

8-2011 ADDENDUM 1

OSBORNE STRET BRIDGE REHABILITATION AND RELATED WORKS

URGENT

**PLEASE FORWARD THIS DOCUMENT TO
WHOEVER IS IN POSSESSION OF THE BID
OPPORTUNITY**

ISSUED: March 8, 2011
BY: Doug Stewart
TELEPHONE NO. (204) 954-6913

**THIS ADDENDUM SHALL BE INCORPORATED
INTO THE BID OPPORTUNITY AND SHALL
FORM A PART OF THE CONTRACT
DOCUMENTS**

Template Version: A20070419

Please note the following and attached changes, corrections, additions, deletions, information and/or instructions in connection with the Bid Opportunity, and be governed accordingly. Failure to acknowledge receipt of this Addendum in Paragraph 10 of Form A: Bid may render your Bid non-responsive.

PART D – SUPPLEMENTAL CONDITIONS

- Add: D2.2 (c)(i)(v): Install Triton water filled traffic barriers.
- Add: D2.2 (c)(ii)(x): Relocate and install Triton water filled traffic barriers; and
- Add: D2.2 (c)(ii)(xi): Install temporary and permanent QuadGuard systems.
- Add: D2.2 (c)(iii)(iii): Relocate Triton water filled traffic barriers.
- Add: D2.2 (d)(i)(x): Relocate Triton water filled traffic barriers; and
- Add: D2.2 (d)(i)(xi): Remove and salvage temporary QuadGuard systems.
- Add: D2.2 (d)(ii)(viii): Remove Triton water filled traffic barriers.
- Revise: D4.1 to read: The Contract Administrator is Tetra Tech, represented by:
Mrs. Kimberly Yathon
400-161 Portage Ave. East, Winnipeg MB R3B 0Y4
Telephone No. (204) 954-6896
Facsimile No. (204) 988-0546
- Revise: D23.1 to read: If the Contractor fails to achieve the Critical Stage Dates or Substantial Performance in **accordance** with the Contract by the days fixed herein for **same**, the Contractor shall pay the City the following amounts per Calendar Day for each and every Calendar Day following the day fixed herein for same during which such failure continues.
- Revise: D23.2 to read: The amount specified for liquidated damages in D23.1 is based on a genuine pre-estimate of the City's damages in the event that the Contractor does not achieve the **Critical Stages or** Substantial Performance by the day fixed herein for same.
- Revise: D28.2(c)(i) to read: The City of Winnipeg By-law No. **1/2008** and all amendments;
- Revise: D28.2(c)(ii) to read: The City of Winnipeg By-law No. 1573/77 and all amendments;

PART E – SPECIFICATIONS

- Add: E4.5.1(d) The Contractor's activities within the Project area shall not damage any park or private property and any existing trees. In an event that removal of park property and trees is necessary, permission from the Contract Administrator, the City's Urban Forestry Branch and the Ward Councillor is required prior to the Contractor proceeding with any removals. Any proposed tree removals shall be in accordance with City's "Tree Removal Guidelines". Any park property or trees that have been relocated, removed or damaged shall be replaced and restored back to its original condition during site restoration works, to the satisfaction of the Contract Administrator and the City Forester.
- Revise: E7.1(a) to read: This Specification shall cover all operations relating to the provision of safe access for pedestrians and cyclists around the construction site and on the paved pathway under the Bridge between the north abutment and Pier No. **1** for the Northbound and Southbound Bridges as specified herein.
- Revise: E7.6.1(a) to read: A pedestrian protection wall at the location of the underbridge pathway between the north abutment and Pier No. **1**, complete with overhead protection, shall be a minimum of 3000 mm high and 3000 mm wide and shall consist of support posts and minimum 13 mm thick plywood. The support posts shall have provision for anchorage to prevent movement or overturning of the pedestrian protection due to wind, hydraulic, or other loads. The pedestrian protection shall be designed for all applicable loading including wind loading in accordance with the requirements of the Manitoba Building Code. Adequate lighting shall be provided attached to the inside of the temporary pedestrian enclosure. Lighting shall be provided for the length of the pathway enclosure.
- Revise: E8.7.1(l) to read: Protect the live MTS, Manitoba Hydro and City of Winnipeg cables, and River Level Monitoring System during structural removals. There are three (3) MTS conduits located beneath the west side of the Bridge deck. **MTS will relocate all lines in the existing MTS conduits to be removed to the three conduits containing fibre optic lines. These lines** are to be maintained live **for** the entire duration of the Works. **The Contractor shall coordinate access and coordinate with MTS prior to the removal of the existing MTS conduits. The Contractor is responsible to locate, protect, and undertake all Works without damaging the existing MTS fibre optic lines or concrete duct bank with the fibre optic lines.** Provide full-time temporary protection to the satisfaction of the Contract Administrator. The Contractor will be responsible for the safe condition of the live cables for the duration of the Project. Contact appropriate utilities when working in the vicinity of their conduit/cables in the event that they want to assign an inspector to the Contractor's Work.
- Delete: E8.7.2(c)
- Revise: E8.7.4(b) to read: Following the removal of the asphalt overlay, the Contractor shall conduct a survey of the exposed concrete Bridge deck as shown on the Drawings. Asphalt overlay thicknesses vary between 52 mm and 91 mm based on asphalt sawn samples taken from the existing Bridge.
- Revise: E8.7.7(d) to read: Remove existing electrical conduits in overhang. Electrical cables in conduits to be salvaged, by appropriate utility. Coordinate removal of electrical **and fibre optic lines** with Manitoba Hydro and MTS.
- Revise: E8.7.9(a) to read: Stage II deck concrete removal shall be the removal of the Bridge deck from the limits of the Stage I deck concrete to the top of the post tensioning ducts, as shown on the Drawings. **Stage II deck concrete removal shall also encompass the additional removals required at the west edge of the limits of Phase 1 Removals and the east edge of the limits of Phase 2 Removals, where additional maximum removals are required along the length of the Bridge are required for joining of the Northbound and Southbound Bridges during Phase 2A Construction. At pier locations where post tensioning tendons are present in the deck, removals shall be completed to lesser of the mid height of the post tensioning duct or 25 mm. All other locations**

