**Design Standards Letter**

**Letter Number: S-2021-03**

**Letter Date: 06/09/2021**

**Effective Date: 07/01/2021**

**Section: 201, 401, 413, 501, 502, 604, 608, 613, 616, 620, 703, 704, 705, 720, 1029, 1039, 1047**

**Subject: Revised Supplement to the 2020 Standard Specifications and the New Publication of the 2021 Standard Specification**

**TO:** All Central and District Offices

**FROM:** Sarah Kleinschmit

**DATE:** June 9, 2021

**SUBJECT:** Standard Specifications Letter No. 3, 2021

The Supplemental Revisions to the *2020 Missouri Standard Specifications for Highway Construction* are now included in the new publication of the *2021 Missouri Standard Specification for Highway Construction* along with the following additional revisions listed below. The 2021 *Missouri Standard Specification for Highway Construction* effective July 1, 2021 is 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 201 CLEARING AND GRUBBING**

*Sec 201.2.5.1 Open Burning.* Delete the first four sentences and replace with, “The contractor is encouraged to harvest marketable timber, utilize mulched timber for erosion control and utilize excess mulch for composting. Open burning of trees and other brushy material is allowed unless prohibited elsewhere in the contract or disallowed by federal, state or local laws or ordinances. Any required permits, licenses, fees or other compliance requirements of open burning shall be the responsibility of the contractor in accordance with Sec 107”.

**SECTION 401 PLANT MIX BITUMINOUS BASE AND PAVEMENT**

*Sec 401.4.4.1* Clarified in note b of the table that the effective virgin binder replacement can be from RAP, RAS, or any combination of RAP and RAS.

**SECTION 413 SURFACE TREATMENTS**

*Sec 413.10.5.5 Weather Limitations.* Changed section title to Weather Limitations and Calendar Restrictions. Deleted entire section and replaced with, “Micro-surfacing shall not be placed when the air or surface temperature is below 50 F; or when the forecasted low temperature for the next 48 hours, as reported by the National Weather Service, is below 40 F; or after October 1 of each calendar year. Temperatures shall be obtained in accordance with MoDOT Test Method TM 20. Micro-surfacing may be placed on a damp surface but shall not be placed on a wet surface with free standing water”.

*Sec 413.30.2.3 Reclaimed Asphalt Pavement.* Removed Pavement from Section title. Deleted entire section and replaced with, “No reclaimed asphalt pavement or reclaimed asphalt shingles are allowed”.

*Sec 413.30.7.2.1 Aggregate Comparison.* Updated Sec 403.18.2 to 403.18.3.

**SECTION 501 CONCRETE**

*Sec 501.2.2 Retained Samples.* Updated Sec 403.18.2 to 403.18.3.

*Sec 501.3.6 Cement Factors.* In note a for the Cement Requirements table, added IL and IT for the cement types, but removed I(PM), I(SM) and Type II.

**SECTION 502 PORTLAND CEMENT CONCRETE BASE AND PAVEMENT**

*Sec 502.12.1 Retained Samples.* In the last sentenced, updated Sec 403.18.2 to 403.18.3.

*Sec 502.12.2 Core Chain of Custody.* Removed, “that are not in possession of the engineer for the entire time from extraction till testing”.

**SECTION 604 MISCELLANEOUS DRAINAGE**

*Sec 604.40.3.1* Added, “(d) Connecting a box culvert to a pipe.”

**SECTION 608 CONCRETE MEDIAN, MEDIAN STRIP, SIDEWALK, CURB RAMPS, STEPS AND PAVED APPROACHES**

*Sec 608.2.1.* Changed Class B concrete to Class B-1 concrete.

**SECTION 613 PAVEMENT REPAIR**

*Sec 613.10.2.4.1* In the first sentence removed, “testing of cylinders cured under the same conditions as the full depth repair patches” and replaced with, “testing of standard cure cylinders.

**SECTION 616 TEMPORARY TRAFFIC CONTROL**

*Sec 616.5.1.1 Red or Red and Blue Warning Lights.* Added, “and/or equipment” for use of red or red and blue lights per work zone and/or project.

