



THE CITY OF WINNIPEG

BID OPPORTUNITY

BID OPPORTUNITY NO. 259-2006

**OVERHEAD SIGN SUPPORT STRUCTURE MAINTENANCE WORKS 2006
PROGRAM**



**PREPARED FOR: PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION**

PREPARED BY:



Dillon Consulting Ltd.

Dillon Consulting Job No. 06-6011

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PART B - BIDDING PROCEDURES

B1. PROJECT TITLE

B1.1 OVERHEAD SIGN SUPPORT STRUCTURE MAINTENANCE WORKS 2006 PROGRAM

B2. SUBMISSION DEADLINE

B2.1 The Submission Deadline is 12:00 noon Winnipeg time, June 9th, 2006.

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. SITE INVESTIGATION

B3.1 Further to GC:3.1, the Bidder may view the Site without making an appointment.

B3.2 It is the responsibility of the Bidder to investigate the Site, the nature of the Work to be done, and all local conditions that might affect the Bid, including:

- (a) The location of any utility which can be determined from the records or other information available at the offices of any public authority or person, including a municipal corporation and any board or commission thereof, having jurisdiction or control over the utility;
- (b) The nature of the surface and subsurface conditions at the Site;
- (c) The location, nature, quality, or quantity of the materials to be removed or to be employed in the performance of the Work;
- (d) The nature, quality, or quantity of the equipment needed to perform the Work;
- (e) All matters concerning access to the Site, power supplies, location of existing services, utilities, or materials necessary for the completion of the Work; and
- (f) All other matters which could in any way affect the performance of the Work.

B3.3 The Bidder shall assume all risk for conditions existing or arising in the course of the Work, which have been or could have been determined through such investigation.

B3.4 The Bidder shall not be entitled to rely on any information or interpretation received at the Site investigation unless that information or interpretation is the Bidder's direct observation, or is provided by the Contract Administrator in writing.

B4. ENQUIRIES

B4.1 All enquiries shall be directed to the Contract Administrator identified in D3.1.

B4.2 If the Bidder finds errors, discrepancies or omissions in the Bid Opportunity, or is unsure of the meaning or intent of any provision therein, the Bidder shall notify the Contract Administrator of the error, discrepancy or omission, or request a clarification as to the meaning or intent of the provision at least five (5) Business Days prior to the Submission Deadline.

- B4.3 Responses to enquiries which, in the sole judgment of the Contract Administrator, require a correction to or a clarification of the Bid Opportunity will be provided by the Contract Administrator to all Bidders by issuing an addendum.
- B4.4 Responses to enquiries which, in the sole judgment of the Contract Administrator, do not require a correction to or a clarification of the Bid Opportunity will be provided by the Contract Administrator only to the Bidder who made the enquiry.
- B4.5 The Bidder shall not be entitled to rely on any response or interpretation received pursuant to B4 unless that response or interpretation is provided by the Contract Administrator in writing.

B5. ADDENDA

- B5.1 The Contract Administrator may, at any time prior to the Submission Deadline, issue addenda correcting errors, discrepancies or omissions in the Bid Opportunity, or clarifying the meaning or intent of any provision therein.
- B5.2 The Contract Administrator will issue each addendum at least two (2) Business Days prior to the Submission Deadline, or provide at least two (2) Business Days by extending the Submission Deadline.
- B5.2.1 Addenda will be available on the Bid Opportunities page at The City of Winnipeg, Corporate Finance, Materials Management Branch internet site at <http://www.winnipeg.ca/matmgt>.
- B5.2.2 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.
- B5.3 The Bidder shall acknowledge receipt of each addendum in Paragraph 8 of Form A: Bid. Failure to acknowledge receipt of an addendum may render a Bid non-responsive.

B6. SUBSTITUTES

- B6.1 The Work is based on the Plant, Materials and methods specified in the Bid Opportunity.
- B6.2 Substitutions shall not be allowed unless application has been made to and prior approval has been granted by the Contract Administrator in writing.
- B6.3 Requests for approval of a substitute will not be considered unless received in writing by the Contract Administrator at least five (5) Business Days prior to the Submission Deadline.
- B6.4 The Bidder shall ensure that any and all requests for approval of a substitute:
- (a) provide sufficient information and details to enable the Contract Administrator to determine the acceptability of the Plant, Material or method as either an approved equal or alternative;
 - (b) identify any and all changes required in the applicable Work, and all changes to any other Work, which would become necessary to accommodate the substitute;
 - (c) identify any anticipated cost or time savings that may be associated with the substitute;
 - (d) certify that, in the case of a request for approval as an approved equal, the substitute will fully perform the functions called for by the general design, be of equal or superior substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule and the dates specified in the Supplemental Conditions for Substantial Performance and Total Performance;

(e) certify that, in the case of a request for approval as an approved alternative, the substitute will adequately perform the functions called for by the general design, be similar in substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule and the dates specified in the Supplemental Conditions for Substantial Performance and Total Performance.

B6.5 The Contract Administrator, after assessing the request for approval of a substitute, may in his sole discretion grant approval for the use of a substitute as an “approved equal” or as an “approved alternative”, or may refuse to grant approval of the substitute.

B6.6 The Contract Administrator will provide a response in writing, at least two (2) Business Days prior to the Submission Deadline, only to the Bidder who requested approval of the substitute.

B6.6.1 The Bidder requesting and obtaining the approval of a substitute shall be entirely responsible for disseminating information regarding the approval to any person or persons he 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 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 B14.

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

B7. BID SUBMISSION

B7.1 The Bid Submission consists of the following components:

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

B7.2 The Bid Submission shall be submitted enclosed and sealed in an envelope clearly marked with the Bid Opportunity number and the Bidder's name and address.

B7.2.1 Samples or other components of the Bid Submission which cannot reasonably be enclosed in the envelope may be packaged separately, but shall be clearly marked with the Bid Opportunity number, the Bidder's name and address, and an indication that the contents are part of the Bidder's Bid Submission.

B7.3 Bid Submissions submitted by facsimile transmission (fax) or internet electronic mail (e-mail) will not be accepted.

B7.4 Bid Submissions shall be submitted to:

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

B8. BID

- B8.1 The Bidder shall complete Form A: Bid, making all required entries.
- B8.2 Paragraph 2 of Form A: Bid shall be completed in accordance with the following requirements:
- (a) if the Bidder is a sole proprietor carrying on business in his 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.
- B8.2.1 If a Bid is submitted jointly by two or more persons, each and all such persons shall identify themselves in accordance with B8.2.
- B8.3 In Paragraph 3 of Form A: Bid, the Bidder shall identify a contact person who is authorized to represent the Bidder for purposes of the Bid.
- B8.4 Paragraph 10 of Form A: Bid shall be signed in accordance with the following requirements:
- (a) if the Bidder is a sole proprietor carrying on business in his 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.
- B8.4.1 The name and official capacity of all individuals signing Form A: Bid shall be printed below such signatures.
- B8.4.2 All signatures shall be original.
- B8.5 If a Bid is submitted jointly by two or more persons, the word "Bidder" shall mean each and all such persons, and the undertakings, covenants and obligations of such joint Bidders in the Bid Submission and the Contract, when awarded, shall be both joint and several.

B9. PRICES

- B9.1 The Bidder shall state a price in Canadian funds for each item of the Work identified on Form B: Prices.
- B9.2 The quantities listed on Form B: Prices are to be considered approximate only. The City will use said quantities for the purpose of comparing Bids.
- B9.3 The quantities for which payment will be made to the Contractor are to be determined by the Work actually performed and completed by the Contractor, to be measured as specified in the applicable Specifications.

B10. QUALIFICATION

B10.1 The Bidder shall:

- (a) undertake to be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba;
- (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);

B10.2 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.

B10.3 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.

B11. OPENING OF BIDS AND RELEASE OF INFORMATION

B11.1 Bid Submissions will be opened publicly, after the Submission Deadline has elapsed, in the office of the Corporate Finance Department, Materials Management Branch, or in such other office as may be designated by the Manager of Materials.

B11.1.1 Bidders or their representatives may attend.

B11.2 After the public opening, the names of the Bidders and their Total Bid Prices as read out (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>.

B11.3 After award of Contract, the name(s) of the successful Bidder(s) and the Contract Amount(s) will be available on the Closed Bid Opportunities (or Public/Posted Opening & Award Results) page at The City of Winnipeg, Corporate Finance, Materials Management Branch internet site at <http://www.winnipeg.ca/matmgt>.

