

# Design Standards Letter

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**Section/Plan No.: S0101, S0110, S0203, S0301, S0302, S0303, S0304, S0306, S0401, S0402, S0403, S0404, S0409, S0501, S0502, S0505, S0605, S0609, S0611, S0622, S0624, S0702, S0712, S0715, S0730, S0807, S0901, S0902, S0903, S1001, S1002, S1004, S1005, S1007, S1009, S1011, S1012, S1013, S1015, S1017, S1019, S1020, S1040, S1045, S1054, S1062, S1071**

**Subject: Revisions to 1993 Missouri Standard Specifications and Revised D-14 Sheet**

## Body

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Enclosed are revisions to the 1993 Missouri Standard Specifications, Revised Special Provisions, and a revised D-14 Sheet. The revisions are effective with the June, 1996 letting. The revisions will be incorporated into the 1996 Standard Specifications Book which is expected to be available later this summer. Below is a brief summary of the revisions. We apologize for the late distribution of this letter.

The General Special Provisions Index is revised to add a special provisions for Unbalanced Bids and delete the special provision for Progress as Promised Identification Signs.

## SECTION REVISION DESCRIPTION

Sec. 101 **Division 100, General Provisions:** Division 100 has been completely rewritten by the Division 100 Task Force.

THRU 110:

Sec 203: **Roadway and Drainage Excavation, Embankment, and Compaction:** Sec 203.3.3 is revised to required that the upper 18 inches of earth subgrade be compacted to at least 95% of maximum density for all pavement types.

Sec 301: **Plant Mix Bituminous Base Course:** Sec 301.3.6 is revised to delete reference to Type B and C mixes. Type B and C mixes have been eliminated.

Sec 302: **Stabilized Permeable Base:** Adds a new Section 302 which incorporates the stabilized permeable base portion of MRSP 93-02 for pavement drainage items.

Sec 303: **Rock Base:** Adds a new Section 303 which incorporates MRSP 93-03 for Rock Fill Base. The title of the section is revised to Rock Base. Note that payment basis is

changed from cubic yards to square yards in place.

Sec 304: **Aggregate Base Course**: Sec 304 is revised to incorporate Type 5 Base from MRSP 93-01, Type 5 Aggregate For Base and MRSP 93-02, Pavement Drainage Items. The revised section eliminates Type 3 Aggregate Base from the standard specifications.

Sec 306: **Modified Subgrade**: Adds a new Section 306 which incorporates MRSP 92-11 for Optional Modified Subgrade. This specification provides methods for drying subgrade in all contracts.

Sec 401: **Plant Mix Bituminous Pavement**: Sec 401.9 is revised to keep temperatures up to accepted practice limits.

Sec 402: **Plant Mix Bituminous Surface Leveling**: Sec 402.9 is revised to keep temperatures up to accepted limits.

Sec 403: **Asphaltic Concrete Pavement**: Sec 403 is revised to add specifications for SMA (Stone Mastic Asphalt) as a standard mixture and to delete reference to Type B and C asphalt mixtures which have been eliminated. Sec 403.20 for profilographing is revised to eliminate reference to "All Lanes At Least 11 Ft."

Sec 404: **Bituminous Mixing Plants and Equipment**: Sec 404 is revised to add specifications for SMA (Stone Mastic Asphalt) as a standard mixture and to delete reference to Type B and C asphalt mixtures which have been eliminated. Sec 404.2.2.1 is revised to provide a method for requiring a tank capacity chart for daily "tank stick" measurements.

Sec 409: **Seal Coat**: Sec 409.2 and 409.7 are revised to incorporate MRSP-09G for Polymer Modified Asphaltic Emulsion into the standard specifications.

Sec 501: **Concrete**: Sec 501 is revised to provide specifications for the allowance of Ground Granulated Blast Furnace Slag (GGBFS) as an additive similar to flyash with similar restrictions and to allow new Type IS and I (SM) cements which use GBFS interground into the cements. The use of Type IP or I (PM) cements is modified, depending on whether a natural pozzolan or flyash is used in their manufacture.

Sec 502: **Portland Cement Concrete Pavement**: Sec 502.14.1 is revised to eliminate the terminology "All lanes placed at least 11 feet wide" and add specific reference to the type of pavements to be profilographed. Sec 502.17.3 is revised to make MHTD coring schedule equal to AASHTO Guide Specifications for Highway Construction which will reduce the number of samples for random core sampling.