shall have additional removals of 25 mm depth. Refer to Detail 3 and 4 on Sheet 57 of the Drawings for the limits and extent of west edge Phase 1 Deck Removals. Refer to Detail 3 and 5 on Sheet 69 of the Drawings for the limits and extent of east edge Phase 2 Deck Removals. Concrete removed within this limit shall also include removal of concrete from the top layer of reinforcing steel to the bottom of the top layer of reinforcing steel.

- Revise: E8.7.16(c)(i) to read: For vertical surfaces, concrete shall be removed to a "Medium **Shotblast**" profile, or in accordance with the ICRI Guideline No. 03732, CSP5.
- Revise: E8.7.16(f) to read: **Protect MTS fibre optic lines and concrete duct bank containing fibre optic lines during structural removals.** Coordinate with MTS as required.
- Delete: E8.9.7
- Revise: E11.3(a) to read: The Work under this Specification shall involve supplying and installing all black and stainless steel reinforcing, as shown on the Drawings. **The Contractor shall have all stainless steel reinforcing for Phase 2 Construction ordered and delivered to the Fabricator in 2011.**
- Revise: E11.5.4(b): Reinforcing steel for the sidewalk for the **slope paving at the north abutment, abutment modifications and wingwalls, southwest abutment retaining wall, and bottom reinforcing for the north abutment slab** shall be black steel as shown on the Drawings and shall conform to the requirements of CAN/CSA G30.18, Grade 400W
- Add: E11.7.2(d) The Contractor shall have all stainless steel reinforcing for Phase 2 Construction ordered and delivered to the stainless steel reinforcing Fabricator in 2011. This additional steel will be available should additional deck reinforcing be required if the Contract Administrator determines that additional strength is required following his inspection and assessment of the existing post tensioning tendons in the deck slab concrete. Refer also to E18, "Post Tensioning Tendons Inspection and Remedial Repair". Any additional steel shall be paid for in accordance with E11.10.2(a).
- Revise: E11.7.5(c) to read: Drilling equipment shall be operated so as to ensure that no damage to the **concrete** results from such drilling operation. Coring of holes is not permitted. In the event that existing reinforcing steel bars are hit during the drilling operations, the 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.
- Revise: E12.3(a)(ii)(i) to read: Bridge sidewalk slab Works shall comprise of the new cast-in-place concrete **Bridge deck overhangs**, sidewalk slabs and curbs on each Bridge deck overhang.
- Revise: E12.7.13(a) to read: The Contractor shall indent into the exposed concrete a structure identification date at such location shown on the Drawings, in accordance with the detail shown on the Drawings, or as otherwise directed by the Contract Administrator.
- Revise: E12.7.14(a) to read: Abutment modification Works include the modifications to the north and south abutment back walls, wingwalls, southwest retaining wall, **and sidewalk slabs**, to the limits as shown on the Drawings. **It shall also include concrete required for duct banks.**
- Revise: E12.7.15(b)(i) to read: For vertical surfaces, concrete shall be roughened to a "Medium **Shotblast**" profile, or in accordance with the ICRI Guideline No. 03732, CSP5.
- Revise: E12.7.17(a) to read: The Contractor shall undertake the approach slab **and approach sidewalk slab** Works to the limits as shown on the Drawings.
- Revise: E12.7.20(a)(ii) to read: All existing surfaces and exposed reinforcing steel are **to be cleaned to produce a clean substrate and kept clean until concrete placement. All concrete surfaces shall be roughened to achieve a minimum "Light Scarification" profile, or in accordance with ICRI Guideline No. 03732, CSP4, or where specified herein or elsewhere within these Specifications, or as shown on the Drawings.**

