COMMONWEALTH OF KENTUCKY
TRANSPORTATION CABINET
FRANKFORT, KY 40622

MANUAL TITLE: ***Materials Field Sampling & Testing Manual*** **REVISION NO.:** **1**

DATE REQUESTED: **March 8, 2016** **REPRINT:**

REQUESTED BY: **Brad Webb** **NEW:**

REVISED PROCEDURES

CHAPTER/ SECTION	EXPLANATION	OLD PAGES TO BE DELETED	NEW PAGES TO BE ADDED
	The purpose of this printing is to include the following revised procedures in the *Materials Field Sampling & Testing Manual*. This revision also includes one updated index.		
MFS-00	Table of Contents	MFS-01	MFS-01
MFS-800	Asphalt Seal Coat (HFRS-2 & RS-2) Polymer Asphalt Emulsions (CSS-1HL & CRS-2P)	MFS-805 MFS-815	MFS-805 MFS-815
Produced & Distributed by Organizational Management Branch			

TRANSPORTATION CABINET
Frankfort, Kentucky 40622
www.transportation.ky.gov/

Steven L. Beshear
Governor

Michael W. Hancock, P.E.
Secretary

OFFICE OF THE SECRETARY
OFFICIAL ORDER 109735

SUBJECT: *Materials Field Sampling and Testing Manual*

This manual has been prepared to provide information and guidance to personnel of the Kentucky Transportation Cabinet. Its purpose is to establish uniformity in the interpretation and administration of laws, regulations, policies, and procedures applicable to the operations and services of the Division of Materials and its relationship with other units of the Cabinet.

The policies and procedures set forth herein are hereby approved and declared effective unless officially changed.

All previous instructions, written and oral, relative to or in conflict with this manual are hereby superseded.

Signed and approved this 19th day of August, 2015.

Michael W. Hancock
Secretary

Approved as to Legal Form

Office of Legal Services

Kentucky UNBRIDLED SPIRIT
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MATERIALS FIELD SAMPLING

AND TESTING MANUAL

ISSUED BY

COMMONWEALTH OF KENTUCKY
TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS

DIVISION OF MATERIALS
FRANKFORT, KENTUCKY

August 2015

MATERIALS FIELD SAMPLING

TABLE OF CONTENTS

01 TABLE OF CONTENTS 03/16

100 INTRODUCTION
- 101 Design of This Manual 08/15
- 102 Purpose & Scope 08/15
- 103 Acceptance Requirements for Materials & Products 08/15

200 AGGREGATE
- 201 General Notes 08/15
- 202 Aggregate for Polymer Concrete Overlays (High-Friction Surface & Bridge Deck Overlays) 08/15
- 203 Agricultural Limestone 08/15
- 204 Asphalt Mix Aggregates 08/15
- 205 Asphalt Mix Roadway Samples for Polish-Resistant Applications 08/15
- 206 Base Aggregates 08/15
- 207 Concrete Aggregates for Pavement or Base 08/15
- 208 Concrete Pipe Aggregate 08/15
- 209 Concrete Precast Products 08/15
- 210 Concrete Prestressed Products 08/15
- 211 Concrete Aggregates for Structural & Incidental Use 08/15
- 212 Drainage Blanket (Treated & Untreated) 08/15
- 213 Epoxy-Sand Slurry Mixtures & Epoxy Seal Coats 08/15
- 214 Erosion Control Aggregates (Channel Lining, Cyclopean Stone, Rip Rap, Dumped Stone, Gabion Stone, & Slope Protection) 08/15
- 215 Free Draining Bedding & Backfill 08/15
- 216 Granular Embankment 08/15
- 217 Masonry Stone 08/15
- 218 Mortar Sand 08/15
- 219 Pipe Bedding & Sand for Blotter 08/15
- 220 Quicklime & Hydrated Lime 08/15
- 221 Rock Drainage Blanket, Structure Granular Backfill, & Reinforced Fill Materials 08/15
- 222 Sand Drainage Blanket 08/15

200 AGGREGATE (cont.)
223 Seal Coat Aggregate (Chip Seal) 08/15
224 Traffic Bound Uses 08/15
225 Underdrain & Lateral Drain Aggregates 08/15

300 ASPHALT MIXTURES
301 General Notes 08/15
302 Microsurfacing 08/15
303 Specialty Mixtures 08/15
304 Superpave & SMA Mixtures 08/15

400 CEMENT
401 General Notes 08/15
402 Portland Cement (All Types) 08/15
403 Concrete Patching Material (Rapid, Very Rapid, Overhead, & Vertical) 08/15
404 Curing Compound (All Types) 08/15
405 Fly Ash (All Types) 08/15
406 Ground Granulated Blast-Furnace Slag (GGBF) Slag 08/15
407 Masonry Coating 08/15
408 Masonry Units (Concrete Brick, Concrete Block, & Clay Brick) 08/15
409 Microsilica (All Types) 08/15
410 Non-Shrink Grout 08/15

500 CHEMISTRY
501 General Notes 08/15
502 Adhesive for Raised Pavement Markers 08/15
503 Binder for Polymer Concrete Overlays
(High Friction Surface & Bridge Deck Overlays) 08/15
504 C881 Epoxy 08/15
505 Chemical Deicers (Calcium & Sodium Chloride) 08/15
506 Delineators (Barrier Wall Delineator & Guardrail Delineator) 08/15
507 Extruded Thermoplastic 08/15
508 Flashing Arrow Board 08/15
509 Flexible Delineator Post (Ground & Surface Mount) 08/15
510 Glass Beads 08/15
511 Herbicide (2, 4-D) 08/15
512 Latex 08/15
513 M200 Sand Slurry 08/15
514 Object Marker 08/15
515 Permanent Type I Tape 08/15
516 Permanent Traffic Paint 08/15
517 Preformed Thermoplastic 08/15
518 Raised Pavement Markers 08/15
519 Reinforcing Bar Grout Adhesives 08/15

500 CHEMISTRY (cont.)

520 Sign Sheeting 08/15
521 Structural Adhesives with Extended Contact Time 08/15
522 Structural Steel Coatings 08/15
523 Temporary Tape 08/15
524 Temporary Traffic Paint 08/15
525 Variable Message Board 08/15
526 Water 08/15

600 CONCRETE

601 General Notes 08/15
602 Concrete Admixtures (Type A, C, D, E, F, G, & Corrosion Inhibitors) 08/15
603 Concrete Class (A, AMOD, B, M1, M2) 08/15
604 Concrete Class (AA, AAHPC, AAA, D, DMOD) 08/15
605 Concrete Class (P & P24/48/72 ..... 08/15
606 Concrete Overlays (Waterproofing: Latex) 08/15
607 Detectable Sidewalk Warning Pavers 08/15
608 Elastomeric Bearing Pads 08/15
609 Flowable Fill 08/15
610 Manhole Steps 08/15
611 Pipe (RCP) 08/15
612 Precast (Nonstructural) 08/15
613 Precast (Structural) 08/15
614 Precast (Right-of-Way Markers, Vehicle Stops, & Concrete Armoring Units) 08/15
615 Prestress 08/15

700 GEOTECHNICAL

701 General Notes 08/15
702 Geotechnical Borrow 08/15
703 Geotechnical Embankments 08/15
704 Chemically Stabilized Subgrades 08/15
705 Subgrades 08/15
706 Topsoil 08/15

800 LIQUID ASPHALT

801 General Notes 08/15
802 Asphalt Curing Seal (RS2, SS-1H, & SS-1) 08/15
803 Asphalt Mastic 08/15
804 Asphalt Mop Coat (Waterproofing) 08/15
805 Asphalt Seal Coat (HFRS-2 & RS-2) 03/16
806 Butyl Rubber Sealants 08/15
807 Emulsified Asphalts (Non-Polymer) 08/15
808 Fiberglass Asphalt Waterproofing Membrane (One-Step Membrane) 08/15
809 Hot-Poured Elastic Joint Sealers 08/15

800 LIQUID ASPHALT (cont.)

810 Layered, Fiber-Reinforced Waterproofing Membrane (Fiberglass One-Step Membrane, Layer Fiber-Reinforced Membrane, & Polypropylene Waterproofing Membrane) 08/15
811 Liquid Asphalt for Cold-Patching Mixtures (AE-200) 08/15
812 Liquid Asphalt for Cold-Patching Mixtures (KP-4 & KP-6) 08/15
813 Longitudinal Joint Adhesive 08/15
814 Performance-Graded (PG) Binders 08/15
815 Polymer Asphalt Emulsions (CSS-1HL & CRS-2P) 03/16
816 Preformed Compression Joint Sealers (Neoprene) 08/15
817 Preformed Expansion Joint Sealers (Neoprene) 08/15
818 Rubber Gaskets 08/15
819 Silicone Rubber Sealant (One Component, Non-Sag, & Self-Leveling) 08/15
820 Silicone Rubber Sealant (Two Component, Rapid Cure) 08/15
821 Traffic Loop Encapsulant 08/15

900 PHYSICAL

901 General Notes 08/15
902 Bolts (A325), Nuts, & Washers (for Bridges) 08/15
903 Bolsters - Plastic 08/15
904 Cable Rope Median Barriers (HTC System) 08/15
905 Conduit – Rigid Steel & PVC 08/15
906 Dowels, Plain (for Pier Caps) 08/15
907 Dowels, Plain (Pavement, Coated) 08/15
908 Deformed Tie Bars & Dowels 08/15
909 Erosion Control—Erosion Control Blanket 08/15
910 Erosion Control—Fertilizer 08/15
911 Erosion Control—Mulch, Straw 08/15
912 Erosion Control—Silt Fence 08/15
913 Erosion Control—Silt Trap Type “C” Bags 08/15
914 Erosion Control—Seed, Temporary & Permanent 08/15
915 Erosion Control—Wildflower Seed 08/15
916 Erosion Control—Sod (KY Bluegrass or Tall Fescue) 08/15
917 Erosion Control—Turf Reinforcement Mat 08/15
918 Fabric-Wrapped Backfill Drains 08/15
919 Fencing Materials 08/15
920 Gabions & Mattress Units 08/15
921 Gabion & Mattress Interlocking Fasteners 08/15
922 Geotextiles 08/15
923 Gray Iron Castings, AASHTO M105 ..... 08/15
924 Guardrail & Temporary Guardrail 08/15
925 Guardrail End Treatments 08/15
926 Handrail, Metal, Types A, B, & C 08/15
927 Hook Bolts for PCC Pavement (Coated) 08/15

900 PHYSICAL (cont.)

928 Load Transfer Assemblies 08/15
929 Manhole Adjusting Rings – HDPE 08/15
930 Pile Points 08/15
931 Pipe Corrugated Metal & Slotted Drain Pipe 08/15
932 Pipe Fittings—Ductile, Cast Iron, Encasement 08/15
933 Pipe—HDPE Pipe M252 (Underdrains, Edge Drains, Etc.) 08/15
934 Pipe—HDPE Pipe M294 (Type S) for Entrances, Cross Drains, Storm Sewer, & Culverts 08/15
935 Pipe—PVC AASHTO M 304 ..... 08/15
936 Posts, Sign (Types I & II) 08/15
937 Posts, Metal Sign (Structural Shapes) 08/15
938 Preformed Expansion Joint Fillers – Sponge Rubber Type I, Cork Type II, Self-Expanding Cork Type III (AASHTO M 153) 08/15
939 Preformed Expansion Joint Fillers – Bituminous Fiber (AASHTO M 213) 08/15
940 Reinforcing Strips (for Reinforced Earth Walls) 08/15
941 Reinforcing Steel, Uncoated 08/15
942 Reinforcing Steel, Epoxy-Coated 08/15
943 Reinforcing Steel Splices (Welded or Mechanical) 08/15
944 Sign Sheeting Substrate 08/15
945 Stay-In-Place Forms 08/15
946 Strand (Pre- & Post-Tensioning) 08/15
947 Structural Steel (Frames, Grates, Lids, ASTM A-36) 08/15
948 Structural Plate for Armored Edge, Pipes, & Pipe Arches 08/15
949 Timber, Treated (Posts, Poles, Piling, Structural Timber, Offset Blocks, Etc.) 08/15
950 Welder, Shielded Metal Arc 08/15
951 Wire, Steel (Reinforcement) 08/15
952 Wire, Steel, Welded Fabric (Pavement Protection, Paved Ditches, Retaining Walls, Etc.) 08/15
953 Wire, Steel, Welded Fabric (Concrete Pipe & Precast Products) 08/15

1000 CONSTRUCTION

1001 General Notes 08/15
1002 Ash Trays, Asphalt Shingle, Etc. (See Remarks) 08/15
1003 Caulking, Mortar & Related Components, and Pipe & Fittings (Cast Iron, Copper, & Transite) 08/15
1004 Ceramic Tile & Adhesives 08/15
1005 Dielectric Coupling, Floor Drain, Etc. 08/15
1006 Doors 08/15
1007 Hardware 08/15
1008 Hollow Metal 08/15
1009 Interior/Exterior Building Paint 08/15
1010 Lighting Fixtures 08/15
1011 Sealers 08/15

1000 CONSTRUCTION (cont.)
1012 Utility Appurtenances (Permanent & Temporary) 08/15
1013 Windows 08/15
1014 Wiring Devices 08/15

1100 ELECTRICAL
1101 General Notes 08/15
1102 Wiring & Conduit (Ducted & Messenger Cable) 08/15

1200 INDEPENDENT ASSURANCE SAMPLING
1201 General Notes 08/15
1202 Identifying IAS Contracts 08/15
1203 Materials Requiring IAS 08/15

MATERIALS FIELD SAMPLING	***Chapter*** INTRODUCTION
	Subject Design of This Manual

ORGANIZATION & NUMBERING

Chapter Title—The subject matter in the manual is divided into chapters. The title appears in the upper right-hand corner of the first page of a subject and in the upper left-hand corner of any subsequent page.

Subject Title—The title of a subject appears in the upper right-hand corner of the first page of a subject and in the upper left-hand corner of any subsequent page.

"MFS" Prefix—Preceding each subject number, this prefix stands for the manual title *Materials Field Sampling*.

Date—The latest issuance date of a subject appears at the bottom of each page of the subject. This date agrees with the latest issuance date shown for the subject in the Table of Contents (**MFS-01**).

Page Numbering—Each subject has its own page numbering, which appears at the bottom of each page.

TABLE OF CONTENTS

This index lists the titles of the manual's chapters and their subjects, as well as other information, in numerical order. It includes the latest issuance dates of all the subjects. As the manual matures, these dates change.

CROSS-REFERENCES IN MANUAL

Subject Numbers within Narrative—A subject number within the narrative on a page directs the user to more information about the subject.

MATERIALS FIELD SAMPLING	***Chapter*** INTRODUCTION
	Subject Purpose & Scope

The Division of Materials prepared this manual to outline practices for the sampling, inspection, testing, acceptance, and verification of materials in highway work. If information in this manual conflicts with the *Kentucky Standard Specifications for Road and Bridge Construction*, the Specifications shall take precedence in all cases.

This manual has been prepared for the guidance of field engineers and inspectors. Together with the Specifications, Special Provisions, Special Notes, Project Proposals, Plans, and SiteManager Materials, this manual outlines the practices for sampling and testing materials to ascertain whether materials and related highway work conform to the applicable specifications. The Division of Materials maintains a *List of Approved Materials* (LAM) that is available on the website indicated below. The Division of Materials also maintains the *Kentucky Qualified Technicians and Laboratory* (KQTL) database. Access to this database is permitted for authorized users only.

This manual describes the Kentucky Transportation Cabinet (KYTC) Quality Assurance Program (QAP). The QAP is a requirement for federal-aid projects and is instituted to provide KYTC assurance that the materials and workmanship incorporated into each project on the National Highway System (NHS) are in conformity with the requirements of the approved Plans and Specifications, including approved changes. The QAP must meet the criteria in 23 Code of Federal Regulations (CFR) 637.

The frequencies specified in this manual are contained in SiteManager Materials and are normal requirements to determine the acceptability of materials under normal conditions. The responsible engineer or inspector is expected to perform additional inspection or testing when required to meet specific project needs; he or she may also reduce inspection or testing when it can be justified according to specific project situations and approved by the Director of the Division of Materials.

Frequencies for sampling and testing are maintained in SiteManager Materials on a “global” basis and are applied to specific contracts when materials are generated. The “global” frequencies are then modified for contract-specific applications by the district materials engineer. A “Sampling Checklist Report” is available in SiteManager Materials and is a tool that determines the current status of sampling and testing on a contract. This report is accessed as follows: Site Manager Main Panel/Materials Management/Process List/Sampling Checklist.

In addition to establishing procedures for acceptance of materials, this manual outlines the independent assurance sampling and testing requirements for construction projects. This manual also describes procedures for acceptance of miscellaneous materials or products used in building construction.

This manual is maintained and available on the Division of Materials' website at:

http://transportation.ky.gov/Materials/Pages/default.aspx

If you have questions about information located in this manual, please contact:

Central Office, Division of Materials
1227 Wilkinson Boulevard
Frankfort, KY 40601
Phone: (502) 564-3160
Fax: (502) 564-7034

For hard copies of this manual, please contact:

Organizational Management Branch
Transportation Cabinet Office Building
6th Floor West
200 Mero Street
Frankfort, KY 40622
Phone: (502) 564-4610

Note: This manual supersedes the June 10, 2008 edition of this manual and is effective with contracts let on or after August 19, 2015.

Disclaimer: This manual assumes no liability on the part of the Kentucky Transportation Cabinet.

MATERIALS FIELD SAMPLING

Chapter

INTRODUCTION

Subject

Acceptance Requirements for Materials & Products

1. Acceptance samples are taken and tests performed to determine whether the quality of the materials and the quality of the work into which the materials are incorporated conform to the plans and specifications. There are five different types:

   a. Samples taken and tested at the construction site by construction personnel or materials personnel and results submitted to the district materials engineer (DME)

   b. Samples taken at the construction site by construction or materials personnel and tested at the district laboratory or division laboratory with numerical results obtained for the required tests

   c. Samples taken by materials personnel at the production or processing plant, shipping point, or other source of origin remote from the project and tested at the district laboratory, division laboratory, or at the point of sampling

   d. Samples taken and tested by the manufacturer or supplier and certificates supplied indicating conformance with specifications

   e. Samples taken and tested by contractor personnel with verification performed by construction or materials personnel

   Note: Personnel responsible for acceptance sampling or testing on construction projects will be properly qualified.

2. The rate and frequency of sampling, testing, etc. specified in SiteManager Materials are applicable to each individual project. However, if a quantity of a material is to be used on more than one project, the sampler may eliminate duplicate sampling by applying the appropriate quantity to each project.

3. All sampling entries shall show the name and identification number of the person performing the sampling.

4. Certifications for materials do not require notarization, unless otherwise specified in this manual. When certifications are submitted from the field, the responsible engineer shall ensure that the certification conforms to the applicable requirements.

5. When sampling or testing is specified to be performed by the district materials engineer, it shall mean that the district materials engineer or a representative from the office of the district materials engineer.

6. Unless otherwise designated, whenever "lot" is used to define the rate and frequency of sampling and testing in this manual, it is intended to mean the quantity of material contained in an individual shipping release or shipping order which may consist of several individual deliveries.

7. "Roadway" (as it concerns the frequency of sampling and testing) is any number of driving lanes not separated by a median. Whenever the frequency of sampling and testing is specified on a "per roadway" basis and a dividing median is involved, samples shall be taken and tests performed both right and left of the median in the driving lane at the rate specified.

8. When "shipment" is used to define the rate and frequency of sampling and testing in this manual, it is intended to mean an individual transport or other vehicle quantity.

9. SiteManager Materials is the Cabinet's materials database, and all project samples will be entered into and completed in SiteManager Materials.

10. This manual adopts and utilizes the definitions contained in Section 101 of the *Kentucky Transportation Cabinet (KYTC) Standard Specifications for Road and Bridge Construction,* current edition. The definitions and terms in this manual are intended to be compatible and complementary to the definitions and terms contained in Section 101 of the *KYTC Standard Specifications for Road and Bridge Construction,* current edition.

11. The following terms are important to the understanding of the KYTC Quality Assurance Program (QAP) and all factors leading to KYTC's determination of the quality of the product as specified in the contract requirements. These factors include construction inspection, verification sampling and testing of contractor quality control sampling and testing, acceptance sampling and testing, and an independent assurance program, all meeting the requirements of 23 CFR 637 for federal-aid projects on the National Highway System (NHS).

    a. Quality Control (QC)—The sum total of activities performed by the contractor to ensure the end product meets the contract requirements; also known as process control

    b. Quality Acceptance (QA)— Consists of all planned and systematic actions necessary, including construction inspection and contract administration, to provide adequate confidence that a product or service will satisfy specified requirements for quality; serves to provide confidence in the contract requirements, which include materials handling and construction procedures, calibration and maintenance of equipment, production process control, and any sampling, testing, and inspection performed by the department for these purposes.

c. Verification Sampling and Testing—The sampling and testing to be performed by qualified KYTC personnel to assure contractor quality control sampling and testing to be included in the acceptance and payment of materials and workmanship has been validated

d. Independent Assurance Sampling and Testing Program—Sampling and testing conducted to provide an unbiased and independent evaluation of all sampling and testing procedures used in the acceptance program

e. Qualified Sampling and Testing Personnel—Personnel who are qualified by KYTC and who are capable as defined by KYTC's Quality Assurance Program to perform specified testing

f. Qualified Laboratories—Department-approved laboratories used for sampling and testing of materials

g. Dispute Resolution Process—The process in Section 113.07 (B) of the *Kentucky Standard Specifications for Road and Bridge Construction*, current edition, used when the contractor's quality control test results and the department's verification test results are not within the specified tolerances, and a dispute is therefore unavoidable.

MATERIALS FIELD SAMPLING	*Chapter* AGGREGATE
	Subject General Notes

All aggregate samples shall be obtained at the last practical point prior to incorporation into the finished product or work.

Quality samples shall be obtained during the process of the work on the project or product if possible. Coarse aggregates require two identically obtained samples (one for verification to be held at the district). The district shall not take samples more than one month prior to the use of the material.

Small Quantity—This quantity is based on individual test frequencies. If planned quantity is one-tenth or less (or otherwise stated) of the standard test frequency, the material may be accepted by visual inspection for that property.

Visual Inspection—Visual acceptance of aggregate must be documented in the project file. If the material is not visually acceptable, a sample must be collected, logged, and tested for the properties in question.

Quantity Overage Acceptance—Quantities exceeding the original engineer's estimate by 10 percent or less require no further testing and may be accepted visually. Document visual acceptance in the project file.

Independent Assurance Sample—**MFS-1200**, "Independent Assurance Sampling," explains these sampling guidelines.

The District Materials Lab is responsible for:

- Determining acceptance of all aggregate used in the district
- Assigning a roving inspector to periodically inspect active sources in the *List of Approved Materials* (LAM)
- Ensuring that quality samples are taken during the process of the work on the project or product
- Performing all testing (as outlined in the *Materials Guidance Manual*) and submitting all samples for quality to the Division of Materials
- Making contract modification for sampling and testing requirements
- Obtaining required aggregate samples
- Obtaining Freeze-Thaw Aggregate, Polish-Resistant Aggregate, and Lime Certifications when requested

Section Engineer Office is responsible for:

- Obtaining required aggregate acceptance samples
- Obtaining quality samples when requested by the District Materials Lab or the Division of Materials
- Performing visual inspections for dry sieve analysis and quality at the project daily
- Performing density testing and recording the results
- Obtaining Freeze-Thaw Aggregate, Polish Resistant Aggregate, and Agricultural Limestone Certifications when required

Tests normally performed at the District Materials Lab include:

- Clay Lumps
- Clay Lumps and Friable Particles
- Crushed Particles
- Density
- Dry Sieve Analysis
- Flat and Elongated
- Minus No. 200 Wash Test
- Uncompacted Voids
- Visual Aggregate Gradation
- Visual Aggregate Quality
- Sand Equivalent
- Shale
- Specific Gravity and Absorption of Coarse Aggregates
- Specific Gravity and Absorption of Fine Aggregates
- Unit Weight
- Wet Sieve

Tests normally performed at the Materials Central Lab (MCL) include:

- Chemical Analysis for Polish-Resistant Roadway Samples
- Coarse and Fine Aggregate Quality
- Plasticity Limit Index (performed by Geotechnical Branch, Division of Structural Design)

The Division of Materials Central Office may be contacted at:

Aggregate Section Supervisor
1227 Wilkinson Blvd.
Frankfort KY 40601
Phone: (502) 564-3160
Fax: (502) 564-7034

The following table shall be referenced in the following sections for Sampling Method and Size, unless otherwise noted. **Note:** When quality samples are required, the quality sample size shall be 2 bags of aggregate (50-60 pounds each): 1 for MCL quality testing and 1 for retention for retest if necessary.

Sample Size

Nominal Maximum Size of Particles		Minimum Mass of Field Samples	
mm	in	kg	lbs
9.5 or smaller	3/8 or smaller	10	22
12.5	1/2	15	35
19.0	3/4	25	55
25.0	1	50	110
37.5	1 1/2	75	165
50.0	2	100	220
63.0	2 1/2	125	275
75.0	3	150	330
90.0	3 1/2	175	385

Notes: For processed aggregates, use the nominal maximum size as indicated by the appropriate specification or description. If the specification or description does not indicate a nominal maximum size (for example, a sieve size indicating 90-100 percent passing), use the maximum size (sieve indicating 100 percent passing).

For combined coarse and fine aggregates (for example, base or subbase aggregate), the minimum weight shall be coarse aggregate minimum mass plus 10 kilograms.

Materials Field Sampling

Chapter

AGGREGATE

Subject

Aggregate for Polymer Concrete Overlays (High-Friction Surface & Bridge Deck Overlays)

Inspector Qualification

Samplers shall be Kentucky Qualified Aggregate Sampling Technicians.

Testers shall be Kentucky Qualified Aggregate Technicians.

Sampling Frequency

One per project

Sampling Method

AASHTO T 2
(approximately 50-60 pounds)

Section Engineer

Section Office

Verify that the aggregate producer is listed on the *List of Approved Materials* (LAM) as the aggregate supplier for the approved polymer concrete overlay system. Obtain certification letter per aggregate source per project. Verify that gradation meets specification from the DME prior to placement.

District Materials Engineer (DME)

District Materials Lab

Obtain quality samples, along with certification letter, and send them to the Materials Central Laboratory (MCL) for testing as required.

Remarks

In order to accommodate testing on the components of each polymer concrete overlay system, the contractor shall notify the department of the date of delivery of polymer concrete overlay components to the jobsite or staging area. MCL shall verify acceptable properties of the component materials of each system within 15 business days after receipt of the samples.

Any change in system components will require resampling and retesting in order to proceed with the project.

REMARKS (CONT.) The use of nonprocessed, reclaimed aggregate shall not be permitted without verification of applicable material properties.

MFS-503 provides details on sampling binder components of polymer concrete overlay systems.

Materials Field Sampling

Chapter	AGGREGATE
Subject	Agricultural Limestone

Inspector Qualification Samplers shall be Kentucky Qualified Aggregate Sampling Technicians.

Sampling Frequency One per shipment

Sampling Method AASHTO T 2
Sample size – 15 pounds (suspect material only)

Section Engineer Section Office

Obtain and file the certification letter from the Kentucky Department of Agriculture in the project file per shipment per source delivered to the project.

Ensure that the certification letter from the Department of Agriculture is current and dated within nine months of the date the material was delivered.

Visually inspect the material and document visual acceptance in the project file. If unsuitable material is rejected, obtain a sample and contact the DME or the Materials Central Laboratory (MCL). Refer to Section 827.02 of the *Standard Specifications*.

Do not allow the use of material delivered to the project without a current certification letter.

Assess necessary weight penalties according to KRS 250.670.

District Materials Engineer (DME) District Materials Lab

If material does not have a current certification letter or is visually suspect, obtain information and sample from the section office. Enter sample information in SiteManager and submit the sample to MCL for quality testing. Do not use the material until passing test results have been obtained.

REMARKS

The Department of Agriculture sends each licensed source a letter showing the latest test results and any appropriate weight penalty. The agricultural limestone source shall provide a copy of this letter (current within 9 months of project delivery) to the section office for inclusion in the project file.

To obtain information on the necessary procedures, sources requesting inclusion on the Department of Agriculture's licensed list should contact:

Department of Agriculture
Division of Regulation and Inspection
107 Corporate Drive
Frankfort, KY 40601
Phone: (502) 573-0282

MATERIALS FIELD SAMPLING	*Chapter* AGGREGATE
	Subject Asphalt Mix Aggregates

INSPECTOR QUALIFICATION

Samplers shall be Kentucky Qualified Aggregate Sampling Technicians.

Testers shall be Kentucky Qualified Aggregate Technicians.

SAMPLING FREQUENCY

Quality samples are required for every 50,000 tons of mixture per line item per project per contract for each coarse and fine aggregate used in the mixture.

Small Quantity – If the planned quantity of asphalt mixture is less than 5,000 tons per line item per project per contract, the aggregate may be accepted by visual inspection of the stockpiles. Document the visual acceptance in the project file.

SAMPLING METHOD

AASHTO T 2
(No samples required for reclaimed asphalt pavement [RAP], shingles, mineral filler, etc.)

SECTION ENGINEER

Section Office

For polish-resistant surface mixtures, obtain and file the polish-resistant certification letter which can be found at the following website:

http://transportation.ky.gov/materials/pages/Aggregates.aspx

Prior to placement of the mixtures, ensure that aggregates to be incorporated into asphalt mixtures are from an approved source and mix design.

DISTRICT MATERIALS ENGINEER (DME)

District Materials Lab

Review the mix designs for valid polish-resistant aggregate proportions and confirm that all sources are listed on the *List of Approved Materials* (LAM) prior to approving mix design.

DISTRICT MATERIALS ENGINEER (DME) (CONT.)

Visually inspect all stockpiles prior to and during production of asphalt mixtures for contamination and segregation. Obtain quality samples, log them into SiteManager, and refer to the sampling checklist. Submit samples to the Materials Central Laboratory (MCL) for testing.

REMARKS

The Division of Materials waves testing for crushed particles when all aggregate is quarried material.

For sand equivalent testing, the department does not require individual contract testing when past experience indicates the sand equivalent of the aggregates substantially exceeds the minimum requirements. The DME may so certify for normal contract distribution and documentation.

Materials Field Sampling

Chapter

AGGREGATE

Subject

Asphalt Mix Roadway Samples for Polish-Resistant Applications

Inspector Qualification

Samplers shall be Kentucky Qualified Aggregate Sampling Technicians.

Testers shall be Kentucky Qualified Aggregate Technicians.

Sampling Frequency

One per project

Sampling Method

AASHTO T 2
Sample size 1 bag – each polish-resistant coarse aggregate

KM 64-439 – Roadway samples
Sample size – 7,500-10,000 grams

Section Engineer

Section Office

None

District Materials Engineer (DME)

District Materials Lab

Obtain the roadway sample from the paving hopper on the project site at the time of placement of the asphalt mixture. Record the lane and station number where the asphalt mixture was placed at the time the sample was taken. Sample size shall be 7,500 to 10,000 grams.

For each coarse polish-resistant aggregate used in the asphalt mix, obtain one bag from the stockpile at the asphalt plant.

Log the roadway sample into SiteManager and refer to the sampling checklist. Record the lane, station number, and the time the sample was taken in the Remarks section when creating the ID. Record the producer of the sample as the asphalt plant that produced the mixture. Include a copy of the asphalt mix design with the sample. Forward sample and asphalt mix design to the Materials Central Laboratory (MCL) for testing.

DISTRICT MATERIALS ENGINEER (DME) (CONT.)

Ensure each bag of coarse polish-resistant aggregate is labeled with the SiteManager ID number that corresponds to the roadway sample ID.

REMARKS

Ensure that the roadway sample, coarse polish-resistant aggregate, and a copy of the asphalt mix design are submitted simultaneously to MCL.

Materials Field Sampling

Chapter	AGGREGATE
Subject	Base Aggregates

INSPECTOR QUALIFICATION

Samplers shall be Kentucky Qualified Aggregate Sampling Technicians.

Testers shall be Kentucky Qualified Aggregate Technicians.

Density testers shall be qualified Grading Level I Technicians.

SAMPLING FREQUENCY

Quality samples are required every 50,000 tons or a fraction thereof.

Wet sieve analysis samples are required every 2,000 tons or a fraction thereof.

Shale tests are required every 50,000 square yards, or a fraction thereof, per line item per project and may be accepted by visual inspection if the line item per project is less than 5,000 square yards.

Sand equivalent testing is required once every 25,000 tons, or a fraction thereof, per line item per project.

Small Quantity – Aggregate may be accepted by visual inspection when less than 10 percent of the sample frequency per line item per project is used. Document the visual acceptance in the project file.

Independent Assurance Sample (IAS) – Required for every 20,000 tons or a fraction thereof. No IAS sample is required if the bid quantity is less than 10,000 tons per line item per contract.

Measure the thickness of the base aggregate per 1,000 linear feet per roadway. Thickness measurements are to be made after compaction.

Note: Some bid line item pay units may not be established in tons. In those cases, the frequency has been established by the Materials Central Laboratory (MCL) by converting the frequency listed above to the frequency for those line item pay units. If the section office or district materials lab determines the frequency is incorrect, contact MCL.

SAMPLING METHOD AASHTO T2

All samples shall be taken from the last practical point, which is usually at the project site prior to compaction.

Note: Samples shall be obtained behind the spreading equipment before compaction. Ensure that the sample is not obtained in the tire or track path of the equipment.

