstand design wind pressure  $P_z = 0.00256 K_z G V^2 I_r C_d$  pounds per square', where  $(0.00256 G V^2) = 25.6$  psf,  $K_z$ s per AASHTO table 3-5 except not less than 1.0,  $I_r = 1.0$  for 50-year design life and  $C_d$  as per ASHTO table 3-6. This pressure is applied to the pole including davit

arms, with specific traffic signal head and sign attachments as herein described in E23.6 "Pole Attachment Configurations".

### E23.6 Pole Attachment Configurations

E23.6.1 The light duty davit pole shaft is designed to support single or double davit arms, with various configurations of traffic signal heads, pedestrian signal heads, pedestrian corridor units and / or traffic signs. The structural design calculations and stress shall take into account configurations of attachments to the light duty davit pole shaft with either a single or double davit arm as described in E24.8.

### E23.7 Fabrication

E23.7.1 Welding of steel structures shall be in accordance with the requirements of:

- (a) CSA W59-03 Welded Steel Construction (Metal Arc Welding);
- (b) The fabricator shall be fully approved by the Canadian Welding Bureau (CWB) as per CSA W47.1-03 Certification of Companies for Fusion Welding of Steel.

E23.7.2 All seams shall be continuously welded and free from any slag, splatter, or excess weld material.

E23.7.3 The longitudinal seam weld shall be a minimum of 60% penetration, except that within 6" of base plate and 4" from upper end of shaft shall be complete penetration.

**NOTE:** A 60% penetration longitudinal seam weld in the vicinity of the access panel shall be acceptable, provided this seam weld does not intercept the circumference of the access panel.

E23.7.4 Only one (1) longitudinal seam weld is permitted in each davit pole shaft.

E23.7.5 Davit pole shaft shall be one continuous length with no circumferential butt joint welds.

E23.7.6 The surface of exposed welds shall be free of any slag, splatter, and excess weld material.

E23.7.7 The exterior of the pole; all openings (including areas accessible by hand) and surfaces of internal passages, through which cables will be routed, shall be free of burrs, sharp edges and points.

### E23.8 Certified Structural Stress Analysis

E23.8.1 The engineer certified structural stress analysis of the traffic signal light duty davit pole shaft includes calculations of stresses at the base of the pole and at the access panel. Placements of all attachments to the pole are described in detail in E23.6 "Pole Attachment Configurations". Loading is prescribed in E23.5.1 "AASHTO Standards" and E23.5.2 "Wind Loading".

E23.8.2 For the purposes of the stress analysis, the nominal spread of compatible davit arms as shown on 158-2021\_Drawing\_ST-169-R0 and 158-2021\_Drawing\_ST-169-R1 as measured to the end of the octagonal section of the arm are: 8'0"; 12'0"); and 16'0".

E23.8.3 The davit arms as shown in 158-2021\_Drawing\_ST-169-R0 are to have an 18° rise section with a 1' (nominal) straight level section at the end of the davit arm to provide for a tenon height of 19'3" (+3", -0") above the base of the pole for both the 8' and 12' davit arms and 20'6" (+3", -0") above the base for the 16' davit arms.

E23.8.4 158-2021\_Drawing\_ST-169-R1 is the double davit arm described in E23.6.1 of "Pole Attachment Configurations".

### E24. 8' SINGLE AND DOUBLE, AND 12' SINGLE AND DOUBLE AND 16' SINGLE DAVIT ARMS

E24.1 The Contractor shall supply and deliver traffic signal single davit arms and double davit arms as described below:

E24.1.1 **Item No. 2:** 8' Single Davit Arm

E24.1.2 **Item No. 3:** 12' Single Davit Arm

E24.1.3 **Item No. 4:** 16' Single Davit Arm

E24.1.4 **Item No. 5:** 8' Double Davit Arm

E24.1.5 **Item No. 6:** 12' Double Davit Arm

E24.2 The davit arms shall be suitable for use with current and future inventory of 13' Light Duty Davit Shaft Poles.

### E24.3 **Materials**

E24.3.1 The octagonal single davit arms and double davit 12' arm walls shall be fabricated from 7 Gauge structural steel. The octagonal double davit 8' "extension arm" walls shall be fabricated from 11 Gauge structural steel. All meeting as a minimum the requirements of ASTM A570 Grade 50 (50 ksi Design Yield Strength).

**NOTE:** Steel shall not be acceptable unless the mill test certificate states the grade to be 50 ksi minimum yield. Lower grade steel shall not be acceptable (despite favorable published mill test yield results) and single davit arms or double davit arms fabricated without steel certification shall be rejected.

