S T A T E **O F** **T E N N E S S E E**

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Supplemental Specifications – 900SS
of the
Standard Specifications for Road and Bridge Construction

January 1, 2021

Subsection 901.01, (pg. 900), 12-19-22; **Hydraulic Cement;** Revise List, 2nd, and 3rd Paragraphs:

Portland Cement.....AASHTO M 85
Blended Hydraulic Cement..... AASHTO M 240

The maximum allowable equivalent alkalis for Portland Cement is 0.60 % when used in roadways with aggregates meeting the requirements of **903.24**.

Use Type I, Type IL, Type IP, or Type IS cement unless otherwise specified. Do not mix different types or sources of cement.

Subsections Listed, (pg. varied), 12-19-22; **Hydraulic Cement 901.01;** Revise Following Subsections:

204.06.B, (pg. 156), **Revise Materials List:**

304.02, (pg. 230), **Revise Materials List:**

306.02, (pg. 238), **Revise Materials List:**

309.02, (pg. 252), **Revise Materials List:**

312.05, (pg. 266), **Revise 1st Paragraph first sentence:**

313.02, (pg. 270), **Revise Materials List:**

616.03, (pg. 635), **Revise Materials List:**

619.02, (pg. 650), **Revise Materials List:**

619.03, (pg. 651), **Revise Table 619.03-1:**

619.13, (pg. 657), **Revise 1st Paragraph first sentence:**

622.02, (pg. 664), **Revise Materials List:**

Subsection 903.03, (pg. 904-905), 12-19-22; **Coarse Aggregate for Concrete;** Revise 2nd,4th,5th,6th and 7th Paragraphs:

Coarse aggregate for hydraulic cement concrete to be used in the finished riding surfaces of roadways shall meet requirements of 903.24 unless otherwise specified. Coarse aggregate for bridge decks (except decks that will be overlaid with HFST or Asphalt Pavements during the same construction season) and overlays on interstates and four or more lane highways shall meet **903.24** unless otherwise specified.

Coarse aggregate in Portland cement concrete pavements for finished riding surfaces of travel lanes including mainline pavements and ramps shall consist of Size No. 467. Ensure that either the Size No. 4 or Size No. 67 fractions meet **903.24**.

Coarse aggregate in two-lift composite pavements shall consist of Size No. 467 in the lower lift, graded as specified in **903.22,** the coarse aggregate for the lower lift does not have to meet the requirements of **903.24**. Coarse aggregate in the upper lift shall be Size No. 57 or 67 graded as specified in **903.22** and shall meet **903.24** riding surface requirements.

The coarse aggregates for travel lanes and bridge decks shall be crushed and consist of stone, slag, gravel, quartzite, gneiss, or combination thereof. The absorption of plus 4 material shall not exceed 5% on any individual aggregate. Do not use uncrushed gravel, pea gravel, or any other uncrushed particles. Crushed gravel, if used, shall consist of siliceous washed particles after processing, of which at least 70% by count of the material retained on the No. 4 sieve contains a minimum of two fractured faces. One face shall be fractured for the approximate average diameter or thickness of the particle.

Subsection 903.11.C.3, (pg. 920), 12-19-22; **Grading OGFC;** Remove 2nd Paragraph:

Subsection 903.12.B, (pg. 921-922), 12-19-22; **Aggregate for Micro-Surface;** Revise 1st, 2nd Paragraphs, and Table 913.12-2:

The aggregate shall be crushed slag, crushed granite, or crushed stone (crushed stone as specified in **903.24**) meeting the gradation limits specified in Table 903.12-2 and the physical properties of ASTM D692, except the percent of fractured pieces shall be 100. The aggregate shall meet the quality requirements in **903.25**. The aggregate shall have a minimum sand equivalent, as determined in accordance with AASHTO T 176, of 65. Polish-resistant aggregates will not be required for leveling courses, provided they will be covered with riding surface mixtures. Provide a Type A laboratory as defined by **106.06** capable of verifying gradation at the location of stockpiled material.