- Revise: E12.7.27(b)(i) to read: When the air temperature is at or above 25°C, curing shall be accomplished by fog misting and by using saturated absorptive fabric, in order to achieve cooling by evaporation. Note that fog misting is mandatory for all deck slab pours at all temperatures.
- Add: E12.9.1(d) For reinforcing steel Works, refer to E11, "Reinforcing Steel". For structural excavation Works, refer to E9, "Structural Excavation". For structural backfilling Works, refer to E10, "Structural Backfill".
- Revise Table E13.1 to read: Special Requirements: Synthetic Fibres, Maximum Shrinkage Strain of 450 microstrains @ 56 Days
- Revise E13.5.4(c) to read: Coarse Aggregate – **Standard**
- Revise E13.5.4(c)(i) to read: **The maximum nominal size of coarse aggregate shall be 14 mm and meet the grading requirements of CAN/CSA A23.1 Table 11 Group 1.**
- Delete: E13.5.4(c)(ii)
- Add: E13.7.1(a)(iii) Following the completion of the new concrete deck slab and barriers, conduct a survey of concrete elevations and stations as shown on the Drawings. The Contract Administrator will revise the final elevations of the HPC overlay if required to ensure a minimum overlay thickness of 50 mm.
- Revise Table E14.1 to read: Max Aggregate Size: **14 mm**
- Revise: E14.5.4(c)(i) to read: The maximum nominal size of coarse aggregate shall be **14** mm and meet the grading requirements of CAN/CSA A23.1 Table 11 Group 1.
- Add: E14.7.3(a)(iii) Following the completion of the new concrete deck slab, sidewalk slab and overhang, and barriers, conduct a survey of concrete elevations and stations as shown on the Drawings. The Contract Administrator will revise the final elevations of the sidewalk WSC overlay if required to ensure a minimum overlay thickness of 50 mm.
- Revise: E14.7.3(b)(i) to read: The new concrete sidewalk slab, onto which the WSC overlay concrete is to be placed shall be roughened to a "Medium Scarification" profile, in accordance with ICRI Guideline No. 03732, CSP6.
- Revise: E14.9.2(a) to read: Supplying and placing the stainless steel sidewalk art strips shall be paid for at the Contract Unit Price per square metre **of sidewalk WSC overlay placed**, for "Supply and Install Stainless Steel Art Sidewalk Strips", performed in accordance with this Specification and accepted by the Contract Administrator, which price shall be paid in full for supplying all materials and for performing all operations herein described and all other items incidental to the Work.
- Revise: E15.5.4(b) to read: The concrete repair mortar shall be a shrinkage compensated, with corrosion inhibitor, suitable for application by hand trowelling, or spraying, or form and pour, or pump. **For horizontal applications, SikaTop 122 Plus, SikaTop123 Plus, and Trowel Grade Mortar w/CI-CR701CI, as approved by the Contract Administrator, in accordance with B6, "Substitutes". For vertical applications, SikaTop 122 Plus, SikaTop123 Plus, and Overhead Mortar w/CI-CR702CI, as approved by the Contract Administrator, in accordance with B6, "Substitutes".** Mix in accordance with Manufacturer's Specifications, including addition of aggregate for deep repairs.
- Revise: E15.7.2(d) to read: All rusted steel shall be chased until rust is not evident on reinforcing steel. Once the limits of each repair area is identified, saw cut a square perimeter around the patch to a minimum edge depth of 25 mm. **A repair boundary shall be cut around the area to prevent feather edge conditions. This perimeter shall be cut 90° into the concrete at a depth no more than 25 mm or less as required to avoid cutting the reinforcing steel.** Do not cut or damage existing reinforcing steel.

- Add: E15.7.2(g) Following the completion of concrete removals, the Contractor shall notify the Contract Administrator to inspect the Work.
- Revise: E16.9.1(a) to read: Corrosion protection of reinforced concrete shall be paid for at the **Contract Unit Price per square metre** for "Activated Arc Spray Zinc Corrosion Protection", **performed in accordance with the Specification and accepted by the Contract Administrator**, which price shall be paid in full for supply all materials and performing all operations herein described and all other items incidental to the Work.
- Add: E17.7.1(e) Bearings supplied for the Northbound Bridge shall be delivered by May19, 2011. Bearings for the Southbound Bridge shall be delivered by May 30, 2011.
- Revise: E18.5.2(b) to read: The GRABB-IT Cable Splice **and couplers** shall be zinc chromate plated in accordance with the latest edition and all subsequent revisions of ASTM B633, Type 3 to provide corrosion resistance.
- Revise: E18.5.3(a) to read: Replacement strand shall be 270 KSI, 13 mm wire, **low relaxation strands, conforming to the requirements of the latest edition and all subsequent revisions of ASTM A416, Grade 270.**
- Revise: E18.7.1(b) to read: **The Contractor shall have all stainless steel reinforcing for Phase 2 Construction ordered and delivered to the stainless steel reinforcing Fabricator in 2011. This additional steel will be available should additional deck reinforcing be required if the Contract Administrator determines that additional strength is required following his inspection and assessment of the existing post tensioning tendons in the deck slab concrete. Refer also to E11, "Reinforcing Steel". Any additional steel shall be paid for in accordance with E11.10.2(a).**
- Revise: E18.7.3(a) to read: It is expected that there will be thirty (30) such locations, which. The Contract Administrator shall designate the locations where post tensioning tendon inspection will take place **by visual inspection and sounding methods**. The Contract Administrator shall complete all post tensioning tendon inspections.
- Revise: E19.7.6(a) to read: A temporary expansion joint seal at each expansion joint unit will be required for the roadway completed as part of Phase 1 Construction Works in 2011. This seal will be replaced with a permanent seal at each unit as part of Phase 2 Construction in 2012. **The supply and installation of the temporary seal shall be incidental to the Work.**
- Revise: E21.4.2(a) to read: Rubberized asphalt waterproofing shall be American Hydrotech's Monolithic Membrane 6125, BAKOR 790-11 Hot Applied Rubberized Asphalt Waterproofing/Roofing Membrane complete **with Asphaltic Protection Board**, or equal as accepted by the Contract Administrator, in accordance with B6, "Substitutes".
- Add: E21.6.1(h) Install Asphaltic Protection Board over top of finished elastomeric sheet.
- Add: E22.5.7 Bituminous Coating
- Add: E22.5.7(a) Bituminous coating shall be alkali – resistant coating and conform to the requirements of ASTM D1187.
- Revise: E22.9.2(a) to read: The quantity of grouted heavy rock riprap to be paid for will be measured in place in **square meters**. The area of rock paid for will be calculated from the thickness of the riprap as shown on the Drawings, and the actual area covered. Overages in thickness or area beyond the limits shown on the Drawings will not be paid for unless these changes were requested by the Contract Administrator.
- Revise: E22.9.2(b) to read: Constructing the new grouted rock riprap for the slope protection at the south abutment will be paid for at the Contract Unit Price per **square metre** for "Construct Slope Protection", measured as specified herein, performed in accordance with this Specification and accepted by the Contract Administrator, which price shall be paid in full for the removal of the existing concrete slope protection and granular fill, shaping the new

