**Design Standards Letter**

**Letter Number: S-2020-02**

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**Section: 109, 202, 216, 503, 505, 613, 616, 623, 703, 704, 717, 1019, 1039, 1080, 1081**

**Subject: Revised Supplement to the 2019 Standard Specifications**

**TO:** All Central and District Offices

**FROM:** Sarah Kleinschmit

**DATE:** February 13, 2020

**SUBJECT:** Standard Specifications Letter No. 2, 2020

The Supplemental Revisions to the *2019 Missouri Standard Specifications for Highway Construction*, effective April 1, 2020 are now available on MoDOT’s website.

Questions regarding the Supplemental Revisions to the Missouri Standard Specification should be directed to Tim Oligschlaeger, Central Office, Engineering Policy Services, at 573-751-3813 or myself at 573-751-7412.

**MINOR REVISIONS:**

**SECTION 503 BRIDGE APPROACH SLAB**

*Sec 503.3 Construction Requirements.* Changed the compressive strength of 4,000 psi prior to opening to traffic to 3,200 psi.

**SECTION 505 BRIDGE DECK CONCRETE WEARING SURFACE**

*Sec 505.40.9.9* Changed the compressive strength of 3,200 psi prior to opening to traffic to 3,000 psi.

**SECTION 613 PAVEMENT REPAIR**

*Sec 613.30.2 Material.* In the first sentence, replaced “bituminous commercial mix in accordance with Sec 401.5.3” with “PG64-22 surface mix in accordance with Sec 401”.

**SECTION 616 TEMPORARY TRAFFIC CONTROL**

*Sec 616.5.1.1 Red or Red and Blue Warning Lights.* In the first sentence, added reference to 307.175 RSMo. The contractor may elect to use red or red and blue warning lights should be in accordance with Missouri law 307.175 RSMo. and the following requirements.

**SECTION 1019 CEMENT**

*Sec 1019.2.1 Portland Cement.* Removed - (b) When slag cement is used as an inorganic processing addition, loss on ignition shall be corrected in accordance with ASTM C 114 and reported on mill test reports.

**SECTION 1080 STRUCTURAL STEEL FABRICATION**

*Sec 1080.3.1.6 Certifications. (g)* Added NIICAP AS-1 Shop Accreditation as another certification option for fabricators that apply steel painted coatings.

**SECTION 1081 COATING OF STRUCTURAL STEEL**

*Sec 1081.10.3.2 Certification.* Added NACE International Institute Contractor Accreditation Program (NIICAP) as another certification option in first sentence.

1. – Added NIICAP AS-1 Field Application and removed “to Complex Industrial and Marine Structures”.
2. – Added NIICAP accreditation will not be required for field application of gray epoxy mastic primers.

*Sec 1081.10.4.2 Certification.* Added NACE International Institute Contractor Accreditation Program (NIICAP) as another certification option in first sentence.

1. – Added NIICAP AS-1 and removed “to Complex Industrial and Marine Structures”.
2. – Added NIICAP AS-2 as another certification option.

*Sec 1081.10.5.2 Certification.* Added NACE International Institute Contractor Accreditation Program (NIICAP) as another certification option in first sentence.

1. – Added NIICAP AS-1 and removed “to Complex Industrial and Marine Structures”.
2. – Added NIICAP AS-2 as another certification option.

**MAJOR REVISIONS:**

**SECTION 109 MEASUREMENT AND PAYMENT**

*Sec 109.16 Fixed Cost Items.* Added items for Supplementary Wearing Surface Material for Low Slump Concrete, Latex Modified Concrete, Silica Fume Concrete, Latex Modified Very Early Strength Concrete, CSA Cement Very Early Strength Concrete, Steel Fiber Reinforced Concrete, and Polyester Polymer Concrete to the fixed cost item list.

**SECTION 202 REMOVAL OF ROADWAYS AND BUILDINGS**

*Sec 202.2.1 Containment and Disposal of Material.* Changed to Disposal of Material and removed the first sentence, “All abrasives used in blasting activities shall be collected using a containment system or enclosure to prevent the release of material to the environment”.