SECTION ENGINEER Section Office

Prior to placement, ensure that the aggregate is from an approved source that is listed on the department's *List of Approved Materials (*LAM). Notify the DME prior to the beginning of placement. Ensure that the mixing plant (pugmill) has been approved by the department. Do not allow placement until approval is obtained.

Perform density control strip testing to ensure that maximum density is achieved during compaction. Perform density measurements for the remainder of the project according to Section 302.03.04 of the *Standard Specifications*. Record results and retain in the project file. Complete the Excel spreadsheet (*Nuclear Density*) found at:

http://transportation.ky.gov/Materials/Pages/SiteManager.aspx

Place the completed Nuclear Density spreadsheet in the project file.

Control strip and field density testing must be performed according to Section 302.03.04 of the *Standard Specifications*.

Measure the thickness of the base aggregate and record results and station number where the measurement was taken in the Daily Work Report (DWR) for that day's placement.

Log samples into SiteManager and deliver with appropriate information to the district materials lab for testing.

If the base aggregate appears to have too much moisture, obtain a sample to determine the moisture content and contact the DME office.

DISTRICT MATERIALS ENGINEER (DME)

District Materials Lab

Contact the aggregate source to notify them that the mixing plant (pugmill) must be inspected and approved prior to delivering any material to the project. Inspect aggregate source once every two years after initial approval. Complete TC 64-761 form, *CSB & DGA Mixing Plant Inspection Report*, when conducting the inspection. (See Remarks.)

Perform wet sieve test (**KM 64-606** and AASHTO T 27 or AASHTO T 11 and T 27) to determine the percentage of shale on project acceptance samples that the section office has taken. Record results in SiteManager. If the sample does not meet specification, perform a verification test on the remaining sample. Record the second test, if required, in SiteManager and determine if the average of the two tests meets specification. If a sample does not meet specification, complete the *Contractor Notification of Non-Specification Material Incorporated into State Work* located at:

http://transportation.ky.gov/Materials/Documents/tc%2064-757.docx

Follow Section 805.15 of the *Standard Specifications*.

Perform sand equivalent test according to AASHTO T 176 and record results in SiteManager.

If a sand equivalent test fails to meet specifications, create an ID for plastic testing in SiteManager and send the sample to the Geotechnical Branch of the Division of Structural Design.

IAS testing must be performed according to **KM 64-112**. Enter results in SiteManager for the correct base material and complete the form located at:

http://transportation.ky.gov/Materials/Pages/IAS-Sampling-and-Testing.aspx

Distribute the form as required.

REMARKS

Upon completion of the TC 64-761 form, distribute a copy to each of the following: the section office, contractor, DME, Division of Construction, and the Division of Materials for federal-aid projects.

Moisture testing may be performed at the mixing plant (pugmill) or roadway if necessary.

MATERIALS FIELD SAMPLING

Chapter

AGGREGATE

Subject

Concrete Aggregates for Pavement or Base

INSPECTOR QUALIFICATION

Samplers shall be Kentucky Qualified Aggregate Sampling Technicians.

Testers shall be Kentucky Qualified Aggregate Technicians.

SAMPLING FREQUENCY

Quality samples are required every 100,000 square yards, or a fraction thereof, and may be accepted by visual inspection if a line item per project is less than 10 percent of the test frequency (10,000 square yards).

Dry sieve analysis samples are required every 12,000 square yards, or a fraction thereof, per line item per project and may be accepted by visual inspection when a line item per project is less than 1,200 square yards.

Minus #200 wash test samples are required every 12,000 square yards, or a fraction thereof, per line item per project and may be accepted by visual inspection when a line item per project is less than 1,200 square yards.

Sand equivalent tests are required every 50,000 square yards, or a fraction thereof, per line item per project and may be accepted by visual inspection if the line item per project is less than 5,000 square yards.

Shale tests are required every 100,000 square yards, or a fraction thereof, per line item per project and may be accepted by visual inspection if the line item per project is less than 10,000 square yards.

Specific gravity and absorption tests are required for each aggregate used in the concrete mix per contract.

Independent Assurance Sample (IAS) – Samples are required for every 120,000 square yards, or a fraction thereof. No IAS sample is required if the bid quantity is less than 50,000 square yards per line item per contract.

SAMPLING METHOD AASHTO T 2

All samples shall be taken from the last practical point before the concrete mix is produced (for example, from the stockpiles at the concrete plant).

SECTION ENGINEER Section Office

Obtain the name of the aggregate sources from the approved concrete mix design prior to placement on the project. Verify the aggregate source is listed on the *List of Approved Materials* (LAM) Concrete Restriction List prior to placement.

Inform the DME's office of anticipated concrete pours within a sufficient amount of time to allow for required sampling and testing of aggregate.

Obtain and file freeze-thaw certification prior to placement, if required. The certification letter can be found on the Division of Materials' webpage at:

http://transportation.ky.gov/materials/pages/Aggregates.aspx

When requested, obtain samples for testing and deliver to the DME office.

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

Verify that the aggregate sources listed on the concrete mix design are listed on the LAM Concrete Restriction List. Contact the aggregate producer to confirm the bench or ledge from which the coarse aggregate was produced. Verify the bench or ledge information with the Materials Central Laboratory (MCL) to confirm that it meets freeze-thaw requirements.

Inspect the stockpiles for contamination and segregation.

Log the samples into SiteManager and refer to the sampling checklist.

Perform dry sieve analysis (AASHTO T 27).

Perform Minus #200 wash test (**KM 64-606** or AASHTO T 11).

Perform shale test (**KM 64-604**).

DISTRICT MATERIALS ENGINEER (DME) (CONT.)

Perform a sand equivalent test on the fine aggregate (AASHTO T 176).

Perform specific gravity and absorption tests on the fine aggregate according to **KM 64-605** and the coarse aggregate according to AASHTO T85. Provide results to the concrete and aggregate producers.

Record all test results in SiteManager. If the sample does not meet specification, perform a verification test on the remaining sample. Record the second test, if required, in SiteManager and determine if the average of the two tests meets specification. If a sample does not meet specification, complete the *Contractor Notification of Non-Specification Material Incorporated into State Work* located at:

http://transportation.ky.gov/Materials/Documents/tc%2064-757.docx

Follow Section 805.15 of the *Standard Specifications*. If the test has been performed prior to any placement of concrete on the project, condemn the stockpile and perform resample when a new stockpile has been created.

IAS testing must be performed according to **KM 64-112**. Enter results for the correct base material in SiteManager and complete the form located at:

http://transportation.ky.gov/Materials/Pages/IAS-Sampling-and-Testing.aspx

Distribute the form as required.

Obtain a quality sample, if applicable, and log it into SiteManager. Refer to the sampling checklist. Send sample to MCL for testing.

REMARKS

Samples for coal and lignite testing shall be sent to MCL for testing when necessary.

The average of recent test results for use on the mix design report or recent results from MCL may be used to supplement the DME's tests.

Material should be tested and approved for alkali-carbonate reactivity (minimum 9-month test time) and freeze-thaw (minimum 3-month test time) prior to use. These tests are not performed concurrently.

Materials Field Sampling

Chapter	AGGREGATE
Subject	Concrete Pipe Aggregate

Inspector Qualification

Samplers shall be Kentucky Qualified Aggregate Sampling Technicians.

Testers shall be Kentucky Qualified Aggregate Technicians.

Sampling Frequency

Quality samples are required quarterly.

Sampling Method

AASHTO T 2

Section Engineer

Section Office

None

District Materials Engineer

District Materials Lab

Inspect the stockpiles for contamination and segregation.

Verify that the aggregates are from an approved source.

Perform testing on aggregates when requested by the pipe producer.

Each quarter, obtain quality samples for every aggregate to be used by the pipe producer and log them into SiteManager. Ensure that the sample type is listed as "Informational." Deliver the sample, with ID, to the Materials Central Laboratory (MCL) for testing. Provide results to the concrete pipe producer.

If the proposed aggregate is not approved for freeze-thaw applications as shown on the *List of Approved Materials* (LAM) Concrete Restriction List, contact the MCL Aggregate Section. Do not allow use of the aggregate without approval from MCL.

REMARKS

Requirements for sand equivalent, gradation, uncompacted voids, and minus #200 wash tests are waived.

When pipe is manufactured, the latest approval tests should be current to within 6 months.

Material should be tested and approved for alkali-carbonate reactivity (minimum 9-month test time) and freeze-thaw (minimum 3-month test time) prior to use. These tests are not performed concurrently.

Materials Field Sampling

Chapter	AGGREGATE
Subject	Concrete Precast Products

Inspector Qualification

Samplers shall be Kentucky Qualified Aggregate Sampling Technicians.

Testers shall be Kentucky Qualified Aggregate Technicians.

Sampling Frequency

Quality samples are required every 6 months for aggregate producers that are listed on the *List of Approved Materials* (LAM).

Quality samples are required every 3 months for aggregate producers that are not listed on the LAM.

Dry sieve analysis (AAHTO T 27) testing is required once per month for each aggregate during production.

Minus #200 wash test (**KM 64-606** or AASHTO T 11) testing is required once per month for each aggregate during production.

Sand equivalent test on the fine aggregate (AASHTO T 176) is required once per month for each aggregate during production.

Sampling Method

AASHTO T 2

Section Engineer

Section Office

None

District Materials Engineer (DME)

District Materials Lab

Obtain quality samples for every aggregate used and log into SiteManager. Ensure the sample type selected is "Informational." Deliver the sample with ID to the Materials Central Laboratory (MCL) for testing. Provide test results to the concrete precast producer.

DISTRICT MATERIALS ENGINEER (DME) (CONT.)

Verify that the aggregates are from an approved source.

Perform dry sieve analysis (AASHTO T 27).

Perform Minus #200 wash test (**KM 64-606** or AASHTO T 11).

Perform a sand equivalent test on the fine aggregate (AASHTO T 176).

Log all samples into SiteManager. Ensure that the sample type selected is "Informational." Record all test results in SiteManager and provide the test results to the producer.

Inspect the stockpiles for contamination and segregation.

REMARKS

Material shall be tested and approved for alkali-carbonate reactivity (minimum 9-month test time) and freeze-thaw (minimum 3-month test time) prior to use. These tests are not performed concurrently.

Contact MCL when the aggregate producer is not listed on the LAM Concrete Restriction List for freeze-thaw applications to verify that the aggregate is approved prior to production.

Materials Field Sampling

Chapter	AGGREGATE
Subject	Concrete Prestressed Products

Inspector Qualification

Samplers shall be Kentucky Qualified Aggregate Sampling Technicians.

Testers shall be Kentucky Qualified Aggregate Technicians.

Sampling Frequency

Quality samples are required every 6 months for aggregate producers that are listed on the *List of Approved Materials* (LAM).

Quality samples are required every 3 months for aggregate producers that are not listed on the LAM.

Dry sieve analysis (AASHTO T 27) testing is required once per month for each aggregate during production.

Minus #200 wash test (**KM 64-606** or AASHTO T 11) is required once per month for each aggregate during production.

Sand equivalent test on the fine aggregate (AASHTO T 176) is required once per month for each aggregate during production.

Sampling Method

AASHTO T2

Section Engineer

Section Office

None

District Materials Engineer (DME)

District Materials Lab

Obtain quality samples for every aggregate used and log into SiteManager. Ensure that the sample type selected is "Informational." Deliver the sample with ID to the Materials Central Laboratory (MCL) for testing. Provide test results to the concrete precast producer.

DISTRICT MATERIALS ENGINEER (DME) (CONT.)

Verify that the aggregates are from an approved source.

Perform dry sieve analysis (AASHTO T 27).

Perform Minus #200 wash test (**KM 64-606** or AASHTO T 11).

Perform a sand equivalent test on the fine aggregate (AASHTO T 176).

Log all samples into SiteManager. Ensure that the sample type selected is "Informational." Record all test results in SiteManager and provide the results to the producer.

Inspect the stockpiles for contamination and segregation.

REMARKS

Contact MCL when the aggregate producer is not listed on the LAM Concrete Restriction List to verify that the aggregate is approved prior to production.

MATERIALS FIELD SAMPLING

Chapter

AGGREGATE

Subject

Concrete Aggregates for Structural & Incidental Use

INSPECTOR QUALIFICATION

Samplers shall be Kentucky Qualified Aggregate Sampling Technicians.

Testers shall be Kentucky Qualified Aggregate Technicians.

SAMPLING FREQUENCY

Quality samples are required for every type and size used in the concrete mix for every 5,000 cubic yards, or a fraction thereof. Material may be accepted by visual inspection if a line item per project is less than 500 cubic yards.

Dry sieve analysis samples are required every 200 cubic yards, or a fraction thereof, per line item per project and may be accepted by visual inspection when a line item per project is less than 20 cubic yards.

Minus #200 wash test samples are required every 200 cubic yards, or a fraction thereof, per line item per project and may be accepted by visual inspection when a line item per project is less than 20 cubic yards.

Sand equivalent tests are required every 5,000 cubic yards, or a fraction thereof, per line item per project and may be accepted by visual inspection if the line item per project is less than 50 cubic yards.

Shale tests are required every 5,000 cubic yards, or a fraction thereof, per line item per project and may be accepted by visual inspection if the line item per project is less than 50 cubic yards.

Specific gravity and absorption tests are required for each aggregate used in the concrete mix per contract.

Independent Assurance Sample (IAS) – Required for every 2,000 cubic yards, or a fraction thereof. No IAS sample is required if the bid quantity is less than 1,500 cubic yards per line item per contract.

Note: The base unit for determining the frequency for the fine and coarse aggregates is based on the unit, in cubic yards, listed above. For pay units that are not established in cubic yards, MCL has completed calculations to reflect what is listed on the sampling checklist.

SAMPLING METHOD AASHTO T 2

All samples shall be obtained from the last practical point before the aggregate is incorporated into the mix (for example, from the stockpile at the concrete plant).

SECTION ENGINEER Section Office

Verify that the aggregate source from the approved concrete mix design is listed on the *List of Approved Materials* (LAM) Concrete Restriction List prior to placement.

Inform the DME's office of anticipated concrete pours within a sufficient amount of time to allow for required sampling and testing of aggregate.

If applicable, obtain and file the freeze-thaw certification prior to placement on the project. The certification letter can be found on the Division of Materials webpage at:

http://transportation.ky.gov/materials/pages/Aggregates.aspx

When requested, obtain samples and deliver them to the DME office.

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

Verify that the aggregate sources on the concrete mix design are listed on the LAM Concrete Restriction List. Contact the aggregate producer to confirm the production ledge or bench.

Inspect the stockpiles for contamination and segregation.

Log all samples into SiteManager and refer to the sampling checklist.

Perform dry sieve analysis (AASHTO T 27).

Perform Minus #200 wash test (**KM 64-606** or AASHTO T 11).

Perform shale test (**KM 64-604**).

Perform a sand equivalent test on the fine aggregate (AASHTO T 176).

DISTRICT MATERIALS ENGINEER (DME) (CONT.)

Perform specific gravity and absorption tests on the fine aggregate according to **KM 64-605** and on the coarse aggregate according to AASHTO T 85. Log the results into SiteManager and provide the results to the concrete and aggregate producer.

Record all test results in SiteManager. If the sample does not meet specification, split a second test from the remaining sample and perform a verification test. Record all test results and determine if the average of the two tests meets specification. If a sample does not meet specification, complete the *Contractor Notification of Non-Specification Material Incorporated into State Work* located at:

http://transportation.ky.gov/Materials/Documents/tc%2064-757.docx

If the test has been performed prior to any placement, condemn the stockpile and resample when new aggregate has been stockpiled.

IAS testing must be performed according to **KM 64-112**. Enter results for the correct material in SiteManager and complete the form located at:

http://transportation.ky.gov/Materials/Pages/IAS-Sampling-and-Testing.aspx

Distribute the form as required.

Obtain a sample for quality testing and create a SiteManager ID, and refer to the sampling checklist. Deliver the sample to the Materials Central Laboratory (MCL) for testing.

Obtain samples for coal and lignite testing and deliver to MCL for testing when necessary.

REMARKS

An average of recent test results for use on the mix design report or recent results from MCL may be used to supplement the DME's tests.

Materials Field Sampling

Chapter

AGGREGATE

Subject

Drainage Blanket
(Treated & Untreated)

Inspector Qualification

Samplers shall be Kentucky Qualified Aggregate Sampling Technicians.

Testers shall be Kentucky Qualified Aggregate Technicians.

Sampling Frequency

Quality samples are required every 50,000 tons, or a fraction thereof. Material may be accepted by visual inspection if a line item per project is less than 5,000 tons.

Dry sieve analysis samples are required every 2,000 tons, or a fraction thereof, per line item per project and may be accepted by visual inspection when a line item per project is less than 200 tons.

Minus #200 wash test samples are required every 2,000 tons, or a fraction thereof, per line item per project and may be accepted by visual inspection when a line item per project is less than 200 tons.

Shale tests are required every 50,000 tons, or a fraction thereof, per line item per project and may be accepted by visual inspection if the line item per project is less than 5,000 tons.

Specific gravity and absorption tests for aggregate used in cement-treated drainage blanket are required once per contract.

Sampling Method

AASHTO T 2

Section Engineer

Section Office

Verify that the aggregate sources are listed on the *List of Approved Materials* (LAM).

Inform the DME's office of anticipated concrete pours in sufficient time to allow for required sampling and testing of aggregate.
Obtain samples, log samples into SiteManager, and refer to the sampling checklist. Deliver samples to the DME or MCL, as appropriate, for testing.

Inspect the stockpiles for contamination and segregation.

DISTRICT MATERIALS ENGINEER (DME)

District Materials Lab

Verify that the aggregate sources are listed on the LAM. For cement-treated drainage blanket, verify that the aggregate source listed on the concrete mix design is listed on the LAM Concrete Restriction List.

Inspect the stockpiles for contamination and segregation.

Log all samples into SiteManager, refer to the sampling checklist.

Perform dry sieve analysis (AASHTO T 27).

Perform Minus #200 wash test (**KM 64-606** or AASHTO T 11).

Perform shale test (**KM 64-604**).

Perform specific gravity and absorption tests on the fine aggregate according to **KM 64-605** and the coarse aggregate according to AASHTO T 85.

If the sample does not meet specification, perform a verification test on the remaining sample. Record the second test, if required, in SiteManager, and determine if the average of the two tests meets specification. If a sample does not meet specification, complete the *Contractor Notification of Non-Specification Material Incorporated into State Work* located at:

http://transportation.ky.gov/Materials/Documents/tc%2064-757.docx

Follow Section 805.15 of the *Standard Specifications*. If the test has been performed prior to any placement, condemn the stockpile and resample when new aggregate has been stockpiled.

Obtain a quality sample and log it into SiteManager. Refer to the sampling checklist. Deliver to MCL for testing.

REMARKS

None

Materials Field Sampling

Chapter

AGGREGATE

Subject

Epoxy-Sand Slurry Mixtures & Epoxy Seal Coats

Inspector Qualification

Samplers shall be Kentucky Qualified Aggregate Sampling Technicians.

Testers shall be Kentucky Qualified Aggregate Technicians.

Sampling Frequency

Sources on the *List of Approved Materials* (LAM) may be accepted by visual inspection for quality.

Sources not on the LAM require one sample to be tested and approved prior to project use for quality.

Dry sieve analysis samples are required once prior to the beginning of the project.

Sampling Method

AASHTO T 2

Section Engineer

Section Office

Verify the aggregate producer is listed on the LAM.

If the aggregate is visually suspect, obtain a sample and log it into SiteManager. Send the sample to the DME for testing. Do not allow use of the aggregate until passing results have been obtained.

District Materials Engineer (DME)

District Materials Lab

Upon request, assist the section office to determine if the aggregate producer appears on the LAM.

Perform dry sieve analysis prior to use and forward results to the section engineer (SE).

Submit the sample to the Materials Central Laboratory (MCL) for quality testing when the aggregate producer is not listed on the LAM.

REMARKS Samples taken from bags should be properly prepared for testing (by being passed through a splitter) in an effort to minimize segregation.

Materials Field Sampling

Chapter

AGGREGATE

Subject

Erosion Control Aggregates (Channel Lining, Cyclopean Stone, Rip Rap, Dumped Stone, Gabion Stone, & Slope Protection)

Inspector Qualification

Samplers shall be Kentucky Qualified Aggregate Sampling Technicians.

Testers shall be Kentucky Qualified Aggregate Technicians.

Sampling Frequency

Visually inspect each shipment.

Sampling Method

None

Section Engineer

Section Office

Prior to placement, verify that the aggregate producer is listed on the *List of Approved Materials* (LAM). If the aggregate producer is not on the LAM, contact the DME or the Materials Central Laboratory (MCL). Do not accept material from a producer who is not on the LAM. (See Remarks.)

Visually inspect the material for contamination and ensure that it meets the requirements listed in Section 805 of the *Standard Specifications*. Document the visual inspection in the project file.

District Materials Engineer (DME)

District Materials Lab

Upon request, assist the section office to determine if an aggregate producer is listed on the LAM.

Visually inspect aggregate stockpiles at the source or project site for contamination and segregation. Assist with visual inspections on the project when requested.

Remarks

Onsite material may be used with prior approval from the Division of Construction and the Division of Materials on a case-by-case basis. In these instances, the producer does not have to be listed on the LAM.

MATERIALS FIELD SAMPLING	*Chapter* AGGREGATE
	Subject Free-Draining Bedding & Backfill

INSPECTOR QUALIFICATION

Samplers shall be Kentucky Qualified Aggregate Sampling Technicians.

Testers shall be Kentucky Qualified Aggregate Technicians.

SAMPLING FREQUENCY

Visually inspect aggregate stockpiles and material delivered daily.

SAMPLING METHOD

AASHTO T 2 (only when visually suspect)

SECTION ENGINEER

Section Office

Obtain the producer's name from the contractor and the size of aggregate that will be used.

Visually inspect stockpiles and delivered material. Ensure that the aggregate conforms to Section 805.07 of the *Standard Specifications*. Document the visual inspection in the project file.

If the aggregate is not visually acceptable, collect a sample and log it into SiteManager. Deliver the sample to the DME's office for testing.

DISTRICT MATERIALS ENGINEER (DME)

District Materials Lab

Upon request, assist the section office with visual inspection of the stockpiles or delivered aggregate.

Perform testing as required for visually suspect material and record the results in SiteManager.

REMARKS

Aggregate is not required to be from a source listed on the *List of Approved Materials* (LAM).

Materials Field Sampling

Chapter	AGGREGATE
Subject	Granular Embankment

Inspector Qualification	Samplers shall be Kentucky Qualified Aggregate Sampling Technicians. Testers shall be Kentucky Qualified Aggregate Technicians.
Sampling Frequency	Visually inspect aggregates daily.
Sampling Method	AASHTO T 2 (only when visually suspect)
Section Engineer	Section Office Visually inspect aggregate and obtain sample for visually suspect material.
District Materials Engineer (DME)	District Materials Lab Assist section office, when requested, with visual inspection of aggregate.
Remarks	None

Materials Field Sampling

Chapter	AGGREGATE
Subject	Masonry Stone

Inspector Qualification	Samplers shall be Kentucky Qualified Aggregate Sampling Technicians. Testers shall be Kentucky Qualified Aggregate Technicians.
Sampling Frequency	Visually inspect each shipment delivered to the project.
Sampling Method	AASHTO T 2
Section Engineer	Section Office Visually inspect each shipment. If the material is suspect, notify the DME's office and obtain a quality sample. Log sample into SiteManager, refer to the sampling checklist, and send to the Materials Central Laboratory (MCL) for testing.
District Materials Engineer (DME)	District Materials Lab When contacted by the section office, assist with visual inspection. Obtain a sample if visually suspect. Deliver the sample to MCL for quality testing.
Remarks	Aggregate producer is not required to be on the *List of Approved Materials* (LAM).

Materials Field Sampling

Chapter	AGGREGATE
Subject	Mortar Sand

Inspector Qualification

Samplers shall be Kentucky Qualified Aggregate Sampling Technicians.

Testers shall be Kentucky Qualified Aggregate Technicians.

Sampling Frequency

Obtain one quality sample per project prior to use.

Dry sieve analysis samples are required once prior to project.

Sampling Method

AASHTO T 2

Samples shall be collected from the project site or other location where the mortar is mixed.

Section Engineer

Obtain samples and visually inspect the aggregate for segregation and contamination. Log each sample into SiteManager. Assign samples for dry sieve analysis to the DME lab, and samples for quality to the Materials Central Laboratory (MCL) for testing. Deliver the samples with sample labels to the DME office.

Do not allow use of the material until testing has been completed and the material has been approved for use.

District Materials Engineer (DME)

District Materials Lab

Inspect or sample the aggregate when requested by the section office.

Perform dry sieve analysis according to AASHTO T 27 and determine acceptability according to Section 804.05 of the *Standard Specifications*. Deliver the quality sample for quality testing with label to MCL.

Provide test results to the section office.

Remarks

Aggregate producer is not required to be listed on the *List of Approved Materials* (LAM).

MATERIALS FIELD SAMPLING	*Chapter* AGGREGATE
	Subject Pipe Bedding & Sand for Blotter

INSPECTOR QUALIFICATION

Samplers shall be Kentucky Qualified Aggregate Sampling Technicians.

Testers shall be Kentucky Qualified Aggregate Technicians.

SAMPLING FREQUENCY

Dry sieve analysis samples are required every 13,333 linear feet, or a fraction thereof, per line item per project. Material may be accepted by visual inspection when a line item per project is less than 1,333 linear feet.

Sand equivalent testing is required for every 166,666 linear feet or a fraction thereof. Material may be accepted by visual inspection if a line item per project is less than 16,666 linear feet.

Visually inspect the aggregate daily and document acceptance in the project file.

SAMPLING METHOD

AASHTO T 2

SECTION ENGINEER

Section Office

Verify that the aggregate producer is listed on the *List of Approved Materials* (LAM) prior to placement from the contractor.

Visually inspect the aggregates for segregation and contamination.

Obtain samples, if required. Log into SiteManager and refer to the sampling checklist. Deliver the samples, with sample labels, to the DME office for testing.

DISTRICT MATERIALS ENGINEER (DME)

District Materials Lab

Perform dry sieve analysis (AASHTO T 27).

Perform a sand equivalent test on the fine aggregate (AASHTO T 176).

Record results in SiteManager. If the sample does not meet specification, perform a verification test on the remaining sample. Record the second test, if required, in SiteManager and determine if the average of the two tests meet specification. If a sample does not meet specification, complete the *Contractor Notification of Non-Specification Material Incorporated into State Work* located at:

http://transportation.ky.gov/Materials/Documents/tc%2064-757.docx

Follow Section 805.15 of the *Standard Specifications* for coarse aggregate and Section 804.10 for fine aggregate.

Visually inspect the aggregates on the project site when requested.

REMARKS

None

Materials Field Sampling

Chapter	AGGREGATE
Subject	Quicklime & Hydrated Lime

Inspector Qualification	None
Sampling Frequency	One per shipment
Sampling Method	ASTM C 50 (suspect material only)
Section Engineer	Section Office
	Verify the source is listed on the *List of Approved Materials* (LAM).
	Obtain manufacturer's certification per shipment. Place certification in project file.
	Submit sample to the Materials Central Laboratory (MCL) for chemical testing (suspect material only).
District Materials Engineer	District Materials Lab
	None
Remarks	None

Materials Field Sampling

Chapter

AGGREGATE

Subject

Rock Drainage Blanket, Structure Granular Backfill, & Reinforced Fill Materials

Inspector Qualification

Samplers shall be Kentucky Qualified Aggregate Sampling Technicians.

Testers shall be Kentucky Qualified Aggregate Technicians.

Sampling Frequency

Obtain one quality sample if the aggregate producer is not listed on the *List of Approved Materials* (LAM).

Visually inspect the aggregate daily for rock drainage blanket or structural granular backfill. Document acceptance in the project file.

For reinforced fill material applications, obtain one sample per project prior to use for the following:

- Dry sieve analysis
- Shale test
- Chemical analysis

Sampling Method

AASHTO T 2

Section Engineer

Section Office

Obtain the name of the aggregate source from the contractor and confirm that the source is listed on the LAM.

Visually inspect the aggregate daily for segregation, contamination, and quality according to Section 805 of the *Standard Specifications*.

Obtain a sample of aggregate when the aggregate producer is not listed on the LAM prior to use on the project. Log sample into SiteManager. Assign the dry sieve analysis and shale test samples to the DME lab and the quality and chemical test samples to the Materials Central Laboratory (MCL). Deliver the samples, along with sample labels, to the DME office for testing. Do not allow use of the material until acceptable results are obtained.

DISTRICT MATERIALS ENGINEER (DME)	District Materials Lab
	Visually inspect the aggregate when requested by the section office.
	Perform dry sieve analysis (AASHTO T 27).
	Perform shale test (**KM 64-604**).
	Provide test results to the section office.
REMARKS	None

MATERIALS FIELD SAMPLING

Chapter	AGGREGATE
Subject	Sand Drainage Blanket

INSPECTOR QUALIFICATION

Samplers shall be Kentucky Qualified Aggregate Sampling Technicians.

Testers shall be Kentucky Qualified Aggregate Technicians.

SAMPLING FREQUENCY

Visually inspect the aggregate daily and document acceptance in the project file.

SAMPLING METHOD

AASHTO T 2 (only when visually suspect)

SECTION ENGINEER

Section Office

Obtain the name of the aggregate sources and sizes to be used from the contractor and notify DME. Verify aggregate is being produced from an approved source. Visually accept aggregate.

If the aggregate is not visually acceptable, collect a sample, log it into SiteManager, and refer to the sampling checklist. Notify DME's office of visually suspect material. Forward the sample to the Materials Central Laboratory (MCL) for quality testing.

DISTRICT MATERIALS ENGINEER (DME)

District Materials Lab

Inspect stockpiles for segregation and contamination.

Upon request, assist section office with visual acceptance or testing of aggregate.

REMARKS

None

Materials Field Sampling

Chapter

AGGREGATE

Subject

Seal Coat Aggregate (Chip Seal)

Inspector Qualification

Samplers shall be Kentucky Qualified Aggregate Sampling Technicians.

Testers shall be Kentucky Qualified Aggregate Technicians.

Sampling Frequency

Quality samples are required for every type and size used of every 50,000 tons, or a fraction thereof, per line item per project. Material may be accepted by visual inspection if a line item per project is less than 5,000 tons.

Dry sieve analysis samples are required every 2,000 tons, or a fraction thereof, per line item per project. Material may be accepted by visual inspection when a line item per project is less than 200 tons.

Minus #200 wash test samples are required every 2,000 tons, or a fraction thereof, per line item per project. Material may be accepted by visual inspection when a line item per project is less than 200 tons.

Sampling Method

AASHTO T 2

Sample size 1 bag – each aggregate

Section Engineer

Section Office

Obtain the name of the aggregate producer from the contractor and verify that the producer is listed on the *List of Approved Materials* (LAM). If the producer is not listed on the LAM, notify the DME or the Materials Central Laboratory (MCL) to confirm.

Prior to placement, obtain a sample, or request the DME office to obtain a sample, for each type of aggregate that will be utilized on the project. Log samples into SiteManager and refer to the sampling checklist for each size of aggregate used. Deliver samples to the DME office for testing. Do not allow use of the aggregates until passing test results have been obtained.

SECTION ENGINEER (CONT.)

Inspect the aggregate stockpile and shipments for segregation, contamination, and gradation differences.

DISTRICT MATERIALS ENGINEER (DME)

District Materials Lab

Assist the section office, when requested, to determine if the aggregate producer is listed on the LAM.

Obtain the name of the aggregate producer and the size of the aggregates from the section office. Inspect the aggregate for segregation, contamination, and gradation differences.

Obtain a sample when requested by the section office and log into SiteManager.

Perform dry sieve analysis (AASHTO T 27).

Perform Minus #200 wash test (**KM 64-606** or AASHTO T 11).

Notify the section office of the results once testing is complete. If a sample does not meet specification according to Section 805 of the *Standard Specifications*, do not allow use of the material.

REMARKS

None

MATERIALS FIELD SAMPLING

Chapter

AGGREGATE

Subject

Traffic Bound Uses

INSPECTOR QUALIFICATION

Samplers shall be Kentucky Qualified Aggregate Sampling Technicians.

Testers shall be Kentucky Qualified Aggregate Technicians.

SAMPLING FREQUENCY

Visually inspect the aggregate once every 50,000 tons, or a fraction thereof, and document acceptance in the project file.

SAMPLING METHOD

AASHTO T 2 (only when visually suspect)

SECTION ENGINEER

Section Office

Verify that the aggregate producer is listed on the *List of Approved Materials* (LAM). If the producer is not listed on the LAM, notify the DME or Materials Central Laboratory (MCL) to confirm.

Visually inspect the aggregate for segregation and contamination.

DISTRICT MATERIALS ENGINEER (DME)

District Materials Lab

Upon request, assist the section office to determine if the aggregate producer is on the LAM.

Visually inspect the aggregate for segregation and contamination.

REMARKS

None

Materials Field Sampling

Chapter

AGGREGATE

Subject

Underdrain & Lateral Drain Aggregates

Inspector Qualification

Samplers shall be Kentucky Qualified Aggregate Sampling Technicians.

Testers shall be Kentucky Qualified Aggregate Technicians.

Sampling Frequency

Visually inspect aggregate daily.

Sampling Method

AASHTO T 2 (only when visually suspect)

Section Engineer

Section Office

Obtain the name of the aggregate sources and sizes to be used from the contractor and notify DME. Verify aggregate is being produced from an approved source. Visually accept aggregate and document in the project file.