B11.4 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.

B12. IRREVOCABLE BID

- B12.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 9 of Form A: Bid.
- B12.2 The acceptance by the City of any Bid shall not release the Bids of the next two lowest evaluated responsive Bidders and these Bidders shall be bound by their Bids on such Work for the time period specified in Paragraph 9 of Form A: Bid.

B13. WITHDRAWAL OF BIDS

- B13.1 A Bidder may withdraw his Bid without penalty by giving written notice to the Manager of Materials at any time prior to the Submission Deadline.
- B13.1.1 Notwithstanding GC:23.3, the time and date of receipt of any notice withdrawing a Bid shall be the time and date of receipt as determined by the Manager of Materials.
- B13.1.2 The City will assume that any one of the contact persons named in Paragraph 3 of Form A: Bid or the Bidder's authorized representatives named in Paragraph 10 of Form A: Bid, and only such person, has authority to give notice of withdrawal.
- B13.1.3 If a Bidder gives notice of withdrawal prior to the Submission Deadline, the Manager of Materials 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 B13.1.3(b), declare the Bid withdrawn.
- B13.2 A Bidder who withdraws his Bid after the Submission Deadline but before his Bid has been released or has lapsed as provided for in B12.2 shall be liable for such damages as are imposed upon the Bidder by law and subject to such sanctions as the Chief Administrative Officer considers appropriate in the circumstances. The City, in such event, shall be entitled to all rights and remedies available to it at law.

B14. EVALUATION OF BIDS

- B14.1 Award of the Contract shall be based on the following bid evaluation criteria:
- (a) compliance by the Bidder with the requirements of the Bid Opportunity (pass/fail);
 - (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B10 (pass/fail);
 - (c) Total Bid Price;
 - (d) economic analysis of any approved alternative pursuant to B6.
- B14.2 Further to B14.1(a), the Award Authority may reject a Bid as being non-responsive if the Bid Submission is incomplete, obscure or conditional, or contains additions, deletions, alterations or other irregularities. The Award Authority may reject all or any part of any Bid, or waive technical requirements if the interests of the City so require.
- B14.3 Further to B14.1(b), the Award Authority shall reject any Bid submitted by a Bidder who does not demonstrate, in his Bid Submission or in other information required to be submitted, that he is responsible and qualified.

B14.4 Further to B14.1(c), the Total Bid Price shall be the sum of the quantities multiplied by the unit prices for each item shown on Form B: Prices.

B14.4.1 If there is any discrepancy between the Total Bid Price written in figures, the Total Bid Price written in words and the sum of the quantities multiplied by the unit prices for each item, the sum of the quantities multiplied by the unit prices for each item shall take precedence.

B15. AWARD OF CONTRACT

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

B15.2 The City will have no obligation to award a Contract to a Bidder, even though one or all of the Bidders are determined to be responsible and qualified, and the Bids are determined to be responsive.

B15.2.1 Without limiting the generality of B15.2, the City will have no obligation to award a Contract where:

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

B15.3 Where an award of Contract is made by the City, the award shall be made to the responsible and qualified Bidder submitting the lowest evaluated responsive Bid.

B15.4 Notwithstanding GC:4, the City will issue a Purchase Order to the successful Bidder in lieu of the execution of a Contract.

B15.5 The Contract, as defined in GC:1.1, in its entirety shall be deemed to be incorporated in and to form a part of the Purchase Order notwithstanding that it is not necessarily attached to or accompany said Purchase Order.

PART C - GENERAL CONDITIONS

C1. GENERAL CONDITIONS

C1.1 The *General Conditions for Construction Contracts* (Revision 2000 11 09) are applicable to the Work of the Contract.

C1.1.1 The *General Conditions for Construction Contracts* 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 Construction Contracts*, 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 "Tender Package" wherever it appears in the General Conditions and substituting "Bid Opportunity".
- D1.4 The General Conditions are amended by striking out "Tender Submission" wherever it appears in the General Conditions and substituting "Bid Submission".
- D1.5 The General Conditions are amended by deleting GC:6.16 and GC:6.17. The City of Winnipeg is now within the jurisdiction of the Manitoba Ombudsman pursuant to The Ombudsman Act.

D2. SCOPE OF WORK

- D2.1 The Work to be done under the Contract shall consist of Overhead Sign Support Structure Maintenance Works - 2006 Program
- D2.2 The major components of the Work are as follows:
- (a) Traffic Control
 - (b) Removal of Existing Steel Overhead Sign Support Structures
 - (c) Supply and Installation of New Steel, Hot-Dip Galvanized Overhead Sign Structures
 - (d) Abandonment of Existing Concrete Pile Foundations
 - (e) Construction of Concrete Pile Foundation Modification Works
 - (f) Installation of Sign Panels (by others)

D3. CONTRACT ADMINISTRATOR

- D3.1 The Contract Administrator is Dillon Consulting Limited, represented by:
- Sital Rihal, P.Eng.
Project Manager
200-895 Waverly Street
Winnipeg, Manitoba R3T 5P4
Telephone No. (204) 453-2301
Facsimile No. (204) 452-4412
- D3.2 At the pre-construction meeting, Mr. Rihal will identify additional personnel representing the Contract Administrator and their respective roles and responsibilities for the Work.

D4. CONTRACTOR'S SUPERVISOR

- D4.1 At the pre-construction meeting, the Contractor shall identify his designated supervisor and any additional personnel representing the Contractor and their respective roles and responsibilities for the Work.

D5. NOTICES

- D5.1 Except as provided for in GC:23.2.2, all notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the Contractor shall be sent to the address or facsimile number identified by the Contractor in Paragraph 2 of Form A: Bid.
- D5.2 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the City, except as expressly otherwise required in D5.3, D5.4 or elsewhere in the Contract, shall be sent to the attention of the Contract Administrator at the address or facsimile number identified in D3.1.
- D5.3 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
- D5.4 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications required to be submitted or returned to the City Solicitor shall be sent to the following 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. INSURANCE

- D6.1 The Contractor shall provide and maintain the following insurance coverage:
- (a) commercial general liability insurance, in the amount of at least two million dollars (\$2,000,000.00) all inclusive, with The City of Winnipeg being added as an additional insured, with a cross-liability clause, such liability policy to also contain a contractual liability, an unlicensed motor vehicle liability and a products and completed operations endorsement to remain in place at all times during the performance of the Work and throughout the warranty period;
 - (b) automobile liability insurance for owned and non-owned automobiles used for or in connection with the Work in the amount of at least two million dollars (\$2,000,000.00) at all times during the performance of the Work and until the date of Total Performance;
- D6.2 Deductibles shall be borne by the Contractor.
- D6.3 The Contractor shall provide the City Solicitor with a certificate of insurance of each policy, in a form satisfactory to the City Solicitor, at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than seven (7) Calendar Days from notification of the award of Contract.

D6.3.1 The certificate of insurance for the commercial general liability insurance must clearly state "operations to include demolition work".

D6.4 The Contractor shall not cancel, materially alter, or cause each policy to lapse without providing at least fifteen (15) Calendar Days prior written notice to the Contract Administrator.

D7. PERFORMANCE SECURITY

D7.1 If the Contract Price exceeds twenty-five thousand dollars (\$25,000.00), the Contractor shall provide and maintain performance security until the expiration of the warranty period in the form of:

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

D7.1.1 Where the performance security is in the form of a certified cheque or draft, it will be deposited by the City. The City will not pay any interest on certified cheques or drafts furnished as performance security.

D7.2 The Contractor shall provide the City Solicitor with the required performance security within seven (7) Calendar Days of notification of the award of the Contract by way of Purchase Order and prior to the commencement of any Work on the Site.

SCHEDULE OF WORK

D8. COMMENCEMENT

D8.1 The Contractor shall not commence any Work until he is in receipt of a Purchase Order from the Award Authority authorizing the commencement of the Work.

D8.2 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;
 - (ii) evidence of the workers compensation coverage specified in GC:6.14;
 - (iii) evidence of the insurance specified in D6; and
 - (iv) the performance security specified in D7.
- (b) the Contractor has attended a pre-construction meeting with the Contract Administrator, or the Contract Administrator has waived the requirement for a pre-construction meeting.