*Sec 202.3.1.3* Added as a new subsection, “ All abrasives used in blasting activities, and the material removed in the blasting process, shall be removed from the project and disposed of by the contractor in accordance with all applicable federal and state laws”.

**SECTION 216 REMOVALS for Bridge Structures**

*Sec 216.20 SCARIFICATION OF BRIDGE DECKS.* Changed title to SCARIFICATION OF BRIDGE DECK.

*Sec 216.30.1 Description.* Added polymer wearing surface as another type of wearing surface to be removed and disposed of.

*Sec 216.30.2.1.1* Added new subsection, “When a concrete or asphalt wearing surface is to be installed, prior to the removal of the wearing surface, the contractor shall determine an average depth of the existing wearing surface with sufficient examination at multiple locations to permit an accurate determination of any required supplementary wearing surface material for the new wearing surface”.

*Sec 216.30.2.2* Added reference to the adjusted depth described in Sec 216.30.2.2.1 in the first sentence.

*Sec 216.30.2.2.1* Added new subsection, “Prior to removal of the wearing surface, the contractor shall verify the depth of the top mat of reinforcing steel within the deck. The cold milling depth shall be reduced to avoid damage to the reinforcing steel. Any reinforcing steel damaged by the milling operation shall be repaired or replaced at the contractor’s expense”.

*Sec 216.30.3 Method of Measurement.* Kept as subsection title but moved the entire specification and created a new subsection 216.30.3.1.

*Sec 216.30.3.1* Created new subsection from specification originally in 216.30.3 Method of Measurement. Added polymer wearing surface as another wearing surface.

*Sec 216.30.4 Basis of Payment.* Removed the entire specification and created a new subsection 216.30.4.1.

*Sec 216.30.4.1* Created new subsection from specification originally in 216.30.4 Basis of Payment. Added accepted quantities of removal to the beginning of the subsection.

*Sec 216.40 REMOVAL AND STORAGE OF EXISTING BRIDGE RAILS.* Changed title to *REMOVAL AND STORAGE OF EXISTING BRIDGE RAIL*.

*Sec 216.50 REMOVAL OF EXISTING BRIDGE DECKS.* Changed title to *REMOVAL OF EXISTING BRIDGE DECK*.

*Sec 216.60 PARTIAL REMOVAL OF EXISTING BRIDGE DECKS.* Changed title to *PARTIAL REMOVAL OF EXISTING BRIDGE DECK*.

*Sec 216.90 REMOVAL OF EXISTING EXPANSION JOINTS AND ADJACENT CONCRETE.* Changed title to *REMOVAL OF EXISTING EXPANSION JOINT AND ADJACENT CONCRETE*.

*Sec 216.110 TOTAL SURFACE HYDRO DEMOLITION thru 216.110.6.3* Created section titled Total Surface Hydro Demolition. This section provides specifications for removal of all existing deck repairs followed by the selective removal of all unsound original concrete over the entire top surface of the bridge deck and establishment of a highly rough and bondable surface with a single pass of the hydro demolition equipment.

**SECTION 505 BRIDGE DECK CONCRETE WEARING SURFACE**

*Sec 505* Changed “overlay” to “wearing surface” throughout section 505.

*Sec 505.10.6.3* Added language that is specification is for non-hydro demolition projects. Added shot blasting as an option to remove all dirt, oil and other foreign material, as well as any unsound concrete or laitance from the surface and edges against which new concrete is to be placed. Changed the sixth sentence from, “Containment and disposal of material shall be in accordance with Sec 202” to “Clean-up and disposal of blast material shall be in accordance with Sec 202.3.1.3”.

*Sec 505.10.6.4* Added new specification as follows, “For hydro demolition projects, total surface hydro demolition shall be performed in accordance with Sec 216 and the following additional surface preparation”. Moved current specification to new Sec 505.10.6.5.

*Sec 505.10.6.4.1* Added specification for clean-up after pneumatic hammering.

*Sec 505.10.6.4.2* Added specification for cleaning deck with water blasting after sand or shot blasting.

*Sec 505.10.6.4.3* Added specification for preparing the deck for placement of the wearing surface.

*Sec 505.10.6.4.4* Added specification for removal of any standing water from the deck.