riprap bed, supplying and installing all geotextile fabric, loading, hauling, and placing riprap, placing of concrete grout, and for performing all operations herein described and all other items incidental to the Work.

- Revise: E23.9.4(c) to read: Submit test results for the **Contract Administrator's** review.
- Add: E24.3(a)(vi) Installing the River Level Monitoring System.
- Revise: E24.5.2 to read: Materials Supplied by the Contractor
- Revise: E24.5.2(a) to read: The Contractor shall supply all components necessary for a proper installation except items **to be supplied by the City or Utilities, to follow.**
- Revise: E24.5.7(a) to read: The meter for the River Level Monitoring System shall be supplied by the City. **The City's contact at the Water and Waste Department is:**
Contact: Mr. Grant Mohr
Phone: (204) 986-3245
- Revise: E24.5.8(a) to read: The cable for the River Level Monitoring System shall be supplied by the City. **The City's contact is as specified in E24.5.7(a).**
- Revise: E24.8.4(b) to read: As described elsewhere in this Specification, the Contractor will be responsible to supply and install the conduit and the anchors for the Bridge street lighting. **Anchor units for Bridge street lighting shall be paid for in accordance with E12.9.4, "Anchor Units for Bridge Street Lights and Pedestrian Handrail".** The roadway lighting conductor and poles will be supplied and installed by Manitoba Hydro. The Contractor shall coordinate the Work of Manitoba Hydro with his and ensure that Hydro has enough time to complete their works before the opening of the Bridge to the public.
- Revise: E24.10.1(b)(i) to read: **Navigation Lights;**
- Add: E24.10.1(b)(ii) **River Level Monitoring System; and**
- Add: E24.10.1(b)(iii) **Underbridge Lights.**
- Revise: E25.1(a) to read: This Specification shall cover the supply and installation of Manitoba Hydro, MTS conduits, and City conduits within the sidewalk slab concrete abutments and tie-ins to existing manhole.
- Revise: E25.5.3(a) to read: The Contractor shall supply 3-100 mm diameter conduits identified on the Drawings as MTS ducts. The conduit will be 100 mm PVC duct certified to the requirements of CAN/CSA C22.2 No. 211.1. This supply of pipe will include the associated bends, couplings and conduit concrete solvent.
- Revise: E25.5.4(a) to read: The Contractor shall supply 4-125 mm diameter conduits identified on the Drawings as City ducts. The 125 mm conduits will be IPEX Rigid Super Duct, or equal as approved by the Contract Administrator, in accordance with B6, "Substitutes". The supply of the pipe will include the associated bends and couplings. **The pipe will be supplied in standard 3 or 6 m lengths.**
- Add: E25.5.5 FRE Conduits
- Add: E25.5.5(a) The Contractor shall supply 2-125 mm diameter conduits identified on the Drawings as MB Hydro conduits. The conduits will be 125 mm FRE, or equal as approved by the Contract Administrator, in accordance with B6, "Substitutes", encased in a concrete duct bank except where passing through the north and south abutments. Within the abutments, FRE conduit will be supported by an FRE conduit hanger system and installed as required by the Canadian Electrical Code. The supply of the conduits will include the associated bends, couplings, and required hardware.

- Revise: E25.6(a) to read: **All equipment shall be of a type acceptable to the Contract Administrator and shall be kept in good working order.**
- Delete: E25.6(b)
- Delete: E25.7.5
- Delete: E25.9.2
- Add: E28.7.2(c) The salvaged QuadGuard CZ Systems shall be delivered to the City of Winnipeg Bridge Yard. A minimum of twenty-four (24) hours notice is required prior to delivery of the QuadGuard CZ Systems. The Contractor shall supply all necessary equipment to unload and return the QuadGuard CZ Systems to their designated locations within the City Bridge Yard. The Contractor shall provide an inventory of all salvaged items and components to the City Bridge Yard, which has been reviewed and approved by the Contract Administrator.
- Add: E28.7.2(d) The City Bridge Yard is located at:

City of Winnipeg Public Works Bridge Yard
849 Ravelston Ave. W.
Phone: (204) 794-8510
Contact: Mr. Mike Terleski, C.E.T.
- Add: E29.3.2(d) Connection of Triton traffic barriers to the precast concrete barriers shall be completed in accordance with the Manufacturer's installation methods and requirements.
- Revise: E30.7.1(a) to read: Transporting and installing precast concrete barriers shall be paid for at the Contract Unit Price per unit for **"Transport and Install Temporary Precast Concrete Barriers"**, measured as specified herein, performed in accordance with this Specification and accepted by the Contract Administrator, which price shall be paid in full for supplying all materials and for performing all operations herein described and all other items incidental to the Work.
- Revise: E30.7.2(a) to read: Relocating the precast concrete barriers shall be paid at the Contract Unit Price per unit for **"Relocate Temporary Precast Concrete Barriers"**, measured as specified herein, performed in accordance with this Specification and accepted by the Contract Administrator, which price shall be paid in full for supplying all materials and for performing all operations herein described and all other items incidental to the Work.
- Revise: E30.7.3(a) to read: Removing and transporting precast concrete barriers shall be paid for at the Contract Unit Price per unit for **"Remove and Transport Temporary Precast Concrete Barriers"**, measured as specified herein, performed in accordance with this Specification and accepted by the Contract Administrator, which price shall be paid in full for supplying all materials and for performing all operations herein described and all other items incidental to the Work.
- Add: E32.6.1(c) The reinforced transition curb shall be supplied, installed, and paid as part of abutment modification and approach slab Works. Refer to E12, "Structural Concrete".
- Delete: E32.8.1
- Revise: E33.4.2(b) to read: Recycled concrete base course material **must meet the approval of the Contract Administrator.**
- Revise: Table E13.1 to read: Canadian Metric Sieve Size: **2 500**
- Add: E33.6.1(e) **Place and compact recycled concrete base course material to a minimum 75 mm in thickness for pavement, approaches and asphalt pathways to a minimum of 100% Standard Proctor Density for the full width of the excavation unless otherwise shown on the Drawings or as directed by the Contract Administrator.**

Add: E33.6.1(f) **Maintain the finished material until the hard surfacing is placed.**

Revise: E34.1 to read: The Contractor shall take the following precautionary steps to prevent damage from construction activities to all existing trees within the limits of the construction area:

Replace: E41 with the following:

E41 Electrical Power Distribution

E41.1 Description

- (a) **This Specification covers all operations related to the supply and installation of a 100A rated, 120/240VAC, single phase distribution panel complete with 60A main breaker for the interior of the North Abutment to provide a power source for the bridge specific electrical equipment.**
- (b) **The electrical equipment being supported by this distribution panel shall include but not be limited to:**
 - (i) **Under Bridge Lighting (pier mounted Wall Packs – north and south ends);**
 - (ii) **Handrail Lighting Control Panels – located within the North Abutment);**
 - (iii) **Navigation Lighting – East and West sides) and the North Abutment Electrical Room lighting.****This panel shall also be provided with a minimum of three (3) spare 15A single phase breakers;**
- (c) **All equipment specified on the Drawings shall be supplied, installed and connected by the Contractor. This shall include all necessary hardware and fittings required for a complete and working distribution system and;**
- (d) **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.**

E41.2 Referenced Specifications and Drawings

- (a) **The latest version of the City of Winnipeg Standard Construction Specification**
 - (i) **CAN/CSA C22.1 – Canadian Electrical Code Part 1, Manitoba addendums and revisions, and all City of Winnipeg Electrical Bylaws;**
 - (ii) **CAN/CSA C22.2 – Information Technology Equipment - Safety - Part 1: General Requirements; and**
 - (iii) **CAN/CSA C22.3 – Electrical Conduit.**

E41.3 Scope of Work

- (a) **The Work under this Specification shall involve supplying, installing, and connecting the distribution panel as shown on the Drawings.**

E41.4 Materials

E41.4.1 General

- (a) **All materials supplied under this Specification shall be of a type approved by the Contract Administrator, and shall be subject to inspection and testing by the Contract Administrator.**
- (b) **The Contractor shall be responsible for the supply, safe storage and handling of all materials as set forth in this Specification. All materials shall be handled in a careful and workmanlike manner, to the satisfaction of the Contract Administrator.**

E41.4.2 Distribution Panel

- (a) **The distribution panel shall be NEMA 3R Square D, Model Number: QO327M100RB, or equal as accepted by the Contract Administrator, in accordance with B6, “Substitutes”.**

E41.4.3 Ground Bar Kit

- (a) **The ground bar kit shall be PK15GTA (optional to the specified panel).**

E41.4.4 **Main Breaker**

- (a) **The main breaker shall be 60A trip, 240V, 2 pole Square D, Model Number: QOM60VH**

E41.4.5 **Branch Circuit Breakers**

- (a) **The branch circuit breakers shall be Square D, Model Number: QO with ratings as shown on the Drawings.**

E41.5 **Equipment**

E41.5.1 **General**

- (a) **All equipment shall be of a type acceptable to the Contract Administrator and shall be kept in good working order.**
- (b) **Equipment shall be CSA certified. Where there is no alternative to supplying equipment which is certified, obtain special permission from Electrical Inspection Department.**

