



**THE CITY OF WINNIPEG**

# **BID OPPORTUNITY**

**BID OPPORTUNITY NO. 105-2005**

**SUPPLY AND DELIVERY OF TRAFFIC SIGNAL DAVIT ARMS (8 FOOT AND 12 FOOT)**

## TABLE OF CONTENTS

### PART A - BID SUBMISSION

Form A: Bid	1
Form B: Prices	3

### PART B - BIDDING PROCEDURES

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

### PART C - GENERAL CONDITIONS

C1. General Conditions	1
------------------------	---

### PART D - SUPPLEMENTAL CONDITIONS

#### General

D1. General Conditions	1
D2. Scope of Work	1
D3. Definitions	1
D4. Contract Administrator	1
D5. Notices	2

#### Submissions

D6. Authority to Carry on Business	2
------------------------------------	---

#### Control of Work

D7. Commencement	3
D8. Orders	3
D9. Delivery	3
D10. Records	3

#### Measurement and Payment

D11. Invoices	4
D12. Payment	4

#### Warranty

D13. Warranty	4
---------------	---

### PART E - SPECIFICATIONS

1. Certified Detailed Drawings	2
2. Certified Structural Stress Analysis	2
3. Design Standards	2
4. Material	5
5. Fabrication	6
6. Testing	6

Template Version: G220050314

7.	Protective Coating System	6
8.	Design Features	7
9.	Manufacturer's Identification	8

## **PART B - BIDDING PROCEDURES**

### **B1. PROJECT TITLE**

B1.1 SUPPLY AND DELIVERY OF TRAFFIC SIGNAL DAVIT ARMS (8 FOOT AND 12 FOOT)

### **B2. SUBMISSION DEADLINE**

B2.1 The Submission Deadline is 4:00 p.m. Winnipeg time, April 20, 2005.

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

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

### **B3. ENQUIRIES**

B3.1 All enquiries shall be directed to the Contract Administrator identified in D4.1.

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

B3.3 Responses to enquiries which, in the sole judgment of the Contract Administrator, require a correction to or a clarification of the Bid Opportunity will be provided by the Contract Administrator to all Bidders by issuing an addendum.

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 Bid Opportunity 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.

### **B4. ADDENDA**

B4.1 The Contract Administrator may, at any time prior to the Submission deadline, issue addenda correcting errors, discrepancies or omissions in the Bid Opportunity, or clarifying the meaning or intent of any provision therein.

B4.2 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.

B4.2.1 Addenda will be available on the Bid Opportunities page at The City of Winnipeg, Corporate Finance, Materials Management Branch internet site at <http://www.winnipeg.ca/matmgt>.

B4.2.2 The Bidder is responsible for ensuring that he has received all addenda and is advised to check the Materials Management Branch internet site for addenda shortly before submitting his Bid.

B4.3 The Bidder shall acknowledge receipt of each addendum in Paragraph 8 of Form A: Bid. Failure to acknowledge receipt of an addendum may render a Bid non-responsive.

## **B5. SUBSTITUTES**

- B5.1 The Work is based on the materials, equipment, methods and products specified in the Bid Opportunity.
- B5.2 Substitutions shall not be allowed unless application has been made to and prior approval has been granted by the Contract Administrator in writing.
- B5.3 Requests for approval of a substitute will not be considered unless received in writing by the Contract Administrator at least seven (7) Business Days prior to the Submission Deadline.
- B5.4 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.
- B5.5 The Contract Administrator, after assessing the request for approval of a substitute, may in his 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.
- B5.6 The Contract Administrator will provide a response in writing, at least two (2) Business Days prior to the Submission Deadline, only to the Bidder who requested approval of the substitute.
- B5.6.1 The Bidder requesting and obtaining the approval of a substitute shall be entirely responsible for disseminating information regarding the approval to any person or persons he wishes to inform.
- B5.7 If the Contract Administrator approves a substitute as an “approved equal”, any Bidder may use the approved equal in place of the specified item.
- B5.8 If the Contract Administrator approves a substitute as an “approved alternative”, any Bidder bidding that approved alternative shall base his 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 B13.
- B5.9 No later claim by the Contractor for an addition to the price(s) because of any other changes in the Work necessitated by the use of an approved equal or an approved alternative will be considered.

## **B6. BID SUBMISSION**

- B6.1 The Bid Submission consists of the following components:

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

B6.2 All components of the Bid Submission 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 in ink, to constitute a responsive Bid.

B6.3 The Bid Submission may be submitted by mail, courier or personal delivery, or by facsimile transmission.

