COMMONWEALTH OF KENTUCKY
TRANSPORTATION CABINET
FRANKFORT, KY 40622

MANUAL TITLE: ***Materials Field Sampling & Testing Manual*** **REVISION NO.:** **3**

DATE REQUESTED: **May 10, 2011** **REPRINT:**

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

REVISED PROCEDURE

CHAPTER/ SECTION	EXPLANATION	OLD PAGES TO BE DELETED	NEW PAGES TO BE ADDED
	The purpose of this printing is to include the following revised procedure in the *Materials Field Sampling & Testing Manual*. This revision also includes one updated index.		
MFS-00	Table of Contents	MFS-01	MFS-01
MFS-900	Timber, Treated (Posts, Poles, Piling, Structural Timber, Offset Blocks, Etc.)	MFS-937	MFS-937
Produced & Distributed by Organizational Management Branch			

COMMONWEALTH OF KENTUCKY
TRANSPORTATION CABINET
FRANKFORT, KY 40622

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

DATE OF UPDATE: **July 16, 2009** **REPRINT:**

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

REVISED POLICY

CHAPTER/ SECTION	EXPLANATION	OLD PAGES TO BE DELETED	NEW PAGES TO BE ADDED
MFS-00, 1200	The purpose of this printing is to include the revised policy "Materials Requiring IAS" in the *Materials Sampling & Testing Manual*. This printing also includes updated indexes.	MFS-01 1203	MFS-01 1203

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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

June 2008

TRANSPORTATION CABINET
Frankfort, Kentucky 40622
www.kentucky.gov

Steven L. Beshear
Governor

Joseph W. Prather
Secretary

OFFICE OF THE SECRETARY 104777
OFFICIAL ORDER _____

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All previous instructions, written and oral, relative to or in conflict with this manual are hereby superseded.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 10th day of June 2008.

Joseph Prather
Secretary

Approved as to Legal Form

Office of Legal Services

MATERIALS FIELD SAMPLING

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MATERIALS FIELD SAMPLING

Chapter

INTRODUCTION

Subject

Design of This Guidance 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.

LOCATING INFORMATION

Two indexes appear at the front of the manual:

- **Table of Contents (MFS-01)**—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.
- **Alphabetical Index (MFS-02)**—This index alphabetically lists key information in the manual. Generally, it directs the user to subject titles and to margin, paragraph, and subparagraph headings within subjects.

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

This manual has been prepared by the Division of Materials (division) for the purpose of outlining 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* (Specifications), 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 maintains a List of Approved Materials (LAM) that is available on the website indicated below. The division also maintains the Kentucky Qualified Technicians and Laboratory (KQTL) database. Access to this database is permitted for authorized users only.

The procedures specified in this manual and frequencies specified in SiteManager Materials are normal requirements to determine the acceptability of materials under normal conditions. The responsible engineer or inspector is expected to perform additional inspection and/or testing when required to meet specific project needs; he or she may also reduce inspection and/or testing when it can be justified according to specific project situations and approved by the Director, 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 application 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: SiteManager 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 on the Cabinet’s website at http://www.transportation.ky.gov/materials/ and is available to the public from this location.

For response to comments or suggestions, please contact:

Director, Division of Materials

Address: Transportation Cabinet
Department of Highways
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:

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

Note: This manual supersedes the May 17, 2006 edition of this manual.

Disclaimer: This manual assumes no liability on the part of the 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. They are of 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 is 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.

    The sampler shall make sure that the total quantities assigned to multiple projects do not exceed the quantity represented by the sample.

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

4. Certifications for materials need not be notarized, unless otherwise specified in this manual. When certifications are submitted from the field, the responsible engineer shall check the certification for correctness.

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

6. Definition of “Lot”—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. Definition of “roadway” (as concerns the frequency of sampling and testing)—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. Definition of “shipment”—Whenever “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.

MATERIALS FIELD SAMPLING

Chapter

AGGREGATE

Subject

General Notes

The district shall take aggregate quality samples during the progress of the work on the project if possible. Coarse aggregate requires two identically sampled bags of material (one for verification to be held at the district office). In no case shall the district take samples more than one month prior to the use of the material.

The district shall collect samples at the last practical point prior to incorporation into the finished work.

Small Quantity Value—This quantity is based on individual tests. If planned quantity is **one-tenth or less** of test frequency, then material may be accepted visually for that property.

Quantity Overage Acceptance—Quantities exceeding the original engineer's estimate by 10% or less require no further testing and may be accepted visually.

Independent Assurance Sample (IAS) guidelines are explained in **MFS-1200**, "Independent Assurance Sampling."

The district materials section supervisor (DMSS) is responsible for:

- Acceptance of all aggregate used in the district
- Assigning a roving inspector to periodically inspect active sources in the List of Approved Materials (LAM) (see http://transportation.ky.gov/materials/ListofApprovedMaterials.htm)
- Finished product quality sampling for all aggregates
- All acceptance testing (as outlined in the *Materials Guidance Manual*) and submitting all quality samples to the division
- Contract modification for sampling and testing requirements

The division is responsible for all quality testing and acceptance testing for other specified aggregate properties.

Section engineer (SE) general certification and testing requirements:

- Freeze-Thaw Aggregate Certification
- Agricultural Limestone Certification
- Polish Resistant Aggregate Certification
- Density Control Strip
- Visual Aggregate Quality

DMSS general certification and testing requirements:

- Freeze-Thaw Aggregate Certification
- Agricultural Limestone Certification
- Polish Resistant Aggregate Certification
- Crushed Particles
- Specific Gravity and Absorption of Coarse Aggregate
- Specific Gravity and Absorption of Fine Aggregate
- Density Control Strip
- Dry Sieve Analysis
- Shale
- Flat and Elongated
- Wet Sieve
- -200 Wash Test
- Visual Aggregate Gradation
- Visual Aggregate Quality
- Uncompacted Voids

Division of Materials' Central Office general testing requirements:

- Alkali-Carbonate Reactivity
- Clay Lumps
- Clay Lumps and Friable Particles
- Coal and Lignite for Coarse Aggregate
- Coal and Lignite for Fine Aggregate
- Coarse Aggregate Quality
- Fine Aggregate Quality
- Freeze-Thaw Resistance
- Soundness for Coarse Aggregate
- Soundness for Fine Aggregate
- Lightweight Particles
- Organic Impurities
- Petrographic Analysis
- Pore Index
- Shale
- Unit Weight
- Wear

Division of Materials' Central Office contact information:

Aggregate Section Supervisor
1227 Wilkinson Blvd.
Frankfort KY 40601

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

MATERIALS FIELD SAMPLING

Chapter

AGGREGATE

Subject

Agricultural Limestone

INSPECTOR QUALIFICATION Samplers shall be Kentucky Qualified Aggregate Sampling Technicians.

SAMPLING FREQUENCY See SiteManager Sampling Checklist for the contract requirements.

SAMPLING METHOD AASHTO T2—for suspect material only

SECTION ENGINEER (SE) The SE:

- Obtains and files the certification letter from the Department of Agriculture in the project file (see remarks)
- Assures the assessment of any necessary weight penalty KRS 250.670
- Visually inspects aglime delivered to the job site and may reject any unsuitable material

DISTRICT MATERIALS SECTION SUPERVISOR (DMSS) The DMSS submits suspect material to the division for quality testing.

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

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 Weights and Measures
107 Corporate Drive
Frankfort, KY 40601

Phone: (502) 573-0282

MATERIALS FIELD SAMPLING

Chapter	Subject
AGGREGATE	Asphalt Mix Aggregates

INSPECTOR QUALIFICATION

Samplers shall be Kentucky Qualified Aggregate Sampling Technicians.

Testers shall be Kentucky Qualified Aggregate Technicians.

SAMPLING FREQUENCY

See SiteManager Sampling Checklist for the contract requirements.

SAMPLING METHOD

AASHTO T2

Sample Size for "QUALITY"	Sample Size for "ACCEPTANCE"
Coarse—2 bags	Coarse—1 bag
Fine—1 bag	Fine—1 bag

SECTION ENGINEER (SE)

The SE:

- Obtains the name of aggregate sources and sizes to be used from the contractor and notifies the DMSS
- Verifies that sources are on the List of Approved Materials (LAM) Aggregate Source List
- Obtains and files the certification letter for polish-resistant restrictions, if applicable (see http://www.kytc.state.ky.us/materials/download/Aggregate/PolishComplianceLetter.pdf)
- Inspects stockpiles for contamination and segregation

DISTRICT MATERIALS SECTION SUPERVISOR (DMSS)

The DMSS:

- Reviews mix designs for valid polish-resistant aggregate proportions and sources prior to approval
- Obtains quality samples and sends to the division for testing as required

REMARKS The division waves testing for crushed particles when all aggregate is quarried material.

MATERIALS FIELD SAMPLING

Chapter

AGGREGATE

Subject

Roadway & Aggregate Blends
for Polish-Resistant Applications

INSPECTOR QUALIFICATION

Samplers shall be Kentucky Qualified Aggregate Sampling Technicians.

Testers shall be Kentucky Qualified Aggregate Technicians.

SAMPLING FREQUENCY

See SiteManager Sampling Checklist for the contract requirements.

SAMPLING METHOD

AASHTO T2 or **KM 64-439**

- Sample project asphalt mixture for chemical analysis (roadway) from the asphalt paver hopper as outlined in **KM 64-439**. Sample size shall be 7,500—10,000 grams.
- Crushed-particles test shall be determined on the combined plus No. 4 portion of either the hot-bin samples, extracted aggregate, or cold-feed belt sample from drum-mix plants proportioned to meet job-mix formula (JMF).
- Sand Equivalent—If test fails on combined-stockpile aggregates, perform hot-bin or drum-mix-plant discharge sampling and testing prior to acceptance of mixture for roadway. Plasticity index performed when necessary due to low sand equivalent value.