*Sec 505.10.6.5* Renumbered specification 505.10.6.4 to 505.40.6.5.

*Sec 505.10.8.6* Changed half-sole and full depth repair shall be placed in accordance with Sec 704 instead of as it was originally stated, “ placement up to bottom of the low slump concrete wearing surface”.

*Sec 505.10.9 Limitations of Operations.* Renumbered existing section to 505.10.10 and changed 505.10.9 to a new subsection for Supplementary Wearing Surface Material. This section provides specifications for providing and placing additional wearing surface material in excess of the material required for the wearing surface at plan thickness.

*Sec 505.10.9.1* Renumbered existing section to 505.10.10.1. The new section 505.10.9.1 provides when conditions require Supplementary wearing surface.

*Sec 505.10.9.2* Renumbered existing section to 505.10.10.2. New specification requires the placement of supplementary wearing surface to fill depressions of monolithic deck repairs in the deck below the bottom of the planned deck wearing surface thickness. Renumbered subsequent sections accordingly.

*Sec 505.10.12 Method of Measurement.* Changed to 505.10.13 Method of Measurement. Kept as subsection title but moved the entire specification and created a new subsection 505.10.13.1.

*Sec 505.10.13.1 Method of Measurement.* Created new subsection from specification originally in 505.10.12 Method of Measurement. Added no final measurement will be made of the wearing surface at plan thickness.

*Sec 505.10.13.2* Added specification for measurement of supplementary wearing surface material and what deductions will be made for.

*Sec 505.10.13 Basis of Payment.* Renumbered to 505.10.14 Basis of Payment. Kept as subsection title but moved the entire specification and created a new subsection 505.10.14.1.

*Sec 505.10.14.1* Deleted specification and replaced with, “The accepted quantities of the wearing surface at plan thickness, complete in place, will be paid for at the contract unit price”.

*Sec 505.10.14.2* Added new specification for payment of quantities for supplementary wearing surface at fixed contract unit price specified in Sec 109.16.

*Sec 505.20.6.2* Added language that is specification is for non-hydro demolition projects. Added shot blasting as an option to clean the surface. Changed the last sentence from, “Containment and disposal of material shall be in accordance with Sec 202” to “Clean-up and disposal of blast material shall be in accordance with Sec 202.3.1.3”.

*Sec 505.20.8.2* Renumbered to 505.20.8.3. Made new specification for 505.20.8.2 requiring the use of hand vibrators in areas of monolithic deck repair. Renumbered subsequent sections accordingly.

*Sec 505.20.9 Limitations of Operations.* Renumbered to 505.20.10 Limitations of Operations. Made new specification for 505.20.9 Supplementary Wearing Surface Material, stating supplementary wearing surface material shall be in accordance with Sec 505.10.9. Renumbered subsequent sections accordingly.

*Sec 505.20.10. Removal* Renumbered to 505.20.11 Removal. Changed specification from, “Material removal and disposal shall be in accordance with Sec 505.10.10” to “Removal shall be in accordance with Sec 505.10.11”. Renumbered subsequent sections accordingly.

*Sec 505.20.12. Method of Measurement* Renumbered to 505.20.13 Method of Measurement. Removed the description of latex modified concrete from the specification.

*Sec 505.20.13. Basis of Payment* Renumbered to 505.20.14 Basis of Payment. Removed the description of latex modified concrete from the specification.

*Sec 505.30.8.2* Renumbered to 505.30.8.3. Made new specification for 505.30.8.2 requiring the use of hand vibrators in areas of monolithic deck repair. Renumbered subsequent sections accordingly.

*Sec 505.30.9 Limitations of Operations.* Renumbered to 505.30.10 Limitations of Operations. Made new specification for 505.30.9 Supplementary Wearing Surface Material, stating supplementary wearing surface material shall be in accordance with Sec 505.10.9. Renumbered subsequent sections accordingly.

*Sec 505.30.10. Removal* Renumbered to 505.30.11 Removal. Changed specification from, “Material removal and disposal shall be in accordance with Sec 505.10.10” to “Removal shall be in accordance with Sec 505.10.11”. Renumbered subsequent sections accordingly.