If the aggregate is not visually acceptable, collect a sample and log it into SiteManager. Refer to the sampling checklist. Notify the DME office of visually suspect material. Forward the sample to the Materials Central Laboratory (MCL) for quality testing.

District Materials Engineer (DME)

District Materials Lab

Visually inspect stockpiles for segregation and contamination.

Upon request, assist section office—with visual acceptance of the aggregate.

Perform required sampling, if requested by section engineer.

Remarks

None

MATERIALS FIELD SAMPLING

	Chapter ASPHALT MIXTURES
	Subject General Notes

The contractor performs quality control sampling and testing of asphalt mixtures used in the acceptance decision for the determination of the appropriate pay value as described in Section 402 of the *Standard Specifications*. KYTC personnel perform verification sampling and testing to verify that the contractor's quality control sampling and testing are adequate to be used in the acceptance decision as described in 23 CFR 637.

One lot of material is considered 4,000 tons or any portion thereof if that portion is the remainder of the project total for the specific type of asphalt mixture being placed. One sublot of material is considered 1,000 tons or any portion thereof if that portion is the remainder of the project total for the specific type of asphalt mixture being placed.

A Superpave Plant Technologist (SPT) is an inspector qualified by the KYTC to perform routine inspection and process control, acceptance, or verification testing on asphalt mixtures. A Superpave Mix Design Technologist (SMDT) is an inspector qualified by the KYTC to submit, adjust, or approve mix designs. An individual with the SMDT qualification is also considered to be qualified as an SPT. Only KYTC SPTs and SMDTs may perform verification sampling and testing.

The *Asphalt Mixtures Acceptance Workbook* (AMAW) is an Excel spreadsheet utilized for documenting inspection information, test results, pay factors, and remarks. This information is electronically transferred into SiteManager Materials for database storage and queries. All verification sampling and testing results must be entered into the AMAW and SiteManager Materials by a qualified KYTC representative. Qualified contractor personnel have access to enter quality control sampling and testing results into the AMAW.

Compaction options A and B describe the density requirements for the asphalt mixture being placed. The requirements corresponding to these options are specified in Subsection 402.03.02 of the *Standard Specifications*. Compaction option A or B for density will be specified in the contract.

Superpave mixtures, including stone matrix asphalt (SMA) mixtures, are defined as any asphalt mixture placed on mainline, shoulders, ramps, approaches, entrances, cross-over, or medians that could be used for turning.

Specialty mixtures are defined as any asphalt mixture used for:

- Leveling-and-Wedging
- Scratch Course
- Base Failure Repair
- Maintenance (price contract), Trenching, Incidental, or Temporary Applications
- Open-Graded Friction Course (OGFC)
- Asphalt-Treated Drainage Blanket (ATDB)
- Asphalt Wedge Curb and Mountable Medians
- Sand Asphalt Type I
- Sand Asphalt Type II
- Sand Seal Surface
- Slurry Seal
- Microsurfacing

For aggregate utilized in asphalt mixtures, refer to **MFS-203**.

For performance-graded (PG) binder utilized in asphalt mixtures, refer to **MFS-814**.

For independent assurance sampling and testing for Superpave mixtures, perform tests for asphalt mixture volumetrics only. For independent assurance sampling and testing for specialty mixtures, perform tests for asphalt binder content (AC) and gradation on ATCB only. Refer to **MFS-1200**, "Independent Assurance Sampling," for the applicable testing frequency.

At the discretion of the district, the primary responsibility for asphalt mixture verification may be shifted from the district materials engineer to the section engineer.

For any questions pertaining to this information, contact:

Asphalt Branch Manager
Kentucky Transportation Cabinet
Department of Highways
Division of Materials
1227 Wilkinson Boulevard
Frankfort, KY 40601-1226

Phone: 502-564-3160
Fax: 502-564-7034

MATERIALS FIELD SAMPLING	*Chapter* ASPHALT MIXTURES
	Subject Microsurfacing

INSPECTOR QUALIFICATION

None

KYTC will use a qualified Superpave Plant Technologist (SPT) or Superpave Mix Design Technologist (SMDT) to perform verification testing.

SAMPLING FREQUENCY

Emulsified Asphalt – Obtain samples of the polymer modified emulsion at a frequency of one sample per production day.

Mixture gradation (contractor) – Obtain a minimum of 3,500 grams of the mixture aggregate at a frequency of one sample per production day.

Mixture gradation (department) - Obtain a minimum of 3,500 grams of the mixture aggregate at a frequency of one sample per four days of production, with a minimum of one sample per production period.

SAMPLING METHOD

The aggregate utilized in the microsurfacing mixture shall be obtained in accordance with AASHTO T 2; however, contrary to AASHTO T 2, obtain a minimum sample of 3,500 grams.

SECTION ENGINEER

Section Office

Obtain an emulsified asphalt sample. Create an ID in SiteManager, and refer to the sampling checklist. Deliver the sample, along with a copy of the certification and sample label, to the DME or MCL.

When requested, obtain samples for the aggregates to be tested by the DME or MCL. Create an ID in SiteManager, refer to the sampling checklist, and deliver the sample to the DME or MCL for testing.

Obtain the contractor quality control test data from the contractor's representative for each day of production and retain in the project files. Also provide a copy to the Asphalt Mixture Testing Section of the Division of Materials for inclusion into the approved mix design folder for all the mixture gradation test results performed by the contractor's representative.

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

Obtain samples of the aggregates. Create an ID in Site Manager and refer to the sampling checklist. Perform testing and record the results.

Ensure that the Asphalt Mixture Testing Section of the Division of Materials receives a copy of all the mixture gradation test results performed by the contractor's representative.

Submit the emulsified asphalt samples, the sample label, and the certification according to AASHTO M 208, to MCL for testing.

REMARKS None

MATERIALS FIELD SAMPLING	*Chapter* ASPHALT MIXTURES
	Subject Specialty Mixtures

INSPECTOR QUALIFICATION

The contractor's qualified Superpave Plant Technologist (SPT) or Superpave Mix Design Technologist (SMDT) shall be present at the asphalt mixing plant during the production of asphalt mixtures. The SPT or SMDT shall perform routine inspections, process control operations, and oversee the quality control sampling and testing that will be used in the acceptance decision.

KYTC will use a qualified SPT or SMDT to perform verification sampling and testing.

SAMPLING FREQUENCY

For asphalt mixture quality control testing, contractor personnel shall obtain and test a minimum of one quality control sample for asphalt binder content and gradation per sublot. The results from this test may be used in the acceptance decision (See Subsection 402.03.02 of the *Standard Specifications.*)

For asphalt mixture verification testing, KYTC personnel shall obtain and test a minimum of one verification sample for asphalt content and gradation per lot. The results from this test are used to verify the contractor's quality control sampling and testing results (as discussed in Subsection 402.03.03 of the *Standard Specifications*).

For asphalt mixtures with a total contract quantity of less than 1,000 tons, visual acceptance is permitted.

SAMPLING METHOD

For the random tonnage selection of plant-produced asphalt mixtures for AC and gradation testing, conform to **KM 64-113**, "Sampling Materials by Random Number Sampling."

For sampling plant-produced asphalt mixtures for AC and gradation testing, conform to **KM 64-425**, "Sampling Asphalt Mixtures."

SECTION ENGINEER Section Office

The section office will assist district materials lab personnel with verification testing and *Asphalt Mixtures Acceptance Workbook* (AMAW) information when necessary.

DISTRICT MATERIALS ENGINEER District Materials Lab

The district materials lab shall furnish a qualified SPT or SMDT to verify the contractor's quality control sampling and testing results that may be used in the acceptance decision (a minimum of one sublot per lot). The contractor and KYTC personnel will enter the mixture inspection and testing information into the AMAW as appropriate for transfer into SiteManager Materials by KYTC personnel.

Ensure that the contractor utilizes the AMAW version applicable to the contract specifications. The AMAW spreadsheets are available from the Division of Material's website at:

http://transportation.ky.gov/Materials/Pages/SiteManager.aspx

Once the lot or contract is completed, whichever comes first, transfer the AMAW into SiteManager Materials.

REMARKS District KYTC personnel will not perform solvent extractions.

MATERIALS FIELD SAMPLING

Chapter	ASPHALT MIXTURES
Subject	Superpave & SMA Mixtures

INSPECTOR QUALIFICATION

The contractor's qualified Superpave Plant Technologist (SPT) or Superpave Mix Design Technologist (SMDT) shall be present during the production of asphalt mixtures in order to perform routine inspection and process control and acceptance testing at the asphalt mixing plant.

KYTC will use a qualified SPT or SMDT to perform verification testing.

SAMPLING FREQUENCY

For asphalt acceptance testing, contractor personnel shall perform a minimum of one acceptance test for mixture volumetrics per sublot (as discussed in Subsection 402.03.02 of the *Standard Specifications*).

For asphalt mixture verification, KYTC personnel shall verify a minimum of one of the contractor's acceptance tests for mixture volumetrics per lot (as discussed in Subsection 402.03.03 of the *Standard Specifications*).

For asphalt mixtures with a total contract quantity of less than 500 tons, visual acceptance is permitted.

SAMPLING METHOD

For the random tonnage selection of plant-produced asphalt mixtures for volumetric testing and the random location selection of density cores, conform to **KM 64-113**, "Sampling Materials by Random Number Sampling."

For sampling plant-produced asphalt mixtures for volumetric testing, conform to **KM 64-425**, "Sampling Asphalt Mixtures."

For obtaining and testing density cores, conform to **KM 64-442**, "Method for Coring and Determining Percent of Solid Density of In-Place, Compacted, Asphalt Mixture Courses."

SECTION ENGINEER

Section Office

The section office will assist the district materials lab with verification (mixture volumetrics), acceptance, (core density) testing, and Asphalt Mixtures Acceptance Workbook (AMAW) information when necessary.

SECTION ENGINEER (CONT.)

Considering core density for Compaction Option A mixtures, section office personnel shall randomly select four locations per sublot from the driving lanes for each type of mixture and shall randomly select two locations per sublot from the longitudinal joint for surface mixtures. The contractor shall obtain one density core at each location identified by the section office. All cores shall be taken in the presence of KYTC personnel. Section office personnel shall obtain the core from the contractor as soon as it is removed from the core machine. KYTC personnel must retain custody of the density core sample at all times after it is removed from the roadway. If the core is to be sawn for the correct thickness that was placed, KYTC personnel must witness the sawing of the core by the contractor and retain custody of the core sample afterwards. Ensure the cores are placed in front of a fan, secured on KYTC property, to allow moisture to be removed. After the cores have been dried, deliver the cores to the district materials lab personnel for testing.

DISTRICT MATERIALS ENGINEER

District Materials Lab

The district materials lab shall furnish a qualified SPT or SMDT to verify the contractor's acceptance test (a minimum of one sublot per lot) and perform acceptance testing of density cores for Compaction Option A mixtures (four lane cores for each type of mixture and two joint cores for surface mixtures per sublot) as according to **KM 64-442**, "Method for Coring and Determining Percent of Solid Density of In-Place, Compacted, Asphalt Mixture Courses."

The contractor and KYTC personnel will enter the mixture inspection and testing information into the AMAW as appropriate for transfer into SiteManager Materials by KYTC personnel.

Ensure that the contractor utilizes the AMAW version applicable to the contract specifications. The AMAW spreadsheets are available from the Division of Material's website at:

http://transportation.ky.gov/Materials/Pages/SiteManager.aspx

Once the lot or contract is completed, whichever comes first, transfer the AMAW into SiteManager Materials.

REMARKS

District KYTC personnel will not perform solvent extractions.

MATERIALS FIELD SAMPLING	***Chapter*** CEMENT
	Subject General Notes

If you have questions about information located in **MFS-400**, “Cement,” contact:

Concrete/Physical Properties Section Supervisor
Central Office, Division of Materials
1227 Wilkinson Boulevard
Frankfort, Kentucky 40601
Phone: 502-564-3160

MATERIALS FIELD SAMPLING

Chapter	CEMENT
Subject	Portland Cement (All Types)

INSPECTOR QUALIFICATION

None

SAMPLING FREQUENCY

Structural, overlay, and incidental mixtures: one sample per 1,300 cubic yards, or a fraction thereof

Pavement mixtures: one sample per 12,000 square yards, or a fraction thereof

Pavement drainage blanket (cement treated): one sample per 24,000 square yards, or a fraction thereof

Subgrade stabilization: one sample per 1,000 tons of cement used, or a fraction thereof

Precast/prestressed plants: one sample monthly

Concrete pipe plants: one sample quarterly

Small quantity (except overlays) – At the option of the engineer, 50 cubic yards or less for structural or nonstructural, and 500 square yards or less for pavement will not require a sample, provided certification is obtained.

See Remarks.

SAMPLING METHOD

Cement – **KM 64-316**

Sample size is a one-gallon plastic container.

SECTION ENGINEER

Section Office

Obtain the bill of lading, along with signed certification stating that the cement conforms to specifications.

SECTION ENGINEER (CONT.)

Ensure that the cement producer listed on the bill of lading is listed on the *List of Approved Materials* (LAM). If the producer is not listed on the LAM, contact the DME or the Materials Central Laboratory (MCL). Do not allow use of the cement.

Obtain the cement sample. Create an ID in SiteManager and refer to the sampling checklist. Send the sample, sample label, and a copy of the bill of lading and signed certifications to the DME's office. Record the bill of lading in SiteManager under the batch number when creating the ID.

DISTRICT MATERIALS ENGINEER (DME)

District Materials Lab

Upon request, assist the section office to determine if the producer is listed on the LAM.

When obtaining a cement sample, follow the steps listed above for the section office. For samples taken at precast, prestress, and concrete plants, create an ID in SiteManager as "Informational" for sample type.

Forward the sample to MCL. Ensure that the sample has a sample label and a copy of the bill of lading and the certification.

REMARKS

This material may be an ingredient material for other bid items having a different sampling unit. The units associated with this material were used to calculate the sampling frequency where units were different. Notify the DME or MCL if discrepancies are noted.

Materials Field Sampling

Chapter

CEMENT

Subject

Concrete Patching Material
(Rapid, Very Rapid, Overhead, & Vertical)

Inspector Qualification None

Sampling Frequency Obtain certification per shipment per source.

Sampling Method None

Section Engineer Section Office

Obtain signed certification per shipment stating the product conforms to specifications.

Ensure that the producer and brand name are listed on the *List of Approved Materials* (LAM). If the producer or brand name is not listed on the LAM, contact the DME or the Materials Central Laboratory (MCL). The material should be rejected and not used on the project.

Ensure that the mixing of the product is in accordance with the manufacturer's recommendations.

Create an ID in SiteManager for each certification and refer to the sampling checklist. Retain in the project files.

District Materials Engineer (DME) District Materials Lab

Upon request, assist the section office to determine if the producer and brand name are listed on the LAM.

Remarks None

MATERIALS FIELD SAMPLING

Chapter

CEMENT

Subject

Curing Compound (All Types)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain certification per shipment per source.

SAMPLING METHOD None

SECTION ENGINEER Section Office

Obtain certification and verify that the producer is on the *List of Approved Materials* (LAM) and that the compounds conform to AASHTO M 148.

Review signed certification and test data (moisture loss, unit weight, reflectance for type II only) that is required to be furnished for each lot in each shipment for compliance to the following test data limits:

Moisture Loss – 0.55 kg/m^2 or 0.055 g/cm^2 (maximum)
Unit Weight – No specific requirement
Reflectance – 60% minimum

Ensure that the curing compound producer is listed on the LAM. If the producer is not listed on the LAM, contact the DME or the Materials Central Laboratory (MCL). The material should be rejected and not used on the project.

Create an ID in SiteManager for each shipment and refer to the sampling checklist.

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

None

REMARKS None

MATERIALS FIELD SAMPLING

Chapter	CEMENT
Subject	Fly Ash (All Types)

INSPECTOR QUALIFICATION

None

SAMPLING FREQUENCY

Structural, overlay, and incidental mixtures: one sample per 1,650 cubic yards, or a fraction thereof

Pavement mixtures: one sample per 12,000 square yards, or a fraction thereof

Pavement drainage blanket (cement treated): one sample per 24,000 square yards, or a fraction thereof

Subgrade stabilization: one sample per 1,000 tons, or a fraction thereof, of fly ash used

Precast/prestressed plants: one sample monthly

Concrete pipe plants: one sample quarterly

Small Quantity – At the option of the engineer, 50 cubic yards or less for structural or nonstructural and 500 square yards or less for pavement will not require a sample, provided certification is obtained.

See Remarks.

SAMPLING METHOD

Sample size is a one-gallon plastic container.

SECTION ENGINEER

Section Office

Obtain the bill of lading along with signed certification stating the fly ash conforms to specifications. Verify that the loss on ignition (LOI) is less than 3.0, in accordance with Section 844 of the *Standard Specifications*. If the LOI is greater than 3.0, contact the DME and do not accept the material produced until the issue is resolved.

SECTION ENGINEER (CONT.)

Ensure that the fly ash producer listed on the bill of lading is listed on the *List of Approved Materials* (LAM). If the producer is not listed on the LAM, contact the DME or Materials Central Laboratory (MCL). Do not allow the use of the fly ash.

Obtain the fly ash sample and create an ID in SiteManager. Refer to the sampling checklist. Send the sample, sample label, and a copy of the bill of lading and signed certifications to the DME's office. Record the bill of lading in SiteManager under the batch number when creating the ID.

DISTRICT MATERIALS ENGINEER (DME)

District Materials Lab

Upon request, assist the section office to determine if the producer is listed on the LAM.

When obtaining a fly ash sample, follow the steps listed above for the section office. For samples taken at precast, prestress, and concrete plants, create an ID in SiteManager as "Informational" for the sample type.

Forward the sample to MCL and ensure that the sample has a copy of the bill of lading and certification along with a sample label.

REMARKS

This material may be an ingredient material for other bid items having a different sampling unit. The units associated with this material were used to calculate the sampling frequency where units were different. Notify the DME or MCL if discrepancies are noted.

MATERIALS FIELD SAMPLING	*Chapter* CEMENT
	Subject Ground Granulated Blast-Furnace Slag (GGBF) Slag

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY

Structural, overlay, and incidental mixtures: one sample per 650 cubic yards, or a fraction thereof

Pavement mixtures: one sample per 6,000 square yards, or a fraction thereof

Precast/prestressed plants: one sample monthly

Concrete pipe plants: one sample quarterly

See Remarks.

SAMPLING METHOD Sample size is a one-gallon plastic container.

SECTION ENGINEER Section Office

Obtain the bill of lading, along with signed certification, stating that the ground granulated blast furnace (GGBF) slag conforms to specifications.

Ensure that the GGBF slag producer listed on the bill of lading is listed on the *List of Approved Materials* (LAM). If the producer is not listed on the LAM, contact the DME or Materials Central Laboratory (MCL) and do not allow use of the GGBF slag.

Obtain the GGBF slag sample. Create an ID in SiteManager and refer to the sampling checklist. When creating the ID, record the bill of lading in SiteManager under the batch number. Send the sample, the sample label, and a copy of the bill of lading and signed certifications to the DME's office.

DISTRICT MATERIALS ENGINEER (DME)

District Materials Lab

Upon request, assist the section office to determine if the producer is listed on the LAM.

When obtaining a GGBF slag sample, follow the steps listed above for the section office. For samples taken at precast, prestress, and concrete plants, create an ID in SiteManager as "Informational" for the sample type.

Forward the sample to MCL and ensure that the sample has a copy of the bill of lading and certification, along with a sample label.

REMARKS

This material may be an ingredient material for other bid items having a different sampling unit. The units associated with this material were used to calculate the sampling frequency where units were different. Notify the DME or MCL if discrepancies are noted.

MATERIALS FIELD SAMPLING

Chapter	CEMENT
Subject	Masonry Coating

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain certification per shipment per source.

SAMPLING METHOD None

SECTION ENGINEER Section Office

Obtain signed certification per shipment stating the product conforms to specifications.

Ensure that the producer and brand name are listed on the *List of Approved Materials* (LAM). If the producer or brand name is not listed on the LAM, contact the DME or the Materials Central Laboratory (MCL). The material should be rejected and not used on the project.

Ensure that the coating is applied in accordance with the manufacturer's recommendations.

Create an ID in SiteManager for each certification and refer to the sampling checklist. Retain certifications in the project file.

DISTRICT MATERIALS ENGINEER District Materials Lab

Upon request, assist the section office to determine if the producer and brand name are listed on the LAM.

REMARKS None

Materials Field Sampling

Chapter	CEMENT
Subject	Masonry Units (Concrete Brick, Concrete Block, & Clay Brick)

Inspector Qualification None

Sampling Frequency Obtain sample for each lot delivered to the project.

Sampling Method Sample size for concrete block: Obtain 6 blocks from each lot.

Sample size for concrete or clay brick: Obtain 10 bricks from each lot.

Section Engineer Section Office

Inspect brick and block at the point of destination for conformity to requirements for size and shape and for freedom from defects.

Note: All units should be free from cracks and other defects that would interfere with proper placing of the unit.

No overall dimension (width, depth, nor length) shall differ more than 1/8 inch from the specified standard dimension.

Obtain sample. Create an ID in SiteManager and refer to the sampling checklist. Deliver the sample to the DME's office, along with the sample label and certifications. Wait for testing to be conducted by the Materials Central Laboratory (MCL) before using the brick or block.

District Materials Engineer (DME) District Materials Lab

Submit samples to MCL for testing and relay information to the section office once testing has been completed.

Remarks None

MATERIALS FIELD SAMPLING

Chapter	CEMENT
Subject	Microsilica (All Types)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain one sample per project per brand per type.

Precast/prestressed plants: one sample monthly

Concrete pipe plants: one sample quarterly

See Remarks.

SAMPLING METHOD Sample size is a one-gallon plastic container taken from the bin or packaged material.

SECTION ENGINEER Section Office

Obtain the bill of lading along with signed certification stating that the microsilica conforms to specifications.

Ensure that the microsilica producer listed on the bill of lading is listed on the LAM. If the producer is not listed on the *List of Approved Materials* (LAM), contact the DME or Materials Central Laboratory (MCL). Do not allow the use of the microsilica.

Obtain the microsilica sample. Create an ID in SiteManager and refer to the sampling checklist. When creating the ID, record the bill of lading in SiteManager under the batch number. Send the sample, the sample label, and a copy of the bill of lading and signed certifications to the DME's office.

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

Upon request, assist the section office to determine if the producer is listed on the LAM.

DISTRICT MATERIALS ENGINEER (DME) (CONT.)

When obtaining a microsilica sample, follow the steps listed above for the section office. For samples taken at precast, prestress, and concrete plants, create an ID in SiteManager as "Informational" for sample type.

Forward the sample to MCL and ensure that the sample has a copy of the bill of lading and certification, along with a sample label.

REMARKS

This material may be an ingredient material for other bid items having a different sampling unit. The units associated with this material were used to calculate the sampling frequency where units were different. Notify the DME or MCL if discrepancies are noted.

MATERIALS FIELD SAMPLING

Chapter	CEMENT
Subject	Non-Shrink Grout

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain certification per shipment per source.

SAMPLING METHOD None

SECTION ENGINEER Section Office

Obtain signed certification per shipment that states that the product conforms to specifications.

Ensure that the producer and brand name are listed on the *List of Approved Materials* (LAM). If the producer or the brand name is not listed on the LAM, contact the DME or the Materials Central Laboratory (MCL). The material should be rejected and not used on the project.

Ensure that the mixing of the product is in accordance with the manufacturer's recommendations.

Create an ID in SiteManager for each certification and refer to the sampling checklist. Retain certifications in the project files.

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

Upon request, assist the section office to determine if the producer and brand name are listed on the LAM.

REMARKS None

Materials Field Sampling

Chapter	CHEMISTRY
Subject	General Notes

General Sampling Guidelines

In general, materials tested by the Chemical Section are representatively sampled from quantities delivered to the project per lot and prior to use.

Structural Steel Coatings

Contact the Division of Materials prior to sampling structural steel coatings.

Thermoplastic

Thermoplastic materials are available for return to the project and can be picked up by district personnel or the contractor.

Contact Information

If you have any questions about the information contained in **MFS-500**, contact:

Chemical Section Supervisor
Central Office, Division of Materials
1227 Wilkinson Boulevard
Frankfort, KY 40601

Phone: 502-564-3160

MATERIALS FIELD SAMPLING

Chapter

CHEMISTRY

Subject

Adhesive for Raised Pavement Markers

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain manufacturer's certification per delivery per source.

SAMPLING METHOD No samples are required.

SECTION ENGINEER Section Office

Obtain and review the manufacturer's certification for compliance with the contract and with all specifications for each lot of material delivered for use on the contract.

Note: The written statement provided by the manufacturer of the adhesive shall certify that the furnished material conforms to the requirements of AASHTO M 237 and shall state the minimum temperature that is required for the adhesive to be satisfactorily mixed and applied.

Allow the use of the material if the certification indicates compliance.

Retain the manufacturer's certification in the project files.

DISTRICT MATERIALS ENGINEER District Materials Lab

None

REMARKS None

MATERIALS FIELD SAMPLING	*Chapter* CHEMISTRY
	Subject Binder for Polymer Concrete Overlays (High Friction Surface & Bridge Deck Overlays)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain manufacturer's certification and a sample of each component of the binder system per batch or lot per project.

SAMPLING METHOD Ensure that the one-quart lined cans are clean and dry.

Label each sample container with the product name, component, and batch or lot number from which the sample is taken.

Seal the containers tightly to prevent leaks or moisture contamination of the materials.

SECTION ENGINEER Section Office

Obtain certification of each shipment and check to confirm that the binder producer is listed on the *List of Approved Materials* (LAM) as the binder producer for the approved polymer concrete overlay system. If the binder producer is not listed on the LAM, contact the DME or the Materials Central Laboratory (MCL) to confirm. If the producer of the binder system is not listed on the LAM and confirmed by MCL, reject the material.

Review the manufacturer's certification for compliance with the contract and all applicable specifications.

Inspect the containers and ensure that they are appropriately marked.

Create an ID in SiteManager for the binder system according to the sampling checklist for each shipment and retain the certification in the project files. Deliver the sample, a copy of the certification, and the sample label to the DME or MCL.

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

Assist the section office upon request to determine if the producer of the binder system is listed on the LAM.

Deliver the sample, manufacturer's certification, and sample label to MCL for testing.

REMARKS To accommodate testing on the components of each polymer concrete overlay system, the contractor shall notify the department of the date of delivery of polymer concrete overlay components to the jobsite or staging area. MCL shall verify acceptable properties of the component materials of each system within 15 business days after receipt of samples to MCL.

Any change in system components will require resampling and retesting in order to proceed with the project.

The use of nonprocessed reclaimed aggregate shall not be permitted without verification of applicable material properties.

MFS-202 provides details on sampling aggregate components of polymer concrete overlay systems.

MATERIALS FIELD SAMPLING

Chapter	CHEMISTRY
Subject	C881 Epoxy

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain certification per shipment.

SAMPLING METHOD No samples are required.

SECTION ENGINEER Section Office

Obtain certification for each shipment and check to confirm that the producer of the C881 epoxy is listed on the *List of Approved Materials* (LAM). If the producer is not listed on the LAM, contact the DME or the Materials Central Laboratory (MCL) to confirm. If the producer is not listed on the LAM and confirmed by MCL, reject the material.

Review the manufacturer's certification for compliance with the contract and all applicable specifications.

Inspect the containers and ensure that they are appropriately marked.

Create an ID in Site Manager for the C881 epoxy according to the sampling checklist for each shipment and retain the certification in the project files.

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

Assist the section office upon request to determine if the producer of the C881 epoxy is listed on the LAM.

REMARKS Ensure that the type, grade (viscosity), and class (usable temperature range) are appropriate for the intended use of the material.

REMARKS (CONT.) Materials received on the contract shall be identified as "Component A – Contains Epoxy Resin" and "Component B – Contains Hardener," and shall show the type, grade, class, and mixing directions. Each container shall be marked with the name of the manufacturer, lot or batch number, date of packaging, and quantity (in gallons) contained therein.

Potential hazards shall be stated on the package in accordance with the Federal Hazardous Products Labeling Acts.

Materials Field Sampling

Chapter	CHEMISTRY
Subject	Chemical Deicers (Calcium & Sodium Chloride)

Inspector Qualification

Kentucky Qualified Aggregate Sampling Technician

Sampling Frequency

Upon the request of the section office or branch manager

Sampling Method

Visually inspect the stockpiles and shipments for contaminates.

For non-liquid deicers, obtain a minimum of three metal quart cans. Obtain the sample by removing the top inch of material in the stockpile or delivery truck.

For liquid deicers, obtain a sample in a one-liter plastic bottle. Obtain the sample after purging any wash water from the transfer line and ensuring that the holding tank has been stirred in order to provide a homogeneous sample.

Section Engineer

Section Office

Provide assistance to district materials personnel upon request.

District Materials Engineer (DME)

District Materials Lab

Obtain a copy of the price contract and bill of lading, indicating quantity shipped and source of the material.

Visually inspect the material and obtain samples when requested by the section office.

Perform gradation and moisture testing using two of the quart samples of the non-liquid deicers according to **KM 64-222** or **KM 64-225**, as appropriate, and the price contract. Forward one quart sample to the Materials Central Laboratory (MCL) for analysis of chloride content.

DISTRICT MATERIALS ENGINEER (DME) (CONT.)

Determine if the test results meet the specifications found in the price contract and contact the section office with the results. Create an ID in SiteManager for the sample and enter the test results. When creating the ID, choose "Informational" as the sample type.

For liquid deicers, create an ID in SiteManager and choose "Informational" as the sample type when creating the ID. Send the sample, sample label, and bill-of-lading to MCL.

REMARKS

None

MATERIALS FIELD SAMPLING

Chapter

CHEMISTRY

Subject

Delineators (Barrier Wall Delineator & Guardrail Delineator)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain certification per shipment.

SAMPLING METHOD No samples are required.

SECTION ENGINEER Section Office

Obtain certification of each shipment and check to confirm that the producer of the delineator is listed on the *List of Approved Materials* (LAM). If the producer is not listed on the LAM, contact the DME or the Materials Central Laboratory (MCL) to confirm. If the producer of the delineator is not listed on the LAM and confirmed by MCL, reject the material.

Create an ID in SiteManager and refer to the sampling checklist. Retain the certification in the project files.

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

None

REMARKS None

Materials Field Sampling

Chapter	CHEMISTRY
Subject	Extruded Thermoplastic

Inspector Qualification Pavement Markings Inspection Technician

Sampling Frequency Obtain the manufacturer's certification per shipment per color. Obtain a sample if the total quantity for all line items exceeds 250 pounds for the contract.

Sampling Method Obtain one unopened bag of thermoplastic per color per batch number.

Perform **KM 64-201**, **KM 64-202**, or **KM 64-203** when applicable for the retroreflectivity test.

Section Engineer Section Office

Obtain and review the manufacturer's certification for compliance with the contract and all applicable specifications.

Visually inspect each bag of material to ensure that the manufacturer's lot number is clearly legible on the label.

Contact the prime contractor or subcontractor for pavement striping to determine which type of thermoplastic will be used on the project. Inform the DME and provide assistance in determining the total quantity for all thermoplastic line items for the contract. (See Remarks.)

For contracts greater than 250 pounds:

- Obtain a sample and create an ID in SiteManager. Refer to the sampling checklist. Assign the sample to all applicable line items on the contract. Send the sample to the DME or Materials Central Laboratory (MCL), along with a copy of the manufacturer's certification and the sample label.

- Retain the manufacturer's certification in the project files.

SECTION ENGINEER (CONT.)

Note: Do not allow the contractor to apply material until the sample has been tested and approved by MCL.

Perform retroreflectivity testing as according to **KM 64-201**, **KM 64-202**, and **KM 64-203** when applicable. Record and retain the results in the project files and post the results in ProjectWise in the appropriate subfolder:

- Contract ID
- Materials Certification Documents
- Pavement Striping
- Daily Striping Reports
- Data Logger Reports
- **KM 64-201**, "Intersection Handheld Retroreflectivity Reports"
- **KM 64-202**, "Long Line Handheld Retroreflectivity Reports"
- **KM 64-203**, "Mobile Retroreflectivity Reports"

DISTRICT MATERIALS ENGINEER (DME)

District Materials Lab

Contact the section office to determine which line items on the contract include extruded thermoplastic material and which color will be used prior to work being performed.

Determine the total quantity for all line items on the contract that the contractor or subcontractor elects to use extruded thermoplastic material. (See Remarks.)

Deliver the sample, the sample label, and a copy of the manufacturer's certification to MCL for testing.

REMARKS

Line items on the contract pay units can be established as ~~LF~~ linear feet and EACH. These pay units must be converted to square feet to determine if a sample or manufacturer's certification will be required. Refer to the proposal, plans, and standard drawings to help determine the conversion of the pay units to square feet. Once a total of all pay items has been converted to square feet, convert to pounds per square foot by using the application rate of one pound per square foot (representing 90 mils). This will yield the approximate total pounds that will be required to perform the work on affected line items for each color. Based on the result of these calculations, the DME will select the sampling testing requirements for the sampling checklist.