SECTION ENGINEER (SE)

None

DISTRICT MATERIALS SECTION SUPERVISOR (DMSS)

The DMSS:

- Obtains project asphalt mixture samples and sends them to the division for chemical analysis as required

  Note: Send the Asphalt Mix Design sheet with the Roadway Sample.

- Obtains polish-resistant (virgin) coarse aggregates from the asphalt plant site for chemical analysis

  Note: Blends require sampling of all (virgin) coarse aggregates utilized in the mix.

REMARKS

Sand Equivalent—The division does not require individual contract testing when past experience indicates the sand equivalent of the aggregates substantially exceeds the minimum requirements. The DMSS may so certify for normal contract distribution and documentation.

The DMSS needs to submit the all-coarse aggregates and the related project asphalt mixture sample simultaneously to the division.

KM 64-439 for roadway samples

AASHTO T2 for blend samples

Material Code “29500 Aggregate Blend for Tests” should be used for all tests performed on aggregate blends. Log samples into SiteManager with the producer number of asphalt plant producing mix.

MATERIALS FIELD SAMPLING

Chapter	Subject
AGGREGATE	Base Aggregates

INSPECTOR QUALIFICATION

Samplers shall be Kentucky Qualified Aggregate Sampling Technicians.

Testers shall be Kentucky Qualified Aggregate Technicians.

Density tests shall be performed by a certified Grading Level I Technician.

SAMPLING FREQUENCY

See SiteManager Sampling Checklist for the contract requirements.

SAMPLING METHOD

AASHTO T2

- Sample size for "QUALITY"—2 bags
- Sample size for "ACCEPTANCE"—1 bag
- Gradation sample to be taken from roadway prior to compaction unless exceptions apply

SECTION ENGINEER (SE)

The SE:

- Obtains the name of aggregate sources and sizes to be used from the contractor and notifies the DMSS
- Verifies that sources exist on the LAM Aggregate Source List

Target Density by Control Strip—The SE determines when maximum density is achieved during compaction of the control strip and performs density measurements.

Mixing Plant Approval—The SE contacts the DMSS to determine if the plant has been inspected and approved by the Kentucky Transportation Cabinet before permitting its use on the project. Refer to TC 64-761 eform, *CSB and DGA Mixing Plant Inspection Report*.

Field Density and Thickness Measurements—The project inspector at roadway performs required tests and thickness measurements.

DISTRICT MATERIALS SECTION SUPERVISOR (DMSS)

The DMSS:

- Begins the approval of the mixing plant process (see remarks below)
- Inspects stockpiles for contamination and segregation
- Performs the required sampling and testing at the prescribed frequency
- Obtains quality samples and sends to the division for testing as required

REMARKS

The division requires plasticity index testing and documentation if failing sand equivalents are encountered.

Approval of Mixing Plant:

- All mixing plants are to be inspected and approved prior to initial use for Kentucky highway work and will be inspected once every two years. Refer to TC 64-761 eform.
- The DMSS prepares and files the inspection report.
- Verbal approval is given by the SE for state projects.
- For federal-aid projects, distribution is made to the SE, DMSS, and division files.

MATERIALS FIELD SAMPLING

Chapter

AGGREGATE

Subject

Erosion Control Aggregates

INSPECTOR QUALIFICATION Samplers shall be Kentucky Qualified Aggregate Sampling Technicians.

SAMPLING FREQUENCY See SiteManager Sampling Checklist for the contract requirements.

SAMPLING METHOD None

SECTION ENGINEER (SE) The SE:

- Obtains the name of aggregate sources and sizes to be used from the contractor and notifies the DMSS
- Verifies that sources appear on the LAM Aggregate Source List (see remarks)
- Visually inspects material and logs in appropriate SiteManager information
- Inspects stockpiles for contamination and segregation

DISTRICT MATERIALS SECTION SUPERVISOR (DMSS) The DMSS:

- Inspects stockpiles for contamination and segregation upon request by the SE
- Visually inspects material and logs in appropriate SiteManager information upon request by the SE

REMARKS The material heading "Erosion Control Aggregates" includes "Channel Lining, Cyclopean Stone, Rip Rap, Dumped Stone, Gabion Stone, and Slope Protection."

Onsite material should be logged in SiteManager with no producer code and stated that it is an onsite material in the remarks field. Onsite material has its own material code.

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 See SiteManager Sampling Checklist for the contract requirements.

SAMPLING METHOD AASHTO T2

Sample Size for "QUALITY"	Sample Size for "ACCEPTANCE"
Coarse—2 bags	Coarse—1 bag
Fine—1 bag	Fine—1 bag

SECTION ENGINEER (SE) The SE:

- Performs required sampling
- Informs the DMSS of anticipated concrete pours in sufficient time to allow for required sampling and testing of aggregate if sampling is not performed by the SE
- Obtains and files certification letter for freeze and thaw restrictions
- Obtains aggregate specific gravities and absorption values from the DMSS and forwards them to the concrete producer's technician for determination of the various mix designs needed

DISTRICT MATERIALS SECTION SUPERVISOR (DMSS) The DMSS:

- Inspects stockpiles for contamination and segregation
- Obtains the name of aggregate sources and sizes to be used from the contractor

DISTRICT MATERIALS SECTION SUPERVISOR (DMSS) (CONT.)

- Verifies that sources are approved
- Determines if any alkali-expansive or freeze-thaw specifications apply, notifying the division's Aggregate Section when indicated
- Performs required testing of fine and coarse aggregates
- Sends quality samples to the division for testing as required
- Performs and submits IAS sampling and testing, as applicable

REMARKS

Please note each of the following regarding concrete aggregates for pavement or base:

- Samples for coal & lignite testing are sent to the division for testing when deemed necessary.
- Aggregates for specific gravity and absorption tests are to be obtained from the production source; however, natural fine aggregates may be obtained at the concrete plant.
- Average of recent test results for use on the mix design report or recent results from the division may be used to supplement DMSS 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**.
- Refer to **MFS-1200** for IAS guidelines.

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 See SiteManager Sampling Checklist for the contract requirements.

SAMPLING METHOD AASHTO T2

Sample Size for "QUALITY"	Sample Size for "ACCEPTANCE"
Coarse—2 bags	Coarse—1 bag
Fine—1 bag	Fine—1 bag

SECTION ENGINEER (SE) The SE:

- Performs required sampling and/or visual inspection when required
- Informs the DMSS of anticipated concrete pours in sufficient time to allow for required sampling and testing of aggregate if sampling is not performed by the SE
- Obtains and files certification letter for freeze and thaw restrictions, if applicable
- Obtains aggregate specific gravities and absorption values from the DMSS and forwards them to the concrete producer's technician for determination of the various mix designs needed

DISTRICT MATERIALS SECTION SUPERVISOR (DMSS) The DMSS:

- Obtains the name of aggregate sources and sizes to be used from the contractor
- Verifies that sources are approved

DISTRICT MATERIALS SECTION SUPERVISOR (DMSS) (CONT.)

- Inspects stockpiles for contamination and segregation
- Performs required testing of fine and coarse aggregates
- Determines if any alkali-expansive or freeze-thaw specifications apply, notifying the division's Aggregate Section when indicated
- Sends quality samples to the division for testing as required

REMARKS

Please note each of the following regarding concrete aggregates for structural and incidental use:

- Samples for coal and lignite testing are sent to the division for testing when deemed necessary.
- Aggregates for specific gravity and absorption tests are to be obtained from the production sources; however, natural fine aggregates may be obtained at the concrete plant.
- Average recent test results for use on mix design report or recent results from the division may be used to supplement DMSS tests.
- Material should be tested and approved for alkali carbonate reactivity (minimum 9-month test time) and if required, freeze-thaw (minimum 3-month test time) prior to use. These tests are **not performed concurrently**.
- Refer to **MFS-1200** for IAS guidelines.

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

See SiteManager Sampling Checklist for the contract requirements.

SAMPLING METHOD

AASHTO T2

Sample Size for "QUALITY"	Sample Size for "ACCEPTANCE"
Coarse—2 bags	Coarse—1 bag
Fine—1 bag	Fine—1 bag

SECTION ENGINEER (SE)

None

DISTRICT MATERIALS SECTION SUPERVISOR (DMSS)

The DMSS:

- Visually inspects aggregates, if on the LAM Aggregate Source List
- Checks to see if any carbonate alkali restrictions apply to aggregate source, notifying the division's Aggregate Section when indicated
- Submits aggregates not on the LAM Aggregate Source List to the division for quality and/or alkali testing

REMARKS

Please note each of the following regarding concrete pipe aggregates:

- Requirements for sand equivalent, gradation, uncompacted voids, and minus No. 200 wash 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).

MATERIALS FIELD SAMPLING

Chapter

AGGREGATE

Subject

Aggregate for Concrete Precast Products

INSPECTOR QUALIFICATION

Samplers shall be Kentucky Qualified Aggregate Sampling Technicians.

Testers shall be Kentucky Qualified Aggregate Technicians.

SAMPLING FREQUENCY

See remarks

SAMPLING METHOD

AASHTO T2

Sample size—see remarks

SECTION ENGINEER (SE)

Performs visual inspection when required.