E24.3.2 The 7 Gauge and 11 Gauge structural steel shall have silicon content as per E8.5.3. Other components shall have silicon content controlled as required to prevent detrimental galvanizing effects.

E24.3.3 For double davit arms, the flange plates shall be steel meeting the requirements of CSA G40.21 44W.

E24.3.4 Nuts and bolts specified for the double davit arms shall be UNC-SAE Grade 5 steel.

### E24.4 **Design Features**

E24.4.1 Each traffic signal light duty single davit arm and double davit arm shall be complete in all respects. All arms shall be of shell-type construction, octagonal in cross-section and uniformly tapered.

E24.4.2 The longitudinal seam weld of the single davit arm and double davit arms shall be adjacent to the "flat" which is the "outermost" flat through the bend radius.

E24.4.3 Each davit shaft shall consist of a straight shaft, which tapers uniformly from the base plate to the upper end of shaft. The davit shaft supports a single davit arm or double davit arm, by means of a slip joint which permits feed through of internal wires.

**NOTE:** The davit shafts currently in the City's stock must intermate with the single davit arm and double davit arms being supplied.

E24.4.4 The single davit arm and double davit arm shall be terminated with a two 2" IPS pipe (tenon) projecting 12" beyond the octagonal section of the arm. A 1/2" hole (through tenon) shall be placed 1 3/4" back from the end of the 14" long IPS pipe horizontally through the side centered on the pipe and square on all planes.

**NOTE:** Prior to shipping the final products, the manufacturer shall submit to the Contract Administrator completed copies of TS-RPD1 which is a table of measurements of the single davit arm intermating dimensions as described in E24.4.5(a) and the double davit arm intermating dimensions as described in E24.4.6(a). The sample size for this table shall not be less than 10% of the order of randomly selected and identified arms.

E24.4.5 **Single Davit Arms:** Single davit arms shall have detailed, repeatable, close tolerance dimensions. The slip joint, at the bottom of the single davit arms, will make interchangeability possible with davit shafts currently in the City's stock.

(a) The exterior dimensions measured "across flats" at bottom of the single davit arm (at slip joint) shall be 4 7/8" (+0", -1/8");

(b) The exterior dimensions measured "across flats" at top of the single davit arm (at tenon) shall be 2 7/8" (+0", -1/8").

- E24.4.6 Double Davit Arms:** Double davit arms shall have detailed, repeatable, close tolerance dimensions. The slip joint, at the bottom of the double davit arms, will make interchangeability possible with davit shafts currently in the City's stock.
- (a) The exterior dimensions measured "across flats" at bottom of the double davit arm (at slip joint) shall be  $4\frac{7}{8}$ " (+0", - $\frac{1}{8}$ "");
  - (b) The exterior dimensions "across flats" at flange of double davit arms shall be  $3\frac{9}{16}$ " (+0", - $\frac{1}{8}$ "");
  - (c) The exterior dimensions "across flats" at top of 12' reach double davit arm (at tenon) shall be  $2\frac{7}{8}$ " (+0, - $\frac{1}{8}$ "") and at top of 8' reach double davit arm (at tenon) shall be  $2\frac{3}{4}$ " (+0", - $\frac{1}{8}$ "");
  - (d) The double davit arm shall be manufactured in three parts as per 158-2021\_Drawing\_ST-169-R1;
  - (e) The flange plates shall be manufactured from  $\frac{3}{4}$ " thick, G40.21 Grade 44W, material  $6\frac{3}{4}$ " square. Each flange shall be welded to arm with complete penetration groove welds.
  - (f) Each pair of the mating flanges shall be secured by means of four (4) UNC-SAE grade 5,  $\frac{3}{4}$ " diameter hex head bolts, 3" long (accompanied by flat washers) with eight (8) UNC-SAE grade 5,  $\frac{3}{4}$ " diameter heavy hex nuts, and eight (8) UNC-SAE grade 5,  $\frac{3}{4}$ " diameter heavy jam nuts.
    - (i) All bolts, washers, and nuts shall be hot dipped galvanized and supplied with the arms for a total of 8 bolts, 8 washers, and 16 nuts for each double davit unit;
  - (g) The double davit arms shall not be shipped assembled.
- E24.4.7** Care shall be taken to ensure that the quality of the bend on the davit arm consistently and uniformly meets the requirements of the specification and drawing(s) for rise and reach.
- E24.5 Certified Detailed Drawings**
- E24.5.1** The 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 light duty davit arms including:
- (a) Single davit arms of 8', 12' and 16' horizontal reach; and
  - (b) Double davit arms of 8' and 12' horizontal reach.
- E24.6 Structure Identification Number**
- E24.6.1** Each single and double davit arm 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.
- E24.6.2** The format of the raised structure identification number shall conform to the following format "XX – YR – ###" where:
- (a) "XX" shall be the abbreviation or logo of the Contractor's firm;
  - (b) "YR" shall be the last two (2) digits of the year of manufacture;
  - (c) "###" shall be a unique item number starting with "001" and proceeding consecutively for each additional component of that type during the year of manufacture.
- E24.6.3** 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.
- E24.6.4** The raised structure identification number shall be shown on the approved shop drawings and shall be positioned as described below:
- (a) External face of single davit arm: within 18" of the bottom of arm;
  - (b) External face of double davit arm: within 18" of the bottom of arm;
  - (c) External face of 8' and 12' "extension arms": within 12" of the flange plate.