E41.5.2 **Care, Operation and Start up**

- (a) **Instruct operating and maintenance personnel in the operation, care and maintenance of systems, system equipment and components.**
- (b) **Provide these services for such period, and for as many visits as necessary to put equipment in operation, and ensure that operating personnel are conversant with all aspects of its care and operation.**

E41.6 **Fabrication**

E41.6.1 **General**

- (a) **Factory assemble distribution panels and component assemblies.**

E41.6.2 **Finishes**

- (a) **Clean and touch up surfaces of shop painted equipment scratched or marred during installation.**

E41.6.3 **Wiring Identification**

- (a) **Identify wiring with permanent indelible identifying markings, either numbered or coloured plastic tapes, on both ends of phase conductors of feeders and branch circuit wiring.**

E41.7 **Construction Methods**

E41.7.1 **General**

- (a) **The Contractor will be responsible to supply and install the electrical distribution panel as shown on the Drawings and as specified herein.**
- (b) **The panel shall be wall mounted in or near the location identified on the Drawings, as high as allowed by the code, mounted on 25 mm galvanized cantruss channel complete with spring nuts to provide physical separation of the panel enclosure from the concrete. Free flow ventilation must be maintained behind the panel to prevent the buildup of moisture. Use stainless steel anchors to attach supporting channels to the concrete.**
- (c) **Mount the distribution panel as high as practical while still allowing access to minimize the possibility of flood damage.**
- (d) **Silicone spray all mounting hardware and attachment points, prior to installation, to best prevent corrosion. Coat all cut steel ends with zinc-rich paint.**
- (e) **Clean, prime, and finish coat all exposed non-galvanized hangers, racks, and fastenings to prevent rusting.**
- (f) **Install and connect a ground bar at a minimum of 2 meters above finished floor of the abutment wall, adjacent to the distribution panel for bonding of all metal parts associated with the panel supported loads and associated Bridge structure.**

E41.7.2 **Codes and Standards**

- (a) Complete installation in accordance with the latest edition and all subsequent revisions of CAN/CSA C22.1, Manitoba addendums and revisions, and all City of Winnipeg Electrical Bylaws.
- (b) Manufacturer's and CSA Labels shall be visible and legible after equipment is installed.

E41.8 Quality Control

E41.8.1 Inspection

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

E41.8.2 Access

- (a) The Contractor shall allow the Contract Administrator free access to all parts of the Work at all times.

E41.8.3 Field Quality Control

- (a) All electrical work shall be carried out by qualified, licensed electricians or apprentices as per the conditions of the Provincial Act respecting manpower vocational training and qualification. Employees registered in a provincial apprentices program shall be permitted, under the direct supervision of a qualified licensed electrician; to perform specific tasks the activities permitted shall be determined based on the level of training attained and the demonstration of ability to perform specific duties.

E41.9 Measurement And Payment

E41.9.1 North Abutment Distribution Panel

- (a) The supply and installation of electrical items and their appurtenances for the distribution panel shall not be measured. This electrical Work shall be paid for at the Contract Lump Sum Price for the "Supply and Install North Abutment Distribution Panel" listed here below, performed in accordance with this Specification and accepted by the Contract Administrator, which shall be paid in full for supplying all materials performing all operations herein described and all other items incidental to the Work.

Delete: Appendix A: Osborne Bridge 2009 Condition Survey

Note: The report is for the City's use only and any use of the document by the Bidder is at his own risk.

DRAWINGS

The following is a summary of major changes incorporated in the Issued for Tender Drawings

Replace: 8-2011 _Drawing_B109-11-007-R0 with 8-2011 _Addendum_1 -Drawing B109-11-007-R1
8-2011 _Drawing_B109-11-008-R0 with 8-2011 _Addendum_1 -Drawing B109-11-008-R1
8-2011 _Drawing_B109-11-009-R0 with 8-2011 _Addendum_1 -Drawing B109-11-009-R1
8-2011 _Drawing_B109-11-013-R0 with 8-2011 _Addendum_1 -Drawing B109-11-013-R1
8-2011 _Drawing_B109-11-014-R0 with 8-2011 _Addendum_1 -Drawing B109-11-014-R1

