



AMENDMENT #005
Assignment of 1356-30030321
Trent-Severn Waterway Bobcaygeon Swing Bridge Rehabilitation
December 13, 2019

The following changes in the bid documents are effective immediately. This addendum will form part of the contract documents

SPECIFICATIONS

1. 13 99 07 Hydraulic Skid and Components - Amended as indicated below:
 - a. Section 2.3 Unload Value has been amended by the following:
Subsection 2.3.1 has been deleted and replaced with the following:
2.3.1 Operating Pressure: **2800** psi.
 - b. Section 2.4 Oil Reservoir Temperature has been amended by the following:
Subsection 2.4.11 has been deleted and replaced with the following:
2.4.11 Temperature Setting: 140degF (**60** degC) rising.
 - c. Section 2.9 Pump Skid Test Ports has been amended by the following:
Subsection 2.9.1 has been deleted and replaced with the following:
2.9.1 Operating Pressure: **2800** psi.
 - d. Section 2.11 Directional Control Valves has been amended by the following:
Subsection 2.11.1 has been deleted and replaced with the following:
2.11.1 Operating Pressure: **2800** psi
 - e. Section 2.12 Control Valve Manifold has been amended by the following:
Subsection 2.12.2 has been deleted and replaced with the following:
2.12.2 Operating Pressure: **2800** psi
 - f. Section 2.13 Primary Hydraulic Piston Pump(s) & Motor(s) has been amended by the following:
Subsection 2.13.2 has been deleted and replaced with the following:
2.13.2 Operating Pressure: **2800** psi

Subsection 2.13.5 has been deleted and replaced with the following:
2.13.5 Volumetric Efficiency: > **81**%

Subsection 2.13.7.1 has been deleted and replaced with the following:
2.13.7.1 Pump must provide: minimum 12 GPM (6 GPM x 2 pumps), 2800 psi maximum operating pressure, 20 HP motor.



- g. Section 2.14 Check Valve
Subsection 2.14.1 has been deleted and replaced with the following:
2.14.1 Operating Pressure: **2800** psi
 - h. Section 2.16 Pressure Relief Cartridge Valve
Subsection 2.16.1 has been deleted and replaced with the following:
2.16.1 Operating Pressure: **2800** psi

Subsection 2.16.6 has been deleted and replaced with the following:
2.16.6 Adjustment Range: 100 - **2800** psig minimum range.
 - i. Section 2.18 Sandwich Body Flow Control Valve
Subsection 2.18.1 has been deleted and replaced with the following:
2.18.1 Operating Pressure: **2800** psi
 - j. Section 2.19 Sandwich Body PSI Pressure Reducing Valve
Subsection 2.19.1 has been deleted and replaced with the following:
2.19.1 Operating Pressure: **2800** psig

Subsection 2.19.5.1 has been deleted and replaced with the following:
2.19.5.1 100-**2800** psig minimum range.

Subsection 2.19.5.2 has been deleted and replaced with the following:
2.19.5.2 Valve will control pressure between 100 and **2800** psi during operation.
 - k. Section 2.20 Sandwich Body Dual PO Check Valve
Subsection 2.20.1 has been deleted and replaced with the following:
2.20.1 Operating Pressure: **2800** psi
 - l. Section 2.21 Regenerative Balance Valve Assembly
Subsection 2.21.1 has been deleted and replaced with the following:
2.21.1 Operating Pressure: **2800** psi

Subsection 2.21.13 has been deleted and replaced with the following:
2.21.13 Adjustment Range: 500 - **2800** psi (minimum range).
 - m. Section 2.22 Sandwich Body Dual Flow Control
Subsection 2.22.1 has been deleted and replaced with the following:
2.22.1 Operating Pressure: **2800** psi
2. 13 99 08 Hydraulic Cylinders – Amended as indicated below:
- a. Section 1 has been amended by addition of Section 1.4 Shop Drawings
1.4.1. Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures. Shop drawings to be stamped and signed by a professional engineer registered in the Province of Ontario and who is experienced in the work.



- 1.4.2. Shop drawings shall be submitted for the Span Lock Hydraulic Cylinder and the Bridge Rotation Cylinders and their applicable accessories.
- 1.4.3. Shop drawings for both cylinder types shall clearly indicate the shell length, shell thickness, shell and rod materials, all codes and standards that the cylinders were designed in accordance with.
- 1.4.4. Shop drawings including the bridge rotation cylinder trunnions shall be supplied to verify the receiving pier mount will accept the cylinder as intended.
- 1.4.5. Any deviation from the Mechanical Drawings M15 and M28 shall be clearly identified and include justification for the alteration based on specific application requirements as determined by the application engineer.
- b. Section 2.1 Bridge Rotation Cylinders has been amended by the following:
- Subsection 2.1.1 has been deleted and replaced with the following:
2.1.1 Operating Pressure: **2800 psig (Rod End), 1220 psig (Bore End)**
- Subsection 2.1.2 has been deleted and replaced with the following:
2.1.2 Maximum Pressure: **3000 psig**
- Subsection 2.1.3 has been deleted and replaced with the following:
2.1.3 Type: Push/pull **tie rod style heavy duty** hydraulic cylinder with bolted heads and rod seals serviceable without cylinder removal.
- Subsection 2.1.9 has been deleted and replaced with the following:
2.1.9 Body Material: Washdown rated. **Nickel plating or per cylinder manufacturer application engineer recommendations subject to approval of department representative**
- Subsection 2.1.16 has been deleted and replaced with the following:
2.1.16 Shell thickness: Per manufacturer requirements. **Must be compliant to CSA S6-14 Section 13.8.16.3.3 buckling requirements. Subject to Department Representative approval**
- Subsection 2.1.17 has been deleted and replaced with the following:
2.1.17 Shell length: **Per Drawings.**
- Subsection 2.1.20 has been deleted and replaced with the following:
2.1.20 Cylinder must have magnetic band on piston for use with reed switches. Each cylinder to come equipped with **four** movable body switches (one for each end of stroke, **near open, and near close.**)
- Subsection 2.1.25 has been amended by the removal of 7.8.
- Subsection 2.1.26 from the Tender has been revised to subsection 2.1.27 with no change to the text.
- Subsection 2.1.26 has been added.
2.1.26 Cylinder manifolds shall be pressure tested to 3 times the maximum working pressure



