

**KANSAS DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION TO THE  
STANDARD SPECIFICATIONS, EDITION 2007**

Delete SECTION 2501 and replace with the following:

**SECTION 2501**

**PART V**

**2501.1 GENERAL**

In order to properly monitor materials on a project, follow all applicable procedures as outlined in the KDOT Construction Manual, Part V. This includes, but is not limited to, the sampling frequencies quantities and procedures; testing frequencies and procedures. Whenever a test procedure is required, use the Kansas Test (KT) procedures as outlined in Part V.

Copies of Part V can be obtained by contacting the Plans and Proposals Section in the Bureau of Construction and Materials, the local DME, or the Quality Assurance Section at MRC. **TABLE 2501-1** represents the current Part V revision dates applicable to the Contract.

<b>TABLE 2501-1: PART V REVISION DATES</b>		
<b>SECTION</b>	<b>TITLE</b>	<b>REVISED</b>
5.1	GENERAL	04/14
5.11	Organization And Functions Of The Bureau Of Materials And Research	04/14
5.2	QUALITY CONTROL/QUALITY ASSURANCE	04/14
5.2.1	Statistics	04/14
5.2.2	Rounding Numbers and Random Sampling	04/14
5.2.2.1	Rounding-Off of Numbers	04/12
5.2.2.2	Random Sampling	04/14
5.2.3	Reasons for Quality Control/Quality Assurance (QC/QA)	04/14
5.2.4	Procedures for Quality Assurance	04/10
5.2.5	Quality Control/Quality Assurance (QC/QA) Tests	04/14
5.2.6	Comparison of Quality Control and Verification Tests	04/14
5.2.7	Contractor's Quality Control Plan	04/14
5.2.7.1	HMA: Contractor's Quality Control Plan	04/14
5.2.7.2	Guide for Quality Control and Acceptance Requirements for HMA	04/10
5.2.7.3	Example of a Laboratory Quality Manual for HMA	04/14
5.2.7.4	Concrete: Contractor's Quality Control Plan	04/14
5.2.7.5	Example of a Laboratory Quality Manual for Concrete	04/14
5.2.7.6	Concrete Structures: Contractor's Quality Control Plan	04/14
5.2.7.7	Example of a Contractor's Concrete Structures Quality Control Plan for Controlling Evaporation	04/10
5.2.7.8	Example of a Contractor's Concrete Structures Quality Control Plan for Controlling Evaporation	04/14
5.2.7.8.1	Example of a Laboratory Quality Manual for CTB	04/14
5.3	MIX DESIGN METHODS	04/10

<b>TABLE 2501-1: PART V REVISION DATES</b>		
<b>SECTION</b>	<b>TITLE</b>	<b>REVISED</b>
5.3.1	Concrete Mix Design	04/10
5.3.2	Bituminous Mix Design	04/14
5.3.3	Superpave Mix Design	04/10
5.3.4	Mix Design Procedures for CIR (Cold in Place Recycling) Material	04/14
5.4	LABORATORY AND SAMPLE	04/14
5.4.1	Laboratory Identification	04/14
5.4.2	Sample Identification	04/14
5.4.3	Sample Identification Forms	04/14
5.5	REQUIRED SAMPLE SIZES	04/14
5.6	AGGREGATES	04/14
5.6.1	General	04/14
5.6.2	Types of Production	04/14
5.6.3	Inspection Responsibilities	04/14
5.6.4	Approval of Deposits	04/14
5.6.5	Inspection, Sampling and Testing	04/14
5.7	INSPECTION AND SAMPLING OF MATERIALS	04/14
5.7.1	Asphalt	04/14
5.7.2	Brick and Concrete Masonry Units	04/14
5.7.3	Concrete Curing Materials	04/14
5.7.4	Joint Sealing and Joint Filler Material	04/14
5.7.5	Miscellaneous Materials	04/14
5.7.6	Miscellaneous Metals	04/14
5.7.7	Bridge Paints and Pavement Marking Materials	04/14
5.7.8	Culvert, Sewer, and Underdrain Pipe	04/14
5.7.9	Cementitious Material	04/14
5.7.10	Materials for Roadside Improvement	04/14
5.7.11	Steel and Iron	04/14
5.7.12	Timber, Lumber, Piling, and Posts	04/14
5.7.13	Water for Use with Portland Cement	04/14
5.8	NUCLEAR GAUGE	04/14
5.8.1	1.13.2 SOM – RADIOLOGICAL SAFETY GUIDELINES	04/14
5.8.2	Independent Assurance Replicate (ASR) Check for Nuclear Gauges	04/10
5.8.3	Segregation Check Using the Nuclear Density Gauge	04/14
5.8.4	Joint Density Evaluation Using the Nuclear Gauge	04/14
5.9	SAMPLING AND TEST METHODS FORWARD	04/14
5.9.1 KT-1	Sampling and Splitting of Aggregates	04/14
5.9.2 KT-2	Sieve Analysis of Aggregates	04/14
5.9.3 KT-3	Material Passing No. 200 (75 $\mu$ m) Sieve by the Wash Method	04/14
5.9.4 KT-4	Percent Retained on the No. 200 (75 $\mu$ m) Sieve by Dry Screening	04/14

