

**KANSAS DEPARTMENT OF TRANSPORTATION  
SPECIAL PROVISION TO THE  
STANDARD SPECIFICATIONS, 2015 EDITION**

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	2016
5.1.1	Materials Control Functions of the Secretary of Transportation	2016
5.1.2	Materials Control Functions of the Bureau of Construction and Materials	2016
5.2	QUALITY CONTROL/QUALITY ASSURANCE	2018
5.2.1	Statistics	2014
5.2.2	Rounding Off and Random Sampling	2014
5.2.2.1	Rounding-Off of Numbers	2012
5.2.2.2	Random Sampling	2018
5.2.3	Reasons for Quality Control/Quality Assurance (QC/QA) and the Certified Inspection and Testing Training Program (CIT <sup>2</sup> )	2016
5.2.4	Procedures for Quality Assurance	2016
5.2.5	Quality Control/Quality Assurance (QC/QA) Tests	2016
5.2.6	Comparison of Quality Control and Verification Tests	2016
5.2.7	Contractor's Quality Control Plan	2014
5.2.7.1	HMA: Contractor's Quality Control Plan	2016
5.2.7.2	Guide for Quality Control and Acceptance Requirements for HMA	2016
5.2.7.3	Example of a Laboratory Quality Manual for HMA	2018
5.2.7.4	Concrete: Contractor's Quality Control Plan	2018
5.2.7.5	Example of a Laboratory Quality Manual for Concrete	2018
5.2.7.6	Concrete Structures: Contractor's Quality Control Plan	2016
5.2.7.7	Example of a Contractor's Concrete Structures Quality Control Plan for Controlling Evaporation	2010
5.2.7.8	Cement Treated Base: Contractor's Quality Control Plan (CTB)	2018
5.2.7.8.1	Example of a Laboratory Quality Manual for CTB	2018
5.3	MIX DESIGN METHODS	2018

<b>TABLE 2501-1: PART V REVISION DATES</b>		
<b>SECTION</b>	<b>TITLE</b>	<b>REVISED</b>
5.3.1	Concrete Mix Design	2018
5.3.2	Bituminous Mix Design	2014
5.3.3	Superpave Mix Design	2010
5.3.4	Mix Design Procedures for CIR (Cold in Place Recycling) Material	2018
5.4	LABORATORY AND SAMPLE IDENTIFICATION	2014
5.4.1	Laboratory Identification	2014
5.4.2	Sample Identification	2014
5.4.3	Sample Identification Forms	2014
5.5	REQUIRED SAMPLE SIZES	2018
5.6	AGGREGATES	2018
5.6.1	General	2018
5.6.2	Types of Production	2016
5.6.3	Inspection Responsibilities	2016
5.6.4	Approval of Deposits	2018
5.6.5	Inspection, Sampling and Testing	2018
5.7	INSPECTION AND SAMPLING OF MATERIALS	2014
5.7.1	Asphalt Materials	2014
5.7.2	Brick and Concrete Masonry Units	2014
5.7.3	Concrete Curing Materials	2014
5.7.4	Joint Sealing and Joint Filler Material	2014
5.7.5	Miscellaneous Materials	2014
5.7.6	Miscellaneous Metals	2014
5.7.7	Bridge Paints and Pavement Marking Materials	2014
5.7.8	Culvert, Sewer, and Underdrain Pipe	2014
5.7.9	Cementitious Material	2014
5.7.10	Materials for Roadside Improvement	2014
5.7.11	Steel and Iron	2014
5.7.12	Timber, Lumber, Piling, and Posts	2014
5.7.13	Water for Use with Portland Cement	2014
5.8	NUCLEAR GAUGE	2014
5.8.1	1.13.2 SOM – RADIOLOGICAL SAFETY GUIDELINES	2014
5.8.2	Independent Assurance Replicate (ASR) Check for Nuclear Gauges	2016
5.8.3	Segregation Check Using the Nuclear Density Gauge	2014
5.8.4	Joint Density Evaluation Using the Nuclear Gauge	2016
5.9	SAMPLING AND TEST METHODS FORWARD	2018
5.9.1 KT-1	Sampling and Splitting of Aggregates	2018
5.9.2 KT-2	Sieve Analysis of Aggregates	2018
5.9.3 KT-3	Material Passing No. 200 (75 µm) Sieve by the Wash Method	2018
5.9.4 KT-4	Percent Retained on the No. 200 (75 µm) Sieve by Dry Screening	2018
5.9.5 KT-5	Unit Weight of Aggregate	2018
5.9.6 KT-6	Specific Gravity and Absorption of Aggregates	2018