*Sec 505.30.12. Method of Measurement* Renumbered to 505.30.13 Method of Measurement. Removed the description of silica fume concrete from the specification.

*Sec 505.30.13. Basis of Payment* Renumbered to 505.30.14 Basis of Payment. Removed the description of silica fume concrete from the specification.

*Sec 505.40.1. Description* Removed in accordance with lines, grades, thickness and typical cross sections shown on plans to as shown on plans.

*Sec 505.40.4. Mix Design* Renumbered to 505.40.3.8 Mix Design. Renumbered subsequent sections accordingly.

*Sec 505.40.7.2* Renumbered to 505.40.6.2. Added language that this specification is for non-hydro demolition projects. Changed latex modified very early strength concrete placement to placement of the wearing surface. Changed hydro blasting to water blasting and updated air blasting in accordance with Sec 505.10.6.4.2.

*Sec 505.40.7.*3 Renumbered to 505.40.6.3.Changed, “Containment and disposal of material shall be in accordance with Sec 202” to “Clean-up and disposal of blast material shall be in accordance with Sec 202.3.1.3”.

*Sec 505.40.8.1* Renumbered to 505.40.7.1. Deleted specification and replaced with the finishing machine shall be in accordance with Sec 505.20.7.

*Sec 505.40.8.2* Renumbered to 505.40.7.2. Made new specification for 505.40.8.2 requiring the use of hand vibrators in areas of monolithic deck repair. Renumbered subsequent sections accordingly.

*Sec 505.40.9 Placing and Finishing Concrete.* Renumbered to 505.40.8 Placing and Finishing Concrete. Made new specification for 505.40.9 Supplementary Wearing Surface Material, stating supplementary wearing surface material shall be in accordance with Sec 505.10.9.

*Sec 505.40.11. Removal* Changed specification from, “Material removal and disposal shall be in accordance with Sec 505.10.10” to “Removal shall be in accordance with Sec 505.10.11”.

*Sec 505.50 CSA CEMENT VERY EARLY STRENGTH CONCRETE thru 505.50.14 Basis of Payment.* Created new section titled CSA Cement Very Early Strength Concrete. This section provides specifications for constructing a calcium sulfoaluminate dicalcium (CSA) cement very early strength concrete wearing surface on a prepared surface.

*Sec 505.60 STEEL FIBER REINFORECED CONCRETE thru 505.60.14 Basis of Payment.* Created new section titled Steel Fiber Reinforced Concrete. This section provides specifications for constructing a steel fiber reinforced concrete wearing surface on a prepared surface.

*Sec 505.70 POLYESTER POLYMER CONCRETE thru 505.70.14 Basis of Payment.* Created new section titled Polyester Polymer Concrete. This section provides specifications for constructing a polyester polymer concrete wearing surface on a prepared surface.

**SECTION 613 PAVEMENT REPAIR**

*Sec 613.20.3.2 Cleaning.* Changed the third sentence from, “Containment and disposal of material shall be in accordance with Sec 202” to “Clean-up and disposal of blast material shall be in accordance with Sec 202.3.1.3”.

*Sec 613.30.3.2 Cleaning.* Changed the third sentence from, “Containment and disposal of material shall be in accordance with Sec 202” to “Clean-up and disposal of blast material shall be in accordance with Sec 202.3.1.3”.

*Sec 613.40.3.1 Preparation of Slots.* Changed the fourteenth sentence from, “Containment and disposal of material shall be in accordance with Sec 202” to “Clean-up and disposal of blast material shall be in accordance with Sec 202.3.1.3”.

**SECTION 623 POLYMER PRODUCTS**

*Sec 623* Changed section title from, “CONCRETE BONDING COMPOUND, EPOXY, MORTAR AND EPOXY POLYMER CONCRETE OVERLY” to “POLYMER PRODUCTS”.

*Sec 623.10.2 Material.* Added reference to Division 1000.

*Sec 623.20.2 Material.* Added reference to Division 1000 and changed, “Sand for Mortar” to “Sand for Epoxy Mortar” in the second row of the table.

*Sec 623.30 EPOXY POLYMER CONCRETE OVERLAY.* Changed subsection title to EPOXY POLYMER WEARING SURFACE. Changed overlay to wearing surface throughout subsection.