D8.3 The Contractor shall commence the work on the Site within seven (7) Working Days of receipt of the Purchase Order.

D9. TOTAL PERFORMANCE

- D9.1 The Contractor shall achieve Total Performance by October 31, 2006.
- D9.2 When the Contractor or the Contract Administrator considers the Work to be totally performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Total Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be reinspected.
- D9.3 The date on which the Work has been certified by the Contract Administrator as being totally performed to the requirements of the Contract through the issue of a certificate of Total Performance is the date on which Total Performance has been achieved.

CONTROL OF WORK

D10. JOB MEETINGS

- D10.1 Regular weekly job meetings will be held at the Site. These meetings shall be attended by a minimum of one representative of the Contract Administrator, one representative of the City and one representative of the Contractor. Each representative shall be a responsible person capable of expressing the position of the Contract Administrator, the City and the Contractor respectively on any matter discussed at the meeting including the Work schedule and the need to make any revisions to the Work schedule. The progress of the Work will be reviewed at each of these meetings.
- D10.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever he deems it necessary.

D11. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)

- D11.1 Further to GC:6.26, the Contractor shall be the Prime Contractor and shall serve as, and have the duties of the Prime Contractor in accordance with The Workplace Safety and Health Act (Manitoba).

WARRANTY

D12. WARRANTY

- D12.1 Notwithstanding GC:13.2, the warranty period shall begin on the date of Total Performance and shall expire two (2) years thereafter unless extended pursuant to GC:13.2.1 or GC:13.2.2, in which case it shall expire when provided for thereunder.

FORM H1: PERFORMANCE BOND
(See D7)

KNOW ALL MEN BY THESE PRESENTS THAT

_____ ,
(hereinafter called the "Principal"), and

_____ ,
(hereinafter called the "Surety"), are held and firmly bound unto **THE CITY OF WINNIPEG** (hereinafter called the "Obligee"), in the sum of

_____ dollars (\$_____.)

of lawful money of Canada to be paid to the Obligee, or its successors or assigns, for the payment of which sum the Principal and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS the Principal has entered into a written contract with the Obligee dated the

_____ day of _____, 20____, for:

BID OPPORTUNITY NO. 259-2006

OVERHEAD SIGN SUPPORT STRUCTURE MAINTENANCE WORKS 2006 PROGRAM

which is by reference made part hereof and is hereinafter referred to as the "Contract".

NOW THEREFORE the condition of the above obligation is such that if the Principal shall:

- (a) carry out and perform the Contract and every part thereof in the manner and within the times set forth in the Contract and in accordance with the terms and conditions specified in the Contract;
- (b) perform the Work in a good, proper, workmanlike manner;
- (c) make all the payments whether to the Obligee or to others as therein provided;
- (d) in every other respect comply with the conditions and perform the covenants contained in the Contract; and
- (e) indemnify and save harmless the Obligee against and from all loss, costs, damages, claims, and demands of every description as set forth in the Contract, and from all penalties, assessments, claims, actions for loss, damages or compensation whether arising under "The Workers Compensation Act", or any other Act or otherwise arising out of or in any way connected with the performance or non-performance of the Contract or any part thereof during the term of the Contract and the warranty period provided for therein;

THEN THIS OBLIGATION SHALL BE VOID, but otherwise shall remain in full force and effect. The Surety shall not, however, be liable for a greater sum than the sum specified above.

AND IT IS HEREBY DECLARED AND AGREED that the Surety shall be liable as Principal, and that nothing of any kind or matter whatsoever that will not discharge the Principal shall operate as a discharge or release of liability of the Surety, any law or usage relating to the liability of Sureties to the contrary notwithstanding.

IN WITNESS WHEREOF the Principal and Surety have signed and sealed this bond the

_____ day of _____, 20____ .

SIGNED AND SEALED
in the presence of:

(Witness)

(Name of Principal)

Per: _____ (Seal)

Per: _____

(Name of Surety)

By: _____ (Seal)
(Attorney-in-Fact)

All demands for payment shall specifically state that they are drawn under this Standby Letter of Credit.

Subject to the condition hereinafter set forth, this Standby Letter of Credit will expire on

(Date)

It is a condition of this Standby Letter of Credit that it shall be deemed to be automatically extended from year to year without amendment from the present or any future expiry date, unless at least 30 days prior to the present or any future expiry date, we notify you in writing that we elect not to consider this Standby Letter of Credit to be renewable for any additional period.

This Standby Letter of Credit may not be revoked or amended without your prior written approval.

This credit is subject to the Uniform Customs and Practice for Documentary Credit (1993 Revision), International Chamber of Commerce Publication Number 500.

(Name of bank or financial institution)

Per: _____
(Authorized Signing Officer)

Per: _____
(Authorized Signing Officer)

PART E - SPECIFICATIONS

GENERAL

E1. APPLICABLE SPECIFICATIONS, STANDARD DETAILS AND DRAWINGS

- E1.1 *The City of Winnipeg Standard Construction Specifications* in its entirety, whether or not specifically listed on Form B: Prices, shall apply to the Work.
- E1.1.1 *The City of Winnipeg Standard Construction Specifications* 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>.
- E1.1.2 The version in effect three (3) Business Days before the Submission Deadline shall apply.
- E1.1.3 Further to GC:2.4(d), Specifications included in the Bid Opportunity shall govern over *The City of Winnipeg Standard Construction Specifications*.
- E1.2 The following Drawings are applicable to the Work:

<u>Drawing No.</u>	<u>Drawing Name/Title</u>
OHSS-06-01	Cover Sheet
OHSS-06-02	Site Location
OHSS-06-03	Description of Works
OHSS-06-04	S738 Pembina Highway N/B North of Harrow Street
OHSS-06-05	Structure No. S738 Fabrication Details
OHSS-06-06	S739 Pembina Highway S/B South of Harrow Street
OHSS-06-07	Structure No. S739 Fabrication Details

E2. PERMITS, LICENCES, CERTIFICATES, LAWS, AND RULES

- E2.1 The Contractor shall give all necessary notices, obtain all necessary permits and pay all fees in order that the Work may be carried out. The Contractor shall submit all plans required by any inspection authority and obtain approval of same before proceeding with the Work and pay any cost attached to the inspection of such plans.
- E2.2 The Contractor shall comply with all laws, ordinances, rules, and regulations that would relate to the Work.
- E2.3 The Contractor and Subcontractors must be fully aware of all Work involving hazardous materials. All Work must be performed in compliance to the Manitoba Department of Labour Workplace Health and Safety Guidelines and all other applicable codes. The Contractor is responsible for the immediate notification to the Contract Administrator of his/her encountering of suspected hazardous material during their course of Work.

E3. EXISTING SERVICES AND UTILITIES

- E3.1 No responsibility will be assumed by the City for correctness or completeness of the drawings with respect to the existing utilities, pipes or other objects either underground or on the surface; the City shall not be liable for the incorrectness and inadequacy thereof. It shall be the responsibility of the Contractor to determine the location of such utilities, pipes and other objects and to make good any damage done to them

E4. TEMPORARY UTILITIES

- E4.1 All necessary permits, fees and other like expenses as well as the cost of temporary connections to existing facilities shall be arranged and paid for by the Contractor.

E5. DAMAGE TO EXISTING STRUCTURES AND PROPERTY

- E5.1 All necessary precautions shall be exercised by the Contractor so as not to remove, disturb, or damage any existing water pipes, gas pipes, electrical wires, cables, conduits, sewers, or other existing facilities and equipment at the Site of the Work. For all damage incurred thereto in the performance of the Work, the Contractor shall, upon instructions from and to the satisfaction of the Contract Administrator, either replace and repair such damage, whichever may be deemed necessary in the opinion of, and acceptable to, the Contract Administrator and the cost of which shall be borne entirely by the Contractor.
- E5.2 The Contractor shall also indemnify and save harmless the City from all claims made directly against it in respect to any such damage.
- E5.3 Any damage caused by the negligence of the Contractor or his Subcontractors to the adjacent Works or properties, shall be promptly repaired by him at his own expense, to the satisfaction of the Contract Administrator.

E6. CLEAN UP

- E6.1 The Contractor shall maintain the Sites of the Work in a tidy condition and free from the accumulation of waste and debris.
- E6.2 Total Performance of the Work shall not be attained until the Contractor has cleaned up the Site and has removed all plant, tools, equipment, waste and debris to the satisfaction of the Contract Administrator.