DISTRICT MATERIALS SECTION SUPERVISOR (DMSS)

The DMSS:

- Obtains quality samples and sends them to the division for testing as required
- Performs required sampling and testing of fine and coarse aggregate
- Checks to see if any carbonate-alkali or freeze-thaw restrictions apply to aggregate source, informing the division's Aggregate Section if necessary

REMARKS

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

REMARKS (CONT.)

- Quality Sampling and Testing Frequency

  - Sources on LAM Aggregate Source List—One every 6 months of plant operation. All in-state sources must be included on the Aggregate Source List prior to supplying.

    Coarse—2 bags
    Fine—1 bag

  - Sources not on LAM Aggregate Source List—Tested and accepted prior to initial use and sampled every 3 months thereafter.

    Coarse—7 bags
    Fine—3 bags

- Gradation, Shale, Sand Equivalent, and Minus No. 200 Wash

  - Coarse—Once per month

  - Fine (gradation and sand equivalent only)—Once per month

MATERIALS FIELD SAMPLING

Chapter

AGGREGATE

Subject

Aggregate for Concrete Prestressed Products

INSPECTOR QUALIFICATION

Samplers shall be Kentucky Qualified Aggregate Sampling Technicians.

Testers shall be Kentucky Qualified Aggregate Technicians.

SAMPLING FREQUENCY

See remarks

SAMPLING METHOD

AASHTO T2

Sample size—see remarks

SECTION ENGINEER (SE)

None

DISTRICT MATERIALS SECTION SUPERVISOR (DMSS)

The DMSS:

- Obtains quality samples and sends them to the division for testing as required
- Performs required sampling and testing of fine and coarse aggregates used at the plant
- Checks to see if any carbonate-alkali or freeze-thaw restrictions apply to aggregate source, informing the division's Aggregate Section if necessary
- Performs visual inspection when required.

REMARKS

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

REMARKS (CONT.)

- Quality Sampling and Testing Frequency

  - Sources on LAM Aggregate Source List—One every 6 months of plant operation. All in-state sources must be included on the Aggregate Source List prior to supplying.

    Coarse—2 bags
    Fine—1 bag

  - Sources not on LAM Aggregate Source List—Tested and accepted prior to initial use and sampled every 3 months thereafter.

    Coarse—2 bags
    Fine—1 bag

- Gradation, shale, sand equivalent, and minus No. 200 wash

  - Coarse—Once per month

  - Fine (gradation and sand equivalent only)—Once per month

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

See SiteManager Sampling Checklist for the contract requirements.

SAMPLING METHOD

AASHTO T2

15 pounds for "QUALITY" if applicable
10 pounds for "ACCEPTANCE"

SECTION ENGINEER (SE)

The SE:

- Obtains the name of aggregate sources to be used from the contractor and notifies the DMSS
- Submits the sample for gradation to the DMSS with the sample identification form and awaits approval before using
- Performs visual inspection when required

DISTRICT MATERIALS SECTION SUPERVISOR (DMSS)

The DMSS:

- If the source is on the LAM Aggregate Source List, when required performs gradation prior to project use
- If the source is not on the LAM Aggregate Source List, when required performs gradation and submits a sample to the division for quality testing

REMARKS

Samples taken from bags should be obtained from throughout the bag since **samples from the top are not normally representative**.

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

See SiteManager Sampling Checklist for the contract requirements.

SAMPLING METHOD

AASHTO T2

SECTION ENGINEER (SE)

The SE:

- Obtains the name of aggregate sources and sizes to be used from the contractor and notifies the DMSS
- Visually inspects material and logs findings in appropriate SiteManager information

DISTRICT MATERIALS SECTION SUPERVISOR (DMSS)

The DMSS:

- Inspects stockpiles for contamination and gradation
- Visually accepts or samples material if requested by SE
- Logs findings in appropriate SiteManager information
- Performs required tests upon request by the SE
- Performs required sampling and testing of fine and coarse aggregate

REMARKS

Aggregate is not required to be from a source on the List of Approved Materials.

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

See SiteManager Sampling Checklist for the contract requirements.

SAMPLING METHOD

AASHTO T2

Sample size for "QUALITY"—2 bags (off-site material only)
Sample size for "ACCEPTANCE"—1 bag (off-site material only)

SECTION ENGINEER (SE)

The SE:

- Visually inspects on-site material for approval
- Samples or notifies the DMSS if off-site material is to be used

DISTRICT MATERIALS SECTION SUPERVISOR (DMSS)

The DMSS:

- Performs sampling, if required, and testing of off-site material
- Performs visual inspection when required
- Submits off-site material to the division for quality testing as required

REMARKS

On-site material should be logged in SiteManager with no producer code and stated that it is an on-site material in the remarks field (Jobsite-General Use). Use the Material Code for on-site material.

MATERIALS FIELD SAMPLING

Chapter	*Subject*
AGGREGATE	Masonry Stone

INSPECTOR QUALIFICATION

Samplers shall be Kentucky Qualified Aggregate Sampling Technicians.

Testers shall be Kentucky Qualified Aggregate Technicians.

SAMPLING FREQUENCY See SiteManager Sampling Checklist for the contract requirements.

SAMPLING METHOD AASHTO T2

Sample size for "QUALITY"—2 bags (for suspect material only)

SECTION ENGINEER (SE) The SE:

- Visually inspects material
- Notifies the DMSS if material is suspect

DISTRICT MATERIALS SECTION SUPERVISOR (DMSS)

The DMSS submits a sample to the division for quality testing for suspect material.

REMARKS Aggregate is not required to be from the 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 See SiteManager Sampling Checklist for the contract requirements.

SAMPLING METHOD AASHTO T2

Sample size—3 bags

SECTION ENGINEER (SE) The SE:

- Samples and submits to the DMSS with sample identification
- Awaits approval before permitting use of material

DISTRICT MATERIALS SECTION SUPERVISOR (DMSS) The DMSS performs gradation testing and submits a sample to the division for quality testing.

REMARKS Aggregate is not required to be from the LAM Aggregate Source List.

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 See SiteManager Sampling Checklist for the contract requirements.

SAMPLING METHOD AASHTO T2

Sample size for gradation:

- Coarse—25 pounds
- Fine—15 pounds

SECTION ENGINEER (SE) The SE:

- Obtains the name of aggregate sources and sizes to be used from the contractor and notifies the DMSS
- Visually inspects or samples material if required

DISTRICT MATERIALS SECTION SUPERVISOR (DMSS) The DMSS:

- Inspects stockpiles for contamination and segregation
- Samples material if required or requested by the SE
- Logs appropriate SiteManager information
- Performs required tests upon request by the SE

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

See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD

AASHTO T2

Sample size for "QUALITY"—2 bags
Sample size for "ACCEPTANCE"—1 bag

SECTION ENGINEER (SE)

The SE:

- Obtains the name of aggregate sources and sizes to be used from the contractor and notifies the DMSS
- Verifies that sources are approved
- If material is not on the LAM Aggregate Source List, samples and provides to the DMSS
- Performs visual inspection when required

DISTRICT MATERIALS SECTION SUPERVISOR (DMSS)

The DMSS:

- Inspects stockpiles for contamination and segregation
- Performs required sampling and testing of aggregates
- If material is not on the LAM Aggregate Source List, samples if requested by the SE and submits to the division

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

See SiteManager Sampling Checklist for the contract requirements.

SAMPLING METHOD

AASHTO T2

Sample size—25 pounds

SECTION ENGINEER (SE)

The SE:

- Obtains the name of aggregate sources and sizes to be used from the contractor and notifies the DMSS
- Verifies that sources are approved
- Visually accepts or samples material

DISTRICT MATERIALS SECTION SUPERVISOR (DMSS)

The DMSS:

- Inspects stockpiles for contamination and segregation
- Visually accepts or samples material if requested by the SE
- Logs appropriate SiteManager information
- Performs required tests upon request by the SE

REMARKS

None

MATERIALS FIELD SAMPLING

Chapter

AGGREGATE

Subject

Seal Coat Aggregate

INSPECTOR QUALIFICATION

Samplers shall be Kentucky Qualified Aggregate Sampling Technicians.

Testers shall be Kentucky Qualified Aggregate Technicians.

SAMPLING FREQUENCY

See SiteManager Sampling Checklist for the contract requirements.

SAMPLING METHOD

AASHTO T2

Sample size for "QUALITY"—2 bags
Sample size for "ACCEPTANCE"—1 bag

SECTION ENGINEER (SE)

The SE:

- Obtains the name of aggregate sources and sizes to be used from the contractor and notifies the DMSS
- Verifies that sources are approved
- Verifies gradation approval of aggregate from the DMSS before permitting use

DISTRICT MATERIALS SECTION SUPERVISOR (DMSS)

The DMSS:

- Performs required sampling and testing of aggregate
- Obtains quality samples and sends them to the division for testing as required

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 See SiteManager Sampling Checklist for the contract requirements.

SAMPLING METHOD AASHTO T2

Sample size for "QUALITY"—2 bags
Sample size for "ACCEPTANCE"—1 bag

SECTION ENGINEER (SE) The SE:

- Obtains the name of aggregate sources and sizes to be used from the contractor and notifies the DMSS
- Verifies that sources are approved
- Performs required sampling of aggregate
- Performs visual inspection when required

DISTRICT MATERIALS SECTION SUPERVISOR (DMSS) The DMSS:

- Inspects stockpiles for contamination and segregation
- Performs required sampling if requested by SE and testing of aggregate
- Obtains quality samples and sends them to the division for testing as required

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 See SiteManager Sampling Checklist for the contract requirements.