8-2011 _Drawing_B109-11-015-R0 with 8-2011 _Addendum_1 -Drawing B109-11-015-R1
8-2011 _Drawing_B109-11-016-R0 with 8-2011 _Addendum_1 -Drawing B109-11-016-R1
8-2011 _Drawing_B109-11-017-R0 with 8-2011 _Addendum_1 -Drawing B109-11-017-R1
8-2011 _Drawing_B109-11-022-R0 with 8-2011 _Addendum_1 -Drawing B109-11-022-R1
8-2011 _Drawing_B109-11-023-R0 with 8-2011 _Addendum_1 -Drawing B109-11-023-R1
8-2011 _Drawing_B109-11-024-R0 with 8-2011 _Addendum_1 -Drawing B109-11-024-R1
8-2011 _Drawing_B109-11-025-R0 with 8-2011 _Addendum_1 -Drawing B109-11-025-R1
8-2011 _Drawing_B109-11-026-R0 with 8-2011 _Addendum_1 -Drawing B109-11-026-R1
8-2011 _Drawing_B109-11-027-R0 with 8-2011 _Addendum_1 -Drawing B109-11-027-R1
8-2011 _Drawing_B109-11-028-R0 with 8-2011 _Addendum_1 -Drawing B109-11-028-R1
8-2011 _Drawing_B109-11-029-R0 with 8-2011 _Addendum_1 -Drawing B109-11-029-R1
8-2011 _Drawing_B109-11-030-R0 with 8-2011 _Addendum_1 -Drawing B109-11-030-R1
8-2011 _Drawing_B109-11-031-R0 with 8-2011 _Addendum_1 -Drawing B109-11-031-R1
8-2011 _Drawing_B109-11-032-R0 with 8-2011 _Addendum_1 -Drawing B109-11-032-R1
8-2011 _Drawing_B109-11-033-R0 with 8-2011 _Addendum_1 -Drawing B109-11-033-R1
8-2011 _Drawing_B109-11-034-R0 with 8-2011 _Addendum_1 -Drawing B109-11-034-R1
8-2011 _Drawing_B109-11-035-R0 with 8-2011 _Addendum_1 -Drawing B109-11-035-R1
8-2011 _Drawing_B109-11-036-R0 with 8-2011 _Addendum_1 -Drawing B109-11-036-R1
8-2011 _Drawing_B109-11-037-R0 with 8-2011 _Addendum_1 -Drawing B109-11-037-R1
8-2011 _Drawing_B109-11-038-R0 with 8-2011 _Addendum_1 -Drawing B109-11-038-R1
8-2011 _Drawing_B109-11-039-R0 with 8-2011 _Addendum_1 -Drawing B109-11-039-R1
8-2011 _Drawing_B109-11-040-R0 with 8-2011 _Addendum_1 -Drawing B109-11-040-R1
8-2011 _Drawing_B109-11-041-R0 with 8-2011 _Addendum_1 -Drawing B109-11-041-R1
8-2011 _Drawing_B109-11-042-R0 with 8-2011 _Addendum_1 -Drawing B109-11-042-R1
8-2011 _Drawing_B109-11-043-R0 with 8-2011 _Addendum_1 -Drawing B109-11-043-R1
8-2011 _Drawing_B109-11-044-R0 with 8-2011 _Addendum_1 -Drawing B109-11-044-R1
8-2011 _Drawing_B109-11-045-R0 with 8-2011 _Addendum_1 -Drawing B109-11-045-R1
8-2011 _Drawing_B109-11-046-R0 with 8-2011 _Addendum_1 -Drawing B109-11-046-R1
8-2011 _Drawing_B109-11-047-R0 with 8-2011 _Addendum_1 -Drawing B109-11-047-R1
8-2011 _Drawing_B109-11-048-R0 with 8-2011 _Addendum_1 -Drawing B109-11-048-R1
8-2011 _Drawing_B109-11-049-R0 with 8-2011 _Addendum_1 -Drawing B109-11-049-R1
8-2011 _Drawing_B109-11-050-R0 with 8-2011 _Addendum_1 -Drawing B109-11-050-R1

8-2011 _Drawing_B109-11-051-R0 with 8-2011 _Addendum_1 -Drawing B109-11-051-R1
8-2011 _Drawing_B109-11-052-R0 with 8-2011 _Addendum_1 -Drawing B109-11-052-R1
8-2011 _Drawing_B109-11-054-R0 with 8-2011 _Addendum_1 -Drawing B109-11-054-R1
8-2011 _Drawing_B109-11-055-R0 with 8-2011 _Addendum_1 -Drawing B109-11-055-R1
8-2011 _Drawing_B109-11-056-R0 with 8-2011 _Addendum_1 -Drawing B109-11-056-R1
8-2011 _Drawing_B109-11-057-R0 with 8-2011 _Addendum_1 -Drawing B109-11-057-R1
8-2011 _Drawing_B109-11-058-R0 with 8-2011 _Addendum_1 -Drawing B109-11-058-R1
8-2011 _Drawing_B109-11-059-R0 with 8-2011 _Addendum_1 -Drawing B109-11-059-R1
8-2011 _Drawing_B109-11-060-R0 with 8-2011 _Addendum_1 -Drawing B109-11-060-R1
8-2011 _Drawing_B109-11-061-R0 with 8-2011 _Addendum_1 -Drawing B109-11-061-R1
8-2011 _Drawing_B109-11-062-R0 with 8-2011 _Addendum_1 -Drawing B109-11-062-R1
8-2011 _Drawing_B109-11-063-R0 with 8-2011 _Addendum_1 -Drawing B109-11-063-R1
8-2011 _Drawing_B109-11-065-R0 with 8-2011 _Addendum_1 -Drawing B109-11-065-R1
8-2011 _Drawing_B109-11-066-R0 with 8-2011 _Addendum_1 -Drawing B109-11-066-R1
8-2011 _Drawing_B109-11-067-R0 with 8-2011 _Addendum_1 -Drawing B109-11-067-R1
8-2011 _Drawing_B109-11-068-R0 with 8-2011 _Addendum_1 -Drawing B109-11-068-R1
8-2011 _Drawing_B109-11-069-R0 with 8-2011 _Addendum_1 -Drawing B109-11-069-R1
8-2011 _Drawing_B109-11-070-R0 with 8-2011 _Addendum_1 -Drawing B109-11-070-R1
8-2011 _Drawing_B109-11-071-R0 with 8-2011 _Addendum_1 -Drawing B109-11-071-R1
8-2011 _Drawing_B109-11-072-R0 with 8-2011 _Addendum_1 -Drawing B109-11-072-R1
8-2011 _Drawing_B109-11-073-R0 with 8-2011 _Addendum_1 -Drawing B109-11-073-R1
8-2011 _Drawing_B109-11-074-R0 with 8-2011 _Addendum_1 -Drawing B109-11-074-R1
8-2011 _Drawing_B109-11-075-R0 with 8-2011 _Addendum_1 -Drawing B109-11-075-R1
8-2011 _Drawing_B109-11-076-R0 with 8-2011 _Addendum_1 -Drawing B109-11-076-R1
8-2011 _Drawing_B109-11-077-R0 with 8-2011 _Addendum_1 -Drawing B109-11-077-R1
8-2011 _Drawing_B109-11-078-R0 with 8-2011 _Addendum_1 -Drawing B109-11-078-R1
8-2011 _Drawing_B109-11-079-R0 with 8-2011 _Addendum_1 -Drawing B109-11-079-R1
8-2011 _Drawing_B109-11-080-R0 with 8-2011 _Addendum_1 -Drawing B109-11-080-R1
8-2011 _Drawing_B109-11-081-R0 with 8-2011 _Addendum_1 -Drawing B109-11-081-R1
8-2011 _Drawing_B109-11-082-R0 with 8-2011 _Addendum_1 -Drawing B109-11-082-R1
8-2011 _Drawing_B109-11-083-R0 with 8-2011 _Addendum_1 -Drawing B109-11-083-R1
8-2011 _Drawing_B109-11-084-R0 with 8-2011 _Addendum_1 -Drawing B109-11-084-R1