E7. TRAFFIC CONTROL AND MAINTENANCE OF ACCESS

- E7.1 The Contractor will be responsible for traffic control at all Sites where it is required unless otherwise indicated.
- E7.2 For specific traffic control requirements at the Sites, refer to the "Construction Methods Section" of each Item of Work.
- E7.3 At all Sites, no lane closures will be permitted between the hours of 7:00 a.m. to 9:00 a.m. and 3:30 p.m. to 6:00 p.m.
- E7.4 For traffic control in the immediate Work area, the Contractor shall supply, erect, and maintain all applicable traffic control devices in accordance with the provision contained in the latest edition of the "Manual of Temporary Traffic Control in Work Areas on City Streets," issued by the City of Winnipeg. This manual is available from the City of Winnipeg, Public Works Department, 100 Main Street.
- E7.5 The Contractor shall provide and maintain flagmen in accordance with the above-mentioned manual.
- E7.6 If any pedestrian traffic is disrupted or rerouted at the Site, the Contractor shall be responsible for supplying and installing all necessary signs and protection to the satisfaction of the Contract Administrator.
- E7.7 The Contractor shall take all other safety measures necessary to cope with any peculiar or unusual circumstances that have not been set out in the above-mentioned manual and shall, at all times, ensure that maximum protection is afforded to the road-user and that his operations in no way interfere with the safe operation of traffic.
- E7.8 Improper signing will be sufficient reason for the Contract Administrator to immediately shut down the entire job.

E7.9 Immediately after the removal of existing sign structures for refurbishment, storage, or disposal, the Contractor shall supply and install a barricade over the existing pile foundation at each Site. Barricades supplied and installed by the Contractor in the performance of the Work must clearly show the name of the Contractor and the telephone number(s) at which he can be reached twenty-four (24) hours per day, seven (7) days per week.

E7.10 During the hours when the Contractor is not working, equipment and stockpiled materials shall be left in such a location so as not to interfere with or present a hazard to motorists or pedestrians.

E8. LAYOUT OF THE WORK

E8.1 For new overhead sign support structures, the Contract Administrator will provide the basic centrelines and limits of the Works unless otherwise shown on the Drawings.

E8.2 The Contractor shall be responsible for the true and proper laying out of the Work and for the correctness of the location, levels, dimensions, and alignment of all aspects of the Work. He shall provide all required instruments and competent personnel for performing all layouts.

E8.3 The Contract Administrator shall be notified at least one (1) Working Day prior to any Work being commenced in order to have the option to check and review all elevations and layouts at his discretion.

E8.4 The Contractor shall carefully protect and preserve all benchmarks, pins, stakes, and other items of the basic data supplied by the Contract Administrator. Any such benchmarks, pins, or stakes removed or destroyed by the Contractor, without the consent of the Contract Administrator, shall be replaced by the Contract Administrator at the expense of the Contractor.

E9. COOPERATION WITH OTHERS

E9.1 The Contractor's attention is directed to the fact that other Contractors, the personnel of Utilities, and the staff of the City may be working on the approach roadways, adjacent roadways, or rights-of-way. The activities of these agencies may coincide with the Contractor's execution of the Work, and it will be the Contractor's responsibility to cooperate to the fullest extent with other personnel working in the area, and such cooperation is an obligation of the Contractor under the terms of this Contract.

E9.2 The Contractor is advised that Pembina Highway Southbound Resurfacing from Grant Ave. to Harrow Street is scheduled to be carried out by Bituminex Ltd. from June 19, 2006 to Aug. 31, 2006. The pile in the median for Structure No. S738 will be constructed by Bituminex under that contract.

E10. ENVIRONMENTAL PLANNING

E10.1 The Contractor shall conduct his operations in accordance with all current federal, provincial, or other regulations concerning environmental protection and pollution control. It shall be the Contractor's responsibility to familiarize himself with all applicable regulations and to obtain all necessary approvals and permits for his operations.

E11. REMOVAL AND DISPOSAL OF EXISTING OVERHEAD SIGN SUPPORT STRUCTURES

E11.1 The Work covered under this item shall include all operations related to the removal and disposal of existing overhead sign support structures at the designated locations, in accordance with this Specification and as shown on the Drawings.

E11.2 The Work to be done by the Contractor under this Specification shall include the supply of all materials, and the furnishing of all superintendence, overhead, labour, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all Work as hereinafter specified.

E11.3 Equipment

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

E11.4 Construction Methods

E11.4.1 Work by City of Winnipeg Traffic Services and Traffic Signals

- (a) The City of Winnipeg Traffic Services and Traffic Signals Branches will also be carrying out other work related to the removal of overhead sign support structures. This work may coincide with the Contractor's execution of the Work, and it will be the Contractor's responsibility to cooperate to the fullest extent with City staff. In addition to the Contract Administrator, the following persons may be contacted by the Contractor for scheduling and coordinating this work:
 - (i) Traffic Services Branch - Mr. Jean Belair, Phone: 986-5840 (421 Osborne Street)
 - (ii) Traffic Signals Branch - Mr. Nolan Burke, Phone: 986-4195 (821 Elgin Avenue)

E11.4.2 Removal of Sign Support Structures

- (a) The existing sign support structure no. S573 shall be removed on a Sunday, unless otherwise permitted by the Contract Administrator.
- (b) The Contractor shall submit a Removal Procedure Plan for the structure, including details of traffic control, to the Contract Administrator for review and approval. The Removal Procedure Plan shall be submitted at least twenty-one (21) days prior to removing the overhead sign structure to arrange for installation of temporary signs and de-energizing the power supply as well as review/approval by City of Winnipeg Traffic Management Engineer.
- (c) The City of Winnipeg Traffic Services Branch will supply and install temporary sign posts as required. The power supply to the existing overhead sign support structures, designated for removal and disposal, will be de-energized by the City of Winnipeg Traffic Signals Branch.
- (d) Prior to dismantling a sign structure, the Contractor shall identify to the Contract Administrator any damaged or missing components and hardware or any other discrepancies and damage not indicated on the Drawings.
- (e) The Contractor shall remove the existing sign support structures carefully without damaging the existing anchor bolts and adjacent property.

E11.4.3 Removal of Sign Panels

- (a) The Contractor shall remove the existing sign panels, including existing steel sign mounting brackets, and deliver all components to City of Winnipeg Traffic Services. The existing light fixtures and conduits shall be removed and disposed
- (b) Any damage to the sign panels that has not been identified prior to removal will be repaired by Traffic Services at the Contractor's expense.

E11.5 Measurement and Payment

E11.5.1 Removal and Disposal of Existing Steel Overhead Sign Support Structures

- (a) Removal and disposal of existing steel overhead sign structures will not be measured and will be paid for at the Contract Lump Sum Price per structure per Site for the "Items of Work" listed here below for sign structures removed and disposed in accordance with this Specification and accepted by the Contract Administrator.

(i) Items of Work:

Removal and Disposal of Existing Steel Overhead Sign Support Structures

1. Structure No. S573 Pembina Hwy. N/B & S/B S. of Harrow St.

E12. CONSTRUCTION OF CONCRETE PILE FOUNDATION REPAIR WORKS

E12.1 General

E12.1.1 The Work covered under this item shall cover all concreting operations related to concrete pile foundation repair works including concrete pile extensions and concrete pile modifications in accordance with this Specification and as shown on the Drawings.

E12.1.2 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 all Works as hereinafter specified.

E12.2 Materials

E12.2.1 General

The Contractor shall be responsible for the supply, safe storage, and handling of all materials set forth in this Specification.

E12.2.2 Handling and Storage of Materials

All materials shall be handled and stored in a careful and workmanlike manner, to the satisfaction of the Contract Administrator. Storage of materials shall be in accordance with CSA Standard CAN3-A23.1, "Storage of Materials," except as otherwise specified herein.

E12.2.3 Testing and Approval

- (a) All materials supplied under this Specification shall be subject to inspection and testing by the Contract Administrator or by the Testing Laboratory designated by the Contract Administrator. There shall be no charge to the City for any materials taken by the Contract Administrator for testing purposes.
- (b) All materials shall conform to CSA Standard CAN3-A23.1.
- (c) All testing of materials shall conform to CSA Standard CAN3-23.2.

E12.2.4 Cement

Cement shall be Type 10, Normal Portland Cement, conforming to the requirements of CAN/CSA A5-98.