**SECTION 620 PAVEMENT MARKING**

*Sec 620.10.2.3.2* Removed, “beads shall be applied at a minimum rate of 15 lbs./100 sq. ft. of the painted surface area” and replaced with, “drop-on glass beads, in accordance with Sec 620.30.3, shall be used for temporary paint applications.”

*Sec 620.10.6.5 Construction Requirements.* Removed, “beads shall be applied at a minimum rate of 15 lbs./100 sq. ft. of the painted surface area” and replaced with, “drop-on glass beads, in accordance with Sec 620.30.3 shall be used for cold weather paint applications.

 *Sec 620.20.2.5.1* Changed standard waterborne build paint to standard waterborne paint.

**SECTION 703 CONCRETE MASONRY CONSTRUCTION**

*Sec 703.3.6.1.1 Application Rate.* Changed one gallon per 150 square feet to one gallon per 200 square feet.

**SECTION 704 CONCRETE MASONRY REPAIR**

*Sec 704.3.13 thru 704.3.13.1.2* Added the following as new sections:

**704.3.13 Cleaning and Epoxy Coating.** In order to protect the bridge superstructure concrete from deicing chemicals and other contaminants, all loose and delaminated concrete shall be removed, and a protective epoxy coating shall be applied to the concrete in the area of curb outlets and the vertical face of the curbs as shown in the bridge plans.

**704.3.13.1 Construction Requirements.** The areas to be cleaned and epoxy coated shall be as follows:

(a) Deck surface and vertical faces inside the curb outlets.

(b) Outside edge of the deck to 12 inches on each side of the curb outlets.

(c) Superstructure concrete area directly below the curb outlets from the edge of the deck to the edge of the top flange of the girder and to 12 inches on each side of the curb outlets.

(d) Vertical face of the curbs for the entire length of the bridge.

**704.3.13.1.2** Cleaning shall include removal of all loose and delaminated concrete with hand tools to the satisfaction of the engineer. Hand tools may include chipping chisels, wire brushes, dust brushes, etc. After cleaning, an epoxy coating meeting the requirements of Sec 1059.20 shall be applied in accordance with Sec 711.3.2 and the manufacturer’s recommendations.

*Sec 704.6.7* Added the following as a new section:

**704.6.7.** No measurement will be made for Cleaning and Epoxy Coating except for authorized changes during construction or where appreciable errors are found in the plan quantity. When required, measurement will be made to the nearest square foot.

**SECTION 705 PRESTRESSED CONCRETE MEMBERS FOR BRIDGES**

*Sec 705.6 Basis of Payment.* Added, “including all material, equipment, labor, fabrication, installation and any other incidental work necessary to complete this work”.

**SECTION 720 MECHANICALLY STABILIZED EARTH WALL SYSTEMS**

*Sec 720.4.4 Foundation Preparation.* In the second sentence changed, “shall be compacted” to “shall be proof-rolled or compacted”.

**SECTION 1029 FABRICATING PRESTRESSED CONCRETE MEMBERS FOR BRIDGES**

*Sec 1029.3.5. Structural Steel.* Added, “unless otherwise specified” to the end of the first sentence. Added, “Structural steel for bearing plates shall be in accordance with ASTM A 709, Grade 36” as the last the sentence in the section.

*Sec 1029.6.2. Forms and Formwork.* Added the following as a new subsection (d) and reletter subsequent subsections accordingly.

(d) Void filler for voided slab beams and box beams shall be non-absorptive cellular polystyrene, according to ASTM C 578, designed to withstand the forces imposed upon them during fabrication without substantial deformation such as bulging, sagging, or collapsing. Cardboard void filler will not be allowed. The outside dimensions of void filler shall be as shown on the plans. When two or more sections of void filler are used to make up a required length, they shall be effectively taped or spliced together. Three-quarter-inch drain holes shall be provided near ends of each void, one near each side of the void for box beams. Drain holes shall be kept open at all times.