<b>TABLE 2501-1: PART V REVISION DATES</b>		
<b>SECTION</b>	<b>TITLE</b>	<b>REVISED</b>
5.9.5 KT-5	Unit Weight of Aggregate	04/14
5.9.6 KT-6	Specific Gravity and Absorption of Aggregate	04/14
5.9.7 KT-7	Clay Lumps and Friable Particles in Aggregate	04/14
5.9.8 KT-8	Shale or "Shalelike" Materials in Aggregate	04/14
5.9.10 KT-10	Plasticity Test	04/14
5.9.11 KT-11	Moisture Tests	04/14
5.9.12 KT-12	Standard Compaction Test	04/14
5.9.13 KT-13	Field Density Tests of Soils, Treated Base Courses, and Water Bound Base Courses	04/14
5.9.14 KT-14	Marshall Test of Bituminous Mixes	04/10
5.9.15 KT-15	Bulk Specific Gravity and Unit Weight of Compacted Asphalt Mixtures	04/14
5.9.16 KT-16	Deleted	04/10
5.9.17 KT-17	Sampling Freshly Mixed Concrete	04/12
5.9.18 KT-18	Air Content of Freshly Mixed Concrete by the Pressure Method	04/14
5.9.19 KT-19	Air Content of Freshly Mixed Concrete by the Volumetric Method	04/14
5.9.20 KT-20	Mass per Cubic Foot (Meter), Yield Cement Factor and Air Content (Gravimetric) of Freshly Mixed Concrete	04/14
5.9.21 KT-21	Slump of Portland Cement Concrete	04/12
5.9.22 KT-22	Making and Curing Compression and Flexural Test Specimens in the Field	04/14
5.9.23 KT-23	Flexural Strength of Concrete (Third – Point Loading Method)	04/14
5.9.24 KT-24	Determination of Free Moisture or Absorption of Aggregate for Use in Concrete	04/14
5.9.25 KT-25	Sampling and Splitting Plant Mixed Asphalt Mixtures	04/12
5.9.26 KT-26	Sampling Asphalt Materials	04/12
5.9.27 KT-27	Sampling Joint Compound Materials	04/14
5.9.28 KT-28	Sampling Bridge Paint	04/12
5.9.29 KT-29	Field Sampling of Portland Cement, Lime and Fly Ash	04/12
5.9.30 KT-30	Field Sampling of Thermoplastic Pavement Marking Material	04/10
5.9.31 KT-31	Determination of Percentage of Crushed Particles in Crushed Gravel	04/14
5.9.32 KT-32	Method of Test for Density of Compacted Asphalt Mixtures by Nuclear Method	04/14
5.9.33 KT-33	Deleted See KTMR-39	04/10
5.9.34 KT-34	Sieve Analysis of Extracted Aggregate	04/14
5.9.35 KT-35	Sticks in Aggregate	04/14
5.9.36 KT-36	Density of Freshly Mixed Concrete in Bridge Deck Overlays by Nuclear Gauge	04/14
5.9.37 KT-37	Making, Curing, and Testing Cement Treated and Unbound Bases in the Laboratory	04/14
5.9.38 KT-38	Density of Freshly Mixed Concrete in Pavement by Nuclear Gauge	04/14
5.9.39 KT-39	Theoretical Maximum Specific Gravity of Asphalt Paving Mixtures	04/14
5.9.41 KT-41	Determination of Density and Moisture Content of Portland Cement Treated Bases by Nuclear Method	04/14
5.9.42 KT-42	Sieve Analysis for Acceptance of Lime or Cement Treated Soils	04/14