REMARKS (CONT.) Any material delivered to the project without legible manufacturer's labeling and lot number shall be rejected by the engineer. The engineer should reject any material that:

- Exhibits unsatisfactory application properties
- Requires excessive heating
- Exhibits discoloration, low bond strength, or excessive cracking

MATERIALS FIELD SAMPLING

Chapter	CHEMISTRY
Subject	Flashing Arrow Board

INSPECTOR QUALIFICATION	None
SAMPLING FREQUENCY	Obtain manufacturer's certification.
SAMPLING METHOD	No samples are required.
SECTION ENGINEER	Section Office
	Obtain and review the manufacturer's certification for compliance with the contract and all applicable specifications.
	Retain the manufacturer's certification in the project files.
DISTRICT MATERIALS ENGINEER	District Materials Lab
	None
REMARKS	None

MATERIALS FIELD SAMPLING

Chapter

CHEMISTRY

Subject

Flexible Delineator Post
(Ground & Surface Mount)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain manufacturer's certification per shipment.

SAMPLING METHOD No samples are required.

SECTION ENGINEER Section Office

Obtain certification for each shipment. Confirm that the producer and product name of the flexible delineator post are listed on the *List of Approved Materials* (LAM). If the producer is not listed on the LAM, contact the DME or the Materials Central Laboratory (MCL) to confirm. If the producer of the flexible delineator post is not listed on the LAM and confirmed by MCL, reject the material.

Review the manufacturer's certification for compliance with the contract and all applicable specifications.

Note: The certification should state that the product is the same as tested by the National Transportation Product Evaluation Program (NTPEP).

Create an ID in SiteManager for the flexible delineator post according to the sampling checklist for each shipment and retain the certification in the project files.

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

Assist the section office upon request to determine if the producer and product name of the flexible delineator post is listed on the LAM.

REMARKS Reject any posts that are excessively damaged due to shipping or inappropriate handling by the contractor. Excessive damage includes bent or misshapen posts or damaged reflective sheeting.

MATERIALS FIELD SAMPLING

Chapter	CHEMISTRY
Subject	Glass Beads

INSPECTOR QUALIFICATION	None
SAMPLING FREQUENCY	Obtain manufacturer's certification per shipment.
SAMPLING METHOD	No samples are required.
SECTION ENGINEER	Section Office
	Retain the manufacturer's certification in the project files.
DISTRICT MATERIALS ENGINEER	District Materials Lab
	None
REMARKS	Glass beads are evaluated as part of the retroreflectivity measurements for striping.

Materials Field Sampling

Chapter	CHEMISTRY
Subject	Herbicide (2, 4-D)

Inspector Qualification None

Sampling Frequency Obtain manufacturer's certification and sample when requested by the section office.

Sampling Method Obtain a one-quart plastic container directly from the drum or pail. Mixing or agitating the material is not required.

Section Engineer Section Office

None

District Materials Engineer (DME) District Materials Lab

Obtain and review the manufacturer's certification for compliance with the contract and all applicable specifications.

Obtain and create an ID in SiteManager for the sample. When requested, choose "Informational" as the sample type when creating an ID. Send the sample, along with a copy of the manufacturer's certification, to the Materials Central Laboratory (MCL) for testing. Report the results to the department personnel who made the request.

Remarks None

Materials Field Sampling

Chapter	Subject
CHEMISTRY	Latex

Inspector Qualification None

Sampling Frequency Obtain manufacturer's certification per shipment.

Sampling Method No samples are required. See Remarks for exception.

Section Engineer Section Office

Obtain and review the manufacturer's certification for compliance with the contract and Section 841 of the *Standard Specifications*.

Sample the latex (prior to use) if:

- The product has been exposed to freezing temperatures
- The product was held over during the winter
- The current date is over one year from the date listed on the certification
- Water dilution is suspected

See Remarks.

Obtain certification of each shipment and confirm that the producer and product name of the latex are listed on the *List of Approved Materials* (LAM). If the producer is not listed on the LAM, contact the DME or the Materials Central Laboratory (MCL) to confirm. If the producer of the latex is not listed on the LAM and confirmed by MCL, reject the material.

Retain the manufacturer's certification in the project files.

District Materials Engineer (DME) District Materials Lab

Upon request, assist the section office to determine if the producer and product name of the latex are listed on the LAM. Deliver the sample to MCL. Ensure that the sample label and a copy of the certification are sent, when required.

REMARKS When obtaining a sample, ensure that the lines have been purged. Obtain the sample in a one-quart plastic bottle. Create an ID in SiteManager and choose "Informational" as the sample type. Send the sample, the sample label, and a copy of the certification to MCL for testing. Do not use the material until MCL has tested and approved the material.

MATERIALS FIELD SAMPLING	*Chapter* CHEMISTRY
	Subject M200 Sand Slurry

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain manufacturer's certification per shipment.

SAMPLING METHOD No samples are required.

SECTION ENGINEER Section Office

Determine which type of epoxy (ASTM C 881 Type III or AASHTO M 200) the contractor elects to use for the sand slurry. Contact the district materials lab to ensure the correct material is reflected on the sampling checklist.

Obtain the manufacturer's certification and ensure that the material is in compliance with ASTM C 881 Type III or AASHTO M 200.

Refer to **MFS-503** for the sampling requirements for ASTM C 881 Type III.

Inspect the containers and ensure that they are appropriately labeled.

Create an ID in SiteManager for the M 200 epoxy per the sampling checklist for each shipment. Retain the certification in the project files. Refer to **MFS-503** for the sampling requirements for C 881 epoxy.

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

Contact the section office to determine which type of epoxy will be used on the contract. Select the material the contractor plans to use in the sampling and testing requirements so that it may be reflected correctly on the sampling checklist.

REMARKS

Refer to **MFS-503** for the sampling requirements for ASTM C 881 Type III.

Ensure the type, grade (viscosity), and class (usable temperature range) are appropriate for the intended use of the material.

Materials received on the contract shall be identified as "Component A – Contains Epoxy Resin" and "Component B – Contains Hardener" and shall show the type, grade, class, and mixing directions. Each container shall be marked with the name of the manufacturer, lot or batch number, date of packaging, and quantity (in gallons) contained therein.

Potential hazards shall be stated on the package in accordance with the Federal Hazardous Products Labeling Acts.

MATERIALS FIELD SAMPLING

Chapter	CHEMISTRY
Subject	Object Marker

INSPECTOR QUALIFICATION	None
SAMPLING FREQUENCY	Obtain manufacturer's certification per shipment.
SAMPLING METHOD	No samples are required.
SECTION ENGINEER	Section Office
	Obtain and review the manufacturer's certification for compliance with the contract and all applicable specifications.
	Create an ID in SiteManager, refer to the sampling checklist, and retain the certification in the project files.
DISTRICT MATERIALS ENGINEER (DME)	District Materials Lab
	None
REMARKS	None

MATERIALS FIELD SAMPLING	*Chapter* CHEMISTRY
	Subject Permanent Type I Tape

INSPECTOR QUALIFICATION Pavement Marking Inspection Technician

SAMPLING FREQUENCY Obtain the manufacturer's certification per shipment.

SAMPLING METHOD No samples are required.

Perform **KM 64-201**, **KM 64-202**, or **KM 64-203** when applicable for the retroreflectivity test.

SECTION ENGINEER Section Office

Obtain and review the manufacturer's certification for compliance with the contract and all applicable specifications. Ensure the product is on the LAM.

Perform retroreflectivity testing in accordance with **KM 64-201**, **KM 64-202**, or **KM 64-203** when applicable, at the discretion of the section engineer. Record and retain results in the project files and post the results in ProjectWise:

- Contract ID
- Materials Certification Documents
- Pavement Striping
- Daily Striping Reports
- Data Logger Reports
- **KM 64-201**, "Intersection Handheld Retroreflectivity Reports"
- **KM 64-202**, "Long Line Handheld Retroreflectivity Reports"
- **KM 64-203**, "Mobile Retroreflectivity Reports"

Visually inspect the material for any defects.

Retain the manufacturer's certification in the project files.

DISTRICT MATERIALS ENGINEER (DME)	District Materials Lab
	None
REMARKS	None

MATERIALS FIELD SAMPLING

Chapter

CHEMISTRY

Subject

Permanent Traffic Paint

INSPECTOR QUALIFICATION

Pavement Markings Inspection Technician

SAMPLING FREQUENCY

For district-wide striping contracts, obtain a sample per color per truck per week and obtain manufacturer's certification for each lot of material used on the project.

For all other contracts, obtain one sample per contract per color and obtain manufacturer's certification for each lot of material used on the project.

SAMPLING METHOD

The sample shall be taken from the paint striper's gun. Ensure that the gun is purged before obtaining the sample. Place sample in a one-pint lined metal can.

Perform **KM 64-202** or **KM 64-203** when applicable.

SECTION ENGINEER

Section Office

Obtain and review the manufacturer's certification for compliance with the contract and all applicable specifications.

Inspect the containers to verify the lot number and producer.

Obtain the sample and create an ID in SiteManager. Refer to the sampling checklist. Send the sample, the sample label, and a copy of the manufacturer's certification to the Materials Central Laboratory (MCL) or the DME office.

SECTION ENGINEER (CONT.)

Perform retroreflectivity testing in accordance with **KM 64-202** or **KM 64-203** when applicable. Record and retain the results in the project files and post the results in ProjectWise:

- Contract ID
- Materials Certification Documents
- Pavement Striping
- Daily Striping Reports
- Data Logger Reports
- **KM 64-201**, "Intersection Handheld Retroreflectivity Reports"
- **KM 64-202**, "Long Line Handheld Retroreflectivity Reports"
- **KM 64-203**, "Mobile Retroreflectivity Reports"

DISTRICT MATERIALS ENGINEER (DME)

District Materials Lab

Deliver the sample, a copy of the certification, and sample label to MCL for testing.

REMARKS

Do not sample or perform retroreflectivity testing on black or blue traffic paint. Obtain certification and retain in project files.

Do not sample or perform retroreflectivity testing for striping on parking lots. Obtain certification and retain in project files.

MATERIALS FIELD SAMPLING	*Chapter* CHEMISTRY
	Subject Preformed Thermoplastic

INSPECTOR QUALIFICATION Pavement Markings Inspection Technician

SAMPLING FREQUENCY Obtain the manufacturer's certification per shipment per color.

SAMPLING METHOD Perform **KM 64-201** for the retroreflectivity test.

SECTION ENGINEER Section Office

Obtain and review the manufacturer's certification for compliance with the contract and all applicable specifications.

Obtain certification of each shipment and check to confirm that the producer and product name of the preformed thermoplastic is listed on the *List of Approved Materials* (LAM). If the producer is not listed on the LAM, contact the DME or the Materials Central Laboratory (MCL) to confirm. If the producer and product name of the preformed thermoplastic are not listed on the LAM and confirmed by MCL, reject the material.

Perform retroreflectivity testing in accordance with **KM 64-201**. Record and retain the results in the project files and post the results in ProjectWise:

- Contract ID
- Materials Certification Documents
- Pavement Striping
- Daily Striping Reports
- Data Logger Reports
- **KM 64-201**, "Intersection Handheld Retroreflectivity Reports"
- **KM 64-202**, "Long Line Handheld Retroreflectivity Reports"
- **KM 64-203**, "Mobile Retroreflectivity Reports"

Retain the manufacturer's certification in the project files.

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

Upon request, assist the section office to determine if the producer and product name of the preformed thermoplastic are listed on the LAM.

REMARKS None

MATERIALS FIELD SAMPLING

Chapter	
	CHEMISTRY
Subject	
	Raised Pavement Markers

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain certification for each type of raised pavement markers and their components per shipment.

SAMPLING METHOD No samples are required.

SECTION ENGINEER Section Office

Obtain certification of each shipment and confirm that the producer, product name, and type of raised pavement maker are listed on the *List of Approved Materials* (LAM). If the producer is not listed on the LAM, contact the DME or the Materials Central Laboratory (MCL) to confirm. If the producer, product name, and type of raised pavement maker are not listed on the LAM and confirmed by MCL, reject the material.

Review the manufacturer's certification for compliance with the contract and all applicable specifications.

Visually check the material for defects and randomly check the dimensions to determine if the material meets the specification requirements.

Retain the manufacturer's certification in the project files.

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

Upon request, assist the section office to determine if the producer, product name, and type of raised pavement marker are listed on the LAM.

REMARKS If the section office determines that the raised pavement markers do not meet specification requirements for dimensions, or if the lenses of the markers are damaged or scratched, reject the material.

MATERIALS FIELD SAMPLING

Chapter

CHEMISTRY

Subject

Reinforcing Bar Grout Adhesives

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain the manufacturer's certification per shipment.

SAMPLING METHOD No samples are required.

SECTION ENGINEER Section Office

Obtain certification of each shipment. Confirm that the producer and product name of the reinforcing bar grout adhesive are listed on the *List of Approved Materials* (LAM). If the producer is not listed on the LAM, contact the DME or the Materials Central Laboratory (MCL) to confirm. If the producer and product name of the reinforcing bar grout adhesive are not listed on the LAM and confirmed by MCL, reject the material.

Review the manufacturer's certification for compliance with the contract and all applicable specifications.

Inspect the containers and ensure that they are appropriately labeled.

Create an ID in SiteManager and refer to the sampling checklist. Retain the manufacturer's certification in the project files.

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

Upon request, assist the section office to determine if the producer and product name of the reinforcing bar grout adhesive are listed on the LAM.

REMARKS

Materials received on the contract shall be identified as "Component A – Resin" and "Component B – Hardener," and shall show the directions and usable temperature range. Each container shall be marked with the name of the manufacturer, the date of packaging, and the quantity (in kilograms and liters) contained therein

Potential hazards shall be stated on the package in accordance with the Federal Hazardous Products Labeling Acts.

MATERIALS FIELD SAMPLING

Chapter	CHEMISTRY
Subject	Sign Sheeting

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain the manufacturer's certification per shipment.

SAMPLING METHOD No samples are required.

SECTION ENGINEER Section Office

Obtain certification of each shipment. Confirm that the producer, the product name, and the color of the sign sheeting are listed on the *List of Approved Materials* (LAM). If the producer is not listed on the LAM, contact the DME or the Materials Central Laboratory (MCL) to confirm. If the producer, product name, and color of the sign sheeting are not listed on the LAM and confirmed by MCL, reject the material.

Review the manufacturer's certification for compliance with the contract and all applicable specifications.

Check the sign sheeting face, border, and legend to ensure the presence of a design characteristic of the manufacturer's materials.

Visually inspect the sign for shipment damage, discoloration, sheet wrinkles, and air between the sheeting and the sign substrate.

Create an ID in SiteManager, refer to the sampling checklist, and retain the manufacturer's certification in the project files.

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

Upon request, assist the section office to determine if the producer and product name of the reinforcing bar grout adhesive are listed on the LAM.

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

CHEMISTRY

Subject

Structural Adhesives with Extended Contact Time

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain the manufacturer's certification per shipment.

SAMPLING METHOD No samples are required.

SECTION ENGINEER Section Office

Obtain certification of each shipment. Confirm that the producer and product name of the adhesive are listed on the *List of Approved Materials* (LAM). If the producer is not listed on the LAM contact the DME or the Materials Central Laboratory (MCL) to confirm. If the producer and product name of the adhesive are not listed on the LAM and confirmed by MCL, reject the material.

Review the manufacturer's certification for compliance with the contract and with all applicable specifications.

Inspect the containers and ensure that the appropriate markings are on the containers.

Create an ID in SiteManager, refer to the sampling checklist, and retain the manufacturer's certification in the project files.

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

Upon request, assist the section office to determine if the producer and product name of the adhesive are listed on the LAM.

REMARKS Materials received on the contract shall be identified as "Component A – Contains Epoxy Resin" and "Component B – Contains Hardener." The container shall show the directions and the usable temperature range.

REMARKS (CONT.) Each container shall be marked with the name of the manufacturer, the lot or batch number, the date of packaging, and the quantity (in gallons) contained therein.

Potential hazards shall be stated on the package in accordance with the Federal Hazardous Products Labeling Acts.

MATERIALS FIELD SAMPLING	*Chapter* CHEMISTRY
	Subject Structural Steel Coatings

INSPECTOR QUALIFICATION

Successful completion of the Society for Protective Coatings' (SSPC) Bridge Coating Inspection Program

SAMPLING FREQUENCY

Obtain manufacturer's certification and a sample of each component per batch or lot per shipment of paint that will be used on the project.

Note: No sample is required if the total contract quantity does not exceed five gallons.

SAMPLING METHOD

Mix or agitate the individual components prior to obtaining the samples.

Ensure that the one-quart lined sample containers are clean and dry.

Label each sample container with the batch or lot number from which the sample is taken.

Tightly seal the containers to prevent leaks or moisture contamination of the materials.

SECTION ENGINEER

Section Office

Obtain certification of each shipment. Confirm that the producer and product name of the paint are listed on the *List of Approved Materials* (LAM). If the producer is not listed on the LAM, contact the DME or the Materials Central Laboratory (MCL) to confirm. If the producer and the product name of the paint ~~is~~ are not listed on the LAM and confirmed by MCL, reject the material.

Review the manufacturer's certification for compliance with the contract and all applicable specifications.

SECTION ENGINEER (CONT.)

Contact MCL to make arrangements for samples to be obtained prior to use on the project. Provide information to MCL as to where the paint is stored. Provide assistance, if necessary, to MCL in obtaining the samples.

Prior to use, confirm that the approved sample batch or lot number matches the batch or lot number on the containers delivered to the project. The approval of these materials can be found in SiteManager.

Samples shall be obtained by department personnel who have successfully completed SSPC's Bridge Coating Inspection Program.

Provide MCL personnel with contract information and the applicable line items to which the samples are associated. This information will be used when MCL creates an ID for the samples.

For contracts that have less than five gallons total quantity, retain the manufacturer's certification in the project files.

DISTRICT MATERIALS ENGINEER (DME)

District Materials Lab

Upon request, assist the section office to determine if the producer and product name of the adhesive are listed on the LAM.

For contracts utilizing structural steel coatings, global assignments reflect the use of epoxy organic zinc-rich primer, epoxy intermediate, and urethane finish coats. The district material lab verifies with the section office each generic coating type selected for use on the contract.

REMARKS

Do not use any material on the project until it has been sampled, tested, and approved.

MATERIALS FIELD SAMPLING

Chapter

CHEMISTRY

Subject

Temporary Tape

INSPECTOR QUALIFICATION

Pavement Markings Inspection Technician

SAMPLING FREQUENCY

Obtain manufacturer's certification for each shipment.

SAMPLING METHOD

No samples are required.

SECTION ENGINEER

Section Office

Obtain certification of each shipment. Confirm that the producer and product name of the temporary tape are listed on the *List of Approved Materials* (LAM). If the producer is not listed on the LAM, contact the DME or the Materials Central Laboratory (MCL) to confirm. If the producer and product name of the temporary tape are not listed on the LAM and confirmed by MCL, reject the material.

Review the manufacturer's certification for compliance with the contract and all applicable specifications.

Visually inspect the material for any defects and retroreflectivity appearance.

Retain the manufacturer's certification in the project files.

DISTRICT MATERIALS ENGINEER (DME)

District Materials Lab

Upon request, assist the section office to determine if the producer and product name of the temporary tape are listed on the LAM.

REMARKS

Temporary pavement marking tapes are approved based on performance of these products on the National Transportation Product Evaluation Program (NTPEP) test deck.

REMARKS (CONT.) If these products perform poorly on the contract (for example, do not stay in place, are difficult to remove, etc.), report this to the MCL. This information is necessary to remove substandard products from the LAM.

MATERIALS FIELD SAMPLING	*Chapter* CHEMISTRY
	Subject Temporary Traffic Paint

INSPECTOR QUALIFICATION

Pavement Markings Inspection Technician

SAMPLING FREQUENCY

Obtain manufacturer's certification per shipment per color.

Obtain sample of the paint and perform retroreflectivity testing if the temporary striping is in place longer than 120 days.

SAMPLING METHOD

For temporary striping in place longer than 120 days:

- Obtain certification and a sample from the paint striper's gun in a one-pint lined metal can for each color used on the project.
- Perform retroreflectivity testing as according to **KM 64-202** and **KM 64-203** within 5 days of application.

For temporary striping in place less than 120 days, obtain certification per shipment per color used on the contract.

SECTION ENGINEER

Section Office

For temporary striping in place longer than 120 days:

- Obtain and review the manufacturer's certification for compliance with the contract and all applicable specifications.
- Inspect the containers to verify the lot number and producer.
- Obtain the sample and create an ID in Site Manager; refer to the sampling checklist. Send the sample, the sample label, and a copy of the manufacturer's certification to MCL or the DME office.

SECTION ENGINEER (CONT.)

- Perform retroreflectivity testing as according to **KM 64-202** and **KM 64-203** when applicable. Record and retain the results in the project files and post the results in ProjectWise:

  - Contract ID
  - Materials Certification Documents
  - Pavement Striping
  - Daily Striping Reports
  - Data Logger Reports
  - **KM 64-201**, "Intersection Handheld Retroreflectivity Reports"
  - **KM 64-202**, "Long Line Handheld Retroreflectivity Reports"
  - **KM 64-203**, "Mobile Retroreflectivity Reports"

For temporary striping in place less than 120 days:

- Perform a visual inspection for appearance, nighttime reflectivity, and performance.

- Obtain the manufacturer's certification per shipment per color used on the contract and retain in the project files.

DISTRICT MATERIALS ENGINEER

District Materials Lab

Deliver the sample, a copy of the certification, and sample label to MCL for testing.

REMARKS

None

MATERIALS FIELD SAMPLING

Chapter	CHEMISTRY
Subject	Variable Message Board

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain the manufacturer's certification.

SAMPLING METHOD No samples are required.

SECTION ENGINEER Section Office

Obtain and review the manufacturer's certification for compliance with the contract and all applicable specifications.

Obtain certification of each type of message board. Confirm that the producer and product name of the variable message board are listed on the *List of Approved Materials* (LAM). If the producer is not listed on the LAM, contact the DME or the Materials Central Laboratory (MCL) to confirm. If the producer and product name of the variable message board are not listed on the LAM and confirmed by MCL, reject the material.

Visually inspect the variable message board.

Retain the manufacturer's certification in the project files.

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

Upon request, assist the section office to determine if the producer and product name of the variable message board are listed on the LAM.

REMARKS None

Materials Field Sampling

Chapter	CHEMISTRY
Subject	Water

Inspector Qualification None

Sampling Frequency Obtain one sample per source per contract.

Sampling Method Obtain sample in a clean one-liter (quart) plastic bottle from the pump or inlet lines.

No sample is required for municipal water sources.

Section Engineer Section Office

Obtain water sample. Create an ID in SiteManager and refer to the sampling checklist. Send the sample and sample label to the Materials Central Laboratory (MCL) or the DME.

District Materials Engineer (DME) District Materials Lab

Deliver the sample, a copy of the certification, and the sample label to MCL for testing.

Remarks No water sample is required for geotechnical line items.

MATERIALS FIELD SAMPLING	*Chapter* CONCRETE
	Subject General Notes

CONCRETE TRUCK PERFORMANCE TEST

1. The concrete mixer performance test is to be performed by the producer in accordance with **KM 64-311**, with random checks performed by KYTC.

2. If a mixer fails to meet the performance requirements, its use on KYTC projects will be discontinued until repair, replacement, or modification prove adequate and acceptable performance is verified.

3. Trucks delivering central-mixed concrete, to which water is not added at the jobsite, will be exempt from this test.

CONCRETE-MOBILE CALIBRATION

1. Inspect and calibrate concrete-mobile in accordance with **KM 64-312.**

2. Record calibration results on TC 64-317 form, *Concrete Mobile Calibration Data Sheet* and retain in the project file.

APPROVAL OF CONCRETE PLANTS AND MIX DESIGNS

1. Function of the Section Engineer Office

   a. Determine if the concrete producer is on the *List of Approved Materials (*LAM).

   b. Obtain an electronic copy of the approved mix design from the district materials engineer (DME) or the Materials Central Laboratory (MCL) prior to placing any concrete mixes on the project site.

   c. Upon approval of the mix design from the DME or MCL, ensure that all ingredient materials listed on the approved mix design appear on the LAM and match the materials at the plant.

APPROVAL OF CONCRETE PLANTS AND MIX DESIGNS (CONT.)

d. Determine if a trial batch will be required prior to delivery to the project. If a trial batch is required, notify the DME and MCL.

- Trial batches are required when:
  - A plant has not previously supplied the particular concrete mix for use in KYTC projects
  - Changes have been made to plant batching equipment
  - The engineer deems it necessary
- If a trial batch is not required, the concrete plant may supply the concrete to the project after the mix design has been approved by the DME or MCL.

e. Obtain ingredient samples as required in this manual and the Sampling Checklist for the project during concrete production.

f. Verify that scale checks are current and, if not, do not allow the concrete to be delivered to the project until scale checks are complete.

g. Inform the DME of anticipated concrete pours in sufficient time to allow for required sampling and testing.

2. Function of the DME

a. Obtain mix design from the concrete producer.

1. If the mix design is a routine mix, review and approve or disapprove. Ensure that all ingredient materials and sources are included on the LAM. Also, check the Aggregate Restrictions List to ensure that the aggregate sources submitted do not have restrictions for the intended application, such as freeze/thaw. Send approved electronic mix design to the concrete producer, section engineer office, contractor, and MCL.

2. If the mix design is an experimental mix, HPC mix, Special Note mix designs, or JPC 24/48/72 mix, forward the design to the MCL for approval or disapproval.

b. Verify that scale checks are current and ensure that the plant meets the requirements of Section 601 of the *Kentucky Standard Specifications for Road and Bridge Construction*.

c. Sample the aggregates and perform the required tests and report results in SiteManager. Compare the specific gravity and absorption for each aggregate source to the mix design.

APPROVAL OF CONCRETE PLANTS AND MIX DESIGNS (CONT.)

d. Ensure that the concrete producer's employees are KRMCA Level II and ACI Level I qualified technicians.

3. Function of MCL

a. Conduct initial inspections and in-depths at all concrete plants that produce concrete for any KYTC project.

b. Attend and approve or disapprove all trial batches for KYTC projects.

c. Review and approve or disapprove experimental, HPC, 24/48/72 hour, and Special Note mix designs. Send approved electronic mix design to the concrete producer, section office, DME, and the contractor or subcontractor.

CHECK ON CONTRACTOR'S EQUIPMENT FOR CEMENT CONCRETE PAVEMENT

1. The plant and equipment shall be inspected prior to approval.

2. Function of the section office

a. Notify the DME that an inspection is needed.

b. Perform a joint inspection with materials personnel.

c. Report scales and water-measuring device inspections on TC 64-316 form, *Scale Report for Concrete Plants*, with copies maintained by the DME and MCL.

3. Inspect the contractor's equipment on the following list:

- Equipment for applying curing compound
- Saws
- Station numbers
- Equipment for applying water for curing
- Finishing machines
- Forms (alignment, straightedge, length, stakes, oil)
- Bulkhead
- Vibrators
- Belt
- Burlap drags
- Straightedges
- Footbridges
- Acceptance testing equipment

4. Results of the inspection should be incorporated into the section office files.

INDEPENDENT ASSURANCE SAMPLING (IAS)

See **MFS-1200** for concrete IAS.

QUESTIONS

If you have questions about information located in **MFS-600**, please contact:

Concrete/Physical Properties Section Supervisor
Central Office, Division of Materials
1227 Wilkinson Boulevard
Frankfort, KY 40601
Phone: 502-564-3160

Materials Field Sampling

Chapter

CONCRETE

Subject

Concrete Admixtures (Type A, C, D, E, F, G, & Corrosion Inhibitors)

Inspector Qualification None

Sampling Frequency Obtain one sample yearly for precast/prestress and concrete pipe producers for each concrete admixture that will be used.

Sampling Method Obtain one-quart sample in a plastic one-quart container.

Section Engineer Section Office

None

District Materials Engineer (DME) District Materials Lab

Obtain the samples and ensure that the manufacturer and the product are listed on the *List of Approved Materials* (LAM). Create an ID in SiteManager for each sample and choose "Informational" as the sample type. Send the sample and sample label to the Materials Central Laboratory (MCL) for testing.

Remarks None

MATERIALS FIELD SAMPLING	*Chapter* CONCRETE
	Subject Concrete Class (A, AMOD, B, M1, M2)

INSPECTOR QUALIFICATION

Sampling and testing the concrete mixture requires American Concrete Institute (ACI) Level I.

Approval of the mix design for the concrete mixture requires Kentucky Ready Mixed Concrete Association (KRMCA) Technician Level II.

SAMPLING FREQUENCY

Cement requires 1 per 1,300 cubic yards, or a fraction thereof. Refer to **MFS-402**.

Fly ash (Type F or C) requires 1 per 1,650 cubic yards, or a fraction thereof. Refer to **MFS-405**.

Other mineral admixtures: See appropriate **MFS-400** section.

Obtain samples for the fine and coarse aggregate. Refer to **MFS-209**.

For IAS sampling, refer to **MFS-1203.**

Sample the concrete mixture for air, slump, temperature, and casting cylinders daily, or per 100 cubic yards of placed concrete, or a fraction thereof.

Obtain an electronic mix design from the producer.

At the engineer's discretion, small quantities of **nonstructural** concrete less than 15 cubic yards per class per day may be accepted, provided the concrete is visually acceptable.

SAMPLING METHOD

Sampling Fresh Concrete – **KM 64-301**
Air Content – **KM 64-303**
Slump – **KM 64-302**
Making and curing concrete cylinders – **KM 64-305**
Cement – **KM 64-316**
Compressive strength of cylindrical concrete specimens – ASTM C 1231

SECTION OFFICE Section Engineer

Obtain an electronic-approved mix design from the DME before placing any concrete on the project. Ensure that the ingredients that will be used for the mixture (such as cementitious material, aggregates, and admixtures) are listed on the *List of Approved Materials* (LAM).

Verify that scale checks are current and if not, do not allow the concrete to be delivered to the project until scale checks are complete.

If requested, sample the cementitious materials and aggregates that will be used in the concrete mixture. Create an ID in SiteManager for the samples and refer to the sampling checklist. Send samples to the district materials lab for testing.

Obtain a signed copy of the Certification of Compliance for Freeze-Thaw Resistant Concrete Aggregate form. The form can be obtained on the Materials Central Laboratory (MCL) web page at:

http://transportation.ky.gov/materials/pages/Aggregates.aspx

Retain the signed form in the project file, if required. See Section 805 of the *Standard Specifications*.

Sample concrete at the job site of the construction operations and perform plastic testing for air content, slump, and concrete temperature. Make compressive strength specimens (such as mold and cure cylinders). Create an ID for each compressive strength specimen, along with an ID for each plastic test performed. Refer to the sampling checklist. Record all plastic test results in SiteManager. Send the compressive specimens to the DME's office for testing.

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

Obtain an electronic mix design from the producer. Create an ID in SiteManager and refer to the sampling checklist. Upload the spreadsheet. Ensure that the producer is listed on the LAM and is approved to produce the type of mixture submitted in SiteManager. Provide a copy of the approved mix design to the section office. Ensure that the ingredients that will be used are listed on the LAM.

DISTRICT MATERIALS ENGINEER (DME) (CONT.)

Sample the aggregates and inspect the stockpiles for contamination and segregation.

Create an ID in SiteManager and perform testing on the aggregates. Record the results in SiteManager.

Obtain the compressive test specimens, with sampling label, from the section office. Perform testing and record the results in SiteManager.

REMARKS

Startup testing (if testing is required) – Test the first unit daily for each class, and any one of the next four units, for slump, air content, and temperature. If any unit fails specifications, reject the concrete and return to the startup testing.

Additional strength testing is required for early form removal, applying loads, or opening to traffic (such as for cylinders).

This material may be an ingredient material for other bid items having a different sampling unit. The units associated with this material were used to calculate the sampling frequency where units were different. Notify the DME or MCL if discrepancies are noted.

MATERIALS FIELD SAMPLING	*Chapter* CONCRETE
	Subject Concrete Class (AA, AAHPC, AAA, D, DMOD)

INSPECTOR QUALIFICATION

Sampling and testing the concrete mixture requires American Concrete Institute (ACI) Level I.

Approval of the mix design for the concrete mixture requires Kentucky Ready Mixed Concrete Association (KRMCA) Technician Level II.

SAMPLING FREQUENCY

Cement requires 1 per 1,300 cubic yards, or a fraction thereof. Refer to **MFS-402**.

Fly ash (Type F or C) requires 1 per 1,650 cubic yards, or a fraction thereof. Refer to **MFS-405**.

GGBFS (Grade 100 or 120) requires 1 per 650 cubic yards, or a fraction thereof. Refer to **MFS-406**.

Microsilica requires a minimum of 1 per project. Refer to **MFS-409**.

Obtain samples for the fine and coarse aggregate. Refer to **MFS-209**.

For IAS sampling, refer to **MFS-1203**.

Sample the concrete mixture for air, slump, temperature, and casting cylinders daily, or per 50 cubic yards of placed concrete, or a fraction thereof.

Obtain an electronic mix design from the producer.

SAMPLING METHOD

Sampling fresh concrete – **KM 64-301**
Air content – **KM 64-303**
Slump – **KM 64-302**
Making and curing concrete cylinders – **KM 64-305**
Cement – **KM 64-316**
Compressive strength of cylindrical concrete specimens – ASTM C 1231

SECTION OFFICE Section Engineer

Obtain an electronic-approved mix design from the DME before placing any concrete on the project. Ensure that the ingredient that will be used for the mixture (such as cementitious material, aggregates, and admixtures) is listed on the *List of Approved Materials* (LAM).

Verify that scale checks are current and if not, do not allow the concrete to be delivered to the project until scale checks are complete.