SAMPLING METHOD AASHTO T2

Sample Size for "QUALITY"	Sample Size for "ACCEPTANCE"
Coarse—2 bags	Coarse—1 bag
Fine—1 bag	Fine—1 bag

SECTION ENGINEER (SE) The SE:

- Obtains the name of aggregate sources and sizes to be used from the contractor and notifies the DMSS
- Performs required sampling of aggregate
- Performs visual inspections when required

DISTRICT MATERIALS SECTION SUPERVISOR (DMSS)

The DMSS:

- Inspects stockpiles for contamination and segregation
- Performs required sampling if requested by SE and testing of aggregate
- Obtains quality samples for materials not on the LAM Aggregate Source List and sends them to the division for testing prior to use as required

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

AGGREGATE

Subject

Untreated Drainage Blanket

INSPECTOR QUALIFICATION

Samplers shall be Kentucky Qualified Aggregate Sampling Technicians.

Testers shall be Kentucky Qualified Aggregate Technicians.

SAMPLING FREQUENCY

See SiteManager Sampling Checklist for the contract requirements.

SAMPLING METHOD

AASHTO T2

Sample size for "QUALITY"—2 bags
Sample size for "ACCEPTANCE"—1 bag

SECTION ENGINEER (SE)

The SE:

- Obtains the name of aggregate sources and sizes to be used from the contractor and notifies the DMSS
- Verifies that sources are approved
- Performs required sampling of aggregate
- Performs visual inspection when required
- Verifies gradation approval of aggregate from the DMSS before permitting use

DISTRICT MATERIALS SECTION SUPERVISOR (DMSS)

The DMSS:

- Performs required sampling if requested by SE and testing of aggregate
- Obtains quality samples and sends them to the division for testing as required

REMARKS

None

MATERIALS FIELD SAMPLING

Chapter

ASPHALT MIXTURES

Subject

General Notes

The contractor performs acceptance sampling and testing of asphalt mixtures for the determination of the appropriate pay value as described in Section 402 of the Standard Specifications. KYTC personnel perform verification sampling and testing of asphalt mixtures in order to verify the contractor's acceptance test results.

One lot of material is considered 4000 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 1000 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.

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.

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 are defined as any asphalt mixture placed on mainline, shoulders, ramps, approaches, entrances, cross-overs, 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 Mixture for Pavement Wedge
- Asphalt Wedge Curb and Mountable Medians
- Sand Asphalt Type I
- Sand Asphalt Type II
- Sand Seal Surface
- Slurry Seal

For aggregates utilized in asphalt mixtures, refer to **MFS-203**, "Asphalt Mix Aggregates".

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

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 ATDB 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 resident engineer (RE) to the district materials engineer (DME).

For any questions pertaining to this information, please 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

Superpave Mixtures

INSPECTOR QUALIFICATION

The contractor's qualified SPT or 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

See the SiteManager Materials sampling checklist for the applicable contract. The "Remarks" section below details the number of samples necessary to complete the portions of the AMAW for which KYTC is responsible.

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".

RESIDENT ENGINEER (RE)

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

DISTRICT MATERIALS ENGINEER (DME)

The DME will assist the RE with verification (mixture volumetrics) and acceptance (core density) testing when necessary. Similarly, the DME will assist with entering mixture inspection and testing information into the AMAW and transferring the AMAW into SiteManager Materials when requested.

REMARKS

For asphalt mixture verification, KYTC personnel shall verify a minimum of one of the contractor's acceptance tests for mixture volumetrics per lot (see 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.

Considering core density for Compaction Option A mixtures, KYTC personnel shall randomly select four locations per sublot from the driving lanes for each type of mixture and two locations per sublot near the longitudinal joint for surface mixtures. The contractor shall obtain one density core at each location identified (see Subsection 402.03.02 of the Standard Specifications). After obtaining the cores from the contractor, KYTC personnel shall determine the percent of solid density of each core according to **KM 64-442**.

KYTC personnel will not perform solvent extractions.

KYTC personnel will ensure that the contractor utilizes the AMAW version applicable to the contract specifications. This spreadsheet is available from the Division of Materials' website (http://transportation.ky.gov/materials/SiteManager.htm).

MATERIALS FIELD SAMPLING

Chapter

ASPHALT MIXTURES

Subject

Specialty Mixtures

INSPECTOR QUALIFICATION

The contractor's qualified SPT or 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

See the SiteManager Materials sampling checklist for the applicable contract. The "Remarks" section below details the number of samples necessary to complete the portions of the AMAW for which KYTC is responsible.

SAMPLING METHOD

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

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

RESIDENT ENGINEER (RE)

The RE shall furnish a qualified SPT or SMDT to verify the contractor's acceptance test (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.

DISTRICT MATERIALS ENGINEER (DME)

The DME will assist the RE with verification testing when necessary. Similarly, the DME will assist with entering mixture inspection and testing information into the AMAW and transferring the AMAW into SiteManager Materials when requested.

REMARKS

For asphalt mixture verification, KYTC personnel shall verify a minimum of one of the contractor's acceptance tests for AC and gradation per lot (see Subsection 402.03.03 of the Standard Specifications). For asphalt mixtures with a total-contract quantity of less than 1000 tons, visual acceptance is permitted.

KYTC personnel will not perform solvent extractions.

REMARKS (CONT.) KYTC personnel will ensure that the contractor utilizes the AMAW version applicable to the contract specifications. This spreadsheet is available from the Division of Materials' website (http://transportation.ky.gov/materials/SiteManager.htm).

MATERIALS FIELD SAMPLING

Chapter

CEMENT

Subject

General Notes

QUESTIONS

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

Cement Section Supervisor
Central Office, Division of Materials
1227 Wilkinson Boulevard
Frankfort, Kentucky 40601

Phone: 502-564-3160

MATERIALS FIELD SAMPLING

Chapter

CEMENT

Subject

Cement, Portland (All Types)

INSPECTOR QUALIFICATION

None

SAMPLING FREQUENCY

Projects—See SiteManager Sample Checklist for the contract.

Precast/Prestress—Take one sample monthly.

Concrete Pipe Plants—Take one sample quarterly.

SAMPLING METHOD

At destination (in the field) for all construction projects, obtain a one-gallon sample according to **KM 64-316**. Obtain approximately one-half of the total project samples from the concrete weigh hopper or storage bin and the other one-half from the cement transport truck.

RESIDENT ENGINEER (RE)

The RE:

- Obtains the bill of lading and signed certification and verifies that they meet the specification requirements
- Shall submit all samples with the bill of lading and certification
- Makes appropriate SiteManager entries and documents the bill of lading number as the control number

DISTRICT MATERIALS ENGINEER (DME)

The DME:

- Enters samples from Precast/Prestress/Pipe Plants as "INFORMATIONAL"
- Sends samples to the Central Office Materials Laboratory (T415)

REMARKS

None

MATERIALS FIELD SAMPLING

Chapter

CEMENT

Subject

Curing Compound (All Types)

INSPECTOR QUALIFICATION

None

SAMPLING FREQUENCY

See SiteManager Sample Checklist for the contract.

SAMPLING METHOD

Obtain ¾ of a quart in a 1-quart container.

RESIDENT ENGINEER (RE)

The RE:

- Obtains the signed certification and verifies that it meets the specification requirements for moisture loss (and reflectance for Type II's) by using the following parameters:
  - Moisture Loss (0.55 kg/sqm or 0.055 g/sqcm) maximum
  - Reflectance 60% minimum
- Shall submit all samples with the certification
- Makes appropriate SiteManager entries

DISTRICT MATERIALS ENGINEER (DME)

The DME sends samples to the Central Office Materials Laboratory (T415).

REMARKS

Type II curing compounds must be supplied in agitating type drums. When supplied in five gallon pails, agitating type containers are not required.

Curing compounds should be thoroughly agitated before using or sampling.

Prevent curing compounds from freezing.

MATERIALS FIELD SAMPLING

Chapter

CEMENT

Subject

Fly Ash (Concrete/Base Stabilization)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Projects—See SiteManager Sample Checklist for the contract.

Precast/Prestress—Take one sample monthly.

Concrete Pipe Plants—Take one sample quarterly.

SAMPLING METHOD At destination (in the field) for all construction projects, obtain a one gallon sample.

RESIDENT ENGINEER (RE) The RE:

- Obtains the bill of lading and signed certification and verifies that they meet the specification requirements
- Shall submit all samples with the bill of lading and certification
- Makes appropriate SiteManager entries and documents the bill of lading number as the control number

DISTRICT MATERIALS ENGINEER (DME) The DME:

- Enters samples from Precast/Prestress/Pipe Plants as "INFORMATIONAL"
- Sends samples to the Central Office Materials Laboratory (T415)

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

CEMENT

Subject

Ground Granulated Blast Furnace Slag (GGBFS)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Projects—See SiteManager Sample Checklist for the contract.

Precast/Prestress—Take one sample monthly.

Concrete Pipe Plants—Take one sample quarterly.

SAMPLING METHOD At destination (in the field) for all construction projects, obtain a one gallon sample.

RESIDENT ENGINEER (RE) The RE:

- Obtains the bill of lading and signed certification and verifies that they meet the specification requirements
- Shall submit all samples with the bill of lading and certification
- Makes appropriate SiteManager entries and documents the bill of lading number as the control number

DISTRICT MATERIALS ENGINEER (DME) The DME:

- Enters samples from Precast/Prestress/Pipe Plants as "INFORMATIONAL"
- Sends samples to the Central Office Materials Laboratory (T415)

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

CEMENT

Subject

Microsilica

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Projects—See SiteManager Sample Checklist for the contract.

Precast/Prestress—Take one sample monthly.