<b>TABLE 2501-1: PART V REVISION DATES</b>		
<b>SECTION</b>	<b>TITLE</b>	<b>REVISED</b>
5.9.43 KT-43	Moisture Content of Asphalt Mixtures or Mineral Aggregates – Microwave Oven Method	04/14
5.9.44 KT-44	Method of Testing the Strength of Portland Cement Concrete Using the Maturity Method	04/14
5.9.45 KT-45	Determination of Dry Paint Film Thickness with the Magnetic Gauge	04/10
5.9.46 KT-46	Determination of Pavement Profile with the Profilograph	04/14
5.9.47 KT-47	Depth Determination of Hot – in – Place Recycled Asphalt Pavement (HIPR)	04/14
5.9.49 KT-49	Method for Obtaining and Testing Drilled Cores from PCCP and Precast Girders	04/14
5.9.50 KT-50	Uncompacted Void Content of Fine Aggregate	04/14
5.9.51 KT-51	Field Density and Moisture Tests of Soils by Nuclear Gauge	04/14
5.9.54 KT-54	Deleted See KT-46	04/10
5.9.55 KT-55	Plastic Fines in Combined Aggregates by use of the Sand Equivalent Test	04/14
5.9.56 KT-56	Resistance of Compacted Asphalt Mixture to Moisture Induced Damage	04/14
5.9.57 KT-57	Determination of Asphalt Content and Gradation of Hot Mix Asphalt Concrete by the Ignition Method	04/14
5.9.58 KT-58	Method for Preparing and Determining the Density of Hot Mix Asphalt (HMA) Specimens by Means of the Superpave Gyrotory Compactor	04/14
5.9.59 KT-59	Flat and Elongated Particles in Coarse Materials Test	04/14
5.9.60 KT-60	Indirect Tensile Test	04/14
5.9.61 KT-61	Deleted See KTMR-38	04/10
5.9.62 KT-62	Percent Solids of Lime Slurry	04/12
5.9.63 KT-63	Method for Determining Draindown Characteristics in Uncompacted Asphalt Mixtures	04/14
5.9.64 KT-64	Method for Determining Volume of Voids in Compacted Filler or Fines	04/14
5.9.65 KT-65	Sampling and Splitting Cement Treated Base Mixtures	04/14
5.9.66 KT-66	Sampling Epoxy Pavement Marking	04/10
5.9.67 KT-67	Sampling Glass Beads	04/10
5.9.68 KT-68	Sampling Traffic Paint	04/10
5.9.69 KT-69	Deleted See KTMR-40	04/10
5.9.70 KT-70	Multi Layer Polymer Concrete Overlay	04/14
5.9.71 KT-71	Air –Void Analyzer	04/14
5.9.72 KT-72	Measuring Flowing Concrete	04/14
5.9.73 KT-73	Boil Test	04/14
5.9.76 KT-76	Method for Testing the Compressive Strength of Molded Cylindrical Concrete Specimens	04/14
5.9.77 KT-77	Method for Capping Cylindrical Concrete Specimens	04/14
5.9.78 KT-78	Method for Determining the Tensile Adhesive Strength of Asphalt Pavement Tack Coat	04/14
5.9.79 KT-79	Surface Resistivity of Concrete	04/14
5.9.80 KT-80	Uncompacted Void Content of Coarse Aggregate	04/14
5.10	CALCULATIONS	04/10
5.10.1	Absolute Volume and Percent of Voids in a Unit Volume of Aggregate	04/10