If requested, sample the cementitious materials and aggregates that will be used in the concrete mixture. Create an ID in SiteManager for the samples and send to the district materials lab for testing. Refer to the sampling checklist.

Obtain a signed copy of the Certification of Compliance for Freeze-Thaw Resistant Concrete Aggregate form. The form can be obtained on the Materials Central laboratory (MCL) web page at:

http://transportation.ky.gov/materials/pages/Aggregates.aspx

Retain the signed form in the project file, if required. See Section 805 of the *Standard Specifications*.

Sample concrete at the job site of the construction operations and perform plastic testing for air content, slump, and concrete temperature. Make compressive strength specimens (such as mold and cure cylinders). Create an ID for each compressive strength specimen, along with an ID for each plastic test performed. Refer to the sampling checklist. Record all plastic test results in SiteManager. Send the compressive specimens to the DME's office for testing.

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

Obtain an electronic mix design from the producer. Create an ID in SiteManager, and refer to the sampling checklist. Upload the spreadsheet. Ensure that the producer is listed on the LAM and is approved to produce the type of mixture submitted in SiteManager. Provide a copy of the approved mix design to the section office. Ensure that the ingredients that will be used are listed on the LAM.

DISTRICT MATERIALS ENGINEER (DME) (CONT.)

Sample the aggregates and inspect the stockpiles for contamination and segregation. Create an ID in SiteManager and perform testing on the aggregates. Record the results in SiteManager.

Obtain the compressive test specimens, with sampling labels, from the section office. Perform testing and record the results in SiteManager.

REMARKS

Startup testing (if testing is required) – Test the first unit daily for each class, and any one of the next four units, for slump, air content, and temperature. If any unit fails specifications, reject the concrete and return to the startup testing.

Additional strength testing is required for early form removal, applying loads, or opening to traffic (such as for cylinders).

This material may be an ingredient material for other bid items having a different sampling unit. The units associated with this material were used to calculate the sampling frequency where units were different. Notify the DME or MCL if discrepancies are noted.

MATERIALS FIELD SAMPLING	*Chapter* CONCRETE
	Subject Concrete Class (P & P24/48/72)

Inspector Qualification

Sampling and testing the concrete mixture requires American Concrete Institute (ACI) Level I.

Approval of the mix design for the concrete mixture requires Kentucky Ready Mixed Concrete Association (KRMCA) Technician Level II.

Sampling Frequency

Cement requires 1 per 12,000 square yards, or a fraction thereof. Refer to **MFS-402**.

Fly ash (Type F or C) requires 1 per 12,000 square yards, or a fraction thereof. Refer to **MFS-405**.

For other mineral admixtures, see appropriate **MFS-400** section.

Obtain samples for the fine and coarse aggregate. Refer to **MFS-209**.

For Independent Assurance Sampling (IAS), refer to **MFS-1203**.

Sample the concrete mixture for air, temperature, and casting cylinders daily, or per 2,500 square yards of placed concrete, or a fraction thereof.

Obtain an electronic mix design from the producer.

Note: The above frequency has been established based on a 9-inch thickness for the pavement, and is used as the base unit. If a bid line item calls for other than a 9-inch thickness, perform calculations to confirm the sampling frequency. If the frequency is not confirmed, contact the DME and the Materials Central Laboratory (MCL) to resolve the issue with the frequency. Also, there are no slump requirements for Concrete Class P line items. However, if slump is taken, record the results in SiteManager.

Sampling Method

Sampling fresh concrete – **KM 64-301**
Air content – **KM 64-303**
Slump – **KM 64-302**
Making and curing concrete cylinders – **KM 64-305**
Cement – **KM 64-316**
Compressive strength of cylindrical concrete specimens – ASTM C 1231
Thickness cores – contractor core in accordance with **KM 64-309**

Section Office

Section Engineer

Obtain an electronic-approved mix design from the DME before placing any concrete on the project. Ensure that the ingredient that will be used for the mixture (such as cementitious material, aggregates, and admixtures) is listed on the *List of Approved Materials* (LAM).

Verify that scale checks are current and if not, do not allow the concrete to be delivered to the project until scale checks are complete.

If requested, sample the cementitious materials and aggregates that will be used in the concrete mixture. Create an ID in SiteManager for the samples and send the samples to the district materials lab for testing. Refer to the sampling checklist.

Obtain a signed copy of the Certification of Compliance for Freeze-Thaw Resistant Concrete Aggregate form. The form can be obtained on the Materials Central Laboratory (MCL) web page at:

http://transportation.ky.gov/materials/pages/Aggregates.aspx

Retain the signed form in the project file, if required. See Section 805 of the *Standard Specifications*.

Sample concrete at the job site of the construction operations and perform plastic testing for air content, slump, and concrete temperature. Make compressive strength specimens (such as mold and cure cylinders). Create an ID for each compressive strength specimen, along with an ID for each plastic test performed. Refer to the sampling checklist. Record all plastic test results in SiteManager. Send the compressive specimens to the DME's office for testing.

Note: Slump is not required to be measured. However, if slump is measured, record the results in SiteManager.

District Materials Engineer (DME) District Materials Lab

Obtain an electronic mix design from the producer. Create an ID in SiteManager and refer to the sampling checklist. Upload the spreadsheet. Ensure that the producer is listed on the LAM and is approved to produce the type of mixture submitted in SiteManager. Provide a copy of the approved mix design to the section office. Ensure that the ingredients that will be used are listed on the LAM.

Sample the aggregates and inspect the stockpiles for contamination and segregation. Create an ID in SiteManager and perform testing on the aggregates Record the results in SiteManager.

Obtain the compressive test specimens, with sampling label, from the section office. Perform testing and record the results in SiteManager.

Remarks Startup testing (if testing is required) – Test the first unit daily for each class, and any one of the next four units, for slump, air content, and temperature. If any unit fails specifications, reject the concrete and return to the startup testing.

Additional strength testing is required for early form removal, applying loads, or opening to traffic (such as for cylinders).

Thickness cores are not required for projects less than 2,500 square yards.

This material may be an ingredient material for other bid items having a different sampling unit. The units associated with this material were used to calculate the sampling frequency where units were different. Notify the DME or MCL if discrepancies are noted

MATERIALS FIELD SAMPLING	*Chapter* CONCRETE
	Subject Concrete Overlays (Waterproofing: Latex)

INSPECTOR QUALIFICATION

Sampling and testing the concrete mixture requires American Concrete Institute (ACI) Level I.

Approval of the mix design for the concrete mixture requires Kentucky Ready Mixed Concrete Association (KRMCA) Technician Level II.

SAMPLING FREQUENCY

Cement requires 1 per 1,300 cubic yards, or a fraction thereof. Refer to **MFS-402**.

Obtain certification for the latex per shipment and retain the certification in the project files.

Obtain samples for the fine and coarse aggregate once per project. Refer to **MFS-209**.

Sample the latex concrete mixture for air, slump, temperature, and casting cylinders daily, or per 25 cubic yards of placed concrete, or a fraction thereof.

Determine if cores are required. Refer to Section 606 of the *Standard Specifications.*

Obtain the mix design from the producer.

SAMPLING METHOD

Sampling fresh concrete – **KM 64-301**
Air content – **KM 64-303**
Slump – **KM 64-302**
Making and curing concrete cylinders – **KM 64-305**
Thickness (newly constructed decks only) – **KM 64-315**
Cement – **KM 64-316**
Compressive strength of cylindrical concrete specimens – ASTM C 1231

SECTION ENGINEER Section Office

Obtain approved mix design from the DME before placing any concrete on the project. Ensure that the ingredients that will be used for the mixture (such as cement and aggregates) are listed on the *List of Approved Materials* (LAM).

Sample the cement and aggregates that will be used in the concrete mixture. Create an ID in SiteManager for the samples and send the samples to the district materials lab for testing. Refer to the sampling checklist. Before placing concrete, wait for the DME's office to perform testing on the aggregates to ensure that they meet specifications.

Obtain a signed copy of the Certification of Compliance for Freeze-Thaw Resistant Concrete Aggregate form. The form can be obtained on the Materials Central Laboratory (MCL) webpage at:

http://transportation.ky.gov/materials/pages/Aggregates.aspx

Retain the signed form in the project file.

Calibrate the mobile mixer and record results of calibration on TC 64-317 form, *Concrete Mobile Calibration Data Sheet*, and retain it in the project file.

Sample concrete at the job site of the construction operations and perform plastic testing for air content, slump, and concrete temperature. Make compressive strength specimens (such as mold and cure cylinders). Create an ID for each compressive strength specimen, along with an ID for each plastic test performed. Refer to the sampling checklist. Record all plastic test results in SiteManager. Send the compressive strength specimens to the DME's office for testing.

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

Obtain an electronic mix design from the producer. Create an ID in SiteManager and refer to the sampling checklist. Upload the spreadsheet. Ensure that the producer is listed on the LAM and is approved to produce the type of mixture submitted in SiteManager. Provide a copy of the approved mix design to the section office. Ensure that the ingredients that will be used are listed on the LAM.

Perform the testing on the aggregates and compressive strength specimens and record the results in SiteManager. Notify the section office and provide them the results.

REMARKS This material may be an ingredient material for other bid items having a different sampling unit. The units associated with this material were used to calculate the sampling frequency where units were different. Notify the DME or MCL if discrepancies are noted.

MATERIALS FIELD SAMPLING

Chapter

CONCRETE

Subject

Detectable Sidewalk Warning Pavers

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain certification per shipment per source.

SAMPLING METHOD No sample is required.

SECTION ENGINEER Section Office

Obtain the signed certification stating that the steps conform to ASTM C 936, ASTM C 902 Class SX-Type I, or ASTM C 1272 (Type R or F). Ensure that the product is listed on the *List of Approved Materials* (LAM).

Check the dimensions of the detectable sidewalk warning paver to ensure that they meet the requirements listed in Standard Drawing RGX-040-02.

Retain the certification in the project files.

DISTRICT MATERIALS ENGINEER District Materials Lab

When requested, assist the section office to determine if the detectable sidewalk warning paver meets specifications.

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

CONCRETE

Subject

Elastomeric Bearing Pads

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain certification per shipment per source.

SAMPLING METHOD No sample is required.

SECTION ENGINEER Section Office

Obtain the signed certification and verify that the bearing pads conform to Section 822 of the *Standard Specifications*.

Check to ensure the size supplied meets the requirements on the plans.

Retain the certification in the project files.

DISTRICT MATERIALS ENGINEER District Materials Lab

None

REMARKS None

MATERIALS FIELD SAMPLING	*Chapter* CONCRETE
	Subject Flowable Fill

INSPECTOR QUALIFICATION

Sampling and testing the concrete mixture requires American Concrete Institute (ACI) Level I.

Approval of the mix design for the concrete mixture requires Kentucky Ready Mixed Concrete Association (KRMCA) Technician Level II.

SAMPLING FREQUENCY

Obtain certification daily.

Cement requires 1 per 12,000 square yards, or a fraction thereof. Refer to **MFS-402**.

Fly ash (Type F or C, except Type C is not permitted in pipe backfill) requires 1 per 12,000 square yards, or a fraction thereof. Refer to **MFS-405**.

Note: Fine aggregate is not required to be sampled.

SAMPLING METHOD

Cement – **KM 64-316**

SECTION ENGINEER

Section Office

Ensure that the producer is listed on the *List of Approved Materials* (LAM).

Verify that the producer is furnishing a mix that meets Section 601 of the *Standard Specifications*. If different, contact the DME office and verify that the mix design has been approved.

Obtain a sample of the cementitious material. Create an ID in SiteManager and refer to the sampling checklist. Deliver the sample and sample label to the DME's office.

Obtain certifications daily and retain in the project files.

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

Obtain mix design from the producer. Verify that the ingredients are listed on the LAM and that they meet the specifications in Section 601 of the *Standard Specifications*. Create an ID in Site Manager for the mix design and refer to the sampling checklist.

If a producer elects not to produce the mix designs that are listed in Section 601 of the *Standard Specifications*, a trial batch will be required prior to production.

REMARKS This material may be an ingredient material for other bid items having a different sampling unit. The units associated with this material were used to calculate the sampling frequency where units were different. Notify the DME or MCL if discrepancies are noted.

MATERIALS FIELD SAMPLING

Chapter	CONCRETE
Subject	Manhole Steps

INSPECTOR QUALIFICATION	None
SAMPLING FREQUENCY	Obtain certification per shipment per source.
SAMPLING METHOD	No sample is required.
SECTION ENGINEER	Section Office
	Obtain the signed certification stating the steps conform to ASTM C 478. Check the *List of Approved Materials* (LAM) to ensure that the producer of the manhole steps is listed. If the producer is not on the LAM, contact the DME or the Materials Central Laboratory (MCL). Do not accept the material or allow it to be used until the matter is resolved.
	Retain the certification in the project files.
DISTRICT MATERIALS ENGINEER	District Materials Lab
	None
REMARKS	None

MATERIALS FIELD SAMPLING	*Chapter* CONCRETE
	Subject Pipe (RCP)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Cement – Quarterly; refer to **MFS-402**
Fly Ash (Type F or C) – Quarterly; **MFS-405**
Fine and Coarse Aggregate – Quarterly; **MFS-206**
Wire Mash – Quarterly; **MFS-953**

Obtain certification per shipment.

SAMPLING METHOD Cement – **KM 64-316**

SECTION ENGINEER Section Office

Obtain the signed certification and verify that all items included in the shipment are listed on the certification. Retain the certification for the project files. Ensure that the producer is listed on the *List of Approved Materials* (LAM). If the producer is not listed on the LAM, contact the DME or the Materials Central Laboratory (MCL) to confirm and do not allow use of the pipe.

Note: The certification should also include the county, contract number, dates of manufacture, and a statement of compliance to the current specifications and to the *Precast/Prestressed Concrete Manual*.

Inspect special design pipe for the KY Oval. If the KY Oval does not appear, do not accept the pipe.

Note: The KY Oval will only be placed on special design pipe. If a project calls for special design pipe, contact the DME.

Inspect the items for conformity with dimensional requirement and check for defects.

DISTRICT MATERIALS ENGINEER (DME) District Materials Office

Obtain sample ingredient materials according to the *Precast/Prestressed Concrete Manual* at the pipe plant every quarter. Create an ID in SiteManager for the samples and log in as "Informational." Once the results have been obtained from MCL, inform the pipe producer of the results.

Provide inspection and testing for special design pipe. Once all testing has been performed and specifications have been met, place a KY Oval on the lot of pipes that were produced.

REMARKS Refer to the *Precast/Prestressed Concrete Manual* for inspection duties, sampling method, and sampling frequency.

MATERIALS FIELD SAMPLING

Chapter

CONCRETE

Subject

Precast (Non-Structural; See Remarks)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain certification on each shipment of concrete precast items.

SAMPLING METHOD Refer to the *Precast/Prestressed Concrete Manual* for sampling requirements during the production phase of the precast items. No sampling is required on the project site.

SECTION ENGINEER Section Office

Obtain signed certification per shipment and ensure that the producer of the precast item is listed on the *List of Approved Materials* (LAM). If the producer is not listed on the LAM, contact the DME or the Materials Central Laboratory (MCL) to confirm. Do not allow the use of the precast item on the project.

Note: The certification should also include the county, contract number, dates of manufacture, and a statement of compliance to the current specifications and to the *Precast/Prestressed Concrete Manual*.

Inspect items for conformity with dimensional requirements and check for defects.

Ensure that markings appear on each piece in conformance to the specifications.

Create an ID in SiteManager for each certification obtained. Refer to the sampling checklist.

DISTRICT MATERIALS ENGINEER (DME)

District Materials Lab

Upon request, assist the section office to determine if the producer of the precast item is listed on the LAM.

Sample ingredient materials at the precast plant as according to the *Precast/Prestressed Concrete Manual*. (Samples taken at the plant will be logged as "Informational" in SiteManager.)

REMARKS

Does not include right-of-way markers, vehicle stops, and concrete armoring units. See **MFS-614**, "Precast (Right-of-Way Markers, Vehicle Stops, & Concrete Armoring Units)."

Refer to the *Precast/Prestressed Concrete Manual* for sampling frequency and sampling methods.

MATERIALS FIELD SAMPLING	*Chapter* CONCRETE
	Subject Precast (Structural; See Remarks)

INSPECTOR QUALIFICATIONS None

SAMPLING FREQUENCY Obtain certification on each shipment of concrete precast items and verify that the KY Oval appears on each item.

SAMPLING METHOD Refer to the *Precast/Prestressed Concrete Manual* for sampling requirements during the production phase of the precast items. No sampling is required on the project site.

SECTION ENGINEER Section Office

Obtain signed certification per shipment and ensure that the producer of the precast item is listed on the *List of Approved Materials* (LAM). If the producer is not listed on the LAM, contact the DME or the Materials Central Laboratory (MCL) to confirm. Do not allow the use of the precast item on the project.

Note: The certification should also include the county, contract number, dates of manufacture, and a statement of compliance to the current specifications and to the *Precast/Prestressed Concrete Manual*.

Inspect items for conformity with dimensional requirements and check for defects.

Ensure that markings appear on each piece in conformance to the specifications.

Ensure that the KY Oval is present on each piece and no shipping damage has occurred.

Create an ID in SiteManager for each certification obtained. Refer to the sampling checklist.

DISTRICT MATERIALS ENGINEER (DME)

District Materials Lab

Upon request, assist the section office to determine if the producer of the precast item is listed on the LAM.

Sample ingredient materials at the precast plant according to the *Precast/Prestressed Concrete Manual* and provide daily inspection. (Samples taken at the plant will be logged as "Informational" in SiteManager.

Check placement of reinforcement, supervise preparation of compressive strength specimens, and verify curing procedures.

Once all testing has been performed for the precast items and the precast items conform to specifications, place the KY Oval stamp on the structure showing approval for use.

REMARKS

Included are box culverts, arches, three-sided structures, deck panels, special designed pipe, bridge deck panels, etc. Refer to the *Precast/Prestressed Concrete Manual* for sampling frequency and sampling methods.

Materials Field Sampling

Chapter	
	CONCRETE
Subject	
	Precast (Right-of-Way Markers, Vehicle Stops, & Concrete Armoring Units)

Inspector Qualification None

Sampling Frequency Obtain certification on each shipment of concrete precast items.

Sampling Method Refer to the *Precast/Prestressed Concrete Manual* for sampling requirements during the production phase of the precast items. No sampling is required on the project site.

Section Engineer Section Office

Obtain signed certification per shipment and ensure that the producer of the precast item is listed on the *List of Approved Materials* (LAM). If the producer is not listed on the LAM, contact the DME or the Materials Central Laboratory (MCL) to confirm. Do not allow the use of the precast item on the project.

Note: The certification should also include the county, contract number, dates of manufacture, and a statement of compliance to the current specifications and to the *Precast/Prestressed Concrete Manual*.

Inspect items for conformity with dimensional requirements and check for defects.

Ensure that markings appear on each piece in conformance to the specifications.

Retain the certification in the project files.

District Materials Engineer (DME) District Materials Lab

Upon request, assist the section office to determine if the producer of the precast item is listed on the LAM.

DISTRICT MATERIALS ENGINEER (DME) (CONT.)

Sample ingredient materials at the precast plant as according to the *Precast/Prestressed Concrete Manual* and provide daily inspection. (Samples taken at the plant will be logged as "Informational" in SiteManager.)

REMARKS

Refer to the *Precast/Prestressed Concrete Manual* for sampling frequency and sampling methods.

MATERIALS FIELD SAMPLING	*Chapter* CONCRETE
	Subject Prestress

INSPECTOR QUALIFICATION

None

SAMPLING FREQUENCY

Obtain certification per shipment and verify that the KY Oval appears on each item.

Refer to the *Precast/Prestressed Concrete Manual* for production sampling frequency.

SAMPLING METHOD

Refer to the *Precast/Prestressed Concrete Manual* for the sampling method.

SECTION ENGINEER

Section Office

Obtain certification per shipment and retain in the project files.

Inspect for conformity with dimensional requirements for freedom from defects and for the presence of the KY Oval. If the KY Oval is not evident, do not accept the shipment or prestressed item.

DISTRICT MATERIALS ENGINEER

District Materials Lab

Sample ingredient materials and appurtenances as according to the *Precast/Prestressed Concrete Manual* at the prestress plant and provide daily inspection during production for the department.

Create an ID in SiteManager for all the samples that were obtained and log them in as "Informational" and send to the Materials Central Laboratory (MCL) for testing. Perform a gradation and wash test once a month during the production phase and log the information into SiteManager.

Once all testing and inspection have been completed and meet specifications, mark the prestressed item with the KY Oval.

REMARKS

None

MATERIALS FIELD SAMPLING	*Chapter* GEOTECHNICAL
	Subject General Notes

INSPECTOR QUALIFICATION

Grading Level I and/or Grading Level II is required for all sampling and testing of all fill materials used for embankments, subgrades, refill applications, etc.

TESTING METHOD

Field density tests will be performed by nuclear density gauges in accordance with **KM 64-002** and according to gauge manufacturer's recommendations. All tests shall be conducted on representative areas corresponding to the appropriate material tested by **KM 64-511**. Use the correction chart contained in **KM 64-511** to make proper corrections for the amount of durable coarse material in the sample when different from the original test. **KM 64-512**, "One Point Proctor Method," should be used when soils are being mixed or when the validity of the standard proctor results is in question. Any KM or MFS method referenced shall be the current method and shall be approved by the Division of Materials.

Field density tests are not required, unless specified on the plans or proposal when:

- Embankments or subgrade are constructed of **durable** rock (limestone, sandstone, or durable shale with SDI>95). Confirm SDI (**KM 64-513**) in project plans or contact the Geotechnical Branch.
- Soil contains greater than 60 percent durable coarse material (plus No. 4 sieve).

Note: The size of the rock may preclude performing tests on material containing less than 60 percent durable coarse material in some instances. However, the inspector shall perform a sieve analysis and record the results on the Nuclear Density Spreadsheet in the comment section. The Nuclear Density Spreadsheet is available online at:

http://transportation.ky.gov/Materials/Pages/SiteManager.aspx

When a density test cannot be performed, determine compaction by visual inspection.

SECTION ENGINEER

A qualified field inspector or engineer shall perform all nuclear density tests and record these results along with any coarse material corrections and One Point Proctor (**KM 64-512**) results on the Nuclear Density Spreadsheet. The results should then be copied into ProjectWise under the folder "contract, construction folder, roadway, proctor & density reports."

DISTRICT MATERIALS ENGINEER (DME)

District Materials Lab

Proctor Density (**KM 64-511**) tests do not have Proctor Density results in the project plans unless the test is for chemically stabilized subgrades.

If application is to be tested for chemically stabilized subgrades, the Geotechnical Branch will also perform Proctor Density (**KM 64-511**) testing.

Dry sieve analysis – Percent plus No. 4 particles

Geotechnical Branch testing requirements:

- Chemical (Lime or Cement) – Proctor Density (**KM 64-520**)
- California Bearing Ratio – (**KM 64-501**)

CONTACT INFORMATION

Division of Structural Design
Geotechnical Branch (Central Office)
Construction Section Supervisor
1236 Wilkinson Blvd.
Frankfort KY 40601
Phone: (502) 564-2374
Fax: (502) 564-4839

MATERIALS FIELD SAMPLING

Chapter	GEOTECHNICAL
Subject	Geotechnical Borrow

INSPECTOR QUALIFICATION

Grading Level I and/or Grading Level II is required for all sampling and testing of all fill materials used for embankments, subgrades, refill applications, etc.

SAMPLING FREQUENCY

One sample per soil horizon of the proposed borrow pit when Proctor Density (**KM 64-511**) is required. California Bearing Ratio (CBR) (**KM 64-501**) testing is required when borrow soil is used for subgrade.

SAMPLING METHOD

Obtain one plastic bag containing 40 pounds of soil from each soil horizon.

SECTION ENGINEER

A qualified person assigned to the section engineer office crew obtains and labels the sample. The sample label shall include the location from which the sample was taken, along with all necessary contract information, in order to have a proctor test performed.

DISTRICT MATERIALS ENGINEER (DME)

The DME is responsible for having the Proctor Density test (**KM 64-511**) performed by a qualified person on samples as needed in the District Materials Laboratory and for providing the results to the section engineer.

If CBR testing is required, forward the sample to the Geotechnical Branch. The Geotechnical Branch will perform Proctor Density testing (**KM 64-511**) when CBR (**KM 64-501**) testing is required (subgrade borrow soil).

REMARKS

None

MATERIALS FIELD SAMPLING

Chapter	GEOTECHNICAL
Subject	Geotechnical Embankments

INSPECTOR QUALIFICATION

Grading Level I and/or Grading Level II is required for all sampling and testing of all fill materials used for embankments, subgrades, refill applications, etc.

TESTING FREQUENCY

One test per 2 feet in elevation per 1,000 linear feet for roadways

One test per 1 foot in elevation at bridge ends

Independent Assurance Sampling (IAS):

- One test per 100,000 cubic yards of embankment, with tests spaced to provide a good representation of the entire project

Note: No IAS tests will be required for projects involving less than 10,000 cubic yards of embankment.

TESTING METHOD

Follow **KM 64-002** and manufacturer's instructions for conducting nuclear density tests.

SECTION ENGINEER

A qualified person assigned to the section engineer office crew performs the nuclear density test and records all results on the Nuclear Density Spreadsheet. Once a Nuclear Density Spreadsheet is completed, copy the spreadsheet into ProjectWise under the folder, "Contract, Construction, Roadway, Proctor and Density Reports."

DISTRICT MATERIALS ENGINEER (DME)

The DME is responsible for having any IAS testing performed by a qualified person on samples as needed. See **MFS-1200** for details.

REMARKS

None

MATERIALS FIELD SAMPLING	*Chapter* GEOTECHNICAL
	Subject Chemically Stabilized Subgrades

INSPECTOR QUALIFICATION

Grading Level I and/or Grading Level II is required for all sampling and testing of all fill materials used for embankments, subgrades, refill applications, etc.

SAMPLING FREQUENCY

One sample per 1,000 linear feet per roadway obtained after the subgrade has been placed and prior to stabilizing, or when different soil type is encountered for chemically stabilized subgrade. See **MFS-103** for definition of roadway.

TESTING FREQUENCY

Nuclear Density Tests:

Perform a minimum of one test per 500 feet per roadway, stabilized or nonstabilized. See **MFS-103** for definition of roadway.

Independent Assurance Sampling (IAS):

- Perform a minimum of one test per 5,000 feet per roadway, or a fraction thereof exceeding 1,000 feet of roadway, with tests spaced in order to provide a good representation of the entire project.

Note: No IAS tests will be required for projects involving less than 1,500 feet of roadway.

TESTING METHOD

Follow **KM 64-002** and manufacturer's instructions for conducting nuclear density tests.

SECTION ENGINEER

A qualified person assigned to the section engineer office crew performs the nuclear density test and records all results on the Nuclear Density Spreadsheet. Once a Nuclear Density Spreadsheet is completed, copy the spreadsheet into ProjectWise under the folder, "Contract, Construction, Roadway, Proctor and Density reports."

DISTRICT MATERIALS ENGINEER (DME)

The DME or section engineer is responsible for forwarding the 40 pound sample to the Geotechnical Branch for testing.

A qualified person assigned to the section engineer office crew performs any IAS testing as needed. See **MFS-1200** for details.

REMARKS

Obtain a minimum of one sample for every 1,000 linear feet of roadway, or when a different soil type is encountered. This sample is needed for chemically stabilized standard Proctor Density testing (**KM 64-511**) performed by the Geotechnical Branch.

MATERIALS FIELD SAMPLING

Chapter	GEOTECHNICAL
Subject	Subgrades

INSPECTOR QUALIFICATION

Grading Level I and/or Grading Level II is required for all sampling and testing of all fill materials used for embankments, subgrades, refill applications, etc.

SAMPLING FREQUENCY

No samples are needed if the subgrade soil is obtained from cuts where proctor density test results (maximum dry density and optimum moisture content) are shown in the project plans (typically on the soil profile sheets). Otherwise, one sample per 1,000 linear feet per roadway should be sampled and tested.

TESTING FREQUENCY

Nuclear Density Tests:

1. Perform a minimum of one test per 500 feet per roadway, stabilized or nonstabilized (see general notes for definition of roadway).

2. Independent Assurance Sampling (IAS):

   - Perform a minimum of one test per 5,000 feet per roadway, or a fraction thereof exceeding 1,000 feet of roadway, with tests spaced in order to provide a good representation of the entire project.

   - No IAS tests will be required for projects involving less than 1,500 feet of roadway.

TESTING METHOD

Follow **KM 64-002** and manufacturer's instructions for conducting nuclear density tests.

SECTION ENGINEER

A qualified person assigned to the section engineer's office crew performs the nuclear density test and records all results on the Nuclear Density Spreadsheet. Once a Nuclear Density Spreadsheet is completed, copy the spreadsheet into ProjectWise under the folder: "Contract, Construction, Roadway, Proctor and Density Reports."

DISTRICT MATERIALS ENGINEER (DME)

The DME is responsible for performing Proctor Density (**KM 64-511**) or a One Point Proctor (**KM 64-512**) test if no Proctor Density test results are available for the soil type. The DME is responsible for forwarding the 40-pound sample to the Geotechnical Branch for testing if California Bearing Ratio (CBR) (**KM 64-501**) testing is required.

A qualified person assigned to the section engineer's office crew performs any IAS testing as needed. See **MFS-1200** for details.

REMARKS

Obtain a minimum of one sample for every 1,000 linear feet of roadway, or when a different soil type is encountered. The Geotechnical Branch will perform Density Proctor and CBR tests for borrow soil to determine if minimum CBR value is obtained.

Materials Field Sampling

Chapter	GEOTECHNICAL
Subject	Topsoil

Inspector Qualification	Grading Level I and/or Grading Level II is required for all sampling and testing of all fill materials used for embankments, subgrades, refill applications, etc.
Sampling Frequency	One sample per area, not to exceed one acre
Sampling Method	Perform 8 to 10 borings using a soil probe, auger, or spade. Collect cuttings and combine into one sample with a minimum of 5 pounds mass.
Section Engineer	A qualified person assigned to the section engineer's office obtains the sample and sends it to the Geotechnical Branch.
District Materials Engineer (DME)	A qualified person assigned to the DME office crew obtains the sample and sends it to the Geotechnical Branch
Remarks	None

MATERIALS FIELD SAMPLING

Chapter

LIQUID ASPHALT

Subject

General Notes

For any questions pertaining to the information presented in this chapter, contact:

Liquid Asphalt Section Supervisor
Kentucky Transportation Cabinet
Department of Highways
Division of Materials
1227 Wilkinson Boulevard
Frankfort, KY 40601-1226

Phone: 502-564-3160
Fax: 502-564-7034

MATERIALS FIELD SAMPLING

Chapter

LIQUID ASPHALT

Subject

Asphalt Curing Seal (RS2, SS-1H, & SS-1)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain one sample per project per supplier per contract.

SAMPLING METHOD Obtain two 1-gallon polyethylene containers from the contractor's distributor according to **KM 64-404**, and obtain the producer's bill of lading.

SECTION ENGINEER Section Office

Obtain the producer's bill of lading for the curing seal and ensure that the producer is listed on the *List of Approved Materials* (LAM). If the producer is not listed on the LAM, contact the DME or the Materials Central Laboratory (MCL) to confirm. When it has been determined that the producer is not on the LAM, do not allow use of the material for departmental projects.

Obtain the sample or witness the sample being taken from the distributor. Obtain signatures of the project and contractor personnel involved in sampling.

Check the bill of lading to ensure that the date of shipment is not over 30 days from the approval date. This can be obtained from the 12-digit lot number (three letters representing the producer, followed by three numbers representing the tank designation, and the last six numbers representing the date that the oil was certified). The material expires if it is not used within 30 days of the shipping date. Therefore, do not use the material on departmental projects. (See Remarks.)

Create an ID in SiteManager and refer to the sampling checklist. Record the lot number when creating the ID in SiteManager. Fill out the information on a label and attach it to the sample. Send the sample, the sample label, and a copy of the bill of lading to the DME or MCL.

DISTRICT MATERIALS ENGINEER (DME)

District Materials Lab

Upon request, help the section office determine if the producer is listed on the LAM.

Forward the sample to MCL and ensure that the sample has a copy of the bill of lading and a sample label, and that the label is attached to the sample.

REMARKS

Submit the samples to MCL within 7 days of obtaining the sample for testing.

Protect the samples from freezing.

Sample stored material 7 days prior to its expiration date to avoid delays in the use of material.

If the material is expired:

1. Obtain one sample.
2. Create an ID in SiteManager and select “Informational” as the sample type when creating the ID.
3. Forward the sample to MCL for testing.

Do not use the material until the sample has been tested and approved.

MATERIALS FIELD SAMPLING	*Chapter* LIQUID ASPHALT
	Subject Asphalt Mastic

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain certification and one sample per lot.

SAMPLING METHOD Obtain one 1-quart sample in a metal, friction-top can.

SECTION ENGINEER Section Office

Obtain the producer's certification stating that the material satisfies Subsection 807.03.04 of the *Standard Specifications*.

If the material fails to satisfy the applicable certification requirements, reject the material.

Ensure that the material has not expired. If the material has expired, follow the steps in the Remarks section.

Note: The material must be used within 6 months of the date of shipment or must be retested before using.

Obtain the sample and create an ID in SiteManager. Refer to the sampling checklist. Send the sample, the sample label, and a copy of the certification to the DME or the Materials Central Laboratory (MCL).