E12.2.5 Supplementary Cementing Materials

Use of pozzolans, fly ash, or silica fume will not be permitted for use in structural concrete supplied under this Specification

E12.2.6 Water

Water used for mixing concrete shall be clean and free from injurious amounts of oil, acid, alkali, organic matter, or other deleterious substances. It shall be equal to potable water in physical and chemical properties.

E12.2.7 Aggregate

- (a) The Contractor shall furnish in writing to the Contract Administrator, the location of the sources where aggregate will be obtained, in order that same may be inspected and tentatively approved by the Contract Administrator. Changes in the source of aggregate supply during the course of the Contract will not be permitted without notification in writing to and the expressed approval of the Contract Administrator.
- (b) Aggregates for major spalling and/or damage, and construction of pile extensions shall be as follows:
 - (i) Fine Aggregate

Fine aggregate shall consist of sand having clean, hard, strong, durable, uncoated grains; free from injurious amounts of dust, soft or flaking particles, shale, alkali, organic matter, loam, or other deleterious substances.

Fine aggregate shall be well-graded throughout and shall conform to the following grading requirements:

Gradation of Fine Aggregate	
Canadian Metric Sieve Size	Percent of Total Dry Weight Passing Each Sieve
10,000	100%
5,000	95% - 100%
2,500	80% - 100%
1,250	50% - 90%
630	25% - 65%
315	10% - 35%
160	2% - 10%
80	0% - 3%

- (ii) Coarse Aggregate (20 mm Nominal)

Standard coarse aggregate shall consist of natural gravel, crushed stone, or other approved materials of similar characteristics, having clean, hard, strong, durable uncoated particles, free from injurious amounts of soft, friable, thin, elongated, or laminated pieces, alkali, organic, or other deleterious matter. Coarse aggregate shall be well graded throughout and shall conform to the grading requirements in the following table.

Gradation of 20 mm Coarse Aggregate	
Canadian Metric Sieve Size	Percent of Total Dry Weight Passing Each Sieve
28,000	100%
20,000	90% - 100%
10,000	25% - 60%
5,000	0% - 10%
2,500	0% - 5%

(iii) Coarse Aggregate (13 mm Nominal)

Coarse aggregate for on-site batching shall be 100 percent crushed granite, clean and free from alkali, organic, or other deleterious matter, shall have an adsorption not exceeding 3 percent, and shall conform to the following gradation requirements:

Gradation of 13 mm Coarse Aggregate	
Canadian Metric Sieve Size	Percent of Total Dry Weight Passing Each Sieve
20,000	100%
13,000	97% - 100%
10,000	40% - 90%
5,000	5% - 30%
80	0% - 1.5%

E12.2.8 Admixtures

No admixtures other than air-entraining agent shall be used without the written authorization of the Contract Administrator, unless otherwise specified in these Specifications. It shall be the Contractor's responsibility to ensure that any admixture is compatible with all other constituent materials.

(a) Air-Entraining Agent

The air-entraining agent shall conform to the requirements of CSA Standard CAN3-A266.1 and shall produce a satisfactory air-void system and an air content within the ranges specified in CSA Standard A23.1 for each class of concrete.

(b) Water-Reducing Agent

If the Contract Administrator authorizes the use of a water-reducing agent, it shall be Type WN and shall conform to the requirements of CSA Standard CAN3-A266.2.

(c) Superplasticizing Agent

If the Contract Administrator authorizes the use of a superplasticizing agent, the superplasticizing agent shall conform to the requirements of CSA Standard CAN3-A266.5 and CAN3-A266.6. The agent shall be free of chlorides and shall not affect the air-entraining agent's ability to produce a satisfactory air-void system.

(d) Other Admixtures

No other admixtures will be authorized for use in Portland Cement Concrete, unless authorized in writing by the City Bridge Engineer.

E12.2.9 Latex Bonding Agent

Latex bonding agent shall be ACRL-STIX or SCP Concrete Bonding Agent, as supplied by Specialty Construction Products.

E12.2.10 Flexible Joint Sealant

- (a) Flexible joint sealant for all horizontal, vertical, and sloping joints shall be guaranteed non-staining grey polyurethane, approved by the Contract Administrator, and applied in strict accordance with the manufacturer's instructions, including appropriate primers.
- (b) Approved products are Vulkum 116 by Mameco; Sonolastic NP1 by Sonneborne; RC-1 by Permapol; and Sikaflex by Sika.

E12.2.11 Fibre Joint Filler

Fibre joint filler shall be rotproof and of the performed, non-extruding type, made with a bituminous fibre, such as "Flexcell," and shall conform to the requirements of ASTM, Standard D1751.

E12.2.12 Cement Slurry Bonding Grout

Cement slurry bonding grout shall be a mixture of 1 part cement and 1 part sand, mixed with enough water and latex bonding agent (mixed in equal parts) to allow the slurry mixture to be brushed onto existing concrete surfaces.

E12.2.13 Non-shrink Grout

- (a) Grout as specified hereinafter shall be used for the grouting of all reinforcing steel dowels.
- (b) Non-shrink grout shall consist of a pre-mixed non-metallic non-shrink grout. Approved products are:
 - (i) M-Bed Standard grout by Sternson Ltd.
 - (ii) CPD Non-shrink grout by Master Builders
 - (iii) Set Non-shrink grout by Master Buildings
 - (iv) Caprock VLT Mortar by Cappar Ltd. for cold weather construction (0°C to -20°C)
- (c) The grout shall be of a consistency suitable for the application intended.

E12.2.14 Concrete Cure and Protection System

Concrete cure and protection system shall be Horsey Set WDE (water-dispersed epoxy), made by Watson Bowman Acme, as supplied by G.D. Johnston Ltd.

E12.2.15 Reinforcing Steel

- (a) Reinforcing steel shall be deemed to include all reinforcing bars, tie-bars, and dowels.
- (b) All reinforcing steel shall conform to the requirements of CSA Standard G30.12, Grade 400 MPa, Billet-Steel Bars for Concrete Reinforcement. All reinforcing steel shall be new deformed billet steel bars.

E12.2.16 Anchor Bolt Extension and Accessories

- (a) Anchor bolt extensions, nuts, and washers shall be in accordance with CSA G40.21 Grade 300W hot-dip galvanized and shall match the size of existing anchor bolts.
- (b) Couplings shall be hot-dip galvanized conforming to ASTM A108 CDT 1045 steel, (High Tensile Steel). Couplings shall be stop-type to assure exact engagement of bolts on both ends and threads shall fit existing anchor bolts. An approved product is Williams C2T coupling.

E12.2.17 Miscellaneous Materials

Miscellaneous materials shall be of the type specified on the Drawings.

E12.3 Concrete Mix Design

E12.3.1 General

- (a) All concrete under this specification shall be produced at a Ready-mix concrete batch plant.
- (b) The concrete shall achieve a minimum compressive strength of 20 MPa before the sign structure is installed, and a minimum compressive strength of 35 MPa at 28 days.

E12.3.2 Concrete Requirements for Ready-Mix Batching

- (a) Proportioning of fine aggregate, coarse aggregate, cement, water, and air entraining agent shall be such as to yield concrete having the required strength and workability as follows:
 - (i) Minimum Compressive Strength at 28 days = 35 MPa
 - (ii) Maximum Water/Cement Ratio = 0.45
 - (iii) Minimum Cement Content = 340 kg/m³
 - (iv) Slump = 80 mm + 30 mm
 - (v) Aggregate: 20 mm nominal standard aggregate
 - (vi) Air Content: 5.0 to 8.0 percent for both fresh concrete and the hardened concrete
 - (vii) Cement - Type 10

E12.4 Equipment

All equipment shall be kept in good working order.

E12.5 Construction Methods

E12.5.1 General

- (a) The repair works related to existing concrete piles involve the construction of pile modifications
- (b) The Contractor should include the cost of removing and restoring the existing concrete sidewalk paving or sodding or soil surface, if required, in the total cost of the respective repairs as no separate payment will be made for this Work.

E12.5.2 Repair of Existing Concrete Pile Foundations

(a) Concrete Removals

Generally, the Work involves the removal of concrete from the top of piles and around the perimeter of piles as shown on the Drawings. The perimeter of all concrete identified for removal shall be saw-cut a minimum of 20 mm after removal of concrete as shown on the Drawings is complete.

