PART E

SPECIFICATIONS

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 in Adobe Acrobat (.pdf) format on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division internet site at http://www.winnipeg.ca/matmgt.

E1.1.2 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:

Drawing No.	Drawing
B224-04-01	2004 Bridge Maintenance - Pembina Highway Bridge over the La Salle River Bridge Bearing Modifications - Cover Sheet
B224-04-02	2004 Bridge Maintenance - Pembina Highway Bridge over the La Salle River Bridge Bearing Modifications

E2. BRIDGE BEARING MODIFICATIONS

E2.1 Description

The Work covered under this item shall include all operations relating to bridge bearing modifications in accordance with this Specification and as shown on Drawing No. B224-04-02.

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.

E2.2 Materials

E2.2.1 Flexible Sealant

Flexible sealant shall be a polyurethane sealant of a type approved by the Contract Administrator.

E2.3 Equipment

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

E2.4 Construction Methods

E2.4.1 Purpose of Modifications

The relative movement of the north abutment of the west structure and the southbound abutment of the east structure to the bearings has resulted in the bearings exceeding their movement range in the heat of the summer.

The purpose of the bearing modifications will be to move back the lower bearing plate on each of the bearings at SU-1E and SU-4W to restore the bearing to full movement range.

E2.4.2 Existing Bearing Details

The movement at the north abutment of the west structure and the south abutment of the east structure has resulted in the bearings exceeding their movement range in the heat of the summer. This exceeding of the movement range has manifested itself in the sliding portion of the bearings coming in contact with the keeper plate bolts. City of Winnipeg bridge personnel have already removed the centre bolts from all the bearings as well as the entire river side keeper plates of the uni-directional centre bearings.

E2.4.3 Submission

The Contractor shall submit a description of the jacking and bearing modification methods he intends to use to the Contract Administrator for review at least ten (10) days prior to starting any bearing modifications.

E2.4.4 Maintenance of Expansion/Contraction Capability

The Contractor's temporary supports must be capable of allowing the normal expansion/ contraction movements of the bridge superstructure to take place while they are being used. Alternatively, the jacking operation shall be done over time periods when the bridge movements are negligible.

E2.4.5 Maintenance of Traffic

Traffic is to be maintained across the structure during the Work of this section. If desired, the Contractor may close one lane of traffic at a time at no additional cost to the Contract.

E2.4.6 Bearing Modification and Sequencing

The bearing modifications are to be done with a minimum of jacking. The structure may be raised somewhat for the procedure, but no more than 6 mm from its current elevation.

The loads shall be taken off the bearings by jacking the superstructure from the entire substructure unit at one time. Jacks shall be operated from a single manifold and the loads and jacking distance kept equal at each jack at all times. In no case should a bearing be allowed to be overloaded.

The lower bearing plate shall be made free by removing the four bolts fixing the lower bearing plate to the bottom base plate.

The lower bearing plate shall be moved back by the maximum space available of about 50 mm. In the case of the two uni-directional bearings at the centre of the abutment, the top of the back anchor bolt, complete with nut, shall be removed for this to occur. Three of the four bolts would then remain.

In all cases, the bolts fixing the lower bearing plate to the lower base plate shall not be reinstalled.

After fixing bolts are removed, fill resulting holes in steel plate with flexible sealant.

E2.4.7 Surface Preparation

The exposed surface of the lower bearing plate shall be cleaned before resetting the bearing.

E2.5 Measurement and Payment

The bridge bearing modifications will not be measured and will be paid for at the Contract Lump Sum Price for “Bridge Bearing Modifications” in accordance with this Specification, accepted by the Contract Administrator.

E3. REPLACE PTFE DISC

E3.1 Description

This Specification shall cover all operations relating to the replacement of the PTFE disc one bridge bearing.

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 Work as hereinafter specified.

E3.2 Materials

(a) General

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

(b) PTFE Disc

The PTFE (Teflon) disc is to be 100% virgin polymer material conforming to ASTM Standard 1457. The PTFE disc is to be 1.6 m thick and 276 mm in diameter. It is to be etched on one side ready for bonding into the recess of the concave plate. A supplier of the PTFE disc is Watson Bowman Acme Corp a Degussa Company. They can be reached at 716-691-8162 and fax 716-691-9239.

(c) PTFE Disc Adhesive

The PTFE disc adhesive shall be supplied in accordance with the disc manufacturer's directions.

E3.3 Equipment

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

Construction Methods

(a) Remove Concave and Convex Plates

Jack the bridge a maximum of 6 mm in order to allow for the removal of the concave and convex plates. While these plates are removed, install temporary steel plates to precisely the same height as the plates removed. Do not overload the adjacent bearings during this process. Protect the stainless steel surface of the existing top plate with a temporary PTFE (Teflon) sheet. This temporary sheet shall be of the same strength capability as the existing.

(b) Replace PTFE Disc In The Concave Plate

The work of replacing the PTFE disc is to be done in a shop to the approval of the Contract Administrator. The general description of the replacement method follows:

1. Remove old PTFE being careful no to damage the existing convex plate surface.
2. Blast clean the surface to which the new PTFE is to be bonded removing all of the old adhesive.
3. Apply new adhesive to etched side of PTFE and to the blast-cleaned concave plate surface.

4. Place PTFE over concave surface and use convex plate to push the PTFE disc into place.
5. Clamp the concave and convex plates together for a period of 24 hours or until the adhesive has set, whichever is longer.
6. Remove clamps, separate plates and check for any voids. Remove excess adhesive.
7. Trim PTFE if required.
8. Ensure PTFE and convex surfaces are clean prior to reinstalling bearing.

(c) Reinstall Bearing

Reinstall the bearing being careful not to overload the adjacent bearings. Set bearing in the proper location relative to the bridge superstructure temperature. Consult with the Contract Administrator on the location.

E3.4 Measurement and Payment

The replacement of the PTFE disc will be measured on a unit basis and paid for at the Contract Unit Price for “Replace PTFE Disc.” The number of units to be paid for will be the number of bearing units with PTFE discs replaced in accordance with this Specification, accepted and measured by the Contract Administrator.