Subsection 2.1.27 from the Tender has been revised to subsection 2.1.29 with no change to the text.

Subsection 2.1.28 from the Tender has been revised to subsection 2.1.30 with no change to the text.

Subsection 2.1.28 has been added.

2.1.28 Test pressures may exceed the maximum pressure settings of cylinder manifold valves, in particular the relief valves. In this case a temporary valve or adjustable valve with tamper resistant settings may be required for testing.

Subsection 2.1.29 from the Tender has been revised to subsection 2.1.31 with no change to the text.

- c. Section 2.2 Span Lock Cylinder has been amended by the following:
Subsection 2.2.1 has been deleted and replaced with the following:

2.2.1 Operating Pressure: **2800** psi

Subsection 2.2.6 has been deleted and replaced with the following:

2.2.6 Body Material: Washdown rated. **Nickel plating or per cylinder manufacturer application engineer recommendations subject to approval of department representative.**

Subsection 2.2.13 has been deleted and replaced with the following:

2.2.13 Shell thickness and shell length shall be **subject to Department Representative approval.**

- d. Section 2.3 Cylinder Bleed Valves has been amended by the following:
Subsection 2.3.1 has been deleted and replaced with the following:

2.3.1 Operating Pressure: **2800** psi

- e. Section 2.4 Cylinder Brackets has been amended by the following:
Subsection 2.4.2 has been deleted and replaced with the following:

2.4.2 Refer to drawings for fabrication details, dimensions, installation requirements. **Cylinder manufacturer application engineer shall approve clearances and design of bracket assembly to mount with manufacturer accessories.**

Subsection 2.4.3 has been deleted and replaced with the following:

2.4.3 Clevis pins to include provisions **for installation and shall meet cylinder manufacturer sizing requirements.**

Subsection 2.4.4 has been deleted and replaced with the following:

2.4.4 Sizing of pins and brackets shall be in accordance with CSA-S6-14. **Final sizing and installation subject to Department Representative approval.**

- f. Section 2.5 Rod Eyes (Cylinder Ends) has been amended by the following:

Subsection 2.5.1 has been deleted and replaced with the following:

2.5.1 Refer to drawings for thread on female spherical rod eyes.

Subsection 2.5.2 has been deleted and replaced with the following:

2.5.2 Pin sizes: as per manufacture recommendations in accordance with CSA S6-14. Subject to Department Representative approval.

3. 13 10 00 Mechanical - Amended as indicated below:

- a. Section 1.1 General Description has been amended by the following:

Subsection 1.1.1 has been deleted and replaced with the following:

1.1.1 The mechanical equipment on the Bobcaygeon Swing Bridge requires replacement and refurbishment. The hydraulic power unit (HPU), hydraulic rotating cylinders, **cylinder mounts, girder stiffener/clevis mounting plates**, centre pivot bearing, balance wheel assemblies, balance rails, locking pin, **live load wheels, and** levelling jacks are to be replaced as detailed in the Contract Drawings.

- b. Section 1.3 Shop Drawings has been added

1.3 Shop Drawings

1.3.1. Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures. Shop drawings to be stamped and signed by a professional engineer registered in the Province of Ontario and who is experienced in the work.

1.3.2. Shop drawings shall be submitted for all machined parts and machined assemblies detailed in the mechanical Contract Drawings, and for the clevis mounting plate/clevis bracket indicated in Drawing S17 of the contract drawings.

1.3.3. the intent of the shop drawing review is to ensure design intent has been effectively considered and captured for each assembly.

- c. Section 2.5 Live Load Wheels, End Wheels, Balance Wheels, Ramps

Subsection 2.5.3 has been deleted and replaced with the following:

2.5.3 Materials for all wheels and ramps can be found in the mechanical drawing package.

Subsection 2.5.4 has been deleted.

Subsection 2.5.5 has been deleted.

- d. Section 3.8 Balance and Live Load Wheel Assembly Overview

Subsection 3.8.2 has been deleted and replaced with the following:

3.8.2 There are six (6) balance wheel and mounting bracket assemblies and **four (4)** live load wheels and mounting bracket assemblies.



- e. Section 3.13 Bridge End Support Wheel Installation
Subsection 3.13.1 has been deleted and replaced with the following:
3.8.2 Install the new support wheel assemblies onto **the** bridge girders as detailed in the Contract Drawings.

- f. Section 3.15 Swing System Installation
Subsection 3.15.1 has been deleted and replaced with the following:
3.15.1 Assemble the cylinders, **cylinder pier mounts**, rod end **clevis** brackets, **clevis bracket mounting plates**, and **girder stiffener plates** as specified in the Contract Drawings.