(b) Installing Reinforcing Steel into Existing Concrete

- (i) Dowels which are to be anchored into existing concrete shall be installed in pre-drilled holes, as shown on the Drawings and grouted/epoxied in place to the correct grade and alignment. Coring of holes will not be permitted. In the event that existing reinforcing steel bars are hit during the drilling operations, that hole shall be abandoned and a new hole shall be drilled nearby to the correct depth. All abandoned holes shall be filled with non-shrink grout.
- (ii) All holes shall be thoroughly cleaned with an air compressor prior to installation of dowel bars.
- (iii) Care shall be taken not to disturb the dowels until the grout/epoxy has set properly. Any dowels which are found to be loose shall be removed and reinstalled properly to the satisfaction of the Contract Administrator. After the Contract Administrator has approved the installation of the dowels, the reinforcing steel shall be placed to clearances as shown on the Drawings and shall be positively tied at all intersections.

(c) Placing Concrete

- (i) The Contract Administrator must be notified at least 24 hours prior to concrete placement so that an adequate inspection may be made of formwork, shoring, reinforcement and related works. Placement without required prior notification will not be allowed.
- (ii) Equipment for mixing or conveying concrete shall be thoroughly flushed with clean water before and after each pour. Water used for this purpose shall be discharged outside the forms.
- (iii) Concrete shall be conveyed from the mixer to the place of final deposit by methods that will prevent segregation and a marked change in consistency.
- (iv) Tubular forms for concrete placement shall be sufficiently rigid to prevent lateral or vertical distortions from the loading environment to which they shall be subjected. Forms shall be set to the design grades, lines, and dimensions, as required. Care shall be taken to ensure that anchor bolts and extensions are vertically aligned. The anchor bolt extensions shall be aligned with a template matching the bolt holes in the existing base plate. The setting template shall be held in place by the top and bottom nuts of the anchor bolts. Size of conduit extensions shall match the existing conduits.

- (v) The threaded portion of the anchor bolts shall be coated with oil before the concrete is poured, to minimize the fouling of threads splattered by concrete residue.
- (vi) All concrete, during and immediately after deposition, shall be consolidated by mechanical vibrations so that the concrete is thoroughly worked around the reinforcement, around embedded items, and into the corners of forms; eliminating all air or stone pockets that may cause honeycombing, pitting, or planes of weakness.
- (vii) Floating shall begin when the water sheen has disappeared. The top surface of the pile shall then be consolidated with hand floats. Concrete surfaces after floating shall have a uniform, smooth, granular texture.

(d) Protection of Newly Placed Concrete

Newly placed concrete threatened with damage by rain, snow, fog or mist shall be protected with a tarpaulin or other approved means.

(e) Concrete Curing

- (i) Freshly-finished concrete shall be covered and kept moist by means of wet polyester blankets immediately following finishing operations and shall be maintained at above 10°C for at least seven (7) consecutive days thereafter.
- (ii) After the finishing is completed, the surface shall be covered with a minimum of a single layer of clean, damp polyester blanket.
- (iii) Concrete shall be protected from the harmful effects of sunshine, drying winds, surface dripping, or running water, vibration, and mechanical shock. Concrete shall be protected from freezing until at least twenty-four hours after the end of the curing period.
- (iv) Changes in temperature of the concrete shall be uniform and gradual and shall not exceed 3° in one hour or 20° in twenty-four hours.
- (v) Immediately after stripping and patching, formed surfaces shall receive an application of the approved concrete cure and protection system in accordance with the manufacturer's instructions.

(f) Form Removal

- (i) Forms shall not be removed for a period of at least 24 hours after the concrete has been placed. Removal of forms shall be done in a manner to avoid damage to, or spalling of, the concrete.
- (ii) The minimum strength of concrete in place for safe removal of forms shall be 20 MPa.
- (iii) Field-cured test specimens, representative of the in-place concrete being stripped will be tested, to verify the concrete strength.

(g) Patching of Formed Surfaces

- (i) Immediately after forms have been removed, but before any repairing or surface finishing is started, the concrete surface shall be inspected by the Contract Administrator. Any repair of surface finishing started before this inspection may be rejected and required to be removed.
- (ii) All formed concrete surfaces shall have bolts, ties, struts, and all other timber or metal parts not specifically required for construction purposes cut back fifty (50) mm from the surface before patching.
- (iii) Minor surface defects caused by honeycomb, air pockets greater than 5 mm in diameter, and voids left by strutting, and tie holes shall be repaired by removing the defective concrete to sound concrete, dampening the area to be patched

and then applying patching mortar. A slurry grout consisting of water and cement, shall be well-brushed onto the area to be patched. When the slurry grout begins to lose the water sheen, the patching mortar shall be applied. It shall be struck-off slightly higher than the surface and left for one hour before final finishing to permit initial shrinkage of the patching mortar and it shall be touched up until it is satisfactory to the Contract Administrator. The patch shall be cured as specified in this Specification, and the final colour shall match the surrounding concrete.

(h) Cold Weather Concreting

- (i) Protection of concrete shall be considered incidental to its placement. The temperature of the concrete shall be maintained at or above 10°C for a minimum of three (3) days or till the concrete has reached a minimum compressive strength of 20 MPa, by whatever means are necessary. Concrete damaged as a result of inadequate protection against weather conditions shall be removed and replaced by the Contractor at his own expense. Also, concrete allowed to freeze prior to the three (3) days will not be accepted for payment.

(i) Restoration of Adjacent Property

- (i) Restoration of concrete sidewalk/median paving, or sodding or ground, adjacent to existing concrete piles, shall not be carried out until the Contract Administrator has accepted the concrete pile foundation repair work. Backfill material under concrete paving shall be compacted to minimum 95 percent Standard Proctor Dry Density. The restoration of existing concrete sidewalks/medians and curbs, as well as boulevard median, paving stone, or sodding required will be incidental to the construction of concrete pile extensions and no separate payment will be made.

E12.6 Quality Control

E12.6.1 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 or 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.

E12.6.2 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.

E12.7 Measurement and Payment

E12.7.1 Construction of Concrete Pile Modifications

- (a) Construction of concrete pile modifications will not be measured and will be paid for at the Contract Lump Sum Price per pile per Site for the "Items of Work" listed here below for concrete piles modified in accordance with this Specification and accepted by the Contract Administrator.

(i) Items of Work:

Construction of Concrete Pile Modifications

1. Structure No. S739, Pembina Hwy. S/B, S. of Harrow St. Existing South Pile in West Boulevard currently used for S573

E13. ABANDONMENT OF EXISTING CONCRETE PILE FOUNDATIONS

E13.1 Description

E13.1.1 The Work covered under this item shall include all operations related to the abandonment of existing concrete pile foundations and removal and restoration of miscellaneous concrete slabs at the designated locations, in accordance with this Specification and as shown on the Drawings.

E13.1.2 The Work to be done by the Contractor under this Specification shall include the supply of all materials, and the furnishing of all superintendence, overhead, labour, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all Work as hereinafter specified.

E13.2 Equipment

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

E13.3 Construction Methods

E13.3.1 Abandoning of Existing Concrete Pile Foundations

- (a) Existing concrete piles and miscellaneous concrete slabs shall be abandoned and removed at designated locations as shown on the Drawings.
- (b) The existing piles being abandoned shall be cut down to 300 mm below existing paved surface or ground surface.
- (c) The existing piles, miscellaneous concrete slabs, including old anchor bolts, etc. shall be removed and all material hauled and disposed off-site.
- (d) If the existing pile being abandoned is located in a concrete sidewalk/median slab, the existing slab shall be removed to the nearest existing joints. If the nearest existing joint is more than 600 mm beyond the perimeter of the pile, the Contractor shall remove a square section of the existing slab that is 300 mm beyond the pile perimeter. The surface of the slab shall be saw-cut to a depth of 50 mm around the perimeter of the square section. Care shall be taken to ensure that the saw-cut edge of the section is not chipped or broken during the removal of the concrete. Concrete slabs damaged beyond the specified limits shall be replaced at the Contractor's cost to the satisfaction of the Contract Administrator. After the pile has been cut down as required, the concrete sidewalk/median slab shall be restored flush with the adjacent surface level. The removal and restoration of concrete sidewalk/median slabs will be considered incidental to pile abandonment works at each Site and no separate payment will be made except at those designated Sites where additional concrete sidewalk renewal and curb renewal is required.
- (e) If the existing pile being abandoned is located in grass boulevard/median, the Site shall be backfilled and restored with sod after the pile has been cut down. The restoration work will be considered incidental to the pile abandonment works at each Site and no separate payment will be made.

