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“THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT.”	MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION 105 W. CAPITOL AVE. JEFFERSON CITY, MO 65101 Phone (888) 275-6636
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	Br. No. P01111 Lincoln County, MO Date Prepared: 9/7/2012

JOB SPECIAL PROVISIONS (BRIDGE)

A. CONSTRUCTION REQUIREMENTS

1.0 Description. This provision contains general construction requirements for this project.

2.0 Construction Requirements. Plans for the existing structure are included in the contract with the bridge plans for informational purposes only.

2.1 In order to assure the least traffic interference, the work shall be scheduled so that the structure closure is for the absolute minimum amount of time required to complete the work. The structure shall not be closed until material is available for continuous construction and the contractor is prepared to diligently pursue the work until the closed structure is opened to traffic.

2.2 Qualified special mortar shall be a qualified rapid set concrete patching material in accordance with [Sec 704](#). A qualified rapid set concrete patching material will not be permitted for repairing concrete deck (half-soling), deck repair with void tube replacement, full depth repair, modified deck repair and substructure repair (formed) unless a note on the bridge plans specifies that a qualified special mortar may be used.

2.3 The existing bridge slab was constructed as non-composite.

2.4 Provisions shall be made to prevent any debris and materials from falling into the stream. Any debris and materials that falls below the bridge outside the limits mentioned previously and if determined necessary by the engineer, the debris shall be removed as approved by the engineer at the contractor's expense.

2.5 Any damage sustained to the remaining structure as a result of the contractor's operations shall be repaired or the material replaced as approved by the engineer at the contractor's expense.

2.6 Provisions shall be made to prevent damage to any existing utilities. Any damage sustained to the utilities as a result of the contractor's operations shall be the responsibility of the contractor. All costs of repair and disruption of service shall be as determined by the utility owners and as approved by the engineer.

3.0 Method of Measurement. No measurement will be made.

4.0 Basis of Payment. Payment for the above described work will be considered completely covered by the contract unit price for other items included in the contract.

B. PREFORMED SILICONE OR EPDM EXPANSION JOINT SEAL

1.0 Description. This work shall consist of furnishing and installing the preformed silicone or EPDM expansion joint seal for joints as shown on the plans or as directed by the engineer.

2.0 Material. All material shall be in accordance with Division 1000, Material Details, and specifically as follows. All necessary components, materials and equipment required for the installation shall be obtained through an approved supplier. All components of each respective joint system shall come from the same manufacturer and cannot be substitutes for others.

2.1 Joint Seal.

JOB SPECIAL PROVISIONS (BRIDGE)

2.1.1 The gland material shall meet or exceed the following physical requirements:

Joint Seal		
Property	Specification	Requirement
Durometer (Shore A)	ASTM D 2240	55 ±5 min.
Tensile Strength	ASTM D 412	550 psi min.
Elongation	ASTM D 412	350% min.
Tear Strength (Die B)	ASTM D 624	100 ppi min.
Compression Set At 350° F 22 hrs	ASTM D 395	30% max.
Operating Temperature Range		-60° F to 350° F
Specific Gravity		1.51 ±0.10

2.1.2 The joint seal shall be pre-qualified by undergoing and passing a cyclic loading test. Any rips, tears or bond failure will be cause for rejection. Manufacturer shall provide documentation to verify testing meetings these minimum requirements.

Cyclic Loading Test	
Property	Requirement
Test Sample Length	2 feet min.
Joint Skew	45°
Number of Cycles	200 min.
Joint Opening	2 inches
Movement	Min. to Max Opening
Temperature	-20° F

2.2 **Epoxy Primer.** Epoxy primer shall be as specified by the manufacturer to insure the appropriate bond of the joint sealing system and shall meet the following physical requirements:

Epoxy Primer		
Property	Specification	Requirement
Viscosity (centipoises)	ASTM D 2196	44
Solids	ASTM D 4209	41
Specific Gravity	ASTM D 1217	0.92
Flashpoint	ASTM D 56	48
VOC	ASTM D 3960	520

2.3 **Locking Adhesive.** The adhesive material shall cure quickly and shall be as recommended by the manufacturer. The material shall adhere to concrete, elastomeric concrete, polymer concrete and steel and shall meet the following physical requirements:

Locking Adhesive		
Property	Specification	Requirement
Sag/Flow	ASTM C 639	3/16 inch max.