*Sec 1029.6.8 Pretensioned Members.* Divided section into four subsections, (a), (b), (c) and (d). In subsection (d) changed “Studs shall be left in place” to “Studs shall be left in place or replaced with temporary plugs”. Added the following as subsections (e) and (f):

1. Bearing plates with welded studs shall be galvanized in accordance with ASTM A123.
2. Mechanical benders, without the use of heat, shall be used to bend the strands on girders and beams. At the contractor's option the location for bent-up strands may be varied from that shown on the plans for fully bonded strands only. The total number of bent-up strands shall not be changed. One strand tie bar is required for each layer of bent-up strands except at end bents which require one bar on the bottom layer of strands only. No additional payment will be made if additional strand tie bars are required.

*Sec 1029.6.13 Handling.* Updated the fourth sentence from, “During transportation, the ends of I-beams shall not extend more than the depth of the beam beyond the supports on the transporting vehicle” to “During transportation the ends of solid, box and voided slab beams shall not extend more than 12 inches beyond the supports on the transporting vehicle”. In the fifth sentence removed, “Other beams” and replaced with “The ends of double-tee girders”. Inserted, “The ends of all other beams or girders shall not extend more than their depth beyond the supports on the transporting vehicle” as the sixth sentence.

*Sec 1029.6.14 Surface Finish, I-Girders.* Renamed Section to Surface Finish, I Girders, Solid Slab Beams, Voided Slab Beams and Box Beams. Remove “except that” in the first sentence and replace with “with the following exceptions:”. Split the rest of the section into four subsections (a), (b), (c) and (d). Add, “except a strip along the edges of the top flange shall be smooth finished when specified on plans” to the end of the fourth sentence, which is in the new subsection (b). Moved, “No laitance shall remain on surfaces to be embedded in concrete” up as the fifth sentence. Add the table below and the following as the seventh sentence, “At the contractor's option a smooth finish strip is permitted to facilitate placement of preformed fiber expansion joint material or expanded or extruded polystyrene bedding material for the prestressed panels for the following I girders.

|  |
| --- |
| **Width of Optional Smooth Finish Strip** |
| Type 2, 3 and 4 Girders | 1½” up to 1¾” |
| Type 6 and Bulb-Tee Girders | 3” up to 3 ¼” |

Removed the last sentence (now in subsection (d), “Mechanical benders, without the use of heat, shall be used to bend strands on girders”.

*Sec 1029.6.15 Surface Finish, Tee Girders.* Remove “except that” in the first sentence and replace with “with the following exceptions:”. Split the rest of the section into four subsections (a), (b), (c) and (d). Removed the last sentence (now in subsection (d), “Mechanical benders, without the use of heat, shall be used to bend strands on girders”.

*Sec 1029.8 Marking.* Changed, “ Box Girder Beams” to “Box Beams” in the title of Table I.

**SECTION 1039 POLYMER PRODUCTS**

*Sec 1039.60.5 Test Methods.* In the table change the Test Methods for Rotational Viscosity, Filler Content, and Thermal Shear to ASTM C881. Change the Test Methods for Epoxy Equivalent to ASTM C881 and AASHTO T237.

**SECTION 1047 POLYETHYLENE CULVERT PIPE**

*Sec 1047.3 Material.* Change references for AASHTO MP 20 to AASHTO M 335.

*Sec 1047.3.5* Change reference for AASHTO MP 20 to AASHTO M 335.

*Sec 1047.4 Sampling, Testing and Acceptance Procedures.* Change references for AASHTO MP 20 to AASHTO M 335.

*Sec 1047.4.1 Application for Placement on Qualified List.* In subsection (a) change certification to audit compliance.

*Sec 1047.4.5 Sampling of Material.* Change reference for AASHTO MP 20 to AASHTO M 335.

*Sec 1047.4.7 Testing.* Change reference for AASHTO MP 20 to AASHTO M 335.

*Sec 1047.4.8.2 Testing.* Change reference for AASHTO MP 20 to AASHTO M 335.

SKK/TMO