*Sec 623.30.1 Description.* Updated description from, “This work shall consist of furnishing and applying thin polymer concrete overlays in a prime coat, plus two courses on designated bridge structures as shown on the plans or as directed by the engineer” to “This work shall consist of constructing an epoxy polymer wearing surface on a prepared surface in accordance with this specification, as shown on the plans or as directed by the engineer. Epoxy polymer wearing surface shall be composed of the following components - prime coat and two courses of epoxy polymer and aggregate”.

*Sec 623.30.2 Material.* Changed, “Epoxy Resin for Epoxy Polymer Concrete Overlay” to “Epoxy Polymer Wearing Surface” in the first row of the table. Deleted item for Aggregate for Epoxy Polymer Concrete Overlay in second row of the table.

*Sec 623.30.3.4 Surface Preparation.* Added cleaning should be completed by shot blast method. Changed the last sentence from, “Containment and disposal of material shall be in accordance with Sec 202” to “Clean-up and disposal of blast material shall be in accordance with Sec 202.3.1.3”.

*Sec 623.30.3.6 Epoxy Mixture.* Changed title to Mixing. In the first sentence changed, “epoxy” to epoxy polymer”.

*Sec 623.30.3.7 Application.* In the first sentence changed, “epoxy” to “epoxy polymer” and “supplier” to “manufacturer”.

*Sec 623.30.3.7.1* In the first sentence changed, “epoxy” to epoxy polymer”. In the second sentence changed, “ overlay material” to “epoxy polymer”.

*Sec 623.30.3.7.2* In the first and third sentence changed, “epoxy” to “epoxy polymer”.

*Sec 623.30.3.7.4* Changed, “epoxy mixture” to “epoxy polymer” in the first and second sentence.

*Sec 623.30.3.7.6* Changed, “resin” to “epoxy polymer” in the first sentence.

*Sec 623.30.3.7.9* Changed, “epoxy concrete overly” to “first epoxy polymer course” in the first sentence and “overlay surface” to “first course” in the last sentence.

*Sec 623.30.3.7.10* Changed, “overly” to “epoxy polymer”.

*Sec 623.30.3.7.11* Changed, “polymer mixture” to “epoxy polymer mixture”.

*Sec 623.30.3.7.12* Changed, “epoxy concrete overlay” to “epoxy polymer” in the first sentence and “overlay manufacturer’s recommendations” to “epoxy polymer manufacturer’s recommendations” in the last sentence.

*Sec 623.30.3.7.14* Changed, “epoxy concrete overlay” to “epoxy polymer” in the first sentence.

*Sec 623.30.4 Method of Measurement.* Changed, “epoxy concrete overlay” to “epoxy polymer wearing surface” and updated section to clearly state the measurement will be based on measurement longitudinally from end to end of bridge deck and transversely between roadway face of curbs, excluding the areas of any expansion devices.

*Sec 623.30.5 Basis of Payment.* Changed, “concrete overlay” to “wearing surface”. Added sentence, “Payment will be considered full compensation for all labor, equipment and material necessary to complete the described work”.

*Sec 623.40.4.2 Surface Preparation.* Added shot blasting as an option to remove all dirt, oil and other foreign material, as well as any unsound concrete or laitance from the surface and edges against which new concrete is to be placed. Changed the sixth sentence from, “Containment and disposal of material shall be in accordance with Sec 202” to “Clean-up and disposal of blast material shall be in accordance with Sec 202.3.1.3”.

*Sec 623.50 METHYL METHACRYLATE POLYMER SLURRY WEARING SURFACE. thru 623.50.6.* Created section titled Methyl Methacrylate Polymer Slurry Wearing Surface. This section provides specifications for constructing a methyl methacrylate (MMA) polymer slurry wearing surface on a prepared surface.

**SECTION 703 CONCRETE MASONRY CONSTRUCTION**

*Sec 703.3.3.10.2* Added shot blasting as an option to remove all foreign matter. Changed the second sentence from, “Containment and disposal of material shall be in accordance with Sec 202” to “Clean-up and disposal of blast material shall be in accordance with Sec 202.3.1.3”.