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

Ensure that the sample has a sample label and a copy of the certification. Then forward the sample to MCL.

REMARKS

If the material is expired:

1. Obtain one sample.
2. Create an ID in SiteManager and select “Informational” as the sample type when creating the ID.
3. Forward the sample to MCL for testing.

Do not use the material until the sample has been tested and approved.

MATERIALS FIELD SAMPLING

Chapter

LIQUID ASPHALT

Subject

Asphalt Mop Coat (Waterproofing)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain certification and one sample per lot per contract.

SAMPLING METHOD Obtain one 5-pound piece (or 5 pounds in small pieces) and place the sample in a clean, plastic-lined bag. No sample is required for line items that are less than 50 square yards.

SECTION ENGINEER Section Office

Obtain the material certification indicating the material satisfies ASTM D 449.

If the material fails to satisfy the applicable certification requirements, reject the material.

Obtain the sample and create an ID in SiteManager. Refer to the sampling checklist. Send the sample, the sample label, and a copy of the certification to the DME or the Materials Central Laboratory (MCL

For projects that have less than 50 square yards, retain the certification in the project files.

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

Ensure that the sample has a sample label and a copy of the certification. Then forward the sample to MCL.

REMARKS None

Materials Field Sampling

Chapter	LIQUID ASPHALT
Subject	Asphalt Seal Coat (HFRS-2 & RS-2)

Inspector Qualification None

Sampling Frequency Obtain one sample per project.

Chip Seal Applications: No sample is required for a line item requiring 3 tons of liquid asphalt or less. Obtain the producer' bill of lading.

Sampling Method Obtain two 1-gallon polyethylene containers from the contractor's distributor according to **KM 64-404** and obtain the producer's bill of lading.

Section Engineer Section Office

Obtain the producer's bill of lading for the seal coat and ensure that the producer is listed on the *List of Approved Materials* (LAM). If the producer is not listed on the LAM, contact the DME or the Materials Central Laboratory (MCL) to confirm. When it has been determined that the producer is not on the LAM, do not allow use of the material for departmental projects.

Obtain the sample or witness the sample being taken from the distributor. Obtain signatures of the project and contractor personnel involved in sampling.

Check the bill of lading to ensure that the date of shipment is not over 30 days from the approval date. This can be obtained from the 12-digit lot number (three letters representing the producer followed by three numbers representing the tank designation and the last six numbers representing the date that the oil was certified). The material expires if it is not used within 30 days of the shipping date. Therefore, do not use the material on departmental projects. (See Remarks.)

SECTION ENGINEER (CONT.)

Create an ID in SiteManager and refer to the sampling checklist. Record the lot number when creating the ID in SiteManager. Fill out the information on a label and attach it to the sample. Send the sample, sample label, and a copy of the bill of lading to the DME or MCL.

For line items that have less than 3 tons of liquid asphalt, retain the bill of lading in the project files.

DISTRICT MATERIALS ENGINEER (DME)

District Materials Lab

Upon request, help the section office determine if the producer is listed on the LAM.

Ensure that the sample has a label and that the label is attached to the sample. Then forward the sample and a copy of the bill of lading to MCL.

REMARKS

Submit the samples to MCL within 7 days of obtaining the sample for testing.

Protect the samples from freezing.

Sample stored material 7 days prior to its expiration to avoid delays in the use of material.

If the material is expired:

1. Obtain one sample.
2. Create an ID in SiteManager and select “Informational” as the sample type when creating the ID.
3. Forward the sample to MCL for testing.

Do not use the material until the sample has been tested and approved.

MATERIALS FIELD SAMPLING

Chapter	LIQUID ASPHALT
Subject	Butyl Rubber Sealants

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain one sample per project per source.

SAMPLING METHOD Obtain a 5-foot sample of sealant.

SECTION ENGINEER Section Office

Obtain the producer's certification stating that the material satisfies the applicable portions of AASHTO M 198.

If the material fails to satisfy the applicable certification requirements, reject the material.

Obtain the sample and create an ID in SiteManager. Refer to the sampling checklist. Send the sample, along with the sample label and a copy of the certification, to the DME or the Materials Central Laboratory (MCL).

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

Ensure that the sample has a sample label and a copy of the certification. Then forward the sample to MCL.

REMARKS None

MATERIALS FIELD SAMPLING	*Chapter* LIQUID ASPHALT
	Subject Emulsified Asphalts (Non-Polymer)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain one sample for every 15,000 tons, or a fraction thereof, for every line item. No sample is required if a line item has less than 1,000 tons.

Obtain one sample per type per supplier for chip seal application. (No small quantity applies.)

SAMPLING METHOD Obtain two 1-gallon polyethylene containers from the contractor's distributor according to **KM 64-404** and obtain the producer's bill of lading.

SECTION ENGINEER Section Office

Obtain the producer's bill of lading for the emulsified asphalt and ensure that the producer is listed on the *List of Approved Materials* (LAM). If the producer is not listed on the LAM, contact the DME or the Materials Central Laboratory (MCL) to confirm. When it has been determined that the producer is not on the LAM, do not allow use of the material for departmental projects.

Obtain the sample or witness the sample being taken from the distributor. Obtain signatures of the project and contractor personnel involved in sampling.

Check the bill of lading to ensure that the date of shipment is not over 30 days from the approval date. This can be obtained from the 12-digit lot number (three letters representing the producer, followed by three numbers representing the tank designation, and the last six numbers representing the date that the oil was certified). The material expires if it is not used within 30 days after the shipping date. Therefore do not use the material on departmental projects. (See Remarks.)

SECTION ENGINEER (CONT.)

Create an ID in SiteManager and refer to the sampling checklist. Record the lot number when creating the ID in SiteManager. Fill out the information on a label and attach it to the sample. Send the sample, sample label, and a copy of the bill of lading to the DME or MCL.

For line items that have less than 1,000 tons, retain the bill of lading in the project files.

DISTRICT MATERIALS ENGINEER (DME)

District Materials Lab

Upon request, help the section office determine if the producer is listed on the LAM.

Ensure that the sample has a sample label and a copy of the certification. Then forward the sample to MCL.

REMARKS

Submit the samples to MCL within 7 days of obtaining the sample for testing.

Protect the samples from freezing.

Sample stored material 7 days prior to its expiration to avoid delays in the use of material.

If the material is expired:

1. Obtain one sample.
2. Create an ID in SiteManager and select “Informational” as the sample type when creating the ID.
3. Forward the sample to MCL for testing.

Do not use the material until the sample has been tested and approved.

If an emulsified asphalt (non-polymer) is used for an asphalt seal coat or an asphalt curing seal, refer to **MFS-805** or **MFS-802**, respectfully.

MATERIALS FIELD SAMPLING

Chapter

LIQUID ASPHALT

Subject

Fiberglass Asphalt Waterproofing Membrane (One-Step Membrane)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain one sample per source per project and certification.

SAMPLING METHOD Obtain a 10-foot long sample.

SECTION ENGINEER Section Office

Obtain the producer's certification stating that the material satisfies Subsection 808.05 of the *Standard Specifications*.

If the material fails to satisfy the applicable certification requirements, reject the material.

Obtain the sample and create an ID in SiteManager. Refer to the sampling checklist. Send the sample, the sample label, and a copy of the certification to the DME or to the Materials Central Laboratory (MCL).

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

Ensure that the sample has a sample label and a copy of the certification. Then forward the sample to MCL.

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

LIQUID ASPHALT

Subject

Hot-Poured Elastic Joint Sealers

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain certification and one sample per source per contract. No sample is required when a line item is less than 5,000 square yards of pavement.

SAMPLING METHOD Extrude two samples of the heated material directly from the kettle into sealant boxes that are lined with a quick-release coating. Boxes should be filled reasonably full to ensure a large enough sample. Ensure that the product temperature is 400° F or less at the time of sampling.

SECTION ENGINEER Section Office

Obtain the producer's certification stating that the material satisfies ASTM D 6690 (Type II).

If the material fails to satisfy the applicable certification requirements, reject the material.

Ensure that the material has not expired. If the material has expired, follow the steps in the Remarks section.

Note: The material must be used within one year of the date of shipment on the bill of lading or load ticket.

Witness or obtain the sample and create an ID in SiteManager. Refer to the sampling checklist. Send the sample, the sample label, and a copy of the certification to the DME or to the Materials Central Laboratory (MCL).

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

Forward the sample to MCL and ensure that the sample has a copy of the certification and a sample label.

REMARKS

If the material is expired:

1. Obtain one sample.
2. Create an ID in SiteManager and select “Informational” as the sample type when creating the ID.
3. Forward the sample to MCL for testing.

Do not use the material until the sample has been tested and approved.

MATERIALS FIELD SAMPLING

Chapter

LIQUID ASPHALT

Subject

Layered, Fiber-Reinforced Waterproofing Membrane (Fiberglass One-Step Membrane, Layer Fiber-Reinforced Membrane, & Polypropylene Waterproofing Membrane)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain certification per shipment.

SAMPLING METHOD No samples are required.

SECTION ENGINEER Section Office

Obtain the producer's certification stating that the material satisfies ASTM C 877, Type II (excluding the steel straps). Retain the certification in the project files.

If the material does not satisfy ASTM C 877, Type II (excluding the steel straps), reject the material.

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

None

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

LIQUID ASPHALT

Subject

Liquid Asphalt for Cold-Patching Mixtures (AE-200)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain bill of lading and one sample per project.

SAMPLING METHOD Obtain two 1-gallon polyethylene containers from the contractor's distributor according to **KM 64-404**.

SECTION ENGINEER Section Office

Provide assistance to the District Materials Lab when requested.

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

Obtain the producer's bill of lading for the AE-200 and ensure that the producer is listed on the *List of Approved Materials* (LAM). If the producer is not listed on the LAM, contact the Materials Central Laboratory (MCL) to confirm. When it has been determined that the producer is not on the LAM, do not allow use of the material for departmental projects.

Obtain the sample or witness the sample being taken from the distributor. Obtain signatures of the project and contractor personnel involved in sampling.

Check the bill of lading to ensure that the date of shipment is not over 30 days from the approval date. This can be obtained from the 12-digit lot number (three letters representing the producer followed by three numbers representing the tank designation, and the last six numbers representing the date that the oil was certified). The material expires if it is not used within 30 days of the shipping date. Therefore, do not use the material on departmental projects. (See Remarks.)

DISTRICT MATERIALS ENGINEER (DME) (CONT.)

Create an ID in SiteManager and refer to the sampling checklist. Record the lot number when creating the ID in SiteManager. Fill out the information on a label and attach it to the sample. Send the sample, sample label, and a copy of the bill of lading to the DME or MCL.

REMARKS

Submit the samples to MCL within 7 days of obtaining the sample for testing.

Protect the samples from freezing.

Sample stored material 7 days prior to its expiration to avoid delays in the use of material.

If the material is expired:

1. Obtain one sample.
2. Create an ID in SiteManager and select “Informational” as the sample type when creating the ID.
3. Forward the sample to MCL for testing.

Do not use the material until the sample has been tested and approved.

MATERIALS FIELD SAMPLING

Chapter

LIQUID ASPHALT

Subject

Liquid Asphalt for Cold-Patching Mixtures (KP-4 & KP-6)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain bill of lading and one sample per lot.

SAMPLING METHOD Obtain two 1-gallon polyethylene containers from the contractor's tank according to **KM 64-404** for the KP-4 samples.

Obtain two 1-gallon metal containers from the contractor's tank according to **KM 64-404** for the KP-6 samples.

SECTION ENGINEER Section Office

Provide assistance to the district materials lab when requested.

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

Obtain the producer's bill of lading for the KP-4 and KP-6 and ensure that the producer is listed on the *List of Approved Materials* (LAM). If the producer is not listed on the LAM, contact the Materials Central Laboratory (MCL) to confirm. When it has been determined that the producer is not on the LAM, do not allow use of the material for departmental projects.

Obtain the sample or witness the sample being taken from the distributor. Obtain signatures of the project and contractor personnel involved in sampling.

Check the bill of lading to ensure that the date of shipment is not over 30 days from the approval date. This can be obtained from the 12-digit lot number (three letters representing the producer followed by three numbers representing the tank designation, and the last six numbers representing the date that the oil was certified). The material expires if it is not used within 30 days of the approval date. Therefore, do not use the material on departmental projects. (See Remarks.)

DISTRICT MATERIALS ENGINEER (DME) (CONT.)

Create an ID in SiteManager and refer to the sampling checklist. Fill out the information on a label and attach it to the sample. Record the lot number when creating the ID in SiteManager. Send the sample, sample label, and a copy of the bill of lading to the DME or MCL.

REMARKS

Submit the samples to MCL within 7 days of obtaining the sample for testing.

Protect the samples from freezing.

Sample stored material 7 days prior to its expiration to avoid delays in the use of material.

If the material is expired:

1. Obtain one sample.
2. Create an ID in SiteManager and select “Informational” as the sample type when creating the ID.
3. Forward the sample to MCL for testing.

Do not use the material until the sample has been tested and approved.

MATERIALS FIELD SAMPLING

Chapter	LIQUID ASPHALT
Subject	Longitudinal Joint Adhesive

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain certification and one sample per lot.

SAMPLING METHOD Extrude two samples of the heated material directly from the kettle into sealant boxes that are lined with a quick-release coating. Boxes should be filled reasonably full to ensure a large enough sample. Ensure that the product temperature is 400° F or less at the time of sampling.

SECTION ENGINEER Section Office

Obtain the producer's certification stating that the material satisfies the *Special Note for Longitudinal Joint Adhesive*.

If the material fails to satisfy the applicable certification requirements, reject the material.

Witness or obtain the sample. Create an ID in SiteManager and refer to the sampling checklist. Send the sample, the sample label, and a copy of the certification to the DME or Materials Central Laboratory (MCL).

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

Ensure that the sample has a sample label and a copy of the certification. Then forward the sample to MCL.

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

LIQUID ASPHALT

Subject

Performance-Graded (PG) Binders

INSPECTOR QUALIFICATION

None

SAMPLING FREQUENCY

The frequency for the different PG binders is as follows:

PG 64-22 – 1 per 12,000 tons, or a fraction thereof
PG 76-22 – 1 per 4,000 tons, or a fraction thereof
PG 58-28 – 1 per 12,000 tons, or a fraction thereof
PG 70-22 – 1 per 12,000 tons, or a fraction thereof

No sample is required if a PG 64-22 line item has less than 2,000 tons. For all other PG grades, small quantities are 1,000 tons per line item.

Visually inspect the bill of ladings during the project and obtain the bill of lading when the PG binder is sampled.

SAMPLING METHOD

Obtain two 1-quart unlined metal containers from the contractor's storage tank, or the feed line between the pugmill and the storage tank, as according to **KM 64-404.**

SECTION ENGINEER

Section Office

Provide assistance to the district materials lab when requested.

DISTRICT MATERIALS ENGINEER (DME)

District Materials Lab

Obtain the producer's bill-of-lading for the PG binders and ensure that the producer is listed on the *List of Approved Materials* (LAM). If the producer is not listed on the LAM, contact the Materials Central Laboratory (MCL) to confirm. When it has been determined that the producer is not on the LAM, do not allow use of the material for departmental projects.

Obtain the sample or witness the sample being taken from the storage tank or feed line. Obtain signatures of the project and contractor personnel involved in sampling.

DISTRICT MATERIALS ENGINEER (DME) (CONT.)

Check the bill of lading to ensure that the date of shipment is not over 30 days from the approval date. This can be obtained from the 12-digit lot number (three letters representing the producer followed by three numbers representing the tank designation, and the last six numbers representing the date that the oil was certified). The material expires if it is not used within 60 days of the shipping date. Therefore, do not use the material on departmental projects. (See Remarks.)

Create an ID in SiteManager and refer to the sampling checklist. Record the lot number when creating the ID in SiteManager. Fill out the information on a label and attach it to the sample. Send the sample, the sample label, and a copy of the bill of lading to the DME or MCL.

REMARKS

When the contractor's personnel obtain a sample from a storage tank in lieu of sampling from the feed line, confirm that the PG binder sampled is actually being utilized in the asphalt mixture produced for the project. Record the tank number from which the sample was taken in the Remarks section when creating an ID in SiteManager.

Submit the samples to MCL within 7 days of obtaining the sample for testing.

Protect the samples from freezing.

Sample stored material 7 days prior to its expiration to avoid delays in the use of material.

If the material is expired:

1. Obtain one sample.
2. Create an ID in SiteManager and select "Informational" as the sample type when creating the ID.
3. Forward the sample to MCL for testing.

Do not use the material until the sample has been tested and approved.

MATERIALS FIELD SAMPLING	*Chapter* LIQUID ASPHALT
	Subject Polymer Asphalt Emulsions (CSS-1HL & CRS-2P)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Microsurfacing: Obtain the bill of lading for each shipment and obtain samples of the polymer modified emulsion (CSS-1hL) at a frequency of one sample per production day.

SAMI: Obtain bill of lading for each shipment and obtain one sample of polymer modified emulsion (CRS-2P) per lot for stress-absorbing membrane interlayer (SAMI).

SAMPLING METHOD Obtain two 1-gallon polyethylene containers from the contractor's distributor or tank as according to **KM 64-404** for the polymer asphalt emulsion sample.

SECTION ENGINEER Section Office

Provide assistance to the district materials lab when requested.

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

Obtain the producer's bill of lading for the polymer asphalt emulsion and ensure that the producer is listed on the *List of Approved Materials* (LAM). If the producer is not listed on the LAM, contact the Materials Central Laboratory (MCL) to confirm. When it has been determined that the producer is not on the LAM, do not allow the use of the material for departmental projects.

Obtain the sample or witness the sample being taken from the contractor's distributor or tank. Obtain signatures of the project and contractor personnel involved in sampling.

DISTRICT MATERIALS ENGINEER (DME)

Check the bill of lading to ensure that the date of shipment is not over 30 days from the approval date. This can be obtained from the 12-digit lot number (three letters representing the producer followed by three numbers representing the tank designation, and the last six numbers representing the date that the oil was certified). The material expires if it is not used within 30 days of the shipping date. Therefore, do not use the material on departmental projects. (See Remarks.)

Create an ID in SiteManager and refer to the sampling checklist. Record the lot number when creating the ID in SiteManager. Fill out the information on a label and attach it to the sample. Send the sample, sample label, and a copy of the bill of lading to the DME or MCL

REMARKS

Submit the samples to MCL within 7 days of obtaining the sample for testing.

Protect the samples from freezing.

Sample stored material 7 days prior to its expiration to avoid delays in the use of material.

If the material is expired:

1. Obtain one sample.
2. Create an ID in SiteManager and select “Informational” as the sample type when creating the ID.
3. Forward the sample to MCL for testing.

Do not use the material until the sample has been tested and approved.

MATERIALS FIELD SAMPLING

Chapter

LIQUID ASPHALT

Subject

Preformed Compression Joint Sealers (Neoprene)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain certification per shipment.

SAMPLING METHOD No samples are required unless material has expired.

SECTION ENGINEER Section Office

Obtain the producer's certification stating that the material satisfies Subsection 807.03.02 of the *Standard Specifications*. Verify that the lot number and size marked on the seal are the same as the lot number and size on the producer's certification.

Ensure that the seal markings correspond with the appropriate width that is listed on the *List of Approved Materials* (LAM).

Verify that the material has not expired.

Note: The material must be used within one year of the date of shipment to the project. If the material has expired, do not use the material. (See Remarks.)

If the material fails to satisfy the applicable certification requirements, reject the material.

Retain the certification in the project files.

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

Provide assistance to the section office when requested.

REMARKS

If the material has expired:

1. Obtain certification and a sample that is 6 feet in length per size and cross-section shape per project.
2. Create an ID in SiteManager and select “Informational” as the sample type when creating the ID.
3. Forward the sample to the Materials Central Laboratory (MCL) for testing.

Do not use the material until the sample has been tested and approved.

MATERIALS FIELD SAMPLING

Chapter

LIQUID ASPHALT

Subject

Preformed Expansion Joint Sealers (Neoprene)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain certification per shipment.

SAMPLING METHOD No samples are required unless material has expired.

SECTION ENGINEER Section Office

Obtain the producer's certification stating that the material satisfies Subsection 807.03.02 of the *Standard Specifications*. Verify that the lot number and the size marked on the seal are the same as the lot number and the size on the producer's certification.

Ensure that the seal markings correspond with the appropriate width that is listed on the List of Approved Materials (LAM) and the dimensional requirements on the plans or proposal.

Verify that the material has not expired.

Note: The material must be used within one year of the date of shipment to the project. If the material has expired, do not use the material and see Remarks.

If the material fails to satisfy the applicable certification requirements, reject the material.

Retain the certification in the project files.

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

Provide assistance to the section office when requested.

REMARKS

If the material has expired:

1. Obtain certification and a sample that is 6 feet in length per size and cross-section shape per project.
2. Create an ID in SiteManager and select “Informational” as the sample type when creating the ID.
3. Forward the sample to the Materials Central Laboratory (MCL) for testing.

Do not use the material until the sample has been tested and approved.

MATERIALS FIELD SAMPLING

Chapter	LIQUID ASPHALT
Subject	Rubber Gaskets

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain certification and one sample per project per source. No sample is required if less than 75 gaskets are used on the contract.

SAMPLING METHOD Obtain two representative gaskets.

SECTION ENGINEER Section Office

Obtain the producer's certification stating that the material satisfies the applicable portions of AASHTO M 315 for each size and lot.

If the material fails to satisfy the applicable certification requirements, reject the material.

Obtain a sample, if required, and create an ID in SiteManager. Refer to the sampling checklist. Record the lot number when creating an ID. Send the sample, a sample label, and the producer's certification, to the Materials Central Laboratory (MCL).

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

Ensure that the sample has a sample label and a copy of the certification. Then forward the sample to MCL.

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

LIQUID ASPHALT

Subject

Silicone Rubber Sealant (One Component, Non-Sag, & Self-Leveling)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain certification and one sample per lot per project. No sample is required if a line item on the contract is less than 5,000 square yards.

SAMPLING METHOD Obtain one 12-ounce Semco tube sample during application of the material. (Do not open the product container to use solely for sampling purposes.)

Note: Sampling containers may be obtained from the Liquid Asphalt Section.

SECTION ENGINEER Section Office

Obtain certification per shipment and ensure that it states that the material satisfies Subsection 807.03.05 A of the *Standard Specifications*.

Verify that the lot number on the container matches the lot number listed on the producer's certification.

If the material fails to satisfy the applicable certification requirements, reject the material.

Obtain 5 plugs, each being 2 inches in length, per day of production and ensure conformance to the required geometry specified for the joint seal. (Refer to Subsection 501.03.18 D of the *Standard Specifications* for further information.)

Obtain sample and create an ID in SiteManager. Refer to the sampling checklist. Record the lot number when creating an ID. Send the sample, the certification, and a sample label to the district materials lab or to the Materials Central Laboratory (MCL).

If no sample is required, retain the producer's certification in the project files.

DISTRICT MATERIALS ENGINEER (DME)

District Materials Lab
Ensure that the sample has a sample label and a copy of the certification. Then forward the sample to MCL.

REMARKS

Refer to the material installation instructions for temperature requirements, etc.

MATERIALS FIELD SAMPLING

Chapter	LIQUID ASPHALT
Subject	Silicone Rubber Sealant (Two Component, Rapid Cure)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain certification per shipment.

SAMPLING METHOD No sampling is required.

SECTION ENGINEER Section Office

Obtain certification per shipment and ensure that it states that the material satisfies Subsection 807.03.05 A of the *Standard Specifications*.

Verify that the lot number on the container matches the lot number listed on the producer's certification.

If the material fails to satisfy the applicable certification requirements, reject the material.

Obtain 5 plugs, each being 2 inches in length, per day of production and ensure conformance to the required geometry specified for the joint seal. (Refer to Subsection 501.03.18 D of the *Standard Specifications* for further information.)

Retain the producer's certification in the project files.

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

None

REMARKS Refer to the material installation instructions for temperature requirements, etc.

MATERIALS FIELD SAMPLING

Chapter

LIQUID ASPHALT

Subject

Traffic Loop Encapsulant

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain certification and one sample per project per source.

SAMPLING METHOD Obtain one prepackaged, 32-ounce tube from the project site.

SECTION ENGINEER Section Office

Obtain the producer's certification for each lot stating that it meets the requirements of Subsection 835.06 of the *Standard Specifications*.

Verify that the lot number on the container matches the lot number on the producer's certification.

If the material fails to satisfy the applicable certification requirements, reject the material.

Ensure that the material is used within one year from the date of manufacture. If the material is over a year from the date, refer to the Remarks section.

Obtain a sample, if required, and create an ID in SiteManager. Refer to the sampling checklist. Record the lot number when creating an ID. Send the sample, a sample label, and the producer's certification, to the DME or Materials Central Laboratory (MCL).

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

Ensure that the sample has a copy of the certification and a sample label. Forward the sample to MCL.

REMARKS

If the material has expired:

1. Obtain certification and a sample.
2. Create an ID in SiteManager and select “Informational” as the sample type when creating the ID.
3. Forward the sample to MCL for testing.

Do not use the material until the sample has been tested and approved.

MATERIALS FIELD SAMPLING	*Chapter* PHYSICAL
	Subject General Notes

The Concrete and Physical Properties Section has responsibility for many different types of materials. Some field testing is performed by district construction or materials crews. However, most materials are sampled from the project and transported by Cabinet personnel, US Postal Service, or private courier to the Materials Central Laboratory (MCL) for testing. Other materials are accepted by these crews based upon *certification* of materials by the producer or suppliers. Often Cabinet personnel simply collect the samples and accompanying documentation, accept the materials, and file the documentation in the district office project files.

Many of these materials have unique sampling requirements that must be listed individually. This manual guides the user in utilizing each unique sampling method. The actual frequencies are listed in this section and also can be found in SiteManager or by contacting the Concrete and Physical Properties Section.

Note: *Certification* means documentation by the *manufacturer* (as opposed to the *supplier*) that the material meets the required specification. The specification must be cited and the certification must be signed and dated by the manufacturer's representative.

For any questions pertaining to this information, contact:

Concrete and Physical Properties Section Supervisor
Division of Materials
1227 Wilkinson Boulevard
Frankfort, KY 40601

Phone: (502) 564-3160
Fax: (502) 564-7034

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Bolts (A325), Nuts, & Washers (for Bridges)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY

Bolts

Number of Pieces in Shipping Lot	Number of Specimens
0 - 150	1
151 - 280	2
281 - 500	3
501 - 1,200	5
1,201 - 3,200	8
3,201 - 10,000	13
10,001 and over	20

Nuts & Washers

Number of Nuts or Washers in Lot	Number of Specimens
0 - 800	1
801 - 8,000	2
8,001 – 22,000	3
220001, and over	5

SAMPLING METHOD Samples are collected at the manufacturer, the fabricator, or from the project.

Obtain as many different manufacturer symbols as the sample size will allow.

Note: A shipping lot, for the purpose of selecting test samples for this subject, is defined as "the quantity of bolts of the same nominal size and same nominal length necessary to fill the requirements of a single purchase order."

SECTION ENGINEER Section Office

Inspect bolts, nuts, and washers for defects.

Obtain manufacturer's certifications containing physical and chemical test results, and statement that the bolts, nuts, and washers conform to ASTM A 325, A 563, F 436, etc.

Note: If structural steel has been inspected by a state inspector, the Division of Construction may already have obtained the manufacturer's certifications. Check with the Division of Construction.

Obtain check sample of bolts, nuts, and washers from each shipping lot. Create an ID for the sample and refer to the sampling checklist. Send the sample and a copy of the certification per size to the District Materials Lab or the Materials Central Laboratory (MCL).

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

Submit samples and certifications to MCL for testing.

REMARKS Refer to the sampling checklist to ensure that the proper material code has been assigned, along with the information that must be entered into SiteManager when creating an ID.

MATERIALS FIELD SAMPLING

Chapter	PHYSICAL
Subject	Bolsters - Plastic

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain certification on each shipment of plastic bolsters.

SAMPLING METHOD No samples are required.

SECTION ENGINEER Section Office

Obtain certification of each shipment and confirm that the producer of the plastic bolsters is on the *List of Approved Materials* (LAM). If the producer is not listed on the LAM, contact the DME or the Materials Central Laboratory (MCL) to confirm. If the producer is not on the LAM, and confirmed by MCL, reject the plastic bolsters and do not allow use on the project.

Create an ID in SiteManager for the plastic bolsters according to the sampling checklist for each shipment. If the producer is on the LAM, retain the certification in the project files.

DISTRICT MATERIALS ENGINEER District Materials Lab

Upon request, assist the section office to determine if the producer of the plastic bolsters is on the LAM.

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Cable Rope Median Barriers (HTC System)

INSPECTOR QUALIFICATION

None

SAMPLING FREQUENCY

Obtain certification and submit samples once per contract.

SAMPLING METHOD

Obtain samples according to the protocol outlined by the Materials Central Laboratory (MCL). Visually ensure that the samples are obtained properly and for the correct HTC system.

SECTION ENGINEER

Verify that the HTC system is listed on the *List of Approved Materials* (LAM). Create an ID and obtain samples as per the protocol outlined in the proposal. If it is not on the LAM, contact the MCL or the DME office. If the system does not appear, reject the material and do not allow use of the material on the project.

Create an ID for the sample in SiteManager and refer to the sampling checklist. Send the sample, along with the certification, to MCL or the DME office.

DISTRICT MATERIALS ENGINEERS (DME)

District Materials Lab

Upon request, assist the section office to determine if the system is on the LAM.

Submit the samples to MCL for testing.

REMARKS

Sampling protocol is unique in detail for each of the HTC systems.

Note: Contact MCL for specific sampling details relevant for each brand system.

Materials Field Sampling

Chapter	PHYSICAL
Subject	Conduit – Rigid Steel & PVC

Inspector Qualification None

Sampling Frequency Obtain certification per shipment per size.

Obtain a sample per manufacturer if the manufacturer is not on the *List of Approved Materials* (LAM).

Sampling Method Obtain a two-foot section of pipe per size per manufacturer, if manufacturer doesn't appear on the LAM.

Section Engineer Section Office

Obtain manufacturer's certification per shipment stating that the material conforms to the specifications.

Inspect for conformity with certification, dimension requirements, and freedom from defects.

Confirm that the manufacturer is listed on the LAM. If the producer is on the LAM, no sample is required. Create an ID in SiteManager for the certification, refer to the sampling checklist, and retain the certification in the project files.

If the manufacturer does not appear on the LAM, obtain a sample. Create an ID in SiteManager for the sample, and refer to the sampling checklist. Deliver the sample and the certification to the Materials Central Laboratory (MCL) or the DME office. Wait for results prior to use.

District Materials Engineer (DME) District Materials Office

The DME shall submit samples and all documentation provided by the section office to MCL.

DISTRICT MATERIALS ENGINEER (DME) (CONT.)

Notify the section office once the sample has been evaluated for specification compliance.

Upon request, assist the section office to determine if the manufacturer is on the LAM.

REMARKS

None

MATERIALS FIELD SAMPLING	*Chapter* PHYSICAL
	Subject Dowels, Plain (for Pier Caps)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain one sample per project for dowels.

SAMPLING METHOD Obtain certification for coated and uncoated dowels.

For coated dowels, obtain a sample of three dowels, each being 24 inches long.

SECTION ENGINEER Section Office

Uncoated Dowels:

- Obtain certification for each shipment delivered to the project stating the product conforms to ASTM A 615, 617, 996, or 706.
- Visually inspect dowels for size, rust, etc.
- Confirm that the manufacturer and fabricator are listed on the *List of Approved Materials* (LAM). If not on the LAM, confirm with the Materials Central Laboratory (MCL) or the DME office that the producer and fabricator do not appear. If the producer or fabricator does not appear, reject the dowels and do not allow use of the dowels on the project.
- Create an ID in SiteManager and refer to the sampling checklist on how to create an ID for the certification per shipment. Retain the certification in the project files.

Coated Dowels:

- Obtain certification for each shipment delivered to the project stating that the product conforms to ASTM A 615, 617, 996, or 706.

- Visually inspect dowels for size, rust, coating, etc.

- Confirm that the manufacturer, coater, epoxy, and fabricator are listed on the LAM. If they are not on the LAM, confirm with MCL or the DME office that the producer and fabricator do not appear. If the producer, fabricator, and coater do not appear, then reject the dowels and do not allow use of the dowels on the project.

- Create an ID in SiteManager for the sample and refer to the sampling checklist. Deliver the sample and a copy of the certification to MCL or the DME office.

DISTRICT MATERIALS ENGINEER (DME)

District Materials Lab

Upon request, assist the section office to determine if the producer is on the LAM.

Submit the sample and the certification to MCL for testing.

REMARKS

None

Materials Field Sampling

Chapter

PHYSICAL

Subject

Dowels, Plain (Pavement, Coated)

Inspector Qualification None

Sampling Frequency Obtain one sample and certifications per project.

Sampling Method Obtain sample (3 dowels, each being 18 inches long) and certification.

Section Engineer Section Office

Visually inspect the dowels for coating, rust, size, etc.

Obtain sample and certifications that state that the product conforms to ASTM A 706, 615, 996, or 617 steel.

Confirm that the manufacturer, coater, epoxy, and fabricator are listed on the *List of Approved Materials* (LAM). If not on the LAM, confirm with the Materials Central Laboratory (MCL) or the DME office that the producer and fabricator do not appear. If the producer, fabricator, epoxy, and coater do not appear, then reject the dowels and do not allow ~~the~~ use of the dowels on the project.