B6.4 If the Bid Submission is submitted by mail, courier or personal delivery, it shall be enclosed and sealed in an envelope clearly marked with the Bid Opportunity number and the Bidder's name and address, and shall be submitted to:

The City of Winnipeg  
Corporate Finance Department  
Materials Management Branch  
185 King Street, Main Floor  
Winnipeg MB R3B 1J1

B6.4.1 Samples or other components of the Bid Submission which cannot reasonably be enclosed in the envelope may be packaged separately, but shall be clearly marked with the Bid Opportunity number, the Bidder's name and address, and an indication that the contents are part of the Bidder's Bid Submission.

B6.5 If the Bid Submission is submitted by facsimile transmission, it shall be submitted to (204) 949-1178

B6.5.1 The Bidder is advised that the City cannot take responsibility for the availability of the facsimile machine at any time.

B6.6 Bid Submissions submitted by internet electronic mail (e-mail) will not be accepted.

## **B7. BID**

B7.1 The Bidder shall complete Form A: Bid, making all required entries.

B7.2 Paragraph 2 of Form A: Bid shall be completed in accordance with the following requirements:

- (a) if the Bidder is a sole proprietor carrying on business in his own name, his 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 own, the business name and the name of every partner or corporation who is the owner of such business name shall be inserted.

B7.2.1 If a Bid is submitted jointly by two or more persons, each and all such persons shall identify themselves in accordance with B7.2.

B7.3 In Paragraph 3 of Form A: Bid, the Bidder shall identify a contact person who is authorized to represent the Bidder for purposes of the Bid.

B7.4 Paragraph 10 of Form A: Bid shall be signed in accordance with the following requirements:

- (a) if the Bidder is a sole proprietor carrying on business in his 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 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.

B7.4.1 The name and official capacity of all individuals signing Form A: Bid shall be printed below such signatures.

B7.4.2 All signatures shall be original.

B7.5 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 Submission and the Contract, when awarded, shall be both joint and several.

## **B8. PRICES**

B8.1 The Bidder shall state a price in Canadian funds for each item of the Work identified on Form B: Prices.

B8.1.1 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.

B8.1.2 Prices on Form B: Prices shall not include the Manitoba Association for Resource Recovery Corporation (MARRC) Environmental Handling Charge (EHC) which shall be extra where applicable.

B8.2 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.

B8.3 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. QUALIFICATION**

B9.1 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;
- (b) be responsible and not be suspended, debarred or in default of any obligation to the City;
- (c) be financially capable of carrying out the terms of the Contract;
- (d) have all the necessary experience, capital, organization, and equipment to perform the Work in strict accordance with the terms and provisions of the Contract;

- (e) have successfully carried out work, similar in nature, scope and value to the Work;
- (f) employ only Subcontractors who:
  - (i) are responsible and not suspended, debarred or in default of any obligation 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 Branch internet site at <http://www.winnipeg.ca/matmgt>); and
  - (ii) have successfully carried out work similar in nature, scope and value to the portion of the Work proposed to be subcontracted to them, and are fully capable of performing the Work required to be done in accordance with the terms of the Contract;
- (g) have a written workplace safety and health program in accordance with The Workplace Safety and Health Act (Manitoba).

B9.2 The Bidder shall be prepared to 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.

B9.3 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.

#### **B10. OPENING OF BIDS AND RELEASE OF INFORMATION**

B10.1 Bid Submissions will not be opened publicly.

B10.2 Within two (2) Business Days following the Submission Deadline, the names of the Bidders and their Bid Prices (unevaluated, and pending review and verification of conformance with requirements) will be available on the Closed Bid Opportunities (or Public/Posted Opening & Award Results) page at The City of Winnipeg, Corporate Finance, Materials Management Branch internet site at <http://www.winnipeg.ca/matmgt>.

B10.3 After award of Contract, the name(s) of the successful Bidder(s) and the Contract Amount(s) will be available on the Closed Bid Opportunities (or Public/Posted Opening & Award Results) page at The City of Winnipeg, Corporate Finance, Materials Management Branch internet site at <http://www.winnipeg.ca/matmgt>.

B10.4 The Bidder is advised that any information contained in any Bid Submission may be released if required by City policy or procedures, by The Freedom of Information and Protection of Privacy Act (Manitoba), by other authorities having jurisdiction, or by law.

#### **B11. IRREVOCABLE BID**

B11.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 9 of Form A: Bid.

B11.2 The acceptance by the City of any Bid shall not release the Bids of the next two lowest evaluated responsive Bidders and these Bidders shall be bound by their Bids on such Work for the time period specified in Paragraph 9 of Form A: Bid.

#### **B12. WITHDRAWAL OF BIDS**

B12.1 A Bidder may withdraw his Bid without penalty by giving written notice to the Manager of Materials at any time prior to the Submission Deadline.