E24.6.5 Prior to shipping, City-supplied self-adhesive structure labels must be affixed to finished items and structure details recorded as described in E15.

#### E24.7 Design Standards

E24.7.1 **“AASHTO Standard”**: The traffic signal light duty single davit arms and double davit arms are designed in accordance with the 2013 6<sup>th</sup> edition and latest revisions of The American Association of State Highway and Transportation Officials (AASHTO) Standard Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals.

E24.7.2 **Wind Loading**: The traffic signal light duty light duty single davit arms and double davit arms are designed to withstand design wind pressure  $P_z = 0.00256 K_z G V_2 I_r C_d$  pounds per square', where  $(0.00256 G V_2) = 25.6$  psf,  $K_z$  as per AASHTO table 3-5 except not less than 1.0,  $I_r = 1.0$  for 50-year design life and  $C_d$  as per AASHTO table 3-6. This pressure is applied to the davit arms pole, with specific traffic signal head and sign attachments as and attachments as herein described in E24.8 “Pole Attachment Configurations”.

#### E24.8 Pole and Arm Attachment Configurations

E24.8.1 The light duty davit pole shafts, single davit arms and double davit arms are designed to support traffic signal heads, pedestrian signal heads, pedestrian corridor units and traffic signs when loaded as specified without distress. The structural design calculations and stress analysis take into account the following configuration of attachments to the light duty traffic signal davit pole shaft, single davit arms and double davit arms (158-2021\_Drawing\_ST-161\_Sht2-R3):

##### For Traffic Signal Head Mounting Style - Plumbizer

E24.8.2 **Configuration 1**: For single davit arms of 12' and 16' reach only:

- (a) Attachment on the 12' and 16' davit arm and plumbizer: One (4 section x 12") traffic signal head: dimensioned 14" wide x 60" high – weight 70 lbs. (mounted 29" from tenon centerline to top, 31" from tenon centerline to bottom); and
- (b) Attachment on the davit pole shaft: Two (2) pedestrian signal heads at 90°: each dimensioned 13½" wide x 27" high – total weight 50 lbs. (mounted 8'7" above base to bottom of head, and 16" out from edge of pole); and
- (c) Attachment on the davit pole shaft: One (1) traffic sign: dimensioned 24" wide x 36" high – weight 14 lbs. (mounted 12' above base to bottom of sign); and
- (d) Attachment on the davit pole shaft: One (1) traffic sign: dimensioned 36" wide x 12" high – weight 10 lbs. (mounted 10' above base to bottom of sign); and
- (e) Attachment on the davit pole shaft: One (1) traffic sign: dimensioned 5" wide x 8" high – weight 5 lbs. each (mounted 4' above base to bottom of sign).

E24.8.3 **Configuration 2**: For single davit arms of 8' reach only

- (a) Attachment on the 8' davit arm and plumbizer:  
One (4 section x 12") traffic signal head: dimensioned 14" wide x 60" high – weight 80 lbs. (mounted 29" from tenon centerline to top, 31" from tenon centerline to bottom); and
- (b) Attachment on the 8' davit arm, Either:  
One (1) street name sign: dimensioned 84" wide x 12" high – weight 17 lbs. (mounted 17'6" above base to bottom of sign);  
Or  
One (1) traffic sign: dimensioned 24" wide x 36" high – weight 14 lbs. (mounted next to the traffic signal head).
- (c) Attachment on the davit pole shaft:  
If neither of item (b) of davit arm attachments is used above, then Either:  
One (4 section x 12") traffic signal head: dimensioned 14" wide by 60" high – weight 70 lbs. (mounted 10' above base to bottom of traffic signal head);  
Or