Create an ID in SiteManager for the sample and refer to the sampling checklist. Deliver the sample and a copy of the certification to MCL or the DME office.

District Materials Engineer District Materials Lab

Upon request, assist the section office to determine if the producer is on the LAM.

Submit the sample and the certification to MCL for testing.

Remarks None

Materials Field Sampling

Chapter	Subject
PHYSICAL	Deformed Tie Bars & Dowels

Inspector Qualification None

Sampling Frequency Obtain one sample and certifications per project.

Sampling Method Deformed Tie Bars – 2 bars, each being 30 inches long
Deformed Dowels – 2 dowels, each being 18 inches long

Section Engineer Section Office

Obtain the TC 64-122 form (*Fabricator's Heat Number Identification of Reinforcing Bars*), Mill Test Report, and quality control documentation from the epoxy coater for each shipment.

Inspect shipment for damage to coating and for conformance to requirements of the specifications. Also ensure that the heat numbers listed on the TC 64-122 form match the numbers on the shipment.

Confirm that the manufacturer, coater, epoxy, and fabricator are listed on the *List of Approved Materials* (LAM). If not on the LAM, confirm with Materials Central Laboratory (MCL) or the DME office that the producer and fabricator do not appear. If the producer, fabricator, epoxy, and coater do not appear, then reject the dowels and do not allow use of the dowels on the project.

Once the sample is obtained, create an ID in SiteManager and refer to the sampling checklist. Deliver the sample and a copy of the certification to the DME or MCL.

District Materials Engineer (DME) District Materials Lab

Upon request, assist the section office to determine if the producer is on the LAM.

Submit the sample and the certification to MCL for testing.

Remarks None

Materials Field Sampling

Chapter

PHYSICAL

Subject

Erosion Control—Erosion Control Blanket

Inspector Qualification None

Sampling Frequency Obtain certification per source per shipment.

Sampling Method No samples are required.

Section Engineer Section Office

Obtain manufacturer's certification per shipment and visually inspect material for conformance as according to Section 827 of the *Standard Specifications*.

Confirm that the manufacturer is listed on the *List of Approved Materials* (LAM). If not on the LAM, confirm with the Materials Central Laboratory (MCL) or the DME office that the manufacturer does not appear. If the manufacturer does not appear, then reject the material and do not allow use of the material on the project.

Create an ID in SiteManager for each shipment and refer to the sampling checklist. Retain the certification in the project file.

District Materials Engineer District Materials Lab

Upon request, assist the section office to determine if the manufacturer is on the LAM.

Remarks None

Materials Field Sampling

Chapter	PHYSICAL
Subject	Erosion Control—Fertilizer

Inspector Qualification None

Sampling Frequency Obtain manufacturer's certification per shipment per source.

Sampling Method Sample fertilizer in a one-gallon plastic container if required.

Section Engineer Section Office

Obtain manufacturer's certification per shipment and verify if the certification meets the requirements as listed on the *List of Approved Materials* (LAM). Retain the certification in the project files.

If the certification does not meet the requirements listed on the LAM, obtain a sample. Create an ID in SiteManager and refer to the sampling checklist. Send the sample, the sample label, and the certifications to the Materials Central Laboratory (MCL) or the DME office.

District Materials Engineer District Materials Lab

Upon request, assist the section office to determine if the certification meets the requirements listed on the LAM.

Deliver the sample, the sample label, and certification to MCL for testing.

Remarks If the fertilizer is not a bid item, the material is incidental to seeding or erosion control blanket bid items.

Materials Field Sampling

Chapter	PHYSICAL
Subject	Erosion Control—Mulch, Straw

Inspector Qualification	None
Sampling Frequency	Visually inspect each shipment.
Sampling Method	No samples are required.
Section Engineer	Section Office
	Visually inspect the mulch and straw, and their application to ensure that they comply with Sections 212, 213, and 827 of the *Standard Specifications*.
District Materials Engineer	District Materials Engineer
	None
Remarks	None

MATERIALS FIELD SAMPLING

Chapter	PHYSICAL
Subject	Erosion Control—Silt Fence

INSPECTOR QUALIFICATION	None
SAMPLING FREQUENCY	Obtain certification per shipment per source.
SAMPLING METHOD	No samples are required.
SECTION ENGINEER	Section Office
	Obtain certification that ensures conformance to AASHTO M288.
	Inspect the silt fence and ensure that it meets the requirements of Section 827 of the *Standard Specifications* and any applicable *Standard Drawings*.
	Retain the certification in the project files.
DISTRICT MATERIALS ENGINEER	District Materials Lab
	None
REMARKS	None

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Erosion Control—Silt Trap Type "C" Bags

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain certification per shipment per source.

SAMPLING METHOD No samples are required.

SECTION ENGINEER Section Office

Obtain manufacturer's geotextile certification per shipment and visually inspect material for conformance. Refer to *Standard Drawing* RDX-230.

Confirm that the manufacturer is listed on the *List of Approved Materials* (LAM). If not on the LAM, confirm with Materials Central Laboratory (MCL) or the DME office that the manufacturer does not appear. If the manufacturer does not appear, reject the material and do not allow use of the material on the project.

Create an ID in SiteManager for each shipment and refer to the sampling checklist. Retain the certification in the project file.

DISTRICT MATERIALS ENGINEER District Materials Lab

Upon request, assist the section office to determine if the manufacturer is on the LAM.

REMARKS None

MATERIALS FIELD SAMPLING	*Chapter* PHYSICAL
	Subject Erosion Control—Seed, Temporary & Permanent

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain vendor's certification, and the tags on from the seed bags.

SAMPLING METHOD No samples are required.

SECTION ENGINEER Section Office

Obtain vendor's certification per shipment. If the seed is premixed, obtain the master blend sheet from the supplier.

Inspect and ensure that the delivered seed bags have tags and that the tags are obtained.

Check each tag for the following information and requirements to ensure that the results are within the allowable ranges in the *Standard Specifications*:

- Lot number identification
- Vendor's name and address
- Kind of seed
- Variety of seed
- Pure seed % (Section 827.04 of the *Standard Specifications*)
- Germination % (Section 827.04 of the *Standard Specifications*)
- Hard Seed % (Section 827.04 of the *Standard Specifications*)
- Inert matter %
- Crop Seed %
- Date of test
- Weed seed %
- Seed origin (state)
- List of noxious weed seeds and amounts (if any) (Section 827.04 of the *Standard Specifications*)

Retain the vendor's certification and tags in the project files.

DISTRICT MATERIALS ENGINEER (DME)	District Materials Lab
	None
REMARKS	None

MATERIALS FIELD SAMPLING

Chapter	PHYSICAL
Subject	Erosion Control—Wildflower Seed

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain supplier's certification per shipment per source.

SAMPLING METHOD No samples are required.

SECTION ENGINEER Section Office

Obtain supplier's certification per shipment and ensure that the seed conforms to Section 827 of the *Standard Specifications*.

Ensure that the areas where the wildflower seeding is to be planted is on the plans; otherwise, obtain prior approval from the Division of Construction.

Retain the supplier's certification in the project files.

DISTRICT MATERIALS ENGINEER District Materials Lab

None

REMARKS None

MATERIALS FIELD SAMPLING

Chapter	PHYSICAL
Subject	Erosion Control—Sod (KY Bluegrass or Tall Fescue)

INSPECTOR QUALIFICATION	None
SAMPLING FREQUENCY	Obtain manufacturer's certification per shipment per source.
SAMPLING METHOD	No samples are required.
SECTION ENGINEER	Section Office
	Obtain certification and inspect the sod to ensure that the sod conforms to Section 827 of the *Standard Specifications* and to the project plans.
	Retain the manufacturer's certification and mill test reports in the project files.
DISTRICT MATERIALS ENGINEER	District Materials Lab
	None
REMARKS	Ensure that approval is given prior to using Tall Fescue sod in residential areas as according to Section 827 of the *Standard Specifications*.

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Erosion Control—Turf Reinforcement Mat

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain certification on each shipment of turf reinforcement mat.

SAMPLING METHOD No samples are required.

SECTION ENGINEER Section Office

Obtain certification of each shipment and confirm that the producer of the turf reinforcement mat is on the *List of Approved Materials* (LAM). If the producer is not listed on the LAM, contact the DME or the Materials Central Laboratory (MCL). If the producer is not on the LAM and is confirmed by MCL, reject the turf reinforcement mat and do not allow use on the project.

If the producer is on the LAM, create an ID in SiteManager for the turf reinforcement mat for each shipment, as according to the sampling checklist. Retain the certification in the project files.

DISTRICT MATERIALS ENGINEER District Materials Lab

Upon request, assist the section office to determine if the producer of the turf reinforcement mat is on the LAM.

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Fabric-Wrapped Backfill Drains

INSPECTOR QUALIFICATIONS None

SAMPLING FREQUENCY Obtain certification for each shipment.

SAMPLING METHOD No samples are required.

SECTION ENGINEER Section Office

For each shipment, obtain manufacturer's certification indicating that the product conforms to specifications.

Confirm that the manufacturer is listed on the *List of Approved Materials* (LAM). If not on the LAM, confirm with Materials Central Laboratory (MCL) or the DME office that the manufacturer does not appear. If the manufacturer does not appear, reject the material and do not allow use of the material on the project.

Create an ID in SiteManager for each shipment and refer to the sampling checklist. Retain the certification in the project file.

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

Upon request, assist the section office to determine if the producer is on the LAM.

REMARKS No sampling is required unless the material is in question.

MATERIALS FIELD SAMPLING	*Chapter* PHYSICAL
	Subject Fencing Materials

INSPECTOR QUALIFICATIONS None

SAMPLING FREQUENCY For projects that have less than 250 linear feet, obtain certification for each component and retain the certification in the project file.

For projects greater than 250 linear feet, obtain a sample for each component that is incorporated into the fence.

Note: Samples are always required for pedestrian walkways. Small quantities do not apply.

SAMPLING METHOD Fabric and Barbed Wire – one 3-foot section
Pull, Brace, Tension Wire, and Line (round) Posts – one 2-foot section
Line (Stud Tee) Posts – one 2-foot section from end without anchor plate
Fittings – one unit of each item involved

Note: All components of the fence shall be sampled per project per source. When bid quantity exceeds 15,000 linear feet, sample only the fabric and barbed wire.

SECTION OFFICE Section Office

Perform visual inspection and obtain samples and certification.

Create a separate ID for each post size and barbed wire. Submit the sample and a copy of the certification to the Materials Central Laboratory (MCL) or the DME office. Create one ID for fencing hardwire and submit the sample and a copy of the certification to MCL or the DME office.

Note: Use the "REMARKS" bubble to indicate the type of hardware submitted. Use the following abbreviations:

SECTION OFFICE (CONT.)

Barb Wire Arm	BWA	Tension Bar	TB
Brace Band	BB	Tension Rod	TR
Brace Caps	BC	Tension Wire	TW (r/w only)
Corner Band	CB	Tie Wire Alum.	TWA
Corner Cap	CP	Top Wire Steel	TWS
Loop Cap	LC	Top Rail Sleeve	TRS
Truss Tightener	TT		

Note: Metal fence posts of structural shapes are accepted by certification by Division of Construction. For wood posts, see the sections discussing timber products. Also, refer to Sections 816, 817, and 818 of the *Standard Specifications*.

DISTRICT MATERIALS ENGINEER (DME)

District Materials Lab

Submit the sample and the certification to MCL for testing.

REMARKS

None

Materials Field Sampling

Chapter	PHYSICAL
Subject	Gabions & Mattress Units

Inspector Qualifications None

Sampling Frequency Certification shall be obtained for each shipment.

Obtain one sample per 500 cubic yards.

Sampling Method Tie or lacing wire samples shall be 3 feet long.

Gabion samples shall be 20 inches wide by 40 inches long, with a selvedge wire in the center.

Mattress unit samples shall be two pieces, each 40 inches wide by 8 inches long with a selvedge wire along one of the 40-inch sides of each piece.

Pieces should be laced together on the selvedge as described in the specifications.

Section Engineer Section Office

Create an ID in SiteManager for the sample obtained and refer to the sampling checklist. Send the sample and a copy of the certification to the Materials Central Laboratory (MCL) or the DME office for testing.

Ensure that the certification states that it meets ASTM A 774 or ASTM A 775 specifications and that it lists specific test results for the size of each wire and the weight of the zinc coating.

District Materials Engineer District Materials Lab

Submit the sample and the certification to MCL for testing.

Remarks None

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Gabion & Mattress Interlocking Fasteners

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain certification for each shipment.

SAMPLING METHOD No samples required

SECTION ENGINEER Section Office

For each shipment, obtain the manufacturer's certification that indicates the brand name of the product.

Confirm that the manufacturer and the product are listed on the *List of Approved Materials* (LAM). If not on the LAM, confirm with the Materials Central Laboratory (MCL) or the DME office that the manufacturer or product does not appear. If the manufacturer or product does not appear, then reject the material and do not allow use of the material on the project.

Create an ID in SiteManager for each shipment and refer to the sampling checklist. Retain the certification in the project file.

DISTRICT MATERIALS ENGINEER District Materials Lab

Upon request, assist the section office to determine if the manufacturer or product is on the LAM.

REMARKS None

Materials Field Sampling

Chapter	PHYSICAL
Subject	Geotextiles

Inspector Qualification None

Sampling Frequency For projects that have less than 6,000 square yards per "style/type," obtain material certification for each shipment.

For projects that have greater than 6,000 square yards per "style/type," obtain a sample and certification for each shipment.

Sampling Method Provide a swatch for every 20 rolls of fabric, up to 5 swatches. Each swatch shall be 3 feet long by the full width of the roll and shall not be taken from the outside layer of the roll or the inner layer next to the core. Each swatch shall be taken from different rolls. Mark each swatch so that the roll will be identifiable. Roll, do not fold, the fabric.

Section Engineer Section Office

Visually inspect the fabric for evidence of improper storage.

Fabric must be stored and shall have no instance of having been exposed to direct sunlight, rain, ultraviolent rays, dirt, dust, debris, or temperatures greater than 140 degrees F at any time prior to installation.

Obtain manufacturer's certification for each shipment for each "style/type."

Confirm that the manufacturer and "style/type" are listed on the *List of Approved Materials* (LAM). If not on the LAM, confirm with Materials Central Laboratory (MCL) or the DME office that the manufacturer or "style/type" does not appear. If the manufacturer or "style/type" does not appear, then reject the material and do not allow use of the material on the project.

SECTION ENGINEER (CONT.)

Projects less than 6,000 square yards:

Create an ID in SiteManager for each shipment and refer to the sampling checklist. Retain the certification in the project file.

Projects greater than 6,000 square yards:

Create one ID in SiteManager for the sample obtained (up to 5 swatches) per contract per "style/type" per source, refer to the sampling checklist. Send the sample and a copy of the certification to MCL or the DME office for testing.

DISTRICT MATERIALS ENGINEER (DME)

District Materials Lab

Upon request, assist the section office to determine if the manufacturer or product is on the LAM.

Submit the sample and the certification to MCL for testing.

REMARKS

The sampling checklist shall only have the sample type as "certification" or as "project accept," but not as both.

MATERIALS FIELD SAMPLING	*Chapter* PHYSICAL
	Subject Gray Iron Castings, AASHTO M 105

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain certifications for each shipment.

SAMPLING METHOD No samples required

SECTION ENGINEER Section Office

Obtain manufacturer's or foundry's certification for each lot, identifying the dates of manufacture or lot numbers contained in the shipment. Ensure that the manufacturer or the foundry is on the *List of Approved Materials* (LAM). If not on the LAM, confirm with the Materials Central Laboratory (MCL) or the DME office that the manufacturer or foundry does not appear. If the manufacturer or foundry does not appear, reject the material and do not allow use of the material on the project.

Accept the lot or shipment upon the certification that the castings have been sampled, tested, and manufactured in accordance with AASHTO M 105, Class 30-5.

Verify that the castings meet the applicable standard drawing.

Inspect the castings for freedom from defects and verify that the castings received are those covered by the certification for each shipment.

For each shipment, create an ID in SiteManager and refer to the sampling checklist. Retain the certification in the project file.

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

Upon request, assist the section office to determine if the manufacturer or foundry is on the LAM.

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Guardrail & Temporary Guardrail

INSPECTOR QUALIFICATION

None

SAMPLING FREQUENCY

Field testing of zinc coating will be by thickness gauge once every 3,000 linear feet of rail and one post.

Obtain certification per shipment for the rail, accessories, and offset blocks.

SAMPLING METHOD

Testing of zinc coating will be by a thickness gauge and recorded on the Guardrail Galvanizing Thickness Worksheet.

Thickness measurements shall be taken at the middle width of the element on both ends. (Measurements shall be taken no closer than 3 inches from the end and no closer than 3 inches from the middle of the full-length section).

Referee testing is required only when the zinc coating weight fails to meet minimum requirements.

The referee test for coating thickness will be the stripping method, which is performed by the Materials Central Laboratory (MCL). This requires cutting samples from the rail or post and submitting the samples for the test to be performed. (Samples shall be cut from the same spot that thickness measurements are taken.)

The sample size shall be 3 inches by 14 inches when cut with a torch or 2 inches by 14 inches when cut smoothly with a saw.

No sample of the hook bolts is required.

SECTION ENGINEER Section Office

Obtain the manufacturer or fabricator certification for each shipment, and confirm that the manufacturer or fabricator is on the *List of Approved Materials* (LAM) for the rail, post, and spacer blocks. If not on the LAM, confirm with the Materials Central Laboratory (MCL) or the DME office that the manufacturer or fabricator does not appear. If the manufacturer or fabricator does not appear, reject the material and do not allow ~~the~~ use of the material on the project.

Ensure that the certification attests conformance to AASHTO M 180 and M 232 for all items in the shipment.

Check all items in the shipment for conformity to dimensional requirements and for manufacturer's brand on the rail.

Make a visual inspection for white rust and other surface defects during installation and delivery of the rail and accessories.

Perform field test for zinc coating weight and complete the Guardrail Galvanizing Thickness Worksheet.

When necessary, obtain referee sample.

Inspect accessories for conformity to dimensional requirements and obtain certification.

Create an ID for the rail, post, spacer blocks, and accessories in SiteManager. Refer to the sampling checklist. Record the zinc coating for the rail and post on the worksheet in SiteManager.

Create an ID for the referee sample if it is required. Refer to the sampling checklist. The sample type shall be "Project Accept". If it doesn't appear, contact the DME.

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

Upon request, assist the section office to determine if the manufacturer or product is on the LAM.

If a referee sample is required, submit the sample and the certification to MCL for testing.

REMARKS The Guardrail Galvanizing Thickness Worksheet for Guardrail and End Treatments can be found on the following Division of Materials webpage:

http://transportation.ky.gov/materials/pages/Physical.aspx

MATERIALS FIELD SAMPLING	*Chapter* PHYSICAL
	Subject Guardrail End Treatments

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Field testing of zinc coating will be by thickness gauge at least once per type of end treatment per project.

Obtain certification for each end treatment.

Obtain certification for cement and fly ash.

Perform plastic testing on the concrete when the end treatment requires concrete. Compressive strength samples can be obtained but are not required. At the engineer's discretion, concrete may be accepted under small quantities, provided the concrete is from an approved supplier. (See **MFS-607**.)

SAMPLING METHOD Testing of zinc coating will be by a thickness gauge and recorded on the Guardrail Galvanizing Thickness Worksheet.

Thickness measurements shall be taken at the middle width of the element on both ends. (Measurements shall be taken no closer than 3 inches from the end and no closer than 3 inches from the middle of the full-length section.)

A second zinc coating measurement will be required if the first test fails to meet the requirements. The DME or the Materials Central Laboratory (MCL) will take a reading with a different thickness gauge on the end treatment that obtained the failing reading. If the second thickness measurement does not meet the specifications, reject the end treatment and do not incorporate it into the project.

SECTION ENGINEER Section Office

Obtain the manufacturer or fabricator certification for each shipment, and confirm that the manufacturer or fabricator is on the *List of Approved Materials* (LAM) for the rail, post, and spacer blocks. If not on the LAM, confirm with the Materials Central Laboratory (MCL) or the DME office that the manufacturer or fabricator does not appear. If the manufacturer or fabricator does not appear, reject the material and do not allow use of the material on the project.

Ensure that the certification attests conformance to AASHTO M 180, 123, and 232 for all items in the shipment.

Check all items in the shipment for conformity to dimensional requirements and for manufacturer's brand on the rail.

Make a visual inspection for white rust and other surface defects during installation and delivery of the rail and accessories.

Perform check test for zinc coating weight and complete the Guardrail Galvanizing Thickness Worksheet.

Inspect accessories for conformity to dimensional requirements and obtain certification.

Install the end treatment as according to standard drawings or to manufacturer recommendation and specifications.

Create an ID for the end treatment in SiteManager and refer to the sampling checklist. Record the zinc coating on the worksheet in SiteManager.

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

Upon request, assist the section office to determine if the manufacturer or product is on the LAM.

Perform zinc thickness coating test with a thickness gauge when the first test fails. If the average of the two tests passes specification, inform the section office that the material is acceptable. If the average of the two tests fails specifications, inform the section office that the end treatment is not allowed to be used on the project.

REMARKS The Guardrail Galvanizing Thickness Worksheet for Guardrail and End Treatments can be found out the end of the Physical section of this manual.

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Handrail, Metal, Types A, B, & C

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain manufacturer's certification per shipment per source.

SAMPLING METHOD No samples are required.

SECTION ENGINEER Section Office

Obtain the manufacturer's certification through the contractor stating that the product meets the specifications or through mill test reports showing that the product meets specifications. Inspect the handrail for uniformity and dimensions and ensure that it corresponds to the proposal or plans.

Retain the manufacturer's certification and mill test reports in the project files.

DISTRICT MATERIALS ENGINEER District Materials Lab

None

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Hook Bolts for PCC Pavement (Coated)

INSPECTOR QUALIFICATION	None
SAMPLING FREQUENCY	Obtain certification per shipment.
SAMPLING METHOD	No samples required
SECTION ENGINEER	Section Office Obtain certification per shipment and retain in the project files. See Remarks.
DISTRICT MATERIALS ENGINEER (DME)	District Materials Lab See Remarks.
REMARKS	Notify the Materials Central Laboratory (MCL) or DME office when expansion type anchors have been installed. An employee of MCL, or a representative, will perform the pullout test and report the results to the DME and section engineer. The section engineer shall ensure that the results of the pullout test are reported on a Daily Work Report (DWR). Pullout tests are performed at the minimum rate of one test per 100 anchors or as deemed necessary to ensure specification compliance. Up to 10 assemblies per project may be accepted by small quantities.

Materials Field Sampling

Chapter

PHYSICAL

Subject

Load Transfer Assemblies

Inspector Qualification None

Sampling Frequency Obtain certification for each shipment.

Sampling Method No samples required

Section Engineer Section Office

Obtain steel manufacturer, epoxy powder, epoxy coater, and fabricator certification for each shipment.

Confirm that the dowel manufacturer, epoxy powder, epoxy coater, and fabricator are listed on the *List of Approved Materials* (LAM). If not on the LAM, confirm with the Materials Central Laboratory (MCL) or DME office that the manufacturer or product does not appear. If the manufacturer or product does not appear, reject the material and do not allow use of the material on the project.

For each shipment, create an ID in SiteManager and refer to the sampling checklist. Retain the certification in the project file.

District Materials Engineer District Materials Lab

Upon request, assist the section office to determine if the manufacturer, epoxy powder, epoxy coater, and fabricator are on the LAM.

Remarks None

MATERIALS FIELD SAMPLING

Chapter	
	PHYSICAL
Subject	
	Manhole Adjusting Rings – HDPE

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain certification for each shipment.

SAMPLING METHOD No samples required.

SECTION ENGINEER Section Office

For each shipment, obtain the manufacturer's certification that indicates the brand name of the product and states that the material conforms to specifications.

Confirm that the manufacturer and product are listed on the *List of Approved Materials* (LAM). If not on the LAM, confirm with the Materials Central Laboratory (MCL) or DME office that the manufacturer and product do not appear. If the manufacturer and product do not appear, reject the material and do not allow use of the material on the project.

Visually inspect the material for conformance to the standard drawings.

For each shipment, create an ID in SiteManager and refer to the sampling checklist. Retain the certification in the project file.

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

Upon request, assist the section office to determine if the manufacturer and product are on the LAM.

REMARKS None

Materials Field Sampling

Chapter	PHYSICAL
Subject	Pile Points

Inspector Qualification None

Sampling Frequency Obtain certification for each shipment.

Sampling Method No samples required.

Section Engineer Section Office

Obtain manufacturer's certification for each shipment.

Confirm that the manufacturer is listed on the *List of Approved Materials* (LAM). If not on the LAM, confirm with the Materials Central Laboratory (MCL), the Division of Construction, or the DME office that the manufacturer does not appear. If the manufacturer does not appear, reject the material and do not allow use of the material on the project.

Verify that the pile points have been sampled, tested, and manufactured in accordance with AASHTO M 103, Grade 65/35, or ASTM A 148.

For each shipment, create an ID in SiteManager and refer to the sampling checklist. Retain the certification in the project file.

District Materials Engineer District Materials Lab

Upon request, assist the section office to determine if the manufacturer or product is on the LAM.

Remarks Contractors may propose to use other suppliers and other points. Sufficient information shall be submitted to the Division of Construction for review and approval.

REMARKS (CONT.) Substitution of points shall be at no additional cost to the Cabinet.

The contractor shall not be allowed any extension in contract time for Cabinet review of proposed substitutions.

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Pipe Corrugated Metal & Slotted Drain Pipe

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain material certification for each shipment.

SAMPLING METHOD No samples are required.

SECTION ENGINEER Section Office

Obtain producer's certificate of compliance for each shipment.

Visually inspect slotted drainpipe and corrugated pipe for conformance to specification requirements.

Note: If pipe includes a paved invert, randomly select lengths of pipe in the shipment to verify specification compliance of the paved invert. The paved invert should cover 25 percent of the pipe circumference (40 percent of the circumference of a pipe arch) and have a minimum thickness of 0.125 inches over the crest of the corrugations inside the pipe.

Verify that the gauge and weight of aluminum or zinc coating indicated on the uncoated or half-coated pipe is the same as provided on the manufacturer's certification.

Note: The metal gauge and weight of coating shall be clearly stenciled on the pipe.

Check the *List of Approved Materials* (LAM) to determine if the producer is approved. If the producer is not listed on the LAM, confirm with the Materials Central Laboratory (MCL) or DME office that the producer does not appear. If it is determined that the producer is not listed, reject the pipe and do not allow use of the pipe on the project.

SECTION ENGINEER (CONT.)

Check the producer's certificate of compliance for the county, project number, quantity of pipe, diameters received, and conformance to Section 810 of the *Kentucky Standard Specifications* which references AASHTO M 36.

Verify that the heat numbers stenciled on the pipe match the heat numbers that are listed on the producer's certificate of compliance. Verify that the pipe fabricator has spray-painted their symbol on the outside ends of each pipe.

Create an ID in SiteManager for each shipment, size, and type of pipe. Refer to the sampling checklist. Ensure that the proper material code is listed and used when creating an ID. If the wrong material code is listed on the sampling checklist, contact the DME. Retain the certification in the project files.

DISTRICT MATERIALS ENGINEER (DME)

District Materials Lab

Upon request, assist the section office to determine if the producer is on the LAM.

REMARKS

None

Materials Field Sampling

Chapter

PHYSICAL

Subject

Pipe Fittings—Ductile, Cast Iron, Encasement

Inspector Qualification None

Sampling Frequency Obtain certification per shipment per source.

Sampling Method No samples are required.

Section Engineer Section Office

Obtain certification and inspect the pipe and fittings for defects and conformance to dimensional requirements.

Retain the certification in the project files.

District Materials Engineer (DME) District Materials Lab

None

Remarks None

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Pipe—HDPE Pipe M252
(Underdrains, Edge Drains, Etc.)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain certification for each shipment.

SAMPLING METHOD No samples are required.

SECTION ENGINEER Section Office

Obtain certification and ensure that the certification states that the product meets AASHTO M 252 specifications for each shipment. Retain the certifications in the project file.

Inspect pipe for conformity with requirements for markings and dimensions and for freedom from defects.

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

None

REMARKS None

MATERIALS FIELD SAMPLING

Chapter	
	PHYSICAL
Subject	
	Pipe—HDPE Pipe M294 (Type S) for Entrances, Cross Drains, Storm Sewer, & Culverts

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain certification for each shipment.

SAMPLING METHOD No samples are required.

SECTION ENGINEER Section Office

Inspect pipe for defects and for conformance to plans.

Obtain certification and ensure that the certification states that the product meets AASHTO M 294 specifications for each shipment.

Confirm that the manufacturer is listed on the *List of Approved Materials* (LAM). If the manufacturer is not listed on the LAM, confirm with the Materials Central Laboratory (MCL) or the DME office that the manufacturer does not appear. If the manufacturer does not appear, reject the material and do not allow use of the material on the project.

For each shipment, create an ID in SiteManager and~~,~~ refer to the sampling checklist. Retain the certification in the project file.

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

Upon request, assist the section office to determine if the manufacturer is on the LAM.

REMARKS None

MATERIALS FIELD SAMPLING	*Chapter* PHYSICAL
	Subject Pipe—PVC AASHTO M 304

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain certification for each shipment.

SAMPLING METHOD No samples are required.

SECTION ENGINEER Section Office

Inspect pipe for defects and conformance to plans.

Obtain certification and ensure the certification states that the product meets AASHTO M 304 for each shipment.

Confirm that the manufacturer is listed on the *List of Approved Materials* (LAM). If the manufacturer is not listed on the LAM, confirm with the Materials Central Laboratory (MCL) or the DME office that the manufacturer does not appear. If the manufacturer does not appear, reject the material and do not allow use of the material on the project.

For each shipment, create an ID in SiteManager and, refer to the sampling checklist. Retain the certification in the project file.

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

Upon request, assist the section office to determine if the manufacturer is on the LAM.

REMARKS None

Materials Field Sampling

Chapter	PHYSICAL
Subject	Posts, Sign (Types I & II)

Inspector Qualification None

Sampling Frequency Obtain one post per source for permanent signs.

Obtain certification for each shipment.

Sampling Method Post size for a sample must be a minimum of 7 feet.

Sample one post per 5,000 posts installed per source for both types.

Note: Do not sample all individual lengths. Sample only one length to represent all lengths within a given type per source. Also, up to 5 posts for permanent signs can be accepted upon certification.

Section Engineer Inspect posts for conformity with dimensional requirements and specifications as outlined in Section 832 of the *Standard Specifications*.

Obtain sample for permanent signs. Create an ID in SiteManager and refer to the sampling checklist. Submit the sample and a copy of the certification to the Materials Central Laboratory (MCL) or the DME office.

Create an ID in SiteManager for temporary sign posts for both types. Refer to the sampling checklist and retain the certification in the project file.

Ensure that the certification for Type II states that it is NCHRP 350-compliant. Also, ensure that the certification for both types of post contains the physical, chemical, and tested results for the post, provided as required in Section 832 of the *Standard Specifications*.

District Materials Engineer (DME) District Materials Lab

Submit the sample and the certification to MCL for testing.

Remarks None

Materials Field Sampling

Chapter	PHYSICAL
Subject	Posts, Metal Sign (Structural Shapes)

Inspector Qualification None

Sampling Frequency Obtain certification from the Division of Construction, or submittals from the manufacturer.

Sampling Method None

Section Engineer Section Office

Section Office shall await approval from the Division of Construction, based on satisfactory reports before installation.

Obtain the certification and retain in the project file.

District Materials Engineer (DME) District Materials Lab

None

Remarks The manufacturer submits certification directly to the Division of Construction. The product is accepted on manufacturer's certification, indicating that the product meets the specifications.

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Preformed Expansion Joint Fillers – Sponge Rubber Type I, Cork Type II, Self-Expanding Cork Type III (AASHTO M 153)

INSPECTOR QUALIFICATION	None
SAMPLING FREQUENCY	Obtain certification per shipment.
SAMPLING METHOD	None
SECTION ENGINEER	Section Office
	Obtain certification per shipment and ensure that the certification states that it meets specifications. Retain the certification in the project files.
DISTRICT MATERIALS ENGINEER	District Materials Lab
	None
REMARKS	None

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Preformed Expansion Joint Fillers – Bituminous Fiber (AASHTO M 213)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain certification per shipment and one sample per source per project.

Note: No sample is required when less than 500 square feet are used on the project.

SAMPLE METHOD Obtain one sample that is 12 inches by 36 inches for large sheets, or obtain one sample that is the depth of the pavement (for example, 10 inches by 36 inches) for precut sheets.

SECTION ENGINEER Section Office

Quantity of the material that will be used is less than 500 square feet:

Obtain certification and ensure that the certification states that it conforms to AASHTO M 213 and that it meets the requirements stated in Section 807 of the *Standard Specifications*. Retain the certification in the project files.

Quantity of the material that will be used is greater than 500 square feet:

Obtain certification and ensure that the certification states that it conforms to AASHTO M 213 and that it meets the requirements stated in Section 807 of the *Standard Specifications*.

Obtain a sample. Create an ID in SiteManager and refer to the sampling checklist. Submit the sample and a copy of the certification to the Materials Central laboratory (MCL) or the DME office.

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

Submit the sample and the certification to MCL for testing.

REMARKS None

MATERIALS FIELD SAMPLING

Chapter	PHYSICAL
Subject	Reinforcing Strips (for Reinforced Earth Walls)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain one sample per source per project.