If blending aggregates from more than one source, use automated proportioning and blending equipment which has individual bins for each aggregate source used to produce a uniform stockpile meeting the job mix formula gradation. Proportion and blending equipment shall be calibrated at the beginning of production. All aggregate sources shall be polish-resistant as specified in **903.24**.

Table 903.12-2: Gradation Limits for Aggregate for Micro-Surface Based on Wash Gradation

Sieve	Design Master Range (Total Percent Passing)	Mixture Control Tolerances
3/8 inch	100	
No. 4	70-98	±5.0
No. 8	45-70	±5.0
No. 16	28-50	±5.0
No. 30	19-34	±5.0
No. 50	12-25	±4.0
No. 100	7-18	±3.0
No. 200	4-15	±2.0

Subsection 904.03 (pg. 931-934), 12-15-21; **Emulsified Asphalt;** Revise Table 904.03-1(c):

Table 904.03-1(c): Test Requirements for Emulsified Asphalt

Practices	AASHTO Test Method	CRS-2P	RS-2	RS-1	CRS-1
Saybolt-Furol Viscosity @ 77 °F, seconds	T59	n/a	n/a	20-100	n/a
Saybolt-Furol Viscosity @ 122 °F, seconds	T59	100-400	75-400	n/a	20-100
Storage Stability Test, 24- h, %	T59	1 Max	1 Max	1 Max	1 Max
5-day Settlement, %	T59	n/a	n/a	n/a	n/a
Particle Charge	T59	Positive	n/a	n/a	Positive
Sieve Test, %	T59	0.1 Max	0.1 Max	0.1 Max	0.1 Max
Residue by	T59	Evaporation	Distillation	Distillation	Distillation
Residue, %	T59	65 Min	63 Min	55 Min	60 Min
Demulsibility, %	T59	40 Min	60 Min	60 Min	40 Min
Distillate, %	T59	n/a	n/a	n/a	n/a
Oil Test, %	T59	n/a	n/a	n/a	3.0 Max
Stone Coating	T59	n/a	n/a	n/a	n/a
Float Test, seconds	T50	n/a	n/a	n/a	n/a
Penetration	T49	75-175	100-200	100-200	100-250
Elastic Recovery, % (1)	T301	50 Min	n/a	n/a	n/a
Ductility @ 77 °F, cm	T51	40 Min	40 Min	40 Min	40 Min

Practices	AASHTO Test Method	CRS-2P	RS-2	RS-1	CRS-1
Ductility @ 40 °F, cm	T51	n/a	n/a	n/a	n/a
R&B Softening Point, °F	T53	125 Min	n/a	n/a	n/a
Original G*/sind @ 82 °C	T315	n/a	n/a	n/a	n/a

(1) Straight-sided mold, 20-cm elongation, 5min hold, 25 °C

Subsection 908.09, (pg. 955), 12-27-23; **Bronze Bearing Plates, Plain;** Revise Subsection**:**

Provide plates conforming to ASTM B22, Alloy UNS No. C90500, C91100, or C86300, or ASTM B100, Alloy UNS No. C51000. ~~No. 510.~~

Subsection 914.01, (pg. 977), 12-19-22; **Non-Reinforced Concrete Pipe;** Revise 2nd Paragraph:

Manufacture all non-reinforced concrete pipe to meet the Department's procedure for the Manufacture and Acceptance of Precast Concrete Products.

Subsection 916.06, (pg. 988), 12-15-21; **Reflective Sheeting;** Revise Subsection:

Provide reflective sheeting from the Department's QPL conforming to AASHTO M 268 and the supplementary requirements for fungus resistance of AASHTO M 268. The sheeting material shall have a precoated adhesive backing or a heat and pressure activated adhesive backing protected by a removable liner.

For all signs with a SILVER-WHITE and ORANGE background when used on temporary barricades and channelizing drums, provide reflective sheeting that meets or exceeds AASHTO M 268, Type B.