Sec 505: **Bridge Deck Concrete Wearing Surface**: Adds a new Sec 505 which incorporates MRSP 90-10, Latex Modified Concrete Wearing Surface, MRSP 90-11, Low Slump Concrete Wearing Surface, and MRSP 90-12, Silica Fume Concrete Wearing Surface into the standard specifications.

Sec 605: **Underdrainage:** Sec 605 is entirely revised to incorporate functional classification of underdrainage type. The revised specification incorporates portions of MRSP 93-02 for New Pavement Drainage Items dealing with outlet pipes, splash pads and geotextile requirements. It also incorporates MRSP 90-7 for Geocomposite Pavement Edge Drain.

Sec 609: **Paved Drainage:** Sec 609.33 is revised to delete reference to Type B and C asphalt mixes which have been eliminated.

Sec 611: **Embankment Protection:** Sec 611.22.3 is revised to permit the substitution of flyash in lieu of portland cement to a maximum of 15% on a pound for pound basis.

Sec 622: **Pavement Surface Texturing and Removal:** Adds a new Sec 622 to standard specifications to incorporate MRSP's and special provisions. Sec 622.10 provides specifications for coldmilling bituminous pavement for removal of surface. Sec 622.20 provides specifications for cold-milling pavement for a driving surface. Sec 622.30 provides specifications for diamond grinding concrete pavement. The MRSP's combined and incorporated include MRSP 1D, MRSP 2A, MRSP 90-15, MRSP 93-09, as well as special provisions.

Sec 624: **Geotextile Construction:** Adds a new Sec 624 to standard specifications which incorporates the geotextile construction portion of MRSP 93-02 for Pavement Drainage Items.

Sec 702: **Bearing Pile:** Sec 702.4.5.1 is revised to adopt the AWS D1.5 Bridge Welding Code. This revision has been in use as a special provision since 1994.

Sec 712: **Structural Steel Construction:** Sec 712.2.3.1, 712.3.3.7 and 712.3.3.7.1 are revised to adopt the AWS D1.5 Bridge Welding Code. These revisions have been in use as a special provision since 1994.

Sec 712.2.1, 712.12 and 712.13 are revised to add VOC complaint coating systems. These revisions have been in use recently as a special provision. Sec 712.101 is revised to provide a better definition of "snug tightness" and clarify that bolted parts should fit solidly together while in the snug tight condition. Sec 712.10.2 is revised to clarify the definition of "least exposed condition" with reference to fasteners. Table I is revised to show the correct minimum bolt tension for A-490 bolts.

Sec 712.16 and 712.17 are revised to reflect the above revisions in respect to measurement and payment.

Sec 715: **Vertical Drain at End Bents:** Sec 715.2 is revised to include the various material sections. All sections relating to material specifications are deleted from this section and moved to the appropriate 1000 Section for materials.

Sec 715.4 is revised to Basis of Payment only.

Sec 730: **Polyethylene Pipe Culverts:** Sec 730.3 thru 730.6 is revised to correspond to AASHTO Bridge Standard Specifications Sec 18.1.6.1, Sec 18.1.8 and ASTM D 2321 for construction requirements in placing polyethylene pipe.

Sec 807: **Temporary Sediment Control Fence:** Adds new Sec 807 to standard specifications to incorporate temporary silt fence with other geotextile uses. The specification incorporates the silt fence portion of the general special provision (throw-in) "Temporary Erosion and Sediment Control".

Sec 901: **Highway Lighting:** Sec 901 for Highway Lighting has been completely revised to update specifications to current industry practices and to eliminate lighting items no longer used.

Sec 902: **Traffic Signals:** Sec 902 for Traffic Signals has been extensively revised. Some revised sections are:

Sec 902.4.3.1 specifies steel pedestal posts as schedule 40 pipe.

Sec 902.4.3.2 specifies aluminum pedestal posts as schedule 80 tubing.

Sec 902.4.8.5 provides a new specification for microwave detectors.

Sec 902.4.8.6 provides a new specification for ultrasonic presence detectors.

Sec 902.5.3.4 adds a new specification for external conduit on structure.

Sec 902.2.2 and 902.2.3 provide temporary signal specifications.

Sec 902.3, Materials, is revised to provide standard specification sections for signal components.

Sec 902.4.5, Traffic Controller Assemblies, is revised to reflect current industry equipment. Numerous other miscellaneous revisions were made to update the specifications.