Concrete Pipe Plants—Take one sample quarterly.

SAMPLING METHOD At destination (in the field) for all construction projects, obtain a one gallon sample from the bin or packaged material.

RESIDENT ENGINEER (RE) The RE:

- Obtains the bill of lading and signed certification and verifies that they meet the specification requirements
- Shall submit all samples with the bill of lading and certification
- Makes appropriate SiteManager entries and documents the bill of lading number as the control number

DISTRICT MATERIALS ENGINEER (DME) The DME:

- Enters samples from Precast/Prestress/Pipe Plants as "INFORMATIONAL"
- Sends samples to the Central Office Materials Laboratory (T415)

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

CEMENT

Subject

Masonry Units (Concrete Brick, Concrete Block, & Clay Brick)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sample Checklist for the contract.

SAMPLING METHOD Concrete Block—Obtain six (6) blocks from each lot.

Concrete or Clay Brick—Obtain ten (10) bricks from each lot.

RESIDENT ENGINEER (RE) The RE:

- Randomly selects blocks or bricks from the lot and checks for conformity to "DIMENSIONAL" requirements and freedom from defects

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

- Makes appropriate SiteManager entries and awaits approval from the Central Office before using

DISTRICT MATERIALS ENGINEER (DME) The DME submits samples to the Central Office Materials Laboratory (T415).

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

CEMENT

Subject

Masonry Coating

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sample Checklist for the contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE:

- Ensures the brand and product is approved and obtains the signed certification (stating that the product conforms to the specifications) for each shipment
- Ensures the coating is applied in accordance with the manufacturer's recommendations
- Makes appropriate SiteManager entries and authorizes the sample

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

CEMENT

Subject

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

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sample Checklist for the contract.

SAMPLING METHOD At destination (in the field) for all construction projects, obtain a one-gallon sample from the packaged material.

RESIDENT ENGINEER (RE) The RE:

- Obtains the bill of lading and insures the patch material is approved for use
- Obtains mixing instructions located on the bags and submits the sample
- Makes appropriate SiteManager entries and documents the bill of lading number as the control number

DISTRICT MATERIALS ENGINEER (DME) The DME sends samples and instructions to the Central Office Materials Laboratory (T415).

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

CEMENT

Subject

Non-Shrink Grout

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sample Checklist for the contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE:

- Obtains the bill of lading and signed certification
- Ensures the non-shrink grout is approved for use
- Makes appropriate SiteManager entries and documents the bill of lading number as the control number
- Authorizes sample in SiteManager

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

CHEMISTRY

Subject

General Notes

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.

If you have questions about the information contained in MFS-500, please 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 See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE:

- Obtains and reviews the manufacturer's certification for compliance with the contract and all applicable 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 state the minimum temperature that the adhesive can be satisfactorily mixed and applied.

- Allows the contractor to use the material if the certification indicates compliance
- Enters the appropriate information into SiteManager

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS The following are the material codes affected by "Adhesive for Raised Pavement Markers":

- 33300 Type IVA RPM
- 33310 Type IV RPM Lens
- 33320 Type V RPM

MATERIALS FIELD SAMPLING

Chapter

CHEMISTRY

Subject

C881 Epoxy

INSPECTOR QUALIFICATION

None

SAMPLING FREQUENCY

See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD

Obtain one set of 8-milliliter (mL) transport tubes and fill approximately half full with epoxy.

Note: Separate tubes shall be used for each component.

RESIDENT ENGINEER (RE)

The RE:

- Inspects the containers and makes sure the appropriate markings are on the containers
- Obtains and reviews the manufacturer's certification for compliance with the contract and all applicable specifications
- Verifies that the product appears on the KYTC'S LAM
- Enters the appropriate information into SiteManager
- Forwards the sample, sample label, and the manufacturer's certification to the Division of Materials

DISTRICT MATERIALS ENGINEER (DME)

None

REMARKS

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, type of pigmentation, and quantity contained therein in gallons.

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

If the epoxy is not a bid item, the material is accepted as incidental to pavement quantities.

The following are material codes affected by “C881 Epoxy”:

- 30000 C881 Epoxy—Type III
- 30010 C881 Epoxy—Type IV
- 30020 C881 Epoxy—Type V

MATERIALS FIELD SAMPLING

Chapter

CHEMISTRY

Subject

Chemical Deicers

INSPECTOR QUALIFICATION

None

SAMPLING FREQUENCY

See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD

Visually inspect the shipments of deicer.

For non-liquid deicers, obtain the sample by scraping aside the top inch of material in the stockpile or delivery truck.

Note: Scoop out approximately two (2) quarts for test purposes and place in quart cans.

For liquid deicers, ensure that the transfer line is purged of any wash water and that the holding tank is stirred to provide a homogeneous sample.

Note: Acquire the sample in a one (1) liter plastic bottle.

RESIDENT ENGINEER (RE)

None

DISTRICT MATERIALS ENGINEER (DME)

The DME:

- Obtains a copy of the bill of lading indicating quantity shipped and source
- Visually inspects the shipments and obtains the samples when requested by the operations engineer
- Enters the appropriate information into SiteManager and, when applicable, forwards the sample and sample label to the Division of Materials

REMARKS

Follow the applicable Kentucky Methods for evaluation of moisture and gradation of the chlorides.

Specification requirements are found in the Invitation for Bid.

Test costs for the analysis of this material will be charged to the operations account for miscellaneous items in each district.

The following are the material codes affected by “Chemical Deicers”:

- 32050 Calcium Chloride—Liquid
- 32060 Calcium Chloride—Solid
- 32061 Calcium Chloride—Granular
- 32062 Calcium Chloride—Pellet
- 32070 Sodium Chloride—Solid

MATERIALS FIELD SAMPLING

Chapter

CHEMISTRY

Subject

Delineators

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE:

- Obtains and reviews the manufacturer's certification for compliance with the contract and all applicable specifications
- Enters the appropriate information into SiteManager

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS The following are the material codes affected by "Delineators":

- 36000 Delineator
- 36010 Barrier Wall Delineator
- 36020 Guardrail Delineator

MATERIALS FIELD SAMPLING

Chapter

CHEMISTRY

Subject

Extruded Thermoplastic

INSPECTOR QUALIFICATION

Pavement Markings Inspection Technician

SAMPLING FREQUENCY

See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD

Ensure each bag of material is clearly labeled with the manufacturer's lot number.

Obtain unopened bags of material to meet the sampling frequency.

If the total quantity used on the contract does not exceed 250 pounds, allow use of the material based on the manufacturer's certification.

Perform **KM201**, **KM202**, or **KM203** when applicable.

RESIDENT ENGINEER (RE)

The RE:

- Obtains and reviews the manufacturer's certification for compliance with the contract and all applicable specifications
- Obtains a minimum of one sample per batch per color of material delivered to the contract for use
- Enters the appropriate information into SiteManager for any applicable retroreflectivity measurements and the thermoplastic sample to be sent to the Division of Materials
- Forwards the thermoplastic sample, sample label, and the manufacturer's certification to the Division of Materials

Note: Do not allow the contractor to apply material that has not been tested and approved by the Division of Materials.

DISTRICT MATERIALS ENGINEER (DME)

For quantities less than 250 pounds, the sample should be logged into SiteManager with a Sample Type of "Project Acceptance" and an Acceptance Method of "Certification". The sample should receive a unique identification number in SiteManager and assigned the Test Template "CHCERTIFY".

All other thermoplastic samples should be logged into SiteManager with a Sample Type of "Project Acceptance" and an Acceptance Method of "Test Results".

Samples sent to the Materials lab should receive a unique identification number in SiteManager and assigned the Test Template "CHTHERMO".

Thermoplastic materials used for intersection markings should receive a unique identification number in SiteManager and assigned the test template "CHKM201".

Thermoplastic materials used for lane lines and evaluated for retroreflectivity by a handheld retroreflectometer should receive a unique identification number in SiteManager and assigned the test template "CHKM202".

Thermoplastic materials used for lane lines and evaluated for retroreflectivity by the mobile retroreflectometer should receive a unique identification number in SiteManager and assigned the test template "CHKM203".

REMARKS

Any material delivered to the contract without legible manufacturer's labeling and lot number shall be rejected by the engineer. Any material that exhibits unsatisfactory application properties; requires excessive heating; or exhibits discoloration, low bond strength, or excessive cracking should be rejected by the engineer.

The following are material codes affected by "Extruded Thermoplastic":

- 33100 Thermoplastic—Yellow
- 33110 Thermoplastic—White

MATERIALS FIELD SAMPLING

Chapter

CHEMISTRY

Subject

Flashing Arrow Board

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE obtains and reviews the manufacturer's certification for compliance with the contract and all applicable specifications.

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS The following is the material code affected by "Flashing Arrow Board":

36320 Flashing Arrow Board

MATERIALS FIELD SAMPLING

Chapter

CHEMISTRY

Subject

Flexible Delineator Post

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE:

- Obtains and reviews 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).

- Verifies that the product appears on the KYTC's LAM

- Enters the appropriate information into SiteManager

DISTRICT MATERIALS ENGINEER (DME) None

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

The following is the material code affected by "Flexible Delineator Post":

36100 Flexible Delineator Post

MATERIALS FIELD SAMPLING

Chapter

CHEMISTRY

Subject

Glass Beads

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD Not applicable

RESIDENT ENGINEER (RE) None

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS Glass beads are evaluated as part of the retroreflectivity measurements for the striping line. No sample is required.

Do not generate a sample identification number in SiteManager for glass beads.