<b>TABLE 2501-1: PART V REVISION DATES</b>		
<b>SECTION</b>	<b>TITLE</b>	<b>REVISED</b>
5.9.7 KT-7	Clay Lumps and Friable Particles in Aggregate	2018
5.9.8 KT-8	Shale or “Shalelike” Materials in Aggregate	2018
5.9.10 KT-10	Plasticity Test	2018
5.9.11 KT-11	Moisture Tests	2014
5.9.12 KT-12	Standard Compaction Test	2014
5.9.13 KT-13	Field Density Tests of Soils, Treated Base Courses, and Water Bound Base Courses	2015
5.9.14 KT-14	Marshall Test of Bituminous Mixes	2015
5.9.15 KT-15	Bulk Specific Gravity and Unit Weight of Compacted Asphalt Mixtures	2014
5.9.16 KT-16	Deleted	2010
5.9.17 KT-17	Sampling Freshly Mixed Concrete	2012
5.9.18 KT-18	Air Content of Freshly Mixed Concrete by the Pressure Method	2018
5.9.19 KT-19	Air Content of Freshly Mixed Concrete by the Volumetric Method	2014
5.9.20 KT-20	Mass per Cubic Foot (Meter), Yield Cement Factor and Air Content (Gravimetric) of Freshly Mixed Concrete	2018
5.9.21 KT-21	Slump of Portland Cement Concrete	2012
5.9.22 KT-22	Making and Curing Compression and Flexural Test Specimens in the Field	2016
5.9.23 KT-23	Flexural Strength of Concrete (Third – Point Loading Method)	2018
5.9.24 KT-24	Determination of Free Moisture or Absorption of Aggregate for Use in Concrete	2018
5.9.25 KT-25	Sampling and Splitting Plant Mixed Asphalt Mixtures	2018
5.9.26 KT-26	Sampling Asphalt Materials	2012
5.9.27 KT-27	Sampling Joint Compound Materials	2014
5.9.28 KT-28	Sampling Bridge Paint	2012
5.9.29 KT-29	Field Sampling of Portland Cement, Lime and Fly Ash	2012
5.9.30 KT-30	Field Sampling of Thermoplastic Pavement Marking Material	2018
5.9.31 KT-31	Determination of Percentage of Crushed Particles in Crushed Gravel	2018
5.9.32 KT-32	Method of Test for Density of Compacted Asphalt Mixtures by Nuclear Method	2018
5.9.33 KT-33	Deleted	2007
5.9.34 KT-34	Sieve Analysis of Extracted Aggregate	2018
5.9.35 KT-35	Sticks in Aggregate	2014
5.9.36 KT-36	Density of Freshly Mixed Concrete in Bridge Deck Overlays by Nuclear Gauge	2018
5.9.37 KT-37	Making, Curing, and Testing Cement Treated and Unbound Bases in the Laboratory	2018
5.9.38 KT-38	Density of Freshly Mixed Concrete in Pavement by Nuclear Gauge	2018
5.9.39 KT-39	Theoretical Maximum Specific Gravity of Asphalt Paving Mixtures	2016
5.9.41 KT-41	Determination of Density and Moisture Content of Portland Cement Treated Bases Aggregate Bases and Aggregate Shoulders by Nuclear Method	2016
5.9.42 KT-42	Sieve Analysis for Acceptance of Lime or Cement Treated Soils	2018
5.9.43 KT-43	Moisture Content of Asphalt Mixtures or Mineral Aggregates – Microwave Oven Method	2018
5.9.44 KT-44	Method of Testing the Strength of Portland Cement Concrete Using the Maturity Method	2016
5.9.45 KT-45	Determination of Dry Paint Film Thickness with the Magnetic Gauge	2010