8-2011 _Drawing_B109-11-085-R0 with 8-2011 _Addendum_1 -Drawing B109-11-085-R1
8-2011 _Drawing_B109-11-086-R0 with 8-2011 _Addendum_1 -Drawing B109-11-086-R1
8-2011 _Drawing_B109-11-087-R0 with 8-2011 _Addendum_1 -Drawing B109-11-087-R1
8-2011 _Drawing_B109-11-088-R0 with 8-2011 _Addendum_1 -Drawing B109-11-088-R1
8-2011 _Drawing_B109-11-089-R0 with 8-2011 _Addendum_1 -Drawing B109-11-089-R1
8-2011 _Drawing_B109-11-090-R0 with 8-2011 _Addendum_1 -Drawing B109-11-090-R1
8-2011 _Drawing_B109-11-097-R0 with 8-2011 _Addendum_1 -Drawing B109-11-097-R1
8-2011 _Drawing_B109-11-098-R0 with 8-2011 _Addendum_1 -Drawing B109-11-098-R1
8-2011 _Drawing_B109-11-099-R0 with 8-2011 _Addendum_1 -Drawing B109-11-099-R1
8-2011 _Drawing_B109-11-100-R0 with 8-2011 _Addendum_1 -Drawing B109-11-100-R1
8-2011 _Drawing_B109-11-101-R0 with 8-2011 _Addendum_1 -Drawing B109-11-101-R1
8-2011 _Drawing_B109-11-102-R0 with 8-2011 _Addendum_1 -Drawing B109-11-102-R1
8-2011 _Drawing_B109-11-103-R0 with 8-2011 _Addendum_1 -Drawing B109-11-103-R1
8-2011 _Drawing_B109-11-104-R0 with 8-2011 _Addendum_1 -Drawing B109-11-104-R1
8-2011 _Drawing_B109-11-105-R0 with 8-2011 _Addendum_1 -Drawing B109-11-105-R1
8-2011 _Drawing_B109-11-106-R0 with 8-2011 _Addendum_1 -Drawing B109-11-106-R1
8-2011 _Drawing_B109-11-107-R0 with 8-2011 _Addendum_1 -Drawing B109-11-107-R1
8-2011 _Drawing_B109-11-108-R0 with 8-2011 _Addendum_1 -Drawing B109-11-108-R1
8-2011 _Drawing_B109-11-109-R0 with 8-2011 _Addendum_1 -Drawing B109-11-109-R1
8-2011 _Drawing_B109-11-110-R0 with 8-2011 _Addendum_1 -Drawing B109-11-110-R1
8-2011 _Drawing_B109-11-111-R0 with 8-2011 _Addendum_1 -Drawing B109-11-111-R1
8-2011 _Drawing_B109-11-112-R0 with 8-2011 _Addendum_1 -Drawing B109-11-112-R1
8-2011 _Drawing_B109-11-113-R0 with 8-2011 _Addendum_1 -Drawing B109-11-113-R1
8-2011 _Drawing_B109-11-114-R0 with 8-2011 _Addendum_1 -Drawing B109-11-114-R1
8-2011 _Drawing_B109-11-118-R0 with 8-2011 _Addendum_1 -Drawing B109-11-118-R1
8-2011 _Drawing_B109-11-120-R0 with 8-2011 _Addendum_1 -Drawing B109-11-120-R1
8-2011 _Drawing_B109-11-121-R0 with 8-2011 _Addendum_1 -Drawing B109-11-121-R1