E13.3.2 Quality Control

- (a) 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 or 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.
- (b) 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.

E13.4 Measurement and Payment

E13.4.1 Abandonment of Existing Concrete Pile Foundations

- (a) Abandonment of existing concrete pile foundations, including restoration of adjacent property, will not be measured and will be paid for at the Contract Lump Sum Price per Site for the "Items of Work" listed here below for abandonment of piles in accordance with this Specification and accepted by the Contract Administrator.

- (i) Items of Work:

- Abandonment of Existing Concrete Pile Foundations

- 1. Structure No. S573, Pembina Hwy. N/B & S/B, S. of Harrow St. (2 existing piles in East Boulevard, one existing, North pile only, in West Boulevard)

E14. SUPPLY AND INSTALLATION OF STEEL OVERHEAD SIGN SUPPORT STRUCTURES

E14.1 Description

E14.1.1 The Work covered under this item shall include all operations related to the supply, fabrication, delivery, and erection of new steel overhead sign support structures.

E14.1.2 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.

E14.2 Materials

E14.2.1 General

- (a) The Contractor shall be responsible for the supply, safe storage, and handling of all materials set forth in this Specification.
- (b) All materials used for fabrication of overhead sign support structures shall be new, previously unused material.

E14.2.2 Handling and Storage of Materials

All materials shall be handled in a careful and workmanshiplike manner, to the satisfaction of the Contract Administrator. Storage of materials shall be in accordance with the

requirements of CSA Standard CAN3 A23.1.8-M77, Storage of Materials, except as otherwise specified herein.

E14.2.3 Structural Steel

- (a) Structural steel for vertical shafts and horizontal members shall be in accordance with CSA Standard G40.21 M, Grade 350 W. For purposes of hot-dip galvanizing, the silicon content in the steel shall be controlled within 0 to 0.03%. All other structural steel for flanges and base plates shall be CSA Standard G40.21 M, Grade 300 W.
- (b) 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.
- (c) Steel shall not be acceptable unless the mill test certificate states the grade to be 350 MPa (50 ksi) or 300 MPa (44 ksi) minimum yield for the items specified above. Lower grade steel shall not be acceptable (despite favourable published mill test results). Items fabricated without steel certification shall be rejected.

E14.2.4 Flange Bolts, Nuts, and Washers

Flange bolts, nuts, and washers shall be in accordance with ASTM A325 hot-dip galvanized.

E14.2.5 Hardware for Handhole Covers

Hardware for handhole covers shall be in accordance with ASTM A276 Type 316 stainless steel.

E14.2.6 Hot-Dip Galvanizing

All hot-dip galvanizing shall be in accordance with CSA G164 for a minimum net retention of 600 g/m².

E14.2.7 Galvanizing Touch-up and Field-Applied Galvanizing

- (a) Only approved products listed below shall be used for field-applied galvanizing, to touch-up damaged hot-dip galvanizing on-site and to galvanize field welds.
- (b) Approved products for self-fluxing, low-temperature, zinc-based alloy rods in accordance with ASTM A780-80 for "Repair of Damaged Hot-Dip Galvanized Coatings" are as follows:
 - (i) Galvalloy as manufactured by Metalloy Products Company, P.O. Box No. 3093, Terminal Annex, Los Angeles, California, available from Welder Supplies Limited, 25 McPhollips Street, Winnipeg, and
 - (ii) Welco Gal-Viz Galvanizing Alloy, as manufactured by Thermocote Welco, Highway 161, York Road, Kings Mountain, North Carolina, available from Welder Supplies Limited, 25 McPhillips Street, Winnipeg.
- (c) Approved cold-applied galvanic anti-corrosion system is as follows:
 - (i) ZINGA, as manufactured by ZINGAMETALL, Ghent, Belgium, available from Pacific Evergreen Industries Ltd. Vancouver, BC, Ph. (604) 926-5564, and Centennial Mine & Industrial Supply, Saskatoon, Sask., Ph. (306) 975-1944

E14.2.8 Anchor Bolts and Setting Template

Anchor bolts including nuts and washers, and setting template shall be in accordance with CSA G40.21 Grade 300W, hot-dip galvanized. Anchor bolts, nuts, washers, and setting template shall be supplied and paid for under, "New Cast-in-Place Concrete Pile Foundations", specified herein after if required.

E14.2.9 Non-shrink Grout

- (a) Grout as specified hereinafter shall be used for the construction of grout pads under sign structure base plates. Grout shall consist of a pre-mixed, non-metallic non-shrink grout. Approved products are:
- (i) M-Bed Standard grout by Sternson Ltd.
 - (ii) CPD Non-shrink grout by Master Builders
 - (iii) Set Non-shrink grout by Master Builders
 - (iv) Caprock VLT mortar by Cappar Ltd. for cold weather construction (0 C to -20 C)
- (b) The grout shall be of a consistency suitable for the application intended, as approved by the Contract Administrator.

E14.2.10 Sign Boxes/Plates

Sign boxes/plates will be supplied and installed by the City of Winnipeg Traffic Signals Branch.

E14.2.11 Welding Consumables

- (a) Welding consumables for all processes shall be certified by the manufacturer to be complying with the requirements of CSA Standard W59-M1984 and the following Specifications:
- (i) Manual shielded metal arc welding (SMAW):

All electrodes shall be basic-type electrodes conforming to CSA W48.1-M1991 or W48.3-M1982, classification E480XX, or imperial equivalent.
 - (ii) Gas metal arc welding (GMAW):

All electrodes shall conform to CSA W48.4-M1980, classification ER480S-X, or imperial equivalent.
 - (iii) Flux cored arc welding (FCAW):

All electrodes shall conform to CSA W48.5-M1982, classification E480XT-X or imperial equivalent. Electrodes shall be controlled by hydrogen (CH) designation.
 - (iv) Submerged arc welding (SAW):

All electrodes shall conform to CSA W48.6-M1980, classification F480X-EXXX or imperial equivalent.
 - (v) Shielding gas shall be welding grade carbon-dioxide with a guaranteed dew point of -46°C.

(vi) All electrodes, wires, and fluxes used shall be of a classification requiring a minimum impact of 27 joules at -18°C.

(b) The proposed welding procedures and welding consumable certificates shall be submitted to the Contract Administrator for his approval at least two (2) days prior to the scheduled commencement of any fabrication.

E14.2.12 Miscellaneous Materials

(a) Miscellaneous material incidental to this Work shall be as approved by the Contract Administrator.

E14.2.13 Equipment

(a) All equipment shall be of a type approved by the Contract Administrator and shall be kept in good working order.

E14.3 Construction Methods

E14.3.1 General Requirements

- (a) Holes in the base plates shall be oversized by 6 mm, and provisions made for field erection must be accurate within plus or minus 13 mm between supports, without affecting final installation and load capacity.
- (b) The base plates for the sign support structures shall be constructed to be fully compatible and mountable on the anchor bolts, provided in the foundations by the Contractor.
- (c) Sufficient reinforced handholes and wiring holes shall be provided for lighting of the signs as shown on the Drawings. All wiring holes shall have threaded couplings. All unused coupling holes shall be capped with a threaded galvanized plug.
- (d) The sign support structure shall be so fabricated that erection can be achieved by means of bolted connections.
- (e) Each sign structure shall be provided with a "raised" structure identification number with a welding electrode in accordance with the details shown on the Drawings. The sign structure identification number shall be placed before hot-dip galvanizing.
- (f) 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.
- (g) Prior to fabrication, the dimensional limitations on the size and shape imposed by the galvanizing facilities shall be determined for hot-dip galvanizing the sign structures.

E14.3.2 Fabrication

- (a) 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 - 2001 - 4th Edition, plus all subsequent revisions.
- (b) The punching of identification marks on the members will not be allowed, except for the structure identification number.

- (c) 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.
- (d) Dimensions and fabrication details that control the field matching of parts shall receive very careful attention in order to avoid field adjustment.
- (e) 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.
- (f) 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.
- (g) All holes shall be provided by drilling not burning. All holes shall be free of burrs and rough edges.