**TABLE 2501-1: PART V REVISION DATES**

<b>SECTION</b>	<b>TITLE</b>	<b>REVISED</b>
5.9.46 KT-46	Determination of Pavement Profile with the Profilograph	2014
5.9.47 KT-47	Depth Determination of Hot – in – Place Recycled Asphalt Pavement (HIPR)	2014
5.9.49 KT-49	Method for Obtaining and Testing Drilled Cores from PCCP and Precast Girders	2018
5.9.50 KT-50	Uncompacted Void Content of Fine Aggregate	2018
5.9.51 KT-51	Field Density and Moisture Tests of Soils by Nuclear Gauge	2016
5.9.54 KT-54	Deleted See KT-46	2010
5.9.55 KT-55	Plastic Fines in Combined Aggregates by use of the Sand Equivalent Test	2015
5.9.56 KT-56	Resistance of Compacted Asphalt Mixture to Moisture Induced Damage	2018
5.9.57 KT-57	Determination of Asphalt Content and Gradation of Hot Mix Asphalt Concrete by the Ignition Method	2018
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	2018
5.9.59 KT-59	Flat and Elongated Particles in Coarse Materials Test	2016
5.9.60 KT-60	Indirect Tensile Test	2015
5.9.61 KT-61	Raveling Test on Recycled Asphalt Specimens	2015
5.9.62 KT-62	Percent Solids of Lime Slurry	2012
5.9.63 KT-63	Method for Determining Draindown Characteristics in Uncompacted Asphalt Mixtures	2014
5.9.64 KT-64	Method for Determining Volume of Voids in Compacted Filler or Fines	2014
5.9.65 KT-65	Sampling and Splitting Cement Treated Base Mixtures	2016
5.9.66 KT-66	Sampling Epoxy Pavement Marking	2015
5.9.67 KT-67	Sampling Glass Beads	2010
5.9.68 KT-68	Sampling Traffic Paint	2010
5.9.69 KT-69	Relative Density	2018
5.9.70 KT-70	Method for Testing Polymer Overlays for Surface Preparation and Adhesion	2014
5.9.71 KT-71	Air –Void Analyzer	2014
5.9.72 KT-72	Measuring Flowing Concrete	2014
5.9.73 KT-73	Density, Absorption and Voids in Hardened Concrete	2018
5.9.76 KT-76	Method for Testing the Compressive Strength of Molded Cylindrical Concrete Specimens	2018
5.9.77 KT-77	Method for Capping Cylindrical Concrete Specimens	2015
5.9.78 KT-78	Method for Determining the Tensile Adhesive Strength of Asphalt Pavement Tack Coat	2014
5.9.79 KT-79	Surface Resistivity of Concrete	2018
5.9.80 KT-80	Uncompacted Void Content of Coarse Aggregate	2018
5.9.81 KT-81	Sampling Cold Plastic Pavement Marking, Patterned Cold Plastic Pavement Marking Tape and High Durability Pavement Marking Tape	2015
5.9.82 KT-82	Determination of Excessive Moisture in Concrete Surfaces	2015
5.9.83 KT-83	Strand Bond in Prestressed Concrete Members	2015
5.9.84 KT-84	Sampling Nuts, Bolts and Washers	2018
5.9.8.5 KT-85	Procedures for Evaluating the Movement, Rotation, and Sound Generation of Portable Temporary Rumble Strips	2018

<b>TABLE 2501-1: PART V REVISION DATES</b>		
<b>SECTION</b>	<b>TITLE</b>	<b>REVISED</b>
5.9.84 KT-86	Characterization of the Air-Void System of Freshly Mixed Concrete by the Sequential Pressure Method (Super Air Meter - SAM)	2018
5.10	CALCULATIONS	2018
5.10.1	Absolute Volume and Percent of Voids in a Unit Volume of Aggregate	2018
5.10.2	Theoretical Specific Gravity of a Combination of Aggregates	2018
5.10.3	Volume of Asphalt Materials	2018
5.10.4	Calculations for the Marshall Mix Design of Bituminous Mixtures	2018
5.10.5	Fineness Modulus of Aggregates (Gradation Factor)	2012
	APPENDICES	
Appendix A	Sampling and Testing Frequency Chart – Non Quality Control/Quality Assurance Specifications	2018
Appendix B	Sampling and Testing Frequency Chart – Quality Control/Quality Assurance Specifications	2018
Appendix C	Test Procedure Criteria for the Independent Assurance Program	2018
Appendix D	Policy and Procedure Manual for the Inspection of Kansas Department of Transportation District Laboratories	2018

**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>
Determination of Polymer Additive Percentages in Polymer Modified Asphalt Cements	KTMR-2
Permeability for Base Course Material	KTMR-5
Determination of Alkyd Base in Thermoplastic Material	KTMR-6
Moisture Resistance of Glass Beads for Traffic Markings	KTMR-8
Field Evaluation of Pavement Marking Materials	KTMR-9
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
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

<b>TABLE 2501-2: KTMR TEST METHODS</b>	
<b>TITLE</b>	<b>TEST NUMBER</b>
Determination of Total Acid Insoluble Residue	KTMR-28
Wetting and Drying Test of Steam Cured Reinforced Concrete Pipe with Fly Ash	KTMR-29
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
Measurement of Heat of Hydration of Hydraulic Cementitious Materials Using Isothermal Conduction Calorimetry	KTMR-38
Titanium Dioxide Content in Thermoplastic & Sprayed Thermoplastic Pavement Marking Material	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 in Fine Aggregates for Concrete	AASHTO T 21
Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine	AASHTO T 96
Lightweight Pieces in Aggregate	AASHTO T 113

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