- B12.1.1 Notwithstanding GC.7.05(2), the time and date of receipt of any notice withdrawing a Bid shall be the time and date of receipt as determined by the Manager of Materials.
- B12.1.2 The City will assume that any one of the contact persons named in Paragraph 3 of Form A: Bid or the Bidder's authorized representatives named in Paragraph 10 of Form A: Bid, and only such person, has authority to give notice of withdrawal.
- B12.1.3 If a Bidder gives notice of withdrawal prior to the Submission Deadline, the Manager of Materials shall:
- (a) retain the Bid Submission until after the Submission Deadline has elapsed;
  - (b) open the Bid Submission to identify the contact person named in Paragraph 3 of Form A: Bid and the Bidder's authorized representatives named in Paragraph 10 of Form A: Bid; and
  - (c) if the notice has been given by any one of the persons specified in B12.1.3(b), declare the Bid withdrawn.
- B12.2 A Bidder who withdraws his Bid after the Submission Deadline but before his Bid has been released or has lapsed as provided for in B11.2 shall be liable for such damages as are imposed upon the Bidder by law and subject to such sanctions as the Chief Administrative Officer considers appropriate in the circumstances. The City, in such event, shall be entitled to all rights and remedies available to it at law.

### **B13. EVALUATION OF BIDS**

- B13.1 Award of the Contract shall be based on the following bid evaluation criteria:
- (a) compliance by the Bidder with the requirements of the Bid Opportunity (pass/fail);
  - (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B9 (pass/fail);
  - (c) Bid Price;
  - (d) economic analysis of any approved alternative pursuant to B5.
- B13.2 Further to B13.1(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 if the interests of the City so require.
- B13.3 Further to B13.1(b), the Award Authority shall reject any Bid submitted by a Bidder who does not demonstrate, in his Bid Submission or in other information required to be submitted, that he is responsible and qualified.
- B13.4 Further to B13.1(c), the Bid Price shall be the sum of the quantities multiplied by the unit prices for each item shown on Form B: Prices.
- B13.5 This Contract will be awarded as a whole.

### **B14. AWARD OF CONTRACT**

- B14.1 The City will give notice of the award of the Contract or will give notice that no award will be made.
- B14.2 The City will have no obligation to award a Contract to a Bidder, even though one or all of the Bidders are determined to be responsible and qualified, and the Bids are determined to be responsive.

- B14.2.1 Without limiting the generality of B14.2, 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.
- B14.3 Where an award of Contract is made by the City, the award shall be made to the responsible and qualified Bidder submitting the lowest evaluated responsive Bid.
- B14.4 Notwithstanding GC.3.01 and GC.3.02, the City will issue a purchase order to the successful Bidder in lieu of the execution of a Contract.
- B14.5 The Contract Documents, as defined in GC.1.01(7), in their entirety shall be deemed to be incorporated in and to form a part of the purchase order notwithstanding that they are not necessarily attached to or accompany said purchase order.

## **PART C - GENERAL CONDITIONS**

### **C1. GENERAL CONDITIONS**

C1.1 The *General Conditions for the Supply and Delivery of Goods* (Form 21: 88 03) are applicable to the Work of the Contract.

C1.1.1 The *General Conditions for the Supply and Delivery of Goods* are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Branch internet site at <http://www.winnipeg.ca/matmgt>.

## PART D - SUPPLEMENTAL CONDITIONS

### GENERAL

#### D1. GENERAL CONDITIONS

- D1.1 In addition to the *General Conditions for the Supply and Delivery of Goods*, these Supplemental Conditions are applicable to the Work of the Contract.
- D1.2 The General Conditions are amended by striking out "The City of Winnipeg Act" wherever it appears in the General Conditions and substituting "The City of Winnipeg Charter".
- D1.3 The General Conditions are amended by striking out "Board of Commissioners" or "Commissioner" wherever it appears in the General Conditions and substituting the "Chief Administrative Officer".
- D1.4 The General Conditions are amended by striking out "Tender Package" wherever it appears in the General Conditions and substituting "Bid Opportunity".
- D1.5 The General Conditions are amended by striking out "Tender Submission" wherever it appears in the General Conditions and substituting "Bid Submission".
- D1.6 The General Conditions are amended by striking out "Bidding Instructions" wherever it appears in the General Conditions and substituting "Bidding Procedures".

#### D2. SCOPE OF WORK

- D2.1 The Work to be done under the Contract shall consist of the supply and delivery of traffic signals 8 foot and 12 foot davit arms for the period of **June 01, 2005 to May 31, 2008**.
- 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 GC.4.08, the City shall have no obligation under the Contract to purchase any quantity of any item in excess of its actual operational requirements.