The following is the material code affected by “Glass Beads”:

33500 Glass Beads

MATERIALS FIELD SAMPLING

Chapter

CHEMISTRY

Subject

Herbicide (2, 4-D)

INSPECTOR QUALIFICATION

None

SAMPLING FREQUENCY

See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD

Randomly obtain one-quart informational samples directly from the drum or pail delivered to Operations' storage barn when requested by the district operations engineer.

Mixing or agitating the material prior to obtaining a sample should not be necessary.

RESIDENT ENGINEER (RE)

None

DISTRICT MATERIALS ENGINEER (DME)

The DME:

- Obtains and reviews the manufacturer's certification for compliance with the contract and all applicable specifications
- Obtains samples at the request of the district operations engineer
- Enters the appropriate information into SiteManager
- If samples are obtained; forwards the sample, sample label, and the manufacturer's certification to the Division of Materials

REMARKS

Test costs for the analysis of this material will be charged to the operations account for miscellaneous items in each district.

The following is the material code affected by "Herbicides (2, 4-D)":

32080 Herbicide (2, 4-D)

MATERIALS FIELD SAMPLING

Chapter

CHEMISTRY

Subject

Latex

INSPECTOR QUALIFICATION

None

SAMPLING FREQUENCY

See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD

Purge the lines of water.

Obtain one sample of liquid latex from the mobile unit lines in a clean, dry one (1) liter plastic bottle.

Sample latex for RETEST (prior to use) if exposed to freezing temperatures, if one-year certification has expired, or if held over a winter for use the following year.

Additional sampling should be done anytime water dilution is suspected.

RESIDENT ENGINEER (RE)

The RE:

- Obtains the samples
- Obtains and reviews the manufacturer's certification for compliance with the contract and all applicable specifications (**KM 64-267**)
- Does not allow the use of latex without a manufacturer's certification with the following information:
  - Manufacturer's name
  - Product name
  - Batch and/or lot number
  - Date of manufacture
  - Chemical and physical test results
  - Quantity represented
  - Place of manufacture
  - Date of test
  - Signature of company representative

RESIDENT ENGINEER (RE) (CONT.)

- Verifies that the product appears on the KYTC's LAM and does not accept latex not appearing on the KYTC'S LAM

- Enters the appropriate information into SiteManager and forwards the sample, sample label, and the manufacturer's certification to the Division of Materials

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS The following is the material code affected by "Latex":

32000 Latex

MATERIALS FIELD SAMPLING

Chapter

CHEMISTRY

Subject

M200 Sand Slurry

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD Obtain one set of 8-milliliter (mL) transport tubes and fill approximately half full with epoxy. Separate tubes shall be used for each component.

RESIDENT ENGINEER (RE) The RE:

- Inspects the containers and makes sure the appropriate markings are on the containers
- Obtains and reviews manufacturer's certification for compliance with ASTM C 881, Type III or AASHTO M 200, Class II
- Enters the appropriate information into SiteManager
- Forwards the sample, sample label, and the manufacturer's certification to the Division of Materials

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS 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, type of pigmentation, and quantity contained therein in gallons.

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

If the epoxy is not a bid item, the material is accepted as incidental to pavement quantities.

REMARKS (CONT.) The following is the material code affected by “M200 Sand Slurry”:

30300 M200 Sandy Slurry

MATERIALS FIELD SAMPLING

Chapter

CHEMISTRY

Subject

Object Marker

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE obtains and reviews the manufacturer's certification for compliance with the contract and all applicable specifications.

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS: The following is the material code affected by "Object Marker":

36200 Object Marker

MATERIALS FIELD SAMPLING

Chapter

CHEMISTRY

Subject

Permanent Tape

INSPECTOR QUALIFICATION Pavement Marking Inspection Technician

SAMPLING FREQUENCY See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE:

- Obtains and reviews the manufacturer's certification for compliance with the contract and all applicable specifications
- Enters the appropriate certification information into SiteManager
- Performs visual inspection
- Obtains retroreflectivity measurements at the RE's discretion
- Enters the appropriate visual inspection information into SiteManager after the material has been placed

DISTRICT MATERIALS ENGINEER (DME) The DME ensures that "CHCERTIFY" and "CHVISUAL" each are assigned to unique identification numbers in SiteManager.

REMARKS The following is the material code affected by "Permanent Tape":

33410 Permanent Tape

MATERIALS FIELD SAMPLING

Chapter

CHEMISTRY

Subject

Permanent Traffic Paint

INSPECTOR QUALIFICATION

Pavement Markings Inspection Technician

SAMPLING FREQUENCY

See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD

Sample shall be taken from the paint striper's gun and placed in a one (1) pint lined paint can.

Perform **KM202** or **KM203** when applicable.

RESIDENT ENGINEER (RE)

The RE:

- Obtains and reviews the manufacturer's certification for compliance with the contract and all applicable specifications
- Inspects the containers
- Enters the appropriate information into SiteManager for both the traffic paint sample and the retroreflectivity measurements
- Forwards the traffic paint sample, sample label, and the manufacturer's certification to the Division of Materials

DISTRICT MATERIALS ENGINEER (DME)

When retroreflective readings are taken by the handheld retroreflectometer, the DME creates a unique identification number in SiteManager and assigns the test template "CHKM202".

When retroreflective readings are taken by the mobile retroreflectometer, the DME creates a unique identification number in SiteManager and assigns the test template "CHKM203".

Samples sent to the Materials lab shall receive a unique identification number in SiteManager and assigned test template "CHTRAFFCPT".

REMARKS

Traffic paint samples shall be logged into the system with a Sample Type of “Project Acceptance” and an Acceptance Method of “Test Results”.

Do not generate a sample identification number for the manufacturer’s certification. The certification is to be evaluated with the traffic paint sample by the Division of Materials.

For district-wide striping contracts, obtain one sample of traffic paint per color per truck per week.

For resurfacing, restoration, and rehabilitation contracts, obtain one sample per color per contract.

Perform **KM202** or **KM203** per day of striping operations on all contracts.

For district-wide striping contracts, retroreflectivity measurements shall receive two unique sample identification numbers in SiteManager: one with a Sample Type of “QA” and the other with a Sample Type of “QC”. The Acceptance Method for both “QA” and “QC” is “Test Results”.

For resurfacing, restoration, or rehabilitation contracts, retroreflectivity measurements shall receive a unique sample identification number in SiteManager with a Sample Type of “Project Acceptance” and an Acceptance Method of “Test Results”.

Do not take a traffic paint sample to be sent to the Division of Materials for black or blue traffic paint.

Do not perform retroreflectivity testing on black or blue traffic paint striping.

Do not take a traffic paint sample to be sent to the Division of Materials for traffic paint used on parking lots.

Do not perform retroreflectivity testing for striping on parking lots.

The following are the material codes affected by “Permanent Traffic Paint”:

- 33000 Traffic Paint—Yellow
- 33010 Traffic Paint—White
- 33020 Traffic Paint—Black/Blue
- 33030 Durable TP Yellow
- 33040 Durable TP White

MATERIALS FIELD SAMPLING

Chapter

CHEMISTRY

Subject

Preformed Thermoplastic

INSPECTOR QUALIFICATION Pavement Markings Inspection Technician

SAMPLING FREQUENCY See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE:

- Obtains and reviews the manufacturer's certification for compliance with the contract and all applicable specifications
- Verifies that the product is on the KYTC's LAM

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS The following is the material code affected by "Preformed Thermoplastic":

33120 Preformed Thermoplastic

MATERIALS FIELD SAMPLING

Chapter

CHEMISTRY

Subject

Raised Pavement Markers

INSPECTOR QUALIFICATION

None

SAMPLING FREQUENCY

See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD

None

RESIDENT ENGINEER (RE)

The RE:

- Obtains and reviews the manufacturer's certification for compliance with the contract and all applicable specifications
- Verifies that the product is on the KYTC's LAM
- Enters the appropriate certification information into SiteManager
- Performs visual inspection and randomly checks markers to determine if the dimensions meet the specification requirements
- Enters the appropriate visual inspection information into SiteManager after the makers have been installed

DISTRICT MATERIALS ENGINEER (DME)

The DME ensures that "CHCERTIFY" and "CHVISUAL" are each assigned to unique identification numbers in SiteManager.

REMARKS

If the resident engineer determines the raised pavement markers do not meet specification requirements for dimensions, or if the lenses of the markers are damaged or scratched, reject the products.

The following are the material codes affected by "Raised Pavement Markers":

- 33300 Type IV RPM Lens
- 33310 Type IVA Temporary Work Zone RPM
- 33320 Type V RPM Casting

MATERIALS FIELD SAMPLING

Chapter

CHEMISTRY

Subject

Reinforcing Bar Grout Adhesives

INSPECTOR QUALIFICATION

None

SAMPLING FREQUENCY

See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD

Obtain one set of 8-milliliter (mL) transport tubes and fill approximately half-full with grout.

Note: Separate tubes shall be used for each component if the product is multi-component.

RESIDENT ENGINEER (RE)

The RE:

- Obtains and reviews the manufacturer's certification for compliance with the contract and all applicable specifications
- Inspects the containers and makes sure the appropriate markings are on the containers
- Verifies that the product is on the KYTC's LAM

DISTRICT MATERIALS ENGINEER (DME)

None

REMARKS

Containers shall be identified as "Component A – Resin" and "Component B – Hardener", and show the directions and usable temperature range.

Each container shall be marked with the name of the manufacturer, lot or batch number, date of packaging, type of pigmentation, and quantity contained therein in kilograms and liters.

