SPECIAL NOTE FOR REPLACING EXPANSION JOINTS AND/OR

**INSTALLING ARMORED EDGES FOR CONCRETE ON BRIDGES**

**1. DESCRIPTION.** Perform all work in accordance with the Kentucky Transportation Cabinet, Department of Highway’s Standard Specifications for Road and Bridge Construction and applicable Supplemental Specifications, the Standard Drawings (current editions), this Note, and the attached detail drawings. Section references are to the Standard Specifications. This work consists of the following: (1) Furnish all labor, materials, tools, and equipment, (2) Remove existing concrete and expansion joint(s) and/or bridge ends, (3) Install armored edges, modular expansion joint assembly and new concrete as specified and in accordance with the attached detail drawings, (4) Install new joint seals (where required) and (5) Any other work specified as part of this contract.

**2. MATERIALS.**

**A. Class “M” Concrete.** Use either “M1” or “M2”. See Section 601.

**B. Structural Steel.** Use new, commercial grade steel suitable for welding. The Engineer will base acceptance on visual inspection. See attach detailed drawings

**C. Stud Anchors.** The armored edge stud anchors are ¾” x 6” embedded stud shear connectors conforming to ASTM A108, Grade 1015

**D. Epoxy Coated Steel Reinforcement.** Use Grade 60. See Section 602.

**E. Epoxy Bond Coat.** See Section 511.

**F.**  **Joint Seals.**

 **Pre-compressed Silicon and Hybrid Foam Joint Seals (Parapet and Median).** See The Division of Material’s list of approved materials for preformed compression joint seal designs.

 **4” Neoprene Strip Seals (Bridge Deck).** See Section 807.03.03.

**3. EQUIPMENT.**

**A. Hammer.** Provide Power driven hammers lighter than nominal 45 lb. class.

**B.** **Sawing Equipment**. Sawing equipment shall be a concrete saw capable of sawing concrete to the specified depth.

**C. Hydraulic Impact Equipment.** Hydraulic Impact/Skid Steer Type Equipment with a maximum rated striking Energy of 360 ft-lbs. are permitted only in areas of concrete removal more than 6 inches away from boundaries of surface areas to remain in service. The Contractor is to provide data information to the engineer on the equipment they wish to utilize to ensure compliance with this note.

**4. CONSTRUCTION.**

**A. Remove Existing Materials.** Remove existing expansion joints, existing modular expansion join assembly, bridge end armored edges and specified areas of concrete as shown on the attached detailed drawings. Remove debris and/or expansion joint filler as directed by the Engineer. Clean and leave all existing steel reinforcement encountered in place. Damaged steel reinforcement will be repaired/replaced as directed by the Engineer at no additional cost to the Department. Dispose of all removed material entirely away from the job site. This work is incidental to the contract unit price for "Expansion Joint Replacement" or “Armored Edge for Concrete”.

**B. Place New Concrete and Armored Edges.** After all specified existing materials have been removed; place new armored edges to match the original grade (See attached detail drawings). Place the new Class “M” concrete to the original grade and finish with broom strokes drawn transversely from curb to curb. All new structural steel shall be cleaned and painted in accordance with requirements of Section 607.03.23, except that surfaces to come in contact with concrete are not to be painted. Blast clean all areas of existing concrete and structural steel to come in contact with new concrete until free of all laitance and deleterious substances immediately prior to the placement of the Class "M" Concrete. The surface areas of existing concrete to come in contact with the new Class "M" Concrete are to be coated with an epoxy bond coat immediately prior to placing new concrete in accordance with Section 511. The interfaces of the new and old concrete shall be as nearly vertical and horizontal as possible. Shop drawings will not be required.

**C.** **Additional Steel Reinforcement.** Furnish for replacement, as directed by the Engineer, 200 linear feet each joint of #4 steel reinforcing bars in 20’ lengths. Place these bars in areas deemed by the Engineer to require additional reinforcement. Field cutting and bending is permitted. Do not place any additional steel reinforcement above the height of the top row of Nelson Studs on the armored edges. Ensure that all exposed steel reinforcement is tied in accordance with Section 602.03.04 prior to pouring the new Class “M” concrete. Deliver unused bars to the Local County Maintenance Barn. Payment will be made in accordance with Section 602.

**D. Stage Construction.** Installation of concrete, armored edges, and modular expansion joint assembly in two (or more if specified) stages is necessary. Join the armored edges and modular expansion joint assembly at or near the centerline of the roadway or lane line, field weld and grind smooth.

**E. Preformed Neoprene Joint Seal.** Place the preformed joint seal in one continuous, unbroken length. Place neoprene strip seals as recommended by the manufacturer and in accordance with Section 609.03.04 except that shop drawings will not be required.

**F.** **Pre-compressed Silicone and Foam Hybrid Seals.** Place pre-compressed silicone and foam Hybridge seals as recommended by the manufacturer. Shop drawings will not be required.

**G. Residual Lead.** Residual lead paint may still be on bridge. The Contractor is advised to take all necessary protective measures including worker safety and environmental regulations when performing surface preparation. The Department will not consider any claims based on residual lead paint.

**H. Verifying Field Conditions.** The Contractor shall field verify all joint openings, locations, and manufacture before ordering any material. New material that is unsuitable due to variation in existing structure shall be replaced at the Contractors expense.

**I. Damage to the Structure.** The Contractor shall bear all responsibility and expense for any and all damage to the structure during the repair work even to removal and replacement of a fallen span, should the fallen span result from the Contractor’s actions.

**5. MEASUREMENT.**

**A. Expansion Joint Replace 1 In.** The Department will measure the quantity in linear feet from gutter line to gutter line along the centerline of the joint.

**B. Expansion Joint Replace 4 In.** The Department will measure the quantity in linear feet from gutter line to gutter line along the centerline of the joint.

**C. Armored Edge for Concrete.**  The Department will measure the quantity in linear feet from gutter line to gutter line along the face of the bridge end.

**D. Epoxy Coated Steel Reinforcement.**  See Section 602.

**6. PAYMENT.**

**A. Expansion Joint Replace 1 In. (03293)** Payment at the contract unit price per linear foot is full compensation for removing specified existing materials, furnishing, and installing the new armored edges, concrete, joint seal, and all incidental items necessary to complete the work within the specified pay limits as specified by this note and as shown on the attached detail drawings.

**B. Expansion Joint Replace 4 In. (03298)** Payment at the contract unit price per linear foot is full compensation for removing specified existing materials, furnishing, and installing the new armored edges, concrete, neoprene strip seal (bridge deck), Pre-compressed Silicone and Foam Hybrid Seals (parapets) and all incidental items necessary to complete the work within the specified pay limits as specified by this note and as shown on the attached detail drawings.

**C. Armored Edge for Concrete (03299).** Payment at the contract unit price per linear foot is full compensation for placing new armored edge and any approach pavement repair, traffic striping repair and all incidental items necessary to complete the work within the specified pay limits as specified by this note and as shown on the attached detailed drawings.

**D. Epoxy Coated Steel Reinforcement (08151).** See Section 602.