#### D3. DEFINITIONS

- D3.1 When used in this Bid Opportunity:
- (a) "**Business Day**" means any Calendar Day, other than a Saturday, Sunday, or a Statutory or Civic Holiday;
  - (b) "**Submission Deadline**" and "**Time and Date Set for the Final Receipt of Bids**" mean the time and date set out in the Bidding Procedures for final receipt of Bids;
  - (c) "**User**" means a person, department or other administrative unit of the City authorized by the Contract Administrator to order Work under this Contract.

#### D4. CONTRACT ADMINISTRATOR

- D4.1 The Contract Administrator is:  
Mr. B. Woroby, P. Eng.  
Staff Engineer  
103 – 1155 Pacific Avenue

Winnipeg, Manitoba R3E 3P1  
Telephone No. (204) 986-5326  
Facsimile No. (204) 986-7358

## **D5. NOTICES**

- D5.1 GC.7.05 is hereby amended to delete reference to "registered mail" and to replace same with "ordinary mail".
- D5.2 GC.7.05 is further amended hereby to include delivery by facsimile transmission (fax) as an acceptable means of delivering notices, consents, approvals, statements, authorizations, documents or other communications required or permitted to be given under this Contract. Deliveries by fax will be deemed to have been received on the day of delivery, if a business day, or if not a business day, on the business day next following the day of delivery.
- D5.3 Further to GC.7.05, all notices, consents, approvals, statements, authorizations, documents or other communications to the City, except as expressly otherwise required in D5.4, D5.5 or elsewhere in the Contract, shall be sent to the attention of the Contract Administrator at the address or facsimile number identified in D4.1.
- D5.4 All notices of appeal to the Chief Administrative Officer shall be sent to the attention of the Chief Financial Officer at the following address or facsimile number:  
The City of Winnipeg  
Chief Administrative Officer Secretariat  
Administration Building, 3rd Floor  
510 Main Street  
Winnipeg MB R3B 1B9  
Facsimile No.: (204) 949-1174
- D5.5 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 address or facsimile number:  
The City of Winnipeg  
Corporate Services Department  
Legal Services Division  
185 King Street, 3rd Floor  
Winnipeg MB R3B 1J1  
Facsimile No.: (204) 947-9155

## **SUBMISSIONS**

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

- D6.1 The Contractor shall be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba, or if the Contractor does not carry on business in Manitoba, in the jurisdiction where the Contractor does carry on business, throughout the term of the Contract, and shall provide the Contract Administrator with evidence thereof upon request.

## **CONTROL OF WORK**

### **D7. COMMENCEMENT**

- D7.1 The Contractor shall not commence any Work until he is in receipt of a purchase order authorizing the commencement of the Work.
- D7.2 The Contractor shall not commence any Work on the Site until:
- (a) the Contract Administrator has confirmed receipt and approval of:
    - (i) evidence that the Contractor is 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;
  - (b) the Contractor has attended a meeting with the Contract Administrator, or the Contract Administrator has waived the requirement for a meeting.

### **D8. ORDERS**

- D8.1 The Contractor shall provide a local Winnipeg telephone number or a toll-free telephone number at which orders for delivery may be placed.

### **D9. DELIVERY**

- D9.1 Goods shall be delivered on an "as required" basis during the term of the Contract, f.o.b. destination, freight prepaid, to:

Equipment and Materials Stores  
1277 Pacific Avenue  
Winnipeg, Manitoba

- D9.2 Goods shall be delivered within sixty (60) Business Days of the placing of an order, except where otherwise agreed at the time of ordering.
- D9.3 Goods shall be delivered between 7:30 a.m. and 3:00 p.m. on Business Days.
- D9.4 The Contractor shall off-load goods as directed at the delivery location.

### **D10. RECORDS**

- D10.1 The Contractor shall keep detailed records of the goods supplied under the Contract.
- D10.2 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.
- D10.3 The Contractor shall provide the Contract Administrator with a copy of the records for each year within thirty (30) Calendar Days of the end of that year.

## **MEASUREMENT AND PAYMENT**

### **D11. INVOICES**

- D11.1 Further to GC.9.01 and notwithstanding GC.9.03, the Contractor shall submit an invoice for each order delivered.
- D11.1.1 Further to D5.3, the Contractor shall submit invoices to the locations designated at the time of ordering.
- D11.2 Invoices must clearly indicate, as a minimum:
- (a) the City's order number;
  - (b) date of delivery;
  - (c) delivery address;
  - (d) type and quantity of goods delivered;
  - (e) the amount payable with GST and MRST shown as separate amounts; and
  - (f) the Contractor's GST registration number.
- D11.3 The City will bear no responsibility for delays in approval of invoices which are improperly submitted.