*Sec 703.3.8 Surface Sealing for Concrete* Changed overlay to wearing surface in the fourth and fifth sentence.

*Sec 703.3.8.5.2* Changed overlay to wearing surface in the third sentence.

**SECTION 704 CONCRETE MASONRY REPAIR**

*Sec 704.2 Material.* In the sixth row of the table, changed, “Type III Epoxy & Epoxy Polymer Concrete Overlay” to “Type III Epoxy or Epoxy Material for the Polymer Wearing Surface”.

*Sec 704.3.1 Repairing Concrete Deck (Half-Soling).* Changed title to Half-Sole Repair and added, “Repair areas shall consist of deck imperfections exposing the upper layer of the top mat of reinforcing steel a 1/4 inch. Slight deck imperfections less than 1/2 inch will not be repaired for bridge decks to be covered with an asphalt or concrete wearing surface. Slight deck imperfections less than 1/4 inch will not be repaired for bridge decks to be covered with a seal coat, polymer type wearing surface or no wearing surface”.

*Sec 704.3.4 Modified Deck Repair.* Removed, “and replacement” and added references to Class B-1 concrete or qualified special mortar in the first sentence. Delete the existing last sentence, “The repair concrete for these areas shall be Class B-1” and added, “If reinforcing steel is not exposed, the asphalt wearing surface in accordance with Sec 403 shall be placed monolithically into the deck imperfections.

*Sec 704.3.11 Monolithic Deck Repair.* Added subsection for providing and placing supplementary wearing surface.

*Sec 704.3.12 Shallow Deck Repair.* Added subsection for removal of bridge deck concrete in required areas and placing polymer concrete per Sec 623.40.

*Sec 704.4 Construction Requirements.* Changed title to Construction Requirements for Non-Hydro Demolition Projects.

*Sec 704.4.1 Removal Requirements.* Kept as subsection title but moved the entire specification and created a new subsection 704.4.1.1 General.

*Sec 704.4.1.1 Bridge Decks to be Covered with Asphalt or Concrete Wearing Surface.* Deleted entire subsection and created new 704.4.1.1 General from existing 704.4.1 specification. Added, “Determination of deck repair areas will be by sounding, except when modified deck repair is specified” as the second sentence. Removed hydro demolition as an option to remove all loose, deteriorated and unsound concrete and depth specified herein and as directed by the engineer in the existing second sentence. Removed the third and fourth sentences.

*Sec 704.4.1.2 Bridge Decks to be covered with Epoxy Polymer Concrete Overlay.* Deleted entire specification.

*Sec 704.4.1.3 Conventional Hand/Mechanical Equipment.* Renumbered to 704.4.1.2. Added, “ For bridge decks rated 6 or above” and “except that for modified deck repair chip hammers no heavier that 15-pound class shall be used” to the first sentence. Added, “except for modified deck repair” to the second sentence.

*Sec 704.4.1.4 Patch Repair Hydro Demolition Equipment.* Deleted entire specification. Renumbered subsequent sections accordingly.

*Sec 704.4.1.6 Reinforcing Bar Exposed.* Renumbered to 704.4.1.4. Added shot blasting and change hydro blasting to water blasting as options to clean exposed reinforcing bars.

*Sec 704.4.1.6.1 Superstructure and Substructure Repair.* Renumbered to 70.4.1.4.1 and removed title of specification.

*Sec 704.4.1.6.2 Deck Repairs.* Renumbered to 70.4.1.4.2 and removed title of specification. Deleted first sentence. Added, “during half-sole and modified deck repair” to the second sentence. Renumbered subsequent sections accordingly.

*Sec 704.4.1.7 Reinforcement Repair.* Renumbered to 70.4.1.5 Added shot blasting and changed hydro blasting to water blasting as options to clean exposed reinforcing bars.

*Sec 704.4.2.1 Patch Preparation Requirements.* Changed specification title to Concrete Repair. Added shot blasting and changed hydro blasting to water blasting as options to remove all foreign matter and micro-cracking as an item to be removed. Changed the second sentence from, “Containment and disposal of material shall be in accordance with Sec 202” to “Clean-up and disposal of blast material shall be in accordance with Sec 202.3.1.3”. Deleted the third sentence. Change the placement of new concrete to placing new concrete in the fourth sentence.