One (1) traffic sign: dimensioned 24" wide x 36" high – weight 14 lbs. (mounted 12' above base to bottom of sign); and

- (d) Attachment on the davit pole shaft:

One (1) traffic sign: dimensioned 24" wide x 12" high – weight 8 lbs. (mounted 11' above base to bottom of sign); and

- (e) Attachment on the davit pole shaft:

One (1) traffic sign: dimensioned 36" wide x 12" high – weight 10 lbs. (mount 10' above base to bottom of sign); and

- (f) Attachment on the davit pole shaft:

Two (2) pedestrian signal heads at 90°: each dimensioned 13½" wide x 27" high – total weight 50 lbs. (mounted 8'7" above base to bottom of head, and 16" out from edge of pole); and

- (g) Attachment on the davit pole shaft:

One (1) traffic sign: dimensioned 5" wide x 8" high – weight 5 lbs. (mounted 4' above base to bottom of sign).

**E24.8.4 Configuration 3:** For double davit arms 180° apart, where one arm is 12' maximum reach and other arm is of 8' maximum reach only:

- (a) Attachment on the 12' davit arm and plumbizer: One (3 section x 12") traffic signal head: dimensioned 14" wide x 46" high – weight 50 lbs. (mounted 15" from tenon centerline to top, 31" from tenon centerline to bottom); and

- (b) Attachment on the 8' arm and plumbizer: One (3 section x 12") traffic signal head: dimensioned 14" wide x 46" high – weight 50 lbs. (mounted 15" from tenon centerline to top, 31" from tenon centerline to bottom); and

- (c) Attachment on the davit pole shaft: One (4 section x 12") traffic signal head: dimensioned 14" wide x 60" high – weight 70 lbs. mounted 10' above base to bottom of signal.

#### **For Pedestrian Corridor Unit Mounting**

**E24.8.5 Configuration 4:** Light duty single davit arms shall be designed to carry a pedestrian corridor unit (suspended from the end of a single davit arm of 12' maximum reach) dimensioned 36½" wide x 32½" high x 18" deep and four flashing lights, each dimensioned 10" wide x 10" high – total weight 100 lbs.

**E24.8.6 Configuration 5:** Light duty double davit arms, 180° apart, shall be designed to each support a pedestrian corridor unit (suspended from the end of each davit arm of 12' maximum reach) as per **Configuration 4** above.

#### **E24.9 Fabrication**

**E24.9.1** Welding of steel structures shall be in accordance with the requirements of:

- (a) CSA W59-03 Welded Steel Construction (Metal Arc Welding);
- (b) The fabricator shall be fully approved by the Canadian Welding Bureau as per CSA W47.1-03 Certification of Companies for Fusion Welding of Steel;
- (c) All seams shall be continuously welded and free from any slag, splatter or excess weld materials;
- (d) The longitudinal seam weld shall be a minimum of 60% penetration, excepting that within 4½" from the lower end of the davit arm and 3" from each arm flange shall be complete penetration;
- (e) Only one (1) longitudinal seam weld is permitted in each davit arm;
- (f) Davit arms shall be one continuous length with no circumferential butt joint welds;

#### **E24.10 Certified Structural Stress Analysis**

- E24.10.1 The engineer certified structural stress analysis of the traffic signal light duty single davit arms and double davit arms includes calculations of stresses at the slip joint, other critical locations and deflections at end of tenon. Placements of all attachments to the arms and pole are described in detail in E24.8 "Pole Attachment Configurations", Loading is prescribed in E24.7.1 "AASHTO Standards" and E24.7.2 "Wind Loading".
- E24.10.2 For the purposes of the stress analysis, the nominal spread of compatible single davit arms (horizontal reach), as shown on 158-2021\_Drawing\_ST-169-R0, and as measured to the end of the octagonal section of the arm are: 8'0", 12'0" and 16'0".
- E24.10.3 The single davit arms as shown in 158-2021\_Drawing\_ST-169-R0, are to have an 18° rise section with a 1' (nominal) straight level section at the end of the davit arm to provide for a tenon height of 19'3" (+3", -0") above the base of the pole for both the 8' and 12' davit arms and 20'6" (+3", -0") above the base of the pole for the 16' davit arms.
- E24.10.4 For the purposes of the stress analysis, the nominal spread of compatible double davit arms (horizontal reach), as shown on 158-2021\_Drawing\_ST-169-R0 and as measured to centerline of vertical shaft to the end of the octagonal section of the arm are: 8'0" and 12'0".
- E24.10.5 Bidders are reminded that requests for approval of substitutes as an approved equal or an approved alternative shall be made in accordance with B6.