### **D12. PAYMENT**

- D12.1 Further to GC.9.01 and GC.9.03, payment shall be in Canadian funds net thirty (30) Calendar Days after receipt and approval of the Contractor's invoice.

## **WARRANTY**

### **D13. WARRANTY**

- D13.1 Notwithstanding GC.10.01 and GC.10.02, the warranty period for each item of Work supplied shall begin on the date of successful delivery and shall expire one (1) year thereafter unless extended pursuant to D13.2, in which case it shall expire when provided for thereunder.
- D13.2 If a defect or deficiency prevents the full and normal use or operation of the Work or any portion thereof, for purposes of calculating the warranty period, time shall be deemed to cease to elapse for the defective or deficient portion, and for any portion of the Work whose use or operation is prevented by such defect or deficiency, as of the date on which the defect or deficiency is observed or the use or operation is prevented and shall begin to run again when the defect or deficiency has been corrected or the Work may be used or operated to the satisfaction of the Contract Administrator.
- D13.3 Notwithstanding GC.10.01, GC.10.02 and D13.2, if any law of Manitoba or of the jurisdiction in which the Work was manufactured requires, or if the manufacturer provides, a longer warranty period or a warranty which is more extensive in its nature, then the provisions of such law or manufacturer's warranty shall apply.

## **PART E - SPECIFICATIONS**

## TECHNICAL SPECIFICATIONS for TRAFFIC SIGNAL LIGHT DUTY SINGLE and DOUBLE DAVIT ARMS

### 1. Certified Detailed Drawings

1.1 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 feet, 12 feet and 16 feet horizontal reach,
- b) double davit arms of 8 feet and 12 feet horizontal reach,

### 2. Certified Structural Stress Analysis

2.1 The engineer certified structural stress analysis, of the traffic signal light duty single and double davit arms, includes calculations of stresses at slip joint, other critical locations and deflections at end of tenon. Placement of all attachments to the arms and pole are as described in detail in **3.4** "Pole Attachment Configurations". Loading is prescribed in **3.2** "AASHTO Standards" and **3.3** "Wind Loading".

2.2 For the purposes of the stress analysis, the nominal spread of compatible single davit arms (horizontal reach), as shown on Drawing **ST-169**, latest revision, and as measured to the end of the octagonal section of the arm are: eight feet, zero inches (8' 0"); twelve feet, zero inches (12' 0"); and sixteen feet, zero inches (16' 0").

2.3 The single davit arms as shown in Drawing **ST-169**, latest revision, are to have an eighteen (18) degree rise section with a one (1) foot (nominal) straight level section at the end of the davit arm to provide for a tenon height of nineteen feet, three inches (19' 3"; +3", -0") above the base of the pole for both the 8 foot and 12 foot davit arms and twenty feet six inches (20' 6"; +3", -0") above the base of the pole for the 16 foot davit arms.

2.4 For the purposes of the stress analysis, the nominal spread of the double davit arms (horizontal reach), as shown on Drawing **ST-136**, latest revision, and as measured from centre line of vertical shaft to the end of the octagonal section of the arm are: eight feet, zero inches (8'-0"); and twelve feet, zero inches (12'-0").

### 3. Design Standards

3.1 The following City of Winnipeg drawings are attached to and form part of this specification:

- a) **ST-107, REV 1 JUNE 17, 2004** - Test Template for Arm and Shaft
- b) **ST-136, REV 1 JUNE 21, 2004** - Traffic Signal Light Duty Double Davit Arms of 8 Ft and 12 Ft Reach
- c) **ST-169, REV 0 JUNE 14, 2004** - Traffic Signal Light Duty Davit Arms of 8 Ft, 12 Ft and 16 Ft Reach

3.2 **AASHTO Standards:** The traffic signal light duty single and double davit arms are designed in accordance with the 2001 4<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, Luminaires and Traffic Signals.

3.3 **Wind Loading:** The traffic signal light duty single 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 foot, 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 davit arms and pole, with specific signal head and sign attachments as herein described in **3.4** "Pole Attachment Configurations"

3.4 **Pole Attachment Configurations:** The light duty davit pole shafts (**not part of this Contract**), single and double davit arms are designed to support traffic signal heads, pedestrian corridor units and traffic signs when loaded as specified without distress. The structural design calculations and stress analysis takes into account the following configurations of attachments to the light duty traffic signal davit pole shaft, single and double davit arms:

- a) **Configuration 1:** For single davit arms of **12 feet and 16 feet reach** only:  
Signal Head Mounting Style – **Hanger:**