E14.3.3 Welding

- (a) Welding of steel structures shall be in accordance with CSA W59, "Welded Steel Construction."
- (b) All seams shall be continuously welded and free from any slag and splatter. Longitudinal welds shall be a minimum of 60% penetration, except those within 200 mm of baseplates, flanges, and circumferential welds, which shall be 100% penetration. All circumferential groove welds shall be 100% penetration, and where circumferential welds are used at a butt joint, an internal backup strip shall be provided.
- (c) Longitudinal seam welds in horizontal supports shall be located at the top of the horizontal members.
- (d) All welds shall be ground smooth and flush with the adjacent surface prior to hot-dip galvanizing.

E14.3.4 Surface Preparation and Cleaning

- (a) Surface preparation and cleaning of materials prior to hot-dip galvanizing shall be in accordance with CSA G164 and SSPC Specification SP:10, "Near White Metal Blast Cleaning," unless otherwise specified herein. The Contractor shall ensure that all exterior and interior surfaces of vertical support members of sign structures are blast cleaned prior to pickling to achieve the minimum zinc coating mass of 600 g/m². All welding and provision of holes is to be completed prior to surface preparation and cleaning, except where shown on the Drawings.
- (b) The sandblasting and cleaning of sign structures shall be done in the shop.
- (c) After the sign structures have been sandblasted and cleaned, the Contract Administrator will carry out a visual inspection of the structures in the shop before they are shipped to the galvanizing plant.

E14.3.5 Hot-Dip Galvanizing

- (a) The hot-dip galvanizing plant shall be a Regular Member of the American Galvanizers Association, Inc. and certified to CSA G164.
- (b) All outside surfaces of the overhead sign support structures, as well as the interior surfaces of all vertical support members of the overhead sign support structures, shall be hot-dip galvanized in accordance with the requirements of this Specification.

- (c) Adequate venting and drainage holes shall be provided in enclosed sections for hot-dip galvanizing. The galvanizing facility shall be consulted regarding the size and location of these holes. Holes shall be provided by drilling not burning.
- (d) The galvanizing coating on outside surfaces of overhead sign support 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.
- (e) In addition to the provision of corrosion protection by the galvanized coating, the aesthetic appearance of the structure after hot-dip galvanizing will also be a criteria in the acceptance or rejection of the galvanized coating. The galvanized coating on the entire structure shall have a uniform "silver" colour and lustre. Galvanizing with parts of the structure having dull grey coating or streaks or mottled appearance will not be acceptable. 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 installed.
- (f) Minor defects in the galvanizing coating shall be repaired in accordance with Section 3.1.4.19 of this Specification. The Contract Administrator shall be consulted before repairs are made. Use of cold applied spray-on galvanizing will not be permitted and will be cause for rejection.
- (g) 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.
- (h) The Contractor shall verify the thickness of galvanized coatings as directed by the Contract Administrator.
- (i) All threaded couplings shall be rethreaded after the sign structures have been hot-dip galvanized.
- (j) The sign structures shall be stored on timber blocking after hot-dip galvanizing.

E14.3.6 Installation of Sign Panels/Boxes/Plates

- (a) The City of Winnipeg will be responsible for installation of sign panels/boxes/plates.

E14.3.7 Delivery and Erection

- (a) The Contractor shall notify the Contract Administrator at least two (2) Working Days in advance of the anticipated delivery to the Site and erection of the overhead sign support structures.
- (b) The sign structures shall be lifted and secured with nylon ropes or other approved methods. Use of steel chains and steel hooks against hot-dip galvanized surfaces will not be permitted. The structures shall be placed on timber blocking during their transportation to the Site.
- (c) Each anchor bolt shall be provided with two galvanized nuts--one nut below the base plate for levelling the structure, and one nut above the base plate for anchoring the structure. The anchor bolts shall have a minimum projection of 25 mm above the anchoring nuts. There shall be provision for maximum 50 mm thick grout pad under the base plate.
- (d) The Contractor shall ensure that the anchoring nuts of the anchor bolts are tightened according to the "turn-of-nut" method of the AASHTO Code.

E14.3.8 Grout Pads

- (a) New grout pads shall be constructed under sign structure bases incidental to the Work of this item.

E14.3.9 Field-Applied Touch-up Galvanizing

- (a) Any areas of damaged galvanizing on the sign structures shall receive field-applied touch-up galvanizing.
- (b) Surfaces to receive touch-up galvanizing shall be cleaned using a wire brush, a light grinding action, or mild blasting to remove loose scale, rust, paint, grease, dirt, or other contaminants.
- (c) For self fluxing, low temperature, zinc based alloy rods, preheat the surface to 315°C and wire brush the surface during preheating. Rub the cleaned preheated area with the repair stick to deposit an evenly distributed layer of zinc alloy. Spread the alloy with a wire brush, spatula, or similar tool. Field-applied galvanizing shall be blended into existing galvanizing of surrounding surfaces and shall be buffed and polished if required to match the surrounding surfaces. Care shall be taken to not overheat surfaces beyond 400°C and to not apply direct flame to the alloy rods.
- (d) For pure zinc paint on systems, the approved product Zinga shall be applied by either a brush or roller. The Zinga shall be applied in 3 coats, with each coat having a dry film thickness of 60 µm (2.36 mils). Each coat shall be left to dry for a minimum of one (1) hour before the application of the next coat.

E14.4 Quality Control

E14.4.1 General

- (a) 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.
- (b) 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.

E14.4.2 Welding Qualifications

- (a) The Contractor shall produce evidence that the plant has recently been fully approved by the C.W.B. to the requirements of CSA W47.1 Division 2.1 for welding of steel structures.
- (b) Approved welding procedures shall be submitted to the Contract Administrator prior to fabrication of any steel items.

E14.4.3 Testing

- (a) In addition to the Contractor's own quality control testing of all materials, welding procedures and steel fabrication will be inspected by the Contract Administrator to ascertain compliance with the Specifications and Drawings.
- (b) The Contractor shall hire a testing agency certified by the Canadian Welding Bureau to carry out the following shop fabrication inspection and testing before the overhead sign support structures are approved ready for installation of coating system:
 - (i) Radiographic inspection of 100 percent of full penetration sections of longitudinal seam welds and circumferential butt welds.
 - (ii) Magnetic particle inspection of a random 10 percent of partial penetration sections of longitudinal seam welds.
- (c) The Contractor shall provide the Contract Administrator with certified results of the above inspections.
- (d) All welds shall be visually inspected by the Contract Administrator.
- (e) The inspector shall have access to all of the fabricator's normal quality control records for this Contract, specified herein.
- (f) Weld inspection will be carried out in accordance with the requirements of CSA W59.
- (g) Welds that are found by any of the inspection 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.
- (h) No repair shall be made until agreed to by the Contract Administrator.

E14.4.4 Unacceptable Work

- (a) Any Work found to be unacceptable shall be corrected in accordance with CSA W59.
- (b) No repair shall be made until agreed to by the Contract Administrator.
- (c) Supply and installation of steel overhead sign support structures will not be measured and will be paid for at the Contract Lump Sum Price per structure per Site for the "Items of Work" listed here below for steel overhead sign structures supplied and installed in accordance with this Specification and accepted by the Contract Administrator.
 - (i) Items of Work:

Supply and Installation of Steel Overhead Sign Support Structures

1. Structure No. S738 Pembina Hwy. N/B, N. of Harrow St.
2. Structure No. S739 Pembina Hwy. S/B, S. of Harrow St.

E15. SALVAGING EXISTING ALUMINUM BALANCED BARRIER

E15.1 Description

- (a) This specification shall cover the salvaging of the existing aluminum balanced barrier rail and posts in accordance with the Standard Construction Specification CW-3650-R4 and as specified herein.

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

E15.2 Construction Methods

- E15.2.1 Further to Standard Construction Specification CW 3650-R4, all guardrail components to be salvaged, including hardware, shall be delivered to the City of Winnipeg Bridge Storage Yard at 849 Ravelston Ave. Winnipeg, MB, R3W 1S8. At the storage yard, the Contractor shall off-load the salvaged material with his own labour and equipment and place in the designated location indicated by the City Bridge Inspectors and as directed by the Contract Administrator.

E15.3 Measurement and Payment

E15.3.1 Salvaging Existing Barriers

- (a) The Work under this specification will be paid for in accordance with the Standard Construction Specification CW 3650-R4.