For all permanent panel signs with a SILVER-WHITE, YELLOW, RED, GREEN, BROWN, or BLUE background, provide reflective sheeting that meets or exceeds AASHTO M 268, Type D.

For overhead permanent signs attached to sign structures which overhang travel lanes and are not illuminated with sign lighting, provide reflective sheeting that meets AASHTO M 268, Type D.

For all other sign types, provide reflective sheeting that meets or exceeds AASHTO M 268, Type B.

For FLOURESCENT ORANGE background, provide reflective sheeting that meets or exceeds AASHTO M 268, Type B.

Subsection 916.06, (pg. 988), 12-27-23; **Retroreflective Sheeting;** Revise 2nd and Add 3rd Paragraph:

For all signs with a SILVER-WHITE and ORANGE background when used on temporary barricades ~~and channelizing drums~~, provide retroreflective sheeting that meets or exceeds AASHTO M 268, Type B.

For all sheeting with a SILVER-WHITE and FLUORESCENT ORANGE background when used on channelizing drums, provide retroreflective sheeting that meets or exceeds AASHTO M 268, Type B. The SILVER-WHITE material shall be of the same manufacturer as the FLUORESCENT ORANGE material.

Subsection 916.07, (pg. 988,989), 12-15-21; **Legends, Borders, and Accessories;** Revise Subsection:

Provide letters, numerals, symbols, borders, and route markers conforming to the MUTCD.

A. Type "A" Class I (Demountable)

Provide silver-white letters, numerals, symbols, borders, and route markers of a pre-coated pressure sensitive or a tack-free heat-activated adhesive reflective sheeting permanently adhered to the sign panel.

For all permanent panel signs, provide reflective sheeting that meets AASHTO M 268, Type D.

Mechanically apply the reflective sheeting to the properly prepared sign panel with the equipment and in a manner prescribed by the sheeting manufacturer. Letters, numerals, symbols, borders, and route markers shall be 0.032-inch-thick aluminum sheet of 3003 H14 Alloy or approved composite material. Properly degrease and etch aluminum, or treat with a light, tight, amorphous chromate type coating.

Supply each letter, numeral, symbol, and route marker with mounting holes, and secure to the sign surface with corrosion-resistant screws, bolts, or rivets.

B. Type "A" Class 2 Cut-Out (Direct Applied Reflective Sheeting Copy)

Provide silver-white cut-out letters, numerals, symbols, borders, and route markers of a pre-coated pressure sensitive or a tack-free heat-activated adhesive reflective sheeting.

For all permanent panel signs, provide reflective sheeting that meets AASHTO M 268, Type D.

For all other sign types, provide reflective sheeting that meets or exceeds AASHTO M 268, Type B.

Subsections Listed, (pg. varies), 12-19-22; **Replace Reflective with Retroreflective 916.06;** Revise Following Subsections:

916.05.H, (pg. 986), **Revise 2nd Paragraph:**

916.05.H.3, (pg. 986), **Revise 1st Paragraph:**

916.05.I, .1, .2, (pg. 987), **Revise Heading, 1st, 2nd Paragraphs:**

916.06, (pg. 988), **Revise Heading, 1st, 2nd, 3rd, 4th, 5th, 6th Paragraphs:**

916.07.A, (pg. 989), **Revise 1st and 2nd Paragraphs:**

916.07.B, (pg. 989), **Revise 1st, 2nd, 3rd Paragraphs:**

916.08, (pg. 989-999), **Revise 1st, 2nd, 3rd, 4th Paragraphs:**

919.04, (pg. 1012), **Revise Heading, 1st Paragraph, List:**

919.05.A, .B, (pg. 1012-1013), **Revise Heading, 1st Paragraphs:**

712.02, (pg. 732), **Revise Materials List:**

712.02.B, .G, (pg. 732-733), **Revise 1st Paragraphs:**

712.04, (pg. 734), **Revise 2nd Paragraph:**

712.04.H.2.a.(2), .2.e, (pg. 740-741), **Revise 1st Paragraphs:**

712.06.1, .2, (pg. 743), **Revise 1st Paragraphs:**

713.04.A, (pg. 749), **Revise 1st Paragraph:**

713.04.F, (pg. 753), **Revise 3rd, 4th, 5th Paragraphs:**

713.06.3, (pg. 754), **Revise 1st Paragraph:**

716.01, (pg. 784), **Revise 1st Paragraph:**

716.02, (pg. 784), **Revise Materials List:**

716.03.B.2.b, (pg. 789), **Revise 8th Paragraph:**

716.03.B.3, .4, (pg. 790), **Revise 1st Paragraph:**

716.04, (pg. 790-791), **Revise Heading, 7th Paragraph:**

716.05, (pg. 791-792), **Revise Heading, 1st Paragraph:**

716.06, (pg. 792), **Revise 2nd Paragraph:**

716.07.A, (pg. 795), **Revise 11th Paragraph:**

716.08, (pg. 797), **Revise Last Paragraph:**

716.08.G, (pg. 797), **Revise Heading:**

910.02.C.2.e, (pg. 969), **Revise Heading:**

Revise Index (pg. 1053 & 1056), **Revise:** Reflective Pavement Markers, Reflective Sheeting, & Snowplowable Reflective Pavement Markers.

Subsection 918.01.B & D, (pg. 1003, 1004), 1-30-23; **Grass Seed, Seed Groups;**
Revise Tables 918.01-1, 2, 3, & 6:

Table 918.01-1: Group A (February 1-July 1)

Kind of Seed	Quantity, Percent by Weight
Kentucky 31 Fescue	80
White Clover	15
Annual Rye Grass	5

Table 918.01-2: Group B (June 1-August 15)

Kind of Seed	Quantity, Percent by Weight
Kentucky 31 Fescue	75
White Clover	15
German Millet	10

Table 918.01-3: Group B1 (April 15 - August 15)

Kind of Seed	Quantity, Percent by Weight
Bermudagrass (hulled)	70
White Clover	30

Table 918.01-6: Temporary Seeding

Seed Group (Season)	Kind of Seed	Percent by Weight
Group D (January 1 – May 1)	Annual Rye Grass	33-1/3%
	White Clover	33-1/3%
	Spring Oats	33-1/3%
Group E (May 1 – July 15)	Sorghum-Sudan Crosses (1)	100%
	or	
	German Millet (2)	100%
Group F July 15 – January 1	Cereal Rye	66-2/3%
	Annual Rye Grass	33-1/3%

(1) Dekalb Sudan SX11, Lindsey 77F, TN Farmer's Co-op GHS-1 or GHS-2A.

(2) German Millet, GaHi-1

Subsection 921.09, (pg. 1022), 12-19-22; **Grout; Revise Subsection:**

Submit grout mix designs to the Department's Materials and Tests. Grout designs shall use hydraulic cement meeting the requirements of **901.01** or an appropriate alternative from the Department's Qualified Products List. Use sand conforming to the requirements of **903.02**. Use water that has been approved by the Engineer.

When non-shrinking or non-shrinking fast-setting grout is specified, either formulate it by incorporating an admixture, or use a pre-mixed grout. Mix and use the grout in accordance with the manufacturer's recommendations. Grouts will be reviewed as follows:

A. Non-Structural Grout

Grout specified without a strength requirement will be non-structural and shall have its design submitted per Departmental procedures. Mix grout in small quantities as needed, and do not retemper or use grout after it has begun to set. Unless otherwise specified or directed, provide grout consisting of one part Portland cement and two parts sand by volume, mixed with sufficient water to form a grout of proper consistency.

B. Structural Grout

Grout specified with a strength requirement will be structural grout and shall have its design submitted per Departmental procedures.