Locking Adhesive		
Property	Specification	Requirement
Hardness	ASTM C 661	20-30
Tack Free Time	ASTM C 679	30 minute max.
Cure Through To ¼ inch thickness	At 75°F/50% Relative Humidity	24 hours max.
Skin over time (Tooling Time)	At 75°F/50% Relative Humidity	5 minute max.
Resistance to U.V.	ASTM C 793	No cracking, Ozone Chalking or Degradation
Tensile Strength	ASTM D 412	200 psi min.
Elongation	ASTM D 412	450% min.

2.4 Certification. The contractor shall furnish a manufacturer's certification for all material specified in this job special provision. The certification shall show representative test results of the material and certify that the material supplied is in accordance with this job special provision. Manufacturer shall provide a list of at least 10 bridge locations where the product has been successfully installed.

3.0 Construction Requirements. The contractor shall furnish to the engineer the manufacturer's written product information, installation procedures and instructional information at least two weeks prior to installation. The contractor shall obtain the services of a qualified technical representative approved by the manufacturer of the expansion joint seal and acceptable to the engineer, to assist during the installation. The contractor, the technical representative and the engineer shall meet to review and clarify installation procedures and requirements prior to starting the work. The start of surface preparations and seal installation shall not occur without the technical representative being present. The technical representative shall be present for at least one day at the start of surface preparations and seal installation.

3.1 Surface Preparation. The concrete or steel surface shall be prepared for priming and seal placement. New Portland cement concrete shall be fully cured and allowed to dry a minimum of seven days. The joint shall be cleaned of all gravel, loose material and other contaminants before sand blasting. Areas that will be in contact with the sealant shall be sand blasted with a clean, hard aggregate that will leave little to no dust residue. Sand blasted concrete surfaces will be considered acceptable when areas that will be in contact with the sealant have a roughened surface with clean, exposed aggregate. The surface shall be free of foreign matter or plastic residue. Sand blasted steel surfaces will be considered acceptable when the steel surfaces have been cleaned to an SSPC-SP10 degree of cleanliness. After sand blasting is completed, the joint shall be cleaned of debris using oil-free and water-free compressed air or a vacuum, either being at least 90 psi. Using a rag saturated in denatured alcohol, wipe clean both vertical faces of the expansion joint opening.

3.2 Priming. Priming shall immediately follow sand blasting and cleaning and will only be permitted to proceed when the air and substrate temperatures are at least 40° F and rising. Sand blasting, priming and installing the seal shall be performed on the same day. The entire sand blasted surface shall be primed. Application and drying times for primers shall be in accordance with the manufacturer's recommendations. All leftover primer shall be properly disposed.

3.3 Installation. The preformed silicone or EPDM expansion joint seal shall be installed in joints in one continuous piece without field splices. The locking adhesive and seal shall be

applied in accordance with the manufacturer's recommendations, in a manner that prevents the seal from being damaged and from being in tension. Twisting, curling and nicking the seal will be prohibited. Unless the installation tool is capable of installing the seal without elongation prior to placement, the seal shall be pre-cut to the exact length for the joint plus ends as shown in the contract documents or as directed by the engineer. The pre-cut seal shall be installed and measured for stretch. The seal shall be removed and reinstalled if the seal stretch length exceeds five percent of the pre-cut length at the contractor's expense.

4.0 Method of Measurement. The preformed silicone or EPDM expansion joint seal will be measured to the nearest linear foot based on measurement from the roadway face of curb to roadway face of curb along the centerline of the joint. Final measurement will not be made except for authorized changes during construction, or if appreciable errors are found in the contract quantity. Portions of the joint that extend past the roadway face of curbs will not be measured for payment.

5.0 Basis of Payment. Payment for the above described work, including all material, equipment, labor, technical assistance and any other incidental work necessary to complete this item, will be based on the contract plan quantities and will be considered completely covered by the contract unit price for "Preformed Silicone or EPDM Expansion Joint Seal". Any change in the contract plan quantities, based on approved change orders, will be paid for at the contract unit price.