Sec 903: **Highway Signing:** Sec 903.1.1 is a new section relating the guidelines to be followed for sign design. Sec 903.2 is revised to indicate the specification section in which sign components are located. Sec 903.2.3 is added for galvanizing requirements. Sec 903.3.6 thru 903.3.7 are added for sign lighting specifications. Existing Sections 903.3.6.1 thru 903.3.10.2 are deleted. Existing Section 903.5.2 and 903.5.3 are deleted. Existing Sections 903.5.4 thru 903.5.6 are renumbered. Section 903.6.3 is deleted.

Sec 1001: **General Requirements for Materials:** New Sections 1001.14, 1001.14.1 and 1001.14.2 are added to provide specifications for dust control additives used in aggregate crushing and handling.

Sec 1002: **Aggregate for Asphaltic Concrete:** Sec 1002.1.5 is revised to delete reference to Type B asphaltic concrete mixtures since Type B and C mixtures are no longer used.

Sec 1004: **Graded Aggregate for Bituminous Surface:** Sec 1004.2 is revised to upgrade the standard specifications to those used by Maintenance and Traffic for bituminous mat material. Sec 1004.2.1 is deleted.

Sec 1005: **Aggregate for Concrete:** Sec 1005.1.2 is revised to eliminate reference to No. 1, 2, and 3 aggregate since they are not intended for further use.

Sec 1007: **Aggregate for Base:** Adds new Sections 1007.2, 1007.5.1, and 1007.5.2 to provide specifications for Type 5 Aggregate Base for pavement design. This specification incorporates that portion of MRSP 93-02.

Sec 1009: **Aggregate for Drainage:** Existing Sec 1009 is deleted and renamed. The new specifications incorporate major modification of drainage components previously contained in MRSP 93-02.

Sec 1011: **Geotextile:** Adds a new Sec 1011, Geotextile, providing geotextile materials specifications. The specifications incorporates portions of MRSP-25, 46, 93-02 and special provisions.

Sec 1012: **Geocomposite Drainage Materials:** Adds new Sec 1012, Geocomposite Drainage Materials, providing geocomposite drainage material specifications. This specification incorporates portions of Sec 715 relating to geocomposite drains as well as MRSP 90-7 and special provisions.

Sec 1013: **Miscellaneous Drainage Materials:** Adds new Sec 1013, Miscellaneous Drainage Materials, providing material specifications for miscellaneous drainage items such as various plastic pipes, tubing, and other items.

Sec 1015: **Bituminous Materials:** New Sec 1015.7.1 is added to provide material specifications for polymer modified asphalt emulsion as specified in revised Sec 409.2. This revision incorporates specifications contained in MRSP-09G.

Sec 1017: **Ground Granulated Blast Furnace Slag:** Adds a new Section 1017, Ground Granulated Blast Furnace Slag, to provide material specifications for ground granulated blast furnace slag as an additive in the production of concrete similar to fly ash as provided in Revised Sec 501.13.

Sec 1019: **Cement:** Sections 1019.1, 1019.2.2 and 1019.2.3 are revised to add material specifications for Type IS and I (SM) cements made with interground Granulated Blast Furnace Slag (GBFS). Sec 1019.3.4 is revised to require the type to cement to be entered into the statement.

Sec 1020: **Corrugated Metallic-Coated Steel Culvert Pipe, Pipe Arches and End Sections:** Sec 1020.4 is revised to permit the coating process specified in AASHTO M36 for other hardware items used with couplings.

Sec 1040: **Guardrail and Guard Cable Materials:** Sec 1040.3.2.2 is revised to replace ASTM A 525 test methods, which has been discontinued, with ASTM A 924 requirements.

Sec 1045: **Paint for Structural Steel and Wood:** New Sections 1045.5, 1045.6, 1045.7 and 1045.8 are added to provide material specifications for structural steel protective coatings. The added sections incorporate specifications contained in MRSP 95-01.

Sec 1054: **Concrete Admixtures:** Revises Sec 1054.1 to include latex emulsion admixtures. Adds new Sec 1054.6 to provide material specifications for latex emulsion admixtures as specified in new Sec 505. This new section incorporates specifications contained in MRSP 90-10.

Sec 1062: **Pull and Junction Boxes:** Sec 1062.2 for pull boxes is revised to provide the correct logo on pull boxes. Sec 1062.3 is revised to eliminate aluminum junction boxes and to allow PVC boxes.

Sec 1071: **Asphalt Release Agents and Fiber Additives:** The title of Sec 1071 is revised to the above. Sec 1071.3 is renumbered to 1071.2.3. A new Sec 1071.3 is added to provide material specifications for bituminous mixture fiber additives.

VJI/vh

Enclosure