## TECHNICAL SPECIFICATIONS for TRAFFIC SIGNAL LIGHT DUTY SINGLE and DOUBLE DAVIT ARMS

- i) Attachment on the 12 and 16 foot davit arm and hanger:  
One (3-section x 12 inch) signal head: dimensioned 14 inches wide x 42 inches high – weight 50 lbs.  
(top of signal head mounted 8 inches below centreline of davit arm tenon) **and**
  - ii) Attachment on the davit pole shaft:  
Two pedestrian heads at 90 degrees: each dimensioned 13 ½ inch wide x 13 ½ inch high – total weight 50 lbs. (mounted 8 feet 7 inches above base to bottom of head, and 16 inches out from edge of pole) **and**
  - iii) Attachment on the davit pole shaft:  
One traffic sign: dimensioned 24 inches wide x 36 inches high) - weight 14 lbs.  
(mounted 12 feet above base to bottom of sign) **and**
  - iv) Attachment on the davit pole shaft:  
One traffic sign: dimensioned 36 inches wide x 12 inches high - weight 10 lbs.  
(mounted 10 feet above base to bottom of sign) **and**
  - v) Attachment on the davit pole shaft:  
One traffic sign: dimensioned 5 inches wide x 8 inches high – weight 5 lbs.  
(mounted 4 feet above base to bottom of sign)
- b) **Configuration 2:** For single davit arms of **12 feet and 16 feet reach** only:  
Signal Head Mounting Style – **Plumbizer**:
- i) Attachment on the 12 and 16 foot davit arm and plumbizer:  
One (5 section x 12 inch) signal head: dimensioned 14 inches wide x 72 inches high - weight 80 lbs.  
(mounted 29 inches from tenon centreline to top, 43 inches from tenon centreline to bottom) **and**
  - ii) Attachment on the davit pole shaft:  
Two pedestrian heads at 90 degrees: each dimensioned 13 ½ inch wide x 13 ½ inch high – total weight 50 lbs. (mounted 8 feet 7 inches above base to bottom of head, and 16 inches out from edge of pole) **and**
  - iii) Attachment on the davit pole shaft:  
One traffic sign: dimensioned 24 inches wide x 36 inches high - weight 14 lbs.  
(mounted 12 feet above base to bottom of sign) **and**
  - iv) Attachment on the davit pole shaft:  
One traffic sign: dimensioned 36 inches wide x 12 inches high - weight 10 lbs.  
(mounted 10 feet above base to bottom of sign) **and**
  - v) Attachment on the davit pole shaft:  
One traffic sign: dimensioned 5 inches wide x 8 inches high - weight 5 lbs. each  
(mounted 4 feet above base to bottom of sign)
- c) **Configuration 3:** For single davit arms of **8 feet reach** only:  
Signal Head Mounting Style – **Hanger**:
- i) Attachment on the 8 foot davit arm and hanger:  
One (3 section x 12 inch) signal head: dimensioned 14 inches wide x 42 inches high -weight 50 lbs.  
(top of signal head mounted 8 inches below centreline of davit arm tenon) **and**
  - ii) Attachment on the 8 foot davit arm:

## TECHNICAL SPECIFICATIONS for TRAFFIC SIGNAL LIGHT DUTY SINGLE and DOUBLE DAVIT ARMS

**Either –**

One street name sign: dimensioned 84 inches wide x 12 inches high – weight 17 lbs.  
(mounted 17.5 feet above base to bottom of sign)

**Or –**

One traffic sign: dimensioned 24 inches wide x 36 inches high: - weight 14 lbs.  
(mounted next to the signal head)

iii) Attachments on the davit pole shaft:

If neither of item (ii) of davit arm attachments is used above, then

**Either -**

One (5 section x 12 inch) signal head: dimensioned 14 inches wide x 70 inches high - weight 80 lbs.  
(bottom of signal head mounted 10 feet above base)

**Or-**

One traffic sign: dimensioned 24 inches wide x 36 inches high - weight 14 lbs.  
(mounted 12 feet above base to bottom of sign) **and**

iv) Attachment on the davit pole shaft:

One traffic sign: dimensioned 36 inches wide x 12 inches high – weight 10 lbs.  
(mounted 10 feet above base to bottom of sign) **and**

v) Attachment on the davit pole shaft:

Two pedestrian heads at 90 degrees: each dimensioned 13 ½ inch wide x 13 ½ inch high – total weight 50 lbs. (mounted 8 feet 7 inches above base to bottom of head, and 16 inches out from edge of pole)  
**and**

vi) Attachment on the davit pole shaft:

One traffic sign: dimensioned 24 inches wide x 12 inches high – weight 8 lbs.  
(mounted 11 feet above base to bottom of sign) **and**

vii) Attachment on the davit pole shaft:

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

d) **Configuration 4:** For single davit arms of **8 feet reach** only:

Signal Head Mounting Style – **Plumbizer:**

i) Attachment on the 8 foot davit arm and plumbizer:

One (5 section x 12 inch) signal head: dimensioned 14 inches wide x 72 inch high - weight 80 lbs.  
(mounted 29 inches from tenon centreline to top, 43 inches from tenon centreline to bottom) **and**

ii) Attachment on the 8 foot davit arm:

**Either -**

One street name sign: dimensioned 84 inches wide x 12 inches high – weight 17 lbs.  
(mounted 17.5 feet above base to bottom of sign)

**Or -**

One traffic sign: dimensioned 24 inches wide x 36 inches high – weight 14 lbs.  
(mounted next to the signal head)

iii) Attachment on the davit pole shaft:

If neither of item (ii) of davit arm attachments is used above, then

**Either -**

One (5 section x 12 inch) signal head: dimensioned 14 inches wide by 70 inches high – weight 80 lbs.  
(mounted 10 feet above base to bottom of signal head)

## TECHNICAL SPECIFICATIONS for TRAFFIC SIGNAL LIGHT DUTY SINGLE and DOUBLE DAVIT ARMS

**Or -**

One traffic sign: dimensioned 24 inches wide x 36 inches high - weight 14 lbs.  
(mounted 12 feet above base to bottom of sign) **and**

iv) Attachment on the davit pole shaft:

One traffic sign: dimensioned 24 inches wide x 12 inches high - weight - 8 lbs.  
(mounted 11 feet above base to bottom of sign) **and**

v) Attachment on the davit pole shaft:

One traffic sign: dimensioned 36 inches wide x 12 inches high – weight 10 lbs.  
(mounted 10 feet above base to bottom of sign) **and**

vi) Attachment on the davit pole shaft:

Two pedestrian heads at 90 degrees: each dimensioned 13 ½ inch wide x 13 ½ inch high – total weight 50 lbs. (mounted 8 feet 7 inches above base to bottom of head, and 16 inches out from edge of pole)  
**and**

vii) Attachment on the davit pole shaft:

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

e) **Configuration 5.** For Pedestrian Corridor Unit Mounting:

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 feet maximum reach) dimensioned 36 ½ inches wide x 32 ½ inches high x 18 inches deep and four flashing lights, each dimensioned 10 inches wide x 10 inches high – total weight 100 lbs.

f) **Configuration 6.** For Pedestrian Corridor Unit Mounting:

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

g) **Configuration 7.** For Traffic Signal Mounting:

Light duty double davit arms, 180 degrees apart, where one arm is 12 feet maximum reach and other arm is of 8 feet maximum reach, shall be designed to support a (3 signal x 12 inch) signal head suspended from end of each arm. Each signal dimensioned 14 inches wide x 42 inches high – weight 50 lbs. Attachment on the davit pole shaft is one (5 section x 12 inch) signal head: dimensioned 14 inches wide x 70 inches high – weight 80 lbs. (mounted 10 feet above base to bottom of signal).

### 4. Material

4.1 All materials used for fabrication of traffic signal light duty single and double davit arms shall be new and not previously used.

4.2 The octagonal single davit arms and double davit 12 foot arm walls shall be fabricated from **7 gauge** structural steel. The octagonal double davit 8 foot “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 favourable published mill test yield results) and davit arms or double davit arms fabricated without steel certification shall be rejected.

4.3 The 11 and 7 gauge structural steel shall have silicon content less than or equal to 0.06 percent. Other components shall have silicon content controlled as required to prevent detrimental galvanizing effects.

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

## TECHNICAL SPECIFICATIONS for TRAFFIC SIGNAL LIGHT DUTY SINGLE and DOUBLE DAVIT ARMS

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

### 5. Fabrication

5.1 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 or splatter.
- d) The longitudinal seam weld shall be a minimum of 60% penetration, excepting that within 4 ½ inches from the lower end of the davit arm and 3 inches from each arm flange shall be complete penetration.
- e) Only one longitudinal seam weld is permitted in each davit arm.
- f) Davit arms shall be one continuous length with no circumferential butt joint welds.
- g) The surface of exposed welds shall be free of any slag and splatter.
- h) All openings and surfaces of internal passages, through which cables will be routed, shall be free of burrs, sharp edges and points.

### 6. Testing

- 6.1 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.
- 6.2 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.
- 6.3 Testing may include radiographic inspection and magnetic particle inspection, as determined by the Contract Administrator.
- 6.4 Weld inspection will 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.