*Sec 704.4.2.2 Epoxy Sealing Preparation.* Changed specification title to Epoxy Sealing. Added shot blasting as an option to clean area. Changed the second sentence from, “Containment and disposal of material shall be in accordance with Sec 202” to “Clean-up and disposal of blast material shall be in accordance with Sec 202.3.1.3”. Deleted the third sentence. Change the placement of new concrete to placing new concrete in the fourth sentence.

*Sec 704.4.2.3 Concrete Crack Filler Preparation.* Changed specification title to Concrete Crack Filler.

*Sec 704.4.3 Applying Epoxy. Delete entire section and c*hanged specification title to Placement of Repair Material.

*Sec 704.4.3.1 Applying Concrete Crack Filler.* Deleted entire section.

*Sec 704.4.4 Placement of New Concrete.* Renumbered to 704.4.3.1 and rename to Concrete Repair. Added specification from 704.4.4.1 Concrete Placement Requirements.

*Sec 704.4.4.1 Concrete Placement Requirements.* Delete specification title and add specification to 704.4.3.1*.*

*Sec 704.4.4.2 Concrete Requirements.* Renumbered to 704.4.3.1.1 and deleted specification title. Added, “as specified in Sec 704.3.4 and Sec 704.4.3.1.2” and deleted, “and as specified in Secs 704.3.4 and 704.4.4.3”.

*Sec 704.4.4.3 Bridge Decks with Cathodic Protection System.* Renumbered to 704.4.3.1.2 and deleted specification title. Changed the first sentence from, “Concrete for repairing the concrete deck shall be Class B-1” to “Concrete for repairing bridge decks with cathodic protection systems shall be Class B-1”.

*Sec 704.4.4.4 Curing.* Renumbered to 704.4.3.1.3 and deleted specification title. Deleted the last sentence.

*Sec 704.4.3.2 Epoxy Sealing.* Added new specification for Epoxy Sealing.

*Sec 704.4.3.3 Concrete Crack Filler.* Added new specification for Concrete Crack Filler.

*Sec 704.5 Method of Measurement.* Renumbered to 704.6 and subsequent sections accordingly. Created new specification for 704.5 Construction Requirements for Hydro Projects.

*Sec 704.5.1. Zoned Conventional Deck Repair to Hydro Demolition.* New specification.

*Sec 704.5.1.1* New specification for deck shall be repaired inside special repair zones prior to hydro demolition.

*Sec 704.5.2. Conventional Half-Sole Repair After Hydro Demolition thru 704.5.2.4.* New specification for conventional half-sole repair after hydro demolition.

*Sec 704.5.3. Conventional Full Depth Repair After Hydro Demolition thru 704.5.3.5.* New specification for conventional full depth repair after hydro demolition.

*Sec 704.5.4. Void Tube Replacement Requiring Conventional Deck Repair After Hydro Demolition thru 704.5.4.3.* New specification for void tube replacement requiring conventional deck repair after hydro demolition.

*Sec 704.5.5. Monolithic Deck Repair After Hydro Demolition thru 704.5.5.2.* New specification for monolithic deck repair after hydro demolition.

*Sec 704.6 Basis of Payment.* Renumbered to 704.7 and renumbered subsequent sections accordingly. Created new Sec 704.6 Method of Measurement from previously Sec 704.5. Added half-sole, monolithic deck repair and shallow deck repair.

*Sec 704.6.1* Previously Sec 704.5.1. Changed the beginning of the specification from, “Repairing concrete deck (half-soling)” to “Half-sole repair”. Added shallow deck repair as another deck repair.

*Sec 704.6.6* New specification for supplementary wearing surface material required to fill monolithic deck repair will be measured in accordance with Sec 505.

*Sec 704.7 Basis of Payment* Previously Sec 704.6. Added, “except for the following repairs” and moved the second sentence, “No direct payment will be made for epoxy sealing” to Sec 704.7.2. Moved the third and fourth sentence to created Sec 704.7.3.