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

REMARKS (CONT.) The following are the material codes affected by "Reinforcing Bar Grout Adhesives":

- 30100 Rebar Grout—Cat I
- 30110 Rebar Grout—Cat II

MATERIALS FIELD SAMPLING

Chapter

CHEMISTRY

Subject

Sign Sheeting

INSPECTOR QUALIFICATION

None

SAMPLING FREQUENCY

See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD

None

RESIDENT ENGINEER (RE)

The RE:

- Obtains and reviews the manufacturer's certification for compliance with the contract and all applicable specifications
- Verifies that the product appears on the KYTC's LAM
- Checks the sign sheeting face, border, and legend to ensure the presence of a design characteristic of the manufacturer's materials
- Visually inspects the sign for shipment damage, discoloration, sheet wrinkles, and air between the sheeting and the sign substrate or blank
- Enters the appropriate information into SiteManager

DISTRICT MATERIALS ENGINEER (DME)

None

REMARKS

Below are sign categories and their acceptable grades of sheeting:

"LOW SHOULDER" signs..... Engineering Grade (or better)
All permanent/reflective signs..... High Intensity Type III
Type III Barricades..... High Intensity Type III
Construction Zone Signing ..... Fluorescent Grade

REMARKS (CONT.) The following are the material codes affected by “Sign Sheeting”:

- 34020 Construction Sign Sheeting
- 34030 Reflective Sign Sheeting Type III
- 34040 Reflective Sign Sheeting Type IV
- 34050 Reflective Sign Sheeting Type VI
- 34060 Reflective Sign Sheeting Type VII
- 34070 Reflective Sign Sheeting Type VIII
- 34080 Reflective Sign Sheeting Type IX

MATERIALS FIELD SAMPLING

Chapter

CHEMISTRY

Subject

Snap-Back Tubular Delineator

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE obtains and reviews the manufacturer's certification for compliance with the contract and all applicable specifications.

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS The following is the material code affected by "Snap-Back Tubular Delineator":

36110 Snap-Back Tubular Delineator

MATERIALS FIELD SAMPLING

Chapter

CHEMISTRY

Subject

Structural Adhesives with Extended Contact Time

INSPECTOR QUALIFICATION

None

SAMPLING FREQUENCY

See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD

Obtain one set of 8-milliliter (mL) transport tubes and fill approximately half full with epoxy.

Note: Separate tubes shall be used for each component.

RESIDENT ENGINEER (RE)

The RE:

- Inspects the containers and makes sure the appropriate markings are on the containers
- Obtains and reviews the manufacturer's certification for compliance with the contract and all applicable specifications
- Verifies that the product appears on the KYTC's LAM
- Enters the appropriate information into SiteManager
- Forwards the sample, sample label, and the manufacturer's certification to the Division of Materials

DISTRICT MATERIALS ENGINEER (DME)

None

REMARKS

Ensure the useable temperature range is 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". Each container shall be marked with the name of the manufacturer, lot or batch number, date of packaging, type of pigmentation, and quantity contained therein in gallons.

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

If the epoxy is not a bid item, the material is accepted as incidental to pavement quantities.

The following is the material code affected by “Extended Contact Epoxy”:

30200 Extended Contact Epoxy

MATERIALS FIELD SAMPLING

Chapter

CHEMISTRY

Subject

Structural Steel Coatings

INSPECTOR QUALIFICATION

Successful completion of SSPC's Bridge Coating Inspection Program

SAMPLING FREQUENCY

See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD

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

Make sure 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.

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

RESIDENT ENGINEER (RE)

The RE:

- Obtains and reviews the manufacturer's certification for compliance to the contract and all applicable specifications
- Verifies that the product is on the KYTC'S LAM
- Obtains a sample and enters the appropriate information into SiteManager
- Forwards the sample, sample label, and the manufacturer's certification to the Division of Materials
- Does not allow the contractor to apply material that has not been tested and approved

DISTRICT MATERIALS ENGINEER (DME)

For contracts utilizing structural steel coatings, global assignments reflect the use of epoxy organic zinc rich primer, epoxy intermediate and urethane finish coats. The DME verifies with the resident engineer each

generic coating type selected for use on the contract and adjusts conversion factors as appropriate.

REMARKS

Any paint provided to the project in damaged containers (for example, missing or illegible labels or batch numbers, dented, rusty, or generally abused) shall be rejected by the engineer.

The following are the material codes affected by “Structural Steel Coatings”:

- 35000 Inorganic Zinc Primer
- 35010 Waterborne Inorganic Zinc Primer
- 35020 Organic Zinc Primer
- 35030 Epoxy Organic Zinc Primer
- 35040 Urethane Organic Zinc Primer
- 35050 Epoxy Primer
- 35060 Urethane Primer
- 35070 Acrylic Primer
- 35100 Epoxy Intermediate
- 35110 Urethane Intermediate
- 35120 Acrylic Intermediate
- 35130 Urethane Finish
- 35140 Acrylic Finish
- 35200 Calcium Sulfonate
- 35210 Calcium Sulfonate Primer
- 35220 Calcium Sulfonate Finish
- 35999 Experimental Coating

MATERIALS FIELD SAMPLING

Chapter

CHEMISTRY

Subject

Temporary Tape

INSPECTOR QUALIFICATION

Pavement Markings Inspection Technician

SAMPLING FREQUENCY

See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD

None

RESIDENT ENGINEER (RE)

The RE:

- Obtains and reviews the manufacturer's certification for compliance with the contract and all applicable specifications
- Verifies that the product appears on the KYTC's LAM
- Enters the appropriate certification information into SiteManager
- Performs visual inspection
- Enters the appropriate visual inspection information into SiteManager after the material has been installed

DISTRICT MATERIALS ENGINEER (DME)

The DME ensures that "CHCERTIFY" and "CHVISUAL" each are assigned to unique identification numbers in SiteManager.

REMARKS

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

If these products perform poorly on the contract (for example, do not stay in place, are difficult to remove, etc.) report this to the Division of Materials.

This information is necessary to remove substandard products from the KYTC's LAM.

The following is the material code affected by "Temporary Tape":

33400 Temporary Tape

MATERIALS FIELD SAMPLING

Chapter

CHEMISTRY

Subject

Temporary Traffic Paint

INSPECTOR QUALIFICATION

Pavement Markings Inspection Technician

SAMPLING FREQUENCY

See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD

Perform a visual inspection on all temporary striping.

Perform **KM202** or **KM203** for all temporary striping in place less than 120 days at the request of the engineer.

When a temporary stripe is to be in place for greater than 120 days, obtain a traffic paint sample from the paint striper's gun and place in a one (1) pint lined paint can to be sent to the Division of Materials.

Note: All traffic paint samples sent to the Division of Materials should be accompanied by a manufacturer's certification.

When a temporary stripe is to be in place for greater than 120 days, perform **KM202** or **KM203** within five (5) days of application.

RESIDENT ENGINEER (RE)

The RE:

- Verifies that the visual inspection is performed
- Inspects the containers
- Enters the appropriate information into SiteManager for the visual inspection, retroreflectivity measurements, where applicable, and any traffic paint samples to be sent to the Division of Materials
- If a traffic paint sample is obtained, forwards the sample, sample label, and manufacturer's certification to the Division of Materials

DISTRICT MATERIALS ENGINEER (DME)

For striping in place less than 120 days, the DME creates a unique identification number in SiteManager and assigns the test template "CHVISUAL".

For striping in place greater than 120 days, the DME creates **three** unique identification numbers in SiteManager with one of the following templates assigned to each:

- "CHVISUAL"
- "CHTRAFFCPT"
- "CHKM202" or "CHKM203", assigned as appropriate

REMARKS

Visual inspections of temporary striping are logged into SiteManager with a Sample Type of "Project Acceptance" and an Acceptance Method of "Visual Inspections".

Traffic paint samples sent to the Materials lab are logged into SiteManager with a Sample Type of "Project Acceptance" and an Acceptance Method of "Test Results".

Retroreflectivity measurements of temporary striping are logged into SiteManager with a Sample Type of "Project Acceptance" and an Acceptance Method of "Test Results".

Do not generate a sample identification number for the manufacturer's certification. The certification is to be evaluated with the traffic paint sample by the Division of Materials.

The following are the material codes affected by "Temporary Traffic Paint":

- 33000 Traffic Paint—Yellow
- 33010 Traffic Paint—White
- 33020 Traffic Paint—Black/Blue
- 33030 Durable TP Yellow
- 33040 Durable TP White

MATERIALS FIELD SAMPLING

Chapter

CHEMISTRY

Subject

Variable Message Signs

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE:

- Obtains and reviews the manufacturer's certification for compliance with the contract and all applicable specifications
- Ensures that all temporary variable message signs are on the KYTC's LAM
- Visually inspects variable message signs
- Enters the appropriate information into SiteManager

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS The following are material codes affected by "Variable Message Signs":

- 36300 Permanent Variable Message Sign
- 36310 Temporary Variable Message Sign

MATERIALS FIELD SAMPLING

Chapter

CHEMISTRY

Subject

Water

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD Obtain one (1) sample in a clean one (1) liter plastic bottle from the pump or inlet lines.

No sample required for municipal water sources.

RESIDENT ENGINEER (RE) The RE:

- Obtains sample
- Enters the appropriate information into SiteManager and forwards the sample and sample label to the Division of Materials

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS The following is the material code affected by “Water”:

32010 Water

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 **Kentucky Method 64-311** with random checks performed by the KYTC.

2. If a mixer fails to meet the performance requirements, its use on KYTC projects will be discontinued until repair, replacement, or modification are proved adequate to retest.

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 **Kentucky Method 64-312**.