<b>TABLE 2501-1: PART V REVISION DATES</b>		
<b>SECTION</b>	<b>TITLE</b>	<b>REVISED</b>
5.10.2	Theoretical Specific Gravity of a Combination of Aggregates	04/10
5.10.3	Volume of Asphalt Materials	04/12
5.10.4	Calculations for the Marshall Mix Design of Bituminous Mixtures	04/12
5.10.5	Fineness Modulus of Aggregates (Gradation Factor)	04/12
	APPENDICES	
Appendix A	Sampling and Testing Frequency Chart	04/14
Appendix B	Construction using Quality Control/Quality Assurance Specification Sampling and Testing Frequency Chart	04/14
Appendix C	Specification for Independent Assurance Program	04/14
Appendix D	Policy and Procedure Manual for the Inspection of Kansas Department of Transportation District Laboratories	04/14

**2501.2 KANSAS TEST, MATERIALS AND RESEARCH (KTMR) TEST METHODS**

KTMR tests are procedures found at MRC and are not expected to be performed in the field. Copies can be obtained by contacting the Quality Assurance Section at MRC if required within a specification.

<b>TABLE 2501-2: KTMR TEST METHODS</b>	
<b>TITLE</b>	<b>TEST NUMBER</b>
Permeability for Base Course Material	KTMR-5
Determination of Alkyd Base in Thermoplastic Material	KTMR-6
Roundness of Glass Beads for Traffic Markings	KTMR-7
Moisture Resistance of Glass Beads for Traffic Markings	KTMR-8
Field Evaluation of Pavement Marking Materials	KTMR-9
Removability of Temporary Pavement Marking Tape	KTMR-10
Rotational Capacity Testing of High Strength Fasteners - FHWA Supplemental Specification	KTMR-11
Dry to No-Pick-Up Time for Water-Borne Traffic Paint	KTMR-12
Method of Test for Determination of Volume Change of Soils	KTMR-14
Determining if Fly Ash is Present in Plastic Portland Cement Concrete or Portland Cement	KTMR-15
Testing of Dowel Bars Placed in Concrete for Resistance to Removal (Pull Out)	KTMR-16
Recovery of Asphalt from Solution by Abson Method	KTMR-18
Method of Testing Release Compounds for Asphalt Mixes	KTMR-19
Chemical Analysis of Asphalt Rejuvenating Agents	KTMR-20
Soundness and Modified Soundness of Aggregates by Freezing and Thawing	KTMR-21
Durable Aggregate Test	KTMR-22
Wetting and Drying Test of Sand-Gravel Aggregate for Concrete	KTMR-23
Procedures for Testing Lightweight Aggregates	KTMR-24
Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2 inches or [50 mm] Cube Specimens)	KTMR-26
Modified Specific Gravity and Absorption of Aggregate	KTMR-27
Determination of Total Acid Insoluble Residue	KTMR-28
Wetting and Drying Test of Steam Cured Reinforced Concrete Pipe with Fly Ash	KTMR-29

<b>TABLE 2501-2: KTMR TEST METHODS</b>	
<b>TITLE</b>	<b>TEST NUMBER</b>
Preparation of Bridge Coating Test Panels for Cyclic Corrosion/UV Exposure	KTMR-30
Solvent Test for Artificial Wood	KTMR-31
Particle Size Analysis	KTMR-32
Durable Aggregate Test	KTMR-33
Determining Dynamic Modulus of Hot-Mix Asphalt Concrete and Cold-in-Place Recycle Mixtures	KTMR-34
Strand Bond in Prestressed Concrete Members	KTMR-36
Raveling Test on Recycled Asphalt Specimens	KTMR-38
Bitumen Content of Paving Mixtures By Reflux Extraction	KTMR-39
Relative Density	KTMR-40

**2501.3 AASHTO TEST METHODS**

In addition to the test methods referenced above, the following American Association of State Highway and Transportation Officials (AASHTO) test methods are used as written in the current edition of the AASHTO Materials Manual, Part II. Copies can be obtained from AASHTO, or can be viewed at the offices of the local DME, Construction and Materials Headquarters, or the Quality Control Section in MRC.

<b>TABLE 2501-3: AASHTO TEST METHODS</b>	
<b>TITLE</b>	<b>AASHTO TEST METHOD</b>
Organic Impurities	AASHTO T 21
Determining the Field Moisture Equivalent of Soils	AASHTO T 96
Coal and Lignite in Sand	AASHTO T 113

05-02-14 C&M (SML)  
 Jul-14 Letting