*Sec 704.7.1* New specification for supplementary wearing surface material required to fill monolithic deck repair will be paid for in accordance with Sec 505.

*Sec 704.7.2* New specification stating no direct payment will be made for epoxy sealing, previously stated in Sec 704.6 Basis of Payment.

*Sec 704.7.3* New specification stating payment for accepted quantities of reinforcing steel replaced due to excess section loss will be paid for at the fixed contract unit price specified in Sec 109.15. No payment will be made for replacement of reinforcing steel cut or broken by the contractor, previously stated in Sec 704.6 Basis of Payment.

**SECTION 717 FLEXIBLE JOINT SYSTEMS**

*Sec 717.10.3.2 Installation.* Changed the fifth sentence from, “Containment and disposal of material shall be in accordance with Sec 202” to “Clean-up and disposal of blast material shall be in accordance with Sec 202.3.1.3”.

*Sec 717.20.3.2 Installation.* Changed the third sentence from, “Containment and disposal of material shall be in accordance with Sec 202” to “Clean-up and disposal of blast material shall be in accordance with Sec 202.3.1.3”.

*Sec 717.30.3.2 Surface Preparation.* Changed the eighth sentence from, “Containment and disposal of material shall be in accordance with Sec 202” to “Clean-up and disposal of blast material shall be in accordance with Sec 202.3.1.3”.

*Sec 717.40.3.5* Changed, “Containment and disposal of material shall be in accordance with Sec 202” to “Clean-up and disposal of blast material shall be in accordance with Sec 202.3.1.3”.

*Sec 717.60.3.1 Surface Preparation.* Changed the eighth sentence from, “Containment and disposal of material shall be in accordance with Sec 202” to “Clean-up and disposal of blast material shall be in accordance with Sec 202.3.1.3”.

**SECTION 1039 POLYMER PRODUCTS**

*Sec 1039 EPOXY RESIN MATERIAL.* Changed section title to POLMER PRODUCTS.

*Sec 1039.60 EPOXY POLYMER CONCRETE OVERLAY.* Changed subsection title to EPOXY POLMER WEARING SURFACE.

*Sec 1039.60.1 Scope.* Changed specification from, “This specification covers an epoxy concrete overlay system consisting of an epoxy resin material and aggregate for use on bridge deck surfaces” to “This specification covers epoxy polymer and aggregate to be used for an epoxy polymer wearing surface”.

*Sec 1039.60.2 Epoxy Resin Material.* Change specification title to Epoxy Polymer. Changed, “resin material” to “polymer” in the first sentence. Added polymer to epoxy in the last sentence. Deleted table title, “Epoxy Resin Requirements”. Changed column heading, “ Specified Value” to “Requirement”. Updated table with small edits to help clarify table information.

*Sec 1039.60.2.1 Classes.* Changed overlay to polymer in the second sentence. Added resin to epoxy in the last sentence.

*Sec 1039.60.3 Aggregate for Epoxy Polymer Concrete Overlay.* Changed specification title to Aggregate. Delete table heading, “Aggregate Requirements”.

*Sec 1039.60.3.2 Aggregate Recommendation.* Added polymer to epoxy in the first sentence.

*Sec 1039.60.4 Overlay System.* Changed specification title to Epoxy Polymer Performance. Change overlay system to epoxy polymer in the first sentence.

*Sec 1039.60.6 Manufacturer and Brand Name Approval.* Changed, “polymer concrete overlay” to “epoxy polymer wearing surface” in the fourth sentence.

*Sec 1039.60.7 Product History.* Changed, “overlay system” to “epoxy polymer” in the first sentence.

*Sec 1039.80 METHYL METHACRYLATE (MMA) POLYMER SLURRY WEARING SURFACE thru 1039.80.6 MMA Top Coat.* Added new specifications for MMA primer, polymer slurry and top coat; and broadcast aggregate to be used for MMA polymer slurry wearing surface.

*Sec 1039.90 POLYESTER POLYMER WEARING SURFACE thru 1039.90.4.2 Hardener.* Added new specifications for MMA primer, polyester resin binder and aggregate to be used for a polyester polymer wearing surface.

SKK/TMO