### 7. Protective Coating System

- 7.1 The sole approved protective coating system for davit arms is hot dip galvanizing.
- 7.2 Hot dip galvanizing shall be carried out in accordance with CSA Standard G164-M92 to a net minimum retention of 600 grams per square metre.
- 7.3 After hot dip galvanizing all sharp edges and shards of galvanizing material on the exterior of arms shall be removed. The same standard of care shall apply to all accessible interior surfaces.

## TECHNICAL SPECIFICATIONS for TRAFFIC SIGNAL LIGHT DUTY SINGLE and DOUBLE DAVIT ARMS

7.4 All areas of damaged galvanizing shall be repaired with self-fluxing low temperature zinc based alloy rod. Use of spray-on coatings is not acceptable.

### 8. Design Features

8.1 Each traffic signal light duty single 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.

- a) The longitudinal seam weld of the single and double davit arms shall be adjacent to the "flat" which is the "outermost" flat through the bend radius.
- b) The davit shaft (**not part of this Contract**) consists 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 inter-mate with the single and double davit arms being supplied.

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

8.2 **Single Davit Arms:** Davit arms shall have detailed, repeatable, close tolerance dimensions. The slip joint, at the bottom of the 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 davit arm (at slip joint) shall be **4-7/8 inches +0, -1/8 inch**.
- b) The exterior dimensions measured "across flats" at **top** of the davit arm (at tenon) shall be **2-7/8 inches +0, -1/8 inch**.

8.3 **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 **4-7/8 inches +0, -1/8 inch**.
- b) The exterior dimensions "across flats" at **flange** of double davit arms shall be **3-9/16 inches +0, -1/8 inch**.
- c) The exterior dimensions "across flats" at **top** of 12 foot reach double davit arm (at tenon) shall be **2 7/8 inches +0, -1/8 inch** and at **top** of 8 foot reach double davit arm (at tenon) shall be **2 3/4 inches +0, -1/8 inch**.
- d) The double davit arm will be manufactured in three parts as per drawing ST-136, latest revision.
- e) The flange plates will be manufactured from 3/4 inch thick, G40.21 Grade 44W, material 6 3/4 inches square. Each flange will be welded to arm with complete penetration groove welds. Each pair of the mating flanges will be secured by means of four (4) UNC-SAE grade 5, 3/4" diameter hex head bolts, 3" long (accompanied by flat washers) with eight (8) UNC-SAE grade 5, 3/4" diameter heavy hex nuts, and eight (8) UNC-SAE grade 5, 3/4" diameter heavy jam nuts. 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.
- f) The double davit arms **will not** be shipped assembled.

## TECHNICAL SPECIFICATIONS for TRAFFIC SIGNAL LIGHT DUTY SINGLE and DOUBLE DAVIT ARMS

- 8.4 **Test Template For Arms:** The Contractor shall confirm the slip joint tolerance and adequacy of fit of supplied single and double davit arms on the light duty davit pole shafts by the use of a test template for arms. The test template shall be used to assure proper dimension of the bottom opening of each single and double davit arm. **The Contractor shall fabricate the test template for arms, and test each single and double davit arm individually, to ensure a slip joint overlap of at least 8 inches and at most 12 inches. The test template for arms shall be delivered to the City upon final delivery of davit arms.**
- a) The test template for arms shall **not** be galvanized.
  - b) The test template for arms shall conform to the critical dimensions shown on the attached Drawing No. **ST-107**, latest revision.
  - c) The test template for arms represents the largest possible davit shaft slip joint, which the arms could be required to fit. The Contractor shall ensure a slip joint overlap of at least 8-inches and at most 12-inches for each single and double davit arm.
  - d) The Contractor shall deliver the test template for arms to the City with the final shipment of davit arms, for final acceptance testing by the City. The test template shall become the property of the City after testing is completed.
  - e) The test template for arms shall have the following identification markings stamped or engraved, then in-filled with light colour paint:
    - i) slip joint measurement stripes
    - ii) 8" and 12" labels
    - iii) manufacturer and year
    - iv) the legend "ARM TEMPLATE"

### 9. **Manufacturer's Identification**

- 9.1 Each single and double davit arm shall be marked in a clearly legible form to identify **the manufacturer and the production year**. Raised lettering shall be confined to the width of one "flat", be not less than 1 inch in height and shall be raised not less than 1/16 inch in weld metal at the following prescribed locations:
- a) External face of single davit arm within 18 inches of the bottom of arm.
  - b) External face of double davit arm within 18 inches of the bottom of arm.
  - c) Each external face of 8 foot and 12 foot "extension arms", within 12 inches of the flange plate.
- 9.2 Format of the raised lettering markings shall be as follows:
- a) "**XX –YR**" - where "XX" shall be the abbreviation or logo of the Contractor's firm, followed by "dash", followed by the last 2 digits of the year of manufacture.