SAMPLING METHOD Obtain sample, which is composed of two specimens that are 24 inches long. Both pieces may be cut from the same strip.

Obtain manufacturer's certification for each shipment.

SECTION ENGINEER Section Office

Inspect sample for defects and for conformity to plans or approved shop drawings.

Obtain manufacturer's certification indicating compliance with the special note in the proposal.

Obtain a sample. Create an ID in SiteManager and refer to the sampling checklist. Submit the sample and a copy of the certification to the Materials Central laboratory (MCL) or the DME office.

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

Submit the sample and the certification to MCL for testing

REMARKS None

MATERIALS FIELD SAMPLING

Chapter	PHYSICAL
Subject	Reinforcing Steel, Uncoated

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain the TC 64-122 form, *Fabricator's Heat Number Identification of Reinforcing Bars,* and mill test reports for each shipment delivered to the project.

SAMPLING METHOD No sample is required.

SECTION ENGINEER Section Office

Obtain the TC 64-122 form and mill test reports for each shipment delivered to the project. Check the *List of Approved Materials* (LAM) to ensure that the producer and fabricator of the steel are listed. If the producer or fabricator is not on the LAM, contact the DME or the Materials Central Laboratory (MCL) to confirm that they do not appear. Do not accept the material or allow it to be unloaded until the matter is resolved.

Visually inspect each shipment to verify that the fabricator's heat identification matches the TC 64-122 and mill test reports.

Visually inspect the shipment for defects, rust, proper grade markings, etc.

Check the manufacture's certification to determine if the steel meets the specifications set forth in Section 811 of the *Kentucky Standard Specifications*.

If all requirements are met, allow use of the steel.

Create an ID in SiteManager for each TC 64-122 form and authorize the sample. Refer to the sampling checklist for information on how to enter the information into SiteManager.

DISTRICT MATERIALS ENGINEER (DME) District Materials Office

Once a section office has notified the DME office that the producer and fabricator are not on the *List of Approved Materials* (LAM), notify the Materials Central Laboratory (MCL). Confirm with MCL and inform the section office of the necessary action to be taken for acceptance or rejection.

Obtain quarterly samples for all precast/prestress producers for each bar size that can and will be used in the product. Obtain two 60-inch bars of each size and enter the information into SiteManager. Deliver the samples and a copy of the TC 64-122 form and mill test reports to MCL for testing.

Submit the sample and the certification to MCL for testing.

REMARKS None

Materials Field Sampling

Chapter	PHYSICAL
Subject	Reinforcing Steel, Epoxy-Coated

Inspector Qualification None

Sampling Frequency Obtain the TC 64-122 form, *Fabricator's Heat Number Identification of Reinforcing Bars,* and mill test reports for each shipment delivered to the project. For each shipment, obtain one sample (two 60-inch bars) for each heat totaling 10,000 pounds. For heat numbers less than 10,000 pounds, accept on certification.

Sampling Method Two 60-inch bars

Section Engineer Section Office

Obtain the TC 64-122 form and mill test reports for each shipment delivered to the project. Check the *List of Approved Materials* (LAM) to ensure that the producer, coater, and fabricator of the steel are listed. If the producer, fabricator, or coater is not on the LAM, contact the DME or the Materials Central Laboratory (MCL) to confirm that they do not appear. Do not accept the material or allow it to be unloaded until the matter is resolved.

Visually inspect each shipment to verify that the fabricator's heat identification matches the TC 64-122 form and mill test reports.

Visually inspect the shipment for defects, rust, proper grade markings, etc.

Check manufacture's certification to determine if the steel meets specifications.

To protect the coating, ensure that the material is stored properly onsite in accordance with Section 602.03.05 of the *Standard Specifications.*

If all requirements are met, allow use of the steel.

When required, create a sample ID in SiteManager and send the sample with SiteManager ID, along with the certifications (TC 64-122, mill test, and coating reports), to MCL or the DME office. For other heats less than 10,000 pounds, enter the information into SiteManager according to the sampling checklist for each shipment, based on certification.

DISTRICT MATERIALS ENGINEER (DME)

District Materials Office

Once a section office has notified the DME office that the producer or fabricator is not on the LAM, the DME office shall notify MCL. Confirm with MCL and inform the section office of the necessary action to be taken for acceptance or rejection.

Obtain quarterly samples for all precast/prestress producers for each bar size that can and will be used in the product. Obtain two 60-inch bars of each size and enter the information into SiteManager. Deliver the samples, along with a copy of the TC 64-122 form and mill test reports, to MCL for testing.

The DME shall submit the samples and relevant documentation to MCL. Notify the section office once the sample has been evaluated for specification compliance.

REMARKS

None

MATERIALS FIELD SAMPLING	*Chapter* PHYSICAL
	Subject Reinforcing Steel Splices (Welded or Mechanical)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain one sample per 100 splices.

Obtain manufacturer's certification and instructions.

SAMPLING METHOD Obtain the manufacturer's certification for each shipment and manufacturer's instructions for each type of splice used.

Obtain a sample for each type of splice (to be constructed by the contractor).

Sample size: Two completed specimens that are 36 inches in length from the center of the splice (minimum total length of 72 inches)

SECTION ENGINEER Section Office

Observe the contractor's process as the splice is made to ensure compliance with manufacturer's instructions.

Obtain a sample. Create an ID in SiteManager and refer to the sampling checklist. Submit the sample and a copy of the certification to the Materials Central Laboratory (MCL) or the DME office.

DISTRICT MATERIALS ENGINEER (DME) District Materials Office

The DME shall submit the samples and relevant documentation to MCL. Notify the section office once the sample has been evaluated for specification compliance.

REMARKS None

Materials Field Sampling

Chapter	PHYSICAL
Subject	Sign Sheeting Substrate

Inspector Qualification	None
Sampling Frequency	Obtain certification per shipment per source.
Sampling Method	No samples are required.
Section Engineer	Section Office
	Obtain certification and ensure that the manufacturer's certification complies with the contract and all applicable specifications. (See Section 833 of the *Standard Specifications*.)
	Retain the certification in the project files.
District Materials Engineer (DME)	District Materials Lab
	None
Remarks	None

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Stay-In-Place Forms

Inspector Qualification None

SAMPLING FREQUENCY Obtain certification per shipment. Project testing of zinc coating will be by thickness gauge at least once per project per source.

SAMPLING METHOD Testing of zinc coating will be by a thickness gauge and recorded on the Stay-in-Place Galvanizing Thickness Worksheet.

The referee test for coating thickness will be the stripping method and is performed by the Materials Central Laboratory (MCL). This requires cutting samples from the Stay-in-Place worksheet and submitting them for testing. (Samples shall be cut from the same spot that the thickness measurements are taken.)

Referee testing is required when the zinc coating weight fails to meet the minimum requirements.

The sample size shall be 1 piece, 3 inches by 14 inches when cut with a torch, or 2 inches by 14 inches when cut smoothly with a saw.

SECTION ENGINEER Section Office

Obtain manufacturer's certification per shipment.

Make a visual inspection for white rust and other surface defects during installation and delivery of the forms and accessories.

Perform check test for zinc coating weight and complete the Stay-in-Place Galvanizing Thickness Worksheet for Stay-in-Place Forms.

When necessary, obtain referee sample.

SECTION ENGINEER (CONT.)

Create an ID for the Stay-in-Place worksheet in SiteManager. Refer to the sampling checklist. Record the zinc coating on the Stay-in-Place worksheet in SiteManager.

Create an ID for the referee sample, if it is required. Refer to the sampling checklist. The sample type shall be "project accept." If it doesn't appear, contact the DME. Submit the sample and a copy of the certification to MCL or the DME office.

DISTRICT MATERIALS ENGINEER (DME)

District Materials Lab

Submit the sample and the certification to MCL for testing.

REMARKS

The Galvanization Thickness Worksheet for Stay-in-Place Forms can be found on the following Division of Materials webpage:

http://transportation.ky.gov/materials/pages/Physical.aspx

Materials Field Sampling

Chapter	PHYSICAL
Subject	Strand (Pre- & Post-Tensioning)

Inspector Qualification None

Sampling Frequency Post-Tensioning
One sample per heat per project

Pre-Tensioning
One sample per heat

Sampling Method Obtain two 54-inch specimens from the same reel per heat number.

Note: The ends must be brazed before shipping.

Section Engineer Section Office

Obtain the sample for post-tensioning strand and certification from the job site.

Create an ID in SiteManager for each sample (2 strands) per heat. Submit the sample and a copy of the certification to the Materials Central Laboratory (MCL) or the DME office.

District Materials Engineer (DME) District Materials Lab

Submit the sample and the certification to MCL for testing.

Obtain the sample and certification for pre-tensioning and create an ID in Site Manager for each sample (2 strands) per heat. Submit the sample and a copy of the certification to MCL.

Remarks None

Materials Field Sampling

Chapter	PHYSICAL
Subject	Structural Steel (Frames, Grates, Lids, ASTM A-36)

Inspector Qualification None

Sampling Frequency Obtain certification per shipment.

Sampling Method No sampling is required.

Section Engineer Section Office

Visually inspect the material for any defects and ensure that the material conforms to the applicable standard drawing.

Obtain manufacturer's certification per shipment and ensure that the certification states that it meets ASTM A 36 specifications.

Confirm that the manufacturer is listed on the *List of Approved Materials* (LAM). If not on the LAM, confirm with the Materials Central Laboratory (MCL) or the DME office that the manufacturer does not appear. If the manufacturer does not appear, reject the material and do not allow use of the material on the project.

Create an ID in SiteManager for each shipment and refer to the sampling checklist. Retain the certification in the project file.

District Materials Engineer (DME) District Materials Lab

Upon request, assist the section office to determine if the manufacturer is on the LAM.

Remarks None

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Structural Plate for Armored Edge, Pipes, & Pipe Arches

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Obtain manufacturer's certification per shipment per source.

SAMPLING METHOD No samples are required.

SECTION ENGINEER Section Office

Obtain and review the manufacturer's certification for compliance with the contract and all applicable specifications.

Retain the manufacturer's certification in the project files.

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

None

REMARKS None

Materials Field Sampling

Chapter	PHYSICAL
Subject	Timber, Treated (Posts, Poles, Piling, Structural Timber, Offset Blocks, Etc.)

Inspector Qualification None

Sampling Frequency Obtain certification per shipment.

Sampling Method No sample is required.

Section Engineer Section Office

Obtain certification per shipment and ensure that it meets the requirements in Section 818 of the *Standard Specifications*.

Check pieces for the KY Oval or for the inspection stamp of an approved third party who is listed on the *List of Approved Materials* (LAM). The presence of either the KY Oval or the inspection stamp of an approved third party indicates that the product is allowed for use on department projects.

Create an ID in SiteManager for the timber products and refer to the sampling checklist. Retain the certification in the project file.

Note: If there is no stamp on the timber product, contact the Materials Central Laboratory (MCL) or DME immediately. Do not permit the use of unsampled timber without authorization. MCL or a DME representative will sample the product, inspect the pieces, check the documentation, and perform testing before the product can be incorporated into the project.

District Materials Engineer (DME) District Materials Lab

When requested, perform inspection and testing on products that do not have a stamp.

DISTRICT MATERIALS ENGINEER (DME) (CONT.)

If not stamped with the KY Oval, help verify the documentation from an approved independent third party.

REMARKS

None

MATERIALS FIELD SAMPLING

Chapter	Subject
PHYSICAL	Welder, Shielded Metal Arc

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Check each welder on the project site.

SAMPLING METHOD No sample is required.

SECTION ENGINEER Section Office

Verify the welder's qualification status by examining the welder certification card provided by the department. If the welder doesn't have his or her welder certification card, obtain his or her name from a driver's license or some other identification document. Once the name has been obtained, verify the welder's qualification by contacting the Materials Central Laboratory (MCL) or the DME or by looking up the welder's name in SiteManager.

If the welder is not qualified by the department, refer the welder to MCL or to an approved vocational school or testing lab that is listed on the *List of Approved Materials* (LAM).

If it has been determined that the welder is not qualified by the department as per Section 106.10 of the *Standard Specifications*, do not allow the welder to perform any work on KYTC projects.

DISTRICT MATERIALS ENGINEER (DME) District Materials Lab

Upon request, assist the section office to determine if a welder is qualified by the department to perform work.

REMARKS

A welding operator's qualifications are valid for a period of two years from completion of testing, provided that the welder does not go longer than 6 months without being engaged in the process for which the welder is qualified.

Each welder shall keep a work record that he or she shall show to the section office upon request.

Materials Field Sampling

Chapter	PHYSICAL
Subject	Wire, Steel (Reinforcement)

Inspector Qualification None

Sampling Frequency Obtain sample per heat number per contract and certification per shipment.

Sampling Method The sample shall be composed of two wires, of different lengths, per heat. The length of the samples shall be 2—3 feet in length.

Section Engineer Section Office

Obtain certification for each shipment and ensure the certification states that it conforms to AASHTO M 32.

Obtain a sample. Create an ID in SiteManager and refer to the sampling checklist. Submit the sample and a copy of the certification to the Materials Central Laboratory (MCL) or the DME office.

District Materials Engineer (DME) District Materials Lab

Submit the sample and the certification to MCL for testing.

Note: For precast/prestress plants, obtain a quarterly sample that the producer plans to use in their product. Create an ID in SiteManager and submit the sample and the certification to MCL for testing.

Remarks None

Materials Field Sampling

Chapter

PHYSICAL

Subject

Wire, Steel, Welded Fabric (Pavement Protection, Paved Ditches, Retaining Walls, Etc.)

Inspector Qualification None

Sampling Frequency Obtain sample per heat number per size per contract and certification per shipment.

Sampling Method Obtain one 2-foot by 3-foot section cut from the welded fabric per heat per size.

Section Engineer Section Office

Obtain certification for each shipment and ensure that the certification states that it conforms to AASHTO M 55 and AASHTO M 221 for deformed fabric.

Obtain a sample. Create an ID in SiteManager and refer to the sampling checklist. Submit the sample and a copy of the certification to the Materials Central Laboratory (MCL) or the DME office.

District Materials Engineer (DME) District Materials Lab

Submit the sample and the certification to MCL for testing.

Note: For precast/prestress plants, obtain a quarterly sample that the producer plans to use in their product. Create an ID in SiteManager and submit the sample and the certification to MCL for testing.

Remarks None

Materials Field Sampling

Chapter

PHYSICAL

Subject

Wire, Steel, Welded Fabric (Concrete Pipe & Precast Products)

Inspector Qualification None

Sampling Frequency Obtain samples and certification once every quarter of the year.

Sampling Method One 2-foot by 3-foot section of flat fabric, and one 2-foot section of a typical pipe cage, along with the manufacturer's certification for each size that the producer plans to use in their product for the department

Section Engineer Section Office

None

District Materials Engineer (DME) District Materials Lab

Obtain samples and certification quarterly.

Create an ID for each sample in SiteManager as "Informational" and charge the correct test method to the sample. Deliver the sample and a copy of the certification to the Materials Central Laboratory (MCL) for testing.

After testing has been performed by MCL, notify the concrete pipe or precast plant as to the status of the sample.

Remarks None

MATERIALS FIELD SAMPLING	***Chapter*** CONSTRUCTION
	Subject General Notes

This chapter outlines acceptance requirements for individual materials or products used in construction of utility items, rest areas, loadometer stations, or other types of buildings or building systems that, for the most part, are not included in other sections of this manual. Primary emphasis is on outlining the methods of acceptance considered appropriate for each individual item and the inspection function performed by the assigned section office and district materials lab. The Division of Construction has responsibility for these types of materials.

General Notes:

1. Items not specifically listed within this chapter or other portions of this manual shall be subject to inspection and approval by KYTC as deemed appropriate.
2. Items common to both building construction and highway construction, such as concrete and reinforcing steel, shall be approved as outlined in other sections of this manual.
3. The provisions for acceptance of small quantities for an individual material listed elsewhere in this manual may be utilized for items included in the schedule.
4. Shop drawings and brochures to be used as a basis of approval of design have, for the most part, been designated for transmittal by the section office to the Division of Construction for review and approval. Since some of these drawings and brochures are reviewed by other divisions and agencies, the contractor shall be advised to make five copies available as soon as possible. Do not provide or accept materials until approval is given.
5. Items having designs designated to be approved on the basis of brochures or shop drawings, or that are to be accepted on the basis of certification, shall be visually inspected by the section office or by the district materials lab to verify compliance with requirements. Documentation of visual inspection of these items may be maintained in the Daily Work Report without need for test reports or need for a Sample ID in SiteManager.

   However, documentation in the form of inspection reports is required for other items (not covered by brochures, shop drawings, or certifications) that are approved at the jobsite on the basis of labels or other visual means.

For questions pertaining to information in this chapter, contact the Division of Construction at 502-564-4780.

Materials Field Sampling

Chapter	CONSTRUCTION
Subject	Ash Trays, Asphalt Shingle, Etc. (See Remarks)

Inspector Qualification None

Sampling Frequency Obtain brochures.

Sampling Method No sample is required.

Section Engineer Section Office

Prior to installation, obtain brochures and submit to the Division of Construction for review and approval.

Perform a visual inspection to check for defects and ensure that the material has been approved for use. Document inspection of the material on the Daily Work Report and retain the brochure in the project files.

District Materials Engineer (DME) District Materials Lab

Provide assistance to the section office when requested.

Remarks Ash trays, asphalt shingles, blower and motor drive, carpet, fans, fountain display, heaters (baseboard and water), lighting controls, mirrors, plumbing materials, sewage treatment, toilet partitions, waste receptacles

Materials Field Sampling

Chapter

CONSTRUCTION

Subject

Caulking, Mortar & Related Components, and Pipe & Fittings (Cast Iron, Copper, & Transite)

Inspector Qualification	None
Sampling Frequency	Obtain manufacturer's certification if applicable.
Sampling Method	No sampling is required.
Section Engineer	Section Office Visually inspect each material for any defects and ensure that it conforms to the project plans, proposal, and shop drawings, if applicable. Document the supplier or manufacturer of the product on the Daily Work Report.
District Materials Engineer (DME)	District Materials Lab Provide assistance to the section office when requested.
Remarks	None

Materials Field Sampling

Chapter	CONSTRUCTION
Subject	Ceramic Tile & Adhesives

Inspector Qualification None

Sampling Frequency Obtain certification and labels per shipment.

Sampling Method No sampling is required.

Section Engineer Section Office

Obtain manufacturer's certification, brochures, and shop drawings from the contractor and submit them to the Division of Construction for review and approval.

Visually inspect the ceramic tiles for defects. Ensure that the ceramic tiles and adhesives conform to the shop drawings, proposal, and project plans. Document on the Daily Work Report the manufacturer and the type of ceramic tile and adhesives that were used.

District Materials Engineer (DME) District Materials Lab

Provide assistance to the section office when requested.

Remarks None

Materials Field Sampling

Chapter	CONSTRUCTION
Subject	Dielectric Coupling, Floor Drain, Etc. (See Remarks)

Inspector Qualification None

Sampling Frequency Visually inspect each shipment.

Sampling Method No sampling is required.

Section Engineer Section Office

Visually inspect each material for any defects. Ensure that ~~it~~ each material conforms to the project plans, proposal, and shop drawings, if applicable. Document the supplier or manufacturer of the product on the Daily Work Report.

District Materials Engineer (DME) District Materials Lab

Provide assistance to the section office when requested.

Remarks Dielectric coupling, floor drain, clean out and air chamber, glass and related materials, hose and hose rack, insulation, plaster materials, sheet metal, vapor barriers

Materials Field Sampling

Chapter	CONSTRUCTION
Subject	Doors

Inspector Qualification None

Sampling Frequency Obtain brochures and manufacturer's certification.

Sampling Method No sample is required.

Section Engineer Section Office

Prior to use, obtain brochures and manufacturer's certification and send them to the Division of Construction for approval.

Visually inspect the doors and check for defects. Ensure that the material is in compliance with the proposal notes, project plans, and shop drawings. Document the product name and producer on the Daily Work Report. Retain the brochure and the certification in the project files.

District Materials Engineer (DME) District Materials Lab

Provide assistance to the section office when requested.

Remarks None

Materials Field Sampling

Chapter	CONSTRUCTION
Subject	Hardware

Inspector Qualification	None
Sampling Frequency	Periodically throughout the project
Sampling Method	No samples are required.
Section Engineer	Section Office The section office obtains the hardware schedule and visually inspects material for conformance with the schedule.
District Materials Engineer (DME)	District Materials Lab None
Remarks	None

Materials Field Sampling

Chapter	CONSTRUCTION
Subject	Hollow Metal

Inspector Qualification None

Sampling Frequency Obtain certification per shipment.

Sampling Method No sampling is required.

Section Engineer Section Office

Obtain manufacturer's certification, brochures, and shop drawings from the contractor and submit to the Division of Construction for review and approval.

Visually inspect the hollow metal for defects and ensure that the product conforms to the shop drawings, proposal, and project plans. Document the manufacturer of the hollow metal on the Daily Work Report.

District Materials Engineer (DME) District Materials Lab

Provide assistance to the section office when requested.

Remarks None

Materials Field Sampling

Chapter	CONSTRUCTION
Subject	Interior/Exterior Building Paint

Inspector Qualification None

Sampling Frequency Inspect labels or obtain manufacturer's certification.

Sampling Method No sampling is required.

Section Engineer Section Office

Visually inspect labels to verify that the paint conforms to the proposal notes, project plans, and shop drawings.

When supplied paint is to be "equal" to another quoted brand or brands, obtain the manufacturer's certification indicating compliance with the proposal notes, project plans, and shop drawings. Submit the manufacturer's certification to the Division of Construction for review and approval.

Document the manufacturer and the name of the paint on the Daily Work Report.

District Materials Engineer (DME) District Materials Lab

Provide assistance to the section office when requested.

Remarks None

Materials Field Sampling

Chapter	CONSTRUCTION
Subject	Lighting Fixtures

Inspector Qualification None

Sampling Frequency Obtain brochure for each type of fixture, if provided.

Sampling Method No sampling is required.

Section Engineer Section Office

Obtain shop drawings or brochures.

Perform a visual inspection to approve fixtures that are not covered by brochures or shop drawings. Document the results of the inspection on the Daily Work Report.

Submit any brochures or shop drawings to the Division of Construction for review and approval.

District Materials Engineer (DME) District Materials Lab

Provide assistance to the section office when requested.

Remarks None

Materials Field Sampling

Chapter	CONSTRUCTION
Subject	Sealers

Inspector Qualification None

Sampling Frequency Obtain brochures and manufacturer's certification.

Sampling Method No sample is required.

Section Engineer Section Office

Obtain brochures and manufacturer's certification for the sealers and send to the Division of Construction for approval prior to use.

Visually inspect the sealer and ensure that the material is in compliance with the proposal notes, project plans, and shop drawings. Document the product name and the name of the producer on the Daily Work Report. Retain the brochure and certification in the project files.

District Materials Engineer (DME) District Materials Lab

Provide assistance to the section office when requested.

Remarks None

Materials Field Sampling

Chapter	CONSTRUCTION
Subject	Utility Appurtenances (Permanent & Temporary) (See Remarks)

Inspector Qualification None

Sampling Frequency Obtain certification, brochures, labels, etc.

Sampling Method No sampling is required.

Section Engineer Section Office

Inspect each material and ensure that it conforms to the shop drawings and plans. Check for dimensional requirements and defects. Do not accept any material until the shop drawings and plans have been approved. If an item must be substituted, do not accept any material without approval of the substituted item.

Document on the Daily Work Report each material that is used.

Obtain through the contractor a letter of acceptance from the local municipality.

Note: The letter shall state that all work and materials meet or exceed local and state codes.

File the acceptance letter in the project file and forward a copy to the Divisions of Construction and Materials and to the district materials lab.

District Materials Engineer (DME) District Materials Lab

Help the section office with inspection when requested.

Obtain the letter of acceptance from the section office and retain in the project files.

REMARKS These items include, but are not limited to:

- Waterlines
- Gas Lines
- Wire Lines
- Service Connections
- Water and Gas Meter Boxes
- Water and Gas Valve Boxes
- Light Standards
- Cables
- Signals
- Sewers

Materials Field Sampling

Chapter	CONSTRUCTION
Subject	Windows

Inspector Qualification None

Sampling Frequency Obtain manufacturer's certification.

Sampling Method No sampling is required.

Section Engineer Section Office

Obtain manufacturer's certification and shop drawings from the contractor and submit to the Division of Construction for review and approval.

Visually inspect the windows for defects and ensure that the windows conform to the shop drawings, proposal, and project plans. Document the size and the manufacturer of the windows on the Daily Work Report.

District Materials Engineer (DME) District Materials Lab

Provide assistance to the section office when requested.

Remarks None

Materials Field Sampling

Chapter	CONSTRUCTION
Subject	Wiring Devices

Inspector Qualification None

Sampling Frequency Obtain manufacturer's certification.

Sampling Method No sampling is required.

Section Engineer Section Office

Obtain the manufacturer's certification, brochures, and shop drawings from the contractor and submit to the Division of Construction for review and approval.

Visually inspect the wiring devices for defects and ensure that the product conforms to the shop drawings, proposal, and project plans. Document the manufacturer and the type of wiring device on the Daily Work Report

District Materials Engineer (DME) District Materials Lab

Provide assistance to the section office when requested.

Remarks None

MATERIALS FIELD SAMPLING	***Chapter*** ELECTRICAL
	Subject General Notes

For questions pertaining to information in this chapter, contact the Division of Traffic Operations at 502-564-3020.

Materials Field Sampling

Chapter	ELECTRICAL
Subject	Wiring & Conduit (Ducted & Messenger Cable)

Inspector Qualification None

Sampling Frequency Obtain certification and one sample per type per source per contract.

Sampling Method Obtain a minimum 2-foot section.

Indicate the size and type of each wire and cable submitted, and the exact usage of each sample of conduit.

Insulation and coating of the submitted cable shall include information such as the voltage and IMSA type.

Section Engineer Section Office

Obtain and review the manufacturer's certification for conformity to the specifications, project plans, and proposal.

Obtain a sample for each type and size of wiring. Create an ID in SiteManager and refer to the sampling checklist. Send the sample, the sample label, and a copy of the manufacturer's certification, to the Materials Central Laboratory (MCL) or DME office.

District Materials Engineer (DME) District Materials Lab

Deliver the sample the sample label, and a copy of the certification to MCL.

Remarks Sample:

Each size and type of wire and cable
Each size and type of conduit

The Division of Traffic Operations checks for proper usage.

MATERIALS FIELD SAMPLING	***Chapter*** INDEPENDENT ASSURANCE SAMPLING ***Subject*** General Notes

Independent Assurance Sampling and Testing Program (IAS) is a component part of KYTC's Quality Assurance Program (QA). The IAS is conducted to provide an unbiased and independent evaluation of all sampling and testing procedures, laboratory qualifications, qualified testing personnel, and construction inspection used in the department's overall Quality Acceptance Program (23 CFR 637). The federally mandated IAS provides an unbiased and independent evaluation of sampling and testing procedures and testing equipment used in the acceptance sampling and testing on National Highway System (NHS) contracts. **These samples and tests are not for the purpose of determining the acceptability of materials or construction work.** IAS is required for federally funded contracts on any NHS route. The IAS program is in addition to the division's standard acceptance sampling and testing program.

IAS shall be performed by a qualified materials representative who has no direct responsibility for process-control, acceptance, or verification sampling and testing. When possible, testing equipment other than that used for acceptance testing shall be used. No more than 20 percent of each test required for IAS shall be accomplished by observation of acceptance sampling and testing.

On contracts utilizing contractors' quality control test results in the acceptance decision, IAS will be performed on bid items with quantities equal to or greater than ten times the acceptance quantity frequency. If the bid item is more than 40 times the acceptance quantity frequency, an additional IAS test will be required for that bid item. Effort shall be made to obtain the IAS tests early in the production. IAS frequencies may be increased when concerns over contractor quality control or process control arise, or when an owner or contractor dispute regarding workmanship and material acceptability may arise.

On contracts not utilizing contractors' quality control test results in the acceptance decision, IAS will typically be performed at a frequency of ten times the acceptance quantity frequency.

It is recommended that each district assign primary responsibility for IAS to one or more qualified individuals on the district materials staff. Each district's workload, personnel staffing, and geographic distribution of federal-aid contracts will determine the assignments for IAS personnel.

Independent assurance samples shall be taken at the same point and time as the comparison samples using an independent, but "side-by-side," sample or other accepted sampling procedure. The district is not required to perform IAS exclusively on the acceptance sample.

IAS results shall be analyzed promptly by the district materials engineer (DME) and reported to the Division of Materials IAS coordinator. IAS comparison test results shall be submitted to the Division of Materials by means of the currently approved test reporting format. When excessive differences between the IAS comparison results occur or other discrepancies are noted, the DME and contract personnel shall work together to investigate the discrepancies and to resolve any deficiencies. When the situation cannot be resolved at the district level, the Materials Central Laboratory (MCL) shall be notified. (**KM 64-112** provides numerical limits for analyzing IAS and comparison tests.)

MATERIALS FIELD SAMPLING

Chapter

INDEPENDENT ASSURANCE SAMPLING

Subject

Identifying IAS Contracts

NHS ROUTES

A contract must be on the National Highway System (NHS). All interstates and parkways in Kentucky are NHS routes. To determine if a project is on the NHS, refer to the following Division of Planning website:

http://transportation.ky.gov/Planning/Pages/National-Highway-System.aspx

Click "NHS Listing by Route Number."

Be aware that some contracts may have been incorrectly identified in the proposal as being on NHS routes.

FEDERAL OR STATE FUNDING

Contracts are funded with federal money, state money, or a combination of both.

Even though a contract is on the NHS, Independent Assurance Sampling (IAS) testing is not necessarily an automatic requirement. The source of the funding must be considered.

A contract on any NHS route that is federally funded or with a combination of federal and state funding will require IAS.

A contract that is only state-funded **will NOT require IAS testing even if the project is on an NHS route.**

IDENTIFYING THE FUNDING SOURCE

The funding source for a contract can be found by noting the federal and state contract number:

- For federal contract number: IM-NH 12(3), BRZ 1234, STP 1234, BRO 123, APD 123
- For state contract number: FD04, FE01, CB06, FD52

Note: Typically, any numbers with a parenthesis indicate a federally funded project.

IDENTIFYING THE FUNDING SOURCE (CONT.)

Contract call numbers (found in the upper left-hand corner of the front page of the proposal) identified as:

- 100 & 200 series are federally-funded. (200 series are group jobs.)
- 300 & 400 series are state-funded. (400 series are group jobs.)

IAS REQUIREMENTS

There are three basic considerations when determining whether a contract requires IAS testing:

1. Is the contract on an NHS route?

2. What is the type of construction? (For example, bridge paint and clean contracts do not involve materials requiring IAS testing.)

3. What is the funding source? (State funding on non-interstate contracts do not require IAS testing.)

Based on the answers to the questions above, the following table shows if a contract requires IAS testing, assuming that the type of construction involves materials requiring IAS testing.

Determining Whether a Contract Requires IAS

Contract	NHS Route	Interstate	Funding Source	IAS Required
A	Yes	Yes	Federal	Yes
B	Yes	Yes	State	No
C	Yes	No	State	No

SMALL QUANTITIES

A contract may meet all of the requirements for IAS testing, but if the bid amounts of the items that are tested fall below a certain range, then no IAS testing will be required. Small quantities can therefore disqualify a contract for IAS testing. Refer to **MFS-1203** for minimum quantity sampling requirements.

MATERIALS FIELD SAMPLING

Chapter

INDEPENDENT ASSURANCE SAMPLING

Subject

Materials Requiring IAS

MATERIAL	TESTS	FREQUENCY
Embankment		
Soil Embankment	Nuclear Density	1 per 100,000 cubic yards; None for less than 10,000 cubic yards
Lime & Cement Stabilization	Nuclear Density	1 per 5,000 feet of roadway; None for less than 1,500 feet
Aggregate Base		
DGA & CSB	Gradation & Deleterious	1 per 20,000 tons; None for less than 10,000 tons
	Nuclear Density	1 per 25,000 square yards of area placement
Structural Concrete (Convert all units into cubic yards)		
All classes of concrete except for JPC	Slump, Air, & Cylinders	Total quantity for contract equal to or greater than 500 cubic yards: 1 set; Total quantity for contract equal to or greater than 2,000 cubic yards: 2 sets
Each aggregate Coarse aggregate	Gradation Minus #200 Wash	1 per 2,000 cubic yards None for less than 1,500 cubic yards

MATERIAL	TESTS	FREQUENCY
Concrete Pavement (Convert all units into square yards)		
All classes of JPC	Air & Cylinders	Total quantity for contract equal to or greater than 10,000 square yards: 1 set; Total quantity for contract equal to or greater than 40,000 square yards: 2 sets
Each aggregate	Gradation	1 per 120,000 square yards
Coarse aggregate	Minus #200 Wash	None for less than 50,000 square yards
Asphalt Mixtures		
Superpave Mixtures	Asphalt Binder Content Air Voids Voids in Mineral (VMA)	Total quantity for contract equal to or greater than 10,000 tons: 1 set; Total quantity for contract equal to or greater than 40,000 tons: 2 sets
Asphalt Treated Drainage Blanket (ATDB)	Asphalt Binder Content & Gradation	Total quantity for contract equal to or greater than 10,000 tons: 1 set; Total quantity for contract equal to or greater than 40,000 tons: 2 sets