2. Record results of calibration on TC 64-317 form, *Concrete Mobile Calibration Data Sheet*.

APPROVAL OF CONCRETE PLANTS AND MIX DESIGNS

1. Function of the resident engineer (RE):

   a. Determine if the project has a combined total of 250 yd^3 or more of ready mixed concrete.

      1. If the combined total of all classes of concrete equals 250 yd^3 or more, the concrete producer must be on the KYTC's LAM and meet the requirements of Section 601 of the Kentucky Standard Specifications for Road and Bridge Construction.

      2. If the combined total of all classes of concrete is less than 250 yd^3, contact the DME to verify that the concrete producer is approved to supply concrete for the KYTC. Requirements in Section 601 of the Kentucky Standard Specifications for Road and Bridge Construction must be met.

   b. Obtain a copy of the proposed mix design on the appropriate spreadsheet (located on the Division of Materials website: http://transportation.ky.gov/materials/) for each class of concrete and submit to the DME. The mix design should be sent from the producer to the contractor and then to the RE.

c. Upon written approval of the mix design from the DME or CO Materials, check the plant to ensure that all ingredient materials match the approved mix design.

d. Determine if a trial batch will be required prior to delivery to the project. If a trial batch is required notify the CO Materials.

1. Trial batches are required when a plant has not previously supplied the particular concrete mix for use in KYTC projects. Trial batches may be required any other time as deemed necessary by the resident engineer.

2. If a trial batch is not required, the concrete plant may supply the concrete to the project.

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

2. Function of the district materials engineer (DME):

a. Obtain mix design from the resident engineer.

1. If the mix design is a routine mix, review and approve or disapprove. Check to see that all ingredient materials and sources are included on the KYTC's LAM. Also, check the *Aggregate Restrictions List* to ensure that the aggregate sources submitted do not have restrictions for the intended application. Send written approvals to the concrete plant and a copy to the resident engineer, contractor/sub-contractor, and CO Materials.

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

b. Verify that scale checks are current and ensure the plant meets the requirements of Section 601 of the Kentucky Standards 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.

3. Function of the CO Materials:

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

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

c. Review and approve/disapprove experimental, HPC, 24/48/72 hour, and Special Note mix designs. Send written approvals to the concrete plant and a copy to the resident engineer, DME, and the contractor/sub-contractor.

CHECK ON CONTRACTOR'S EQUIPMENT FOR CEMENT CONCRETE PAVEMENT

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

2. Function of the resident engineer:

   a. Notify the DME that an inspection is needed.

   b. Perform a joint inspection with materials' personnel.

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

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

   a. Equipment for Applying Curing Compound
   b. Saws
   c. Station Numbers
   d. Equipment for Applying Water for Curing
   e. Finishing Machines
   f. Forms (alignment, straightedge, length, stakes, oil)
   g. Bulkhead
   h. Vibrators
   i. Belt
   j. Burlap Drags
   k. Straightedges
   l. Footbridges
   m. Acceptance Testing Equipment

4. Results of the inspections should be incorporated into the resident engineer's file.

INDEPENDENT ASSURANCE (IAS)

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

QUESTIONS

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

Concrete Section Supervisor
Central Office, Division of Materials
1227 Wilkinson Boulevard
Frankfort, Kentucky 40601

Phone: 502-564-3160

MATERIALS FIELD SAMPLING

Chapter

CONCRETE

Subject

Precast: Structural
(see remarks)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sample Checklist for the project.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE:

- Obtains the signed certification and verifies that all items included in the shipment are included on the certification

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

- Inspects items for conformity with dimensional requirements and checks for defects
- Ensures that markings appear on each piece in conformance to the specifications
- Ensures that the KY Oval is present on each piece
- Makes appropriate SiteManager entries and authorizes sample

DISTRICT MATERIALS ENGINEER (DME) The DME:

- Samples ingredient materials at the precast plant and provides daily inspection (Samples taken at the plant will be logged as informational.)
- Stamps approved products with the KY Oval

REMARKS Included are box culverts, arches, three-sided structures, deck panels, etc.

MATERIALS FIELD SAMPLING

Chapter

CONCRETE

Subject

Precast: Non-Structural
(see remarks)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sample Checklist for the contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE:

- Obtains the signed certification from the producer and verifies that all items included in the shipment are included on the certification

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

- Inspects items for conformity with dimensional requirements and checks for defects
- Insures that markings appear on each piece in conformance to the specifications
- Makes appropriate SiteManager entries and authorizes sample

DISTRICT MATERIALS ENGINEER (DME) The DME samples ingredient materials at the precast plant. Samples taken at the plant will be logged as informational.

REMARKS Does not include right-of-way markers, vehicle stops, and concrete armoring units (see **MFS-604**, *Precast: Other*).

MATERIALS FIELD SAMPLING

Chapter

CONCRETE

Subject

Precast: Other
(see remarks)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sample Checklist for the contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE:

- Obtains the signed certification from the producer and verifies that all items included in the shipment are included on the certification

  Note: The certification should also include the county, project number, dates of manufacture, and a statement of compliance to the current specifications.

- Inspects items for conformity with dimensional requirements and checks for defects
- Ensures that markings appear on each piece in conformance to the specifications
- Makes appropriate SiteManager entries and authorizes sample

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS Includes right-of-way markers, vehicle stops, and concrete armoring units.

MATERIALS FIELD SAMPLING

Chapter

CONCRETE

Subject

Concrete Overlays
(Waterproofing: Latex or Low Slump)

INSPECTOR QUALIFICATION

Sampling and field Testing—ACI Level I

Compressive Testing—None

SAMPLING FREQUENCY

See SiteManager Sample Checklist for the contract.

See below remarks for density testing on low slump overlays.

SAMPLING METHOD

Sampling Fresh Concrete—**KM 64-301**
Air Content—**KM 64-303**
Slump—**KM 64-302**
Cylinders—**KM 64-305**
Thickness (newly constructed decks only)—**KM 64-315**
Density (low slump overlays)—**Standard Specs 606.03.18**

RESIDENT ENGINEER (RE)

The RE:

- Samples concrete at the job site of construction operations and performs air content, slump, concrete temperature, and air temperature tests
- Molds, cures, and submits cylinders to the DME for testing
- Performs density tests if required
- Samples ingredient materials at the plant location
- Makes appropriate SiteManager entries

DISTRICT MATERIALS ENGINEER (DME)

The DME enters the compressive strength results and authorizes sample.

REMARKS

Density—One test per 50 linear feet for placement widths of 15 feet or less. One test per 25 linear feet for placement widths greater than 15 feet. Air content tests are required each time a density test is taken.

MATERIALS FIELD SAMPLING

Chapter

CONCRETE

Subject

Concrete (A, AMOD, AA, AAHPC, AAA, B, D, DMOD, M, P24/48/72)

INSPECTOR QUALIFICATION

Sampling and field Testing—ACI Level I

Compressive Testing—None

SAMPLING FREQUENCY

See SiteManager Sample Checklist for the contract.

See below remarks for start up testing requirements.

SAMPLING METHOD

Sampling Fresh Concrete—**KM 64-301**
Air Content—**KM 64-303** (if required)
Slump—**KM 64-302** (if required)
Cylinders—**KM 64-305** (if required)

RESIDENT ENGINEER (RE)

The RE:

- Samples concrete at the job site of construction operations and performs air content, slump, concrete temperature, and air temperature tests
- Molds, cures, and submits cylinders to the DME for testing
- Samples ingredient materials at the plant location
- Makes appropriate SiteManager entries and authorizes sample if compressive strengths are not required

DISTRICT MATERIALS ENGINEER (DME)

The DME enters the compressive strength results and authorizes sample.

REMARKS

Start up 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 start up testing.

Additional testing is required for early form removal, applying loads, or opening to traffic.

MATERIALS FIELD SAMPLING

Chapter	Subject
CONCRETE	Concrete (P)

INSPECTOR QUALIFICATION

Sampling and field Testing—ACI Level I

Compressive Testing—None

SAMPLING FREQUENCY

See SiteManager Sample Checklist for the contract.

See below remarks for start up testing requirements.

SAMPLING METHOD

Sampling Fresh Concrete—**KM 64-301**
Air Content—**KM 64-303** (if required)
Slump—**KM 64-302** (if required)
Cylinders—**KM 64-305** (if required)
Thickness Cores—Contractor cores in accordance to **KM 64-309**
Core Measurements—**KM 64-308**

RESIDENT ENGINEER (RE)

The RE:

- Samples concrete at the job site of construction operations and performs air content, slump, concrete temperature, and air temperature tests
- Molds, cures, and submits cylinders to the DME for testing
- Samples ingredient materials at the plant location
- Makes appropriate SiteManager entries

DISTRICT MATERIALS ENGINEER (DME)

The DME enters the compressive strength results and authorizes sample.

REMARKS

Start up 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 start up testing.

REMARKS (CONT.) Additional testing is required for early form removal, applying loads, or opening to traffic.

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

MATERIALS FIELD SAMPLING

Chapter

CONCRETE

Subject

Prestress

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sample Checklist for the contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE:

- Inspects for conformity with dimensional requirements, freedom from defects, and presence of the KY Oval
- Makes appropriate SiteManager entries and authorizes sample

DISTRICT MATERIALS ENGINEER (DME) The DME:

- Samples ingredient materials and appurtenances at the prestress plant and provides daily inspection
- Logs all samples taken at the plant as informational
- Stamps approved products with the KY Oval
- Makes appropriate SiteManager entries and authorizes sample

REMARKS Two sample ID's will be required for prestress items. One entry will be made by the district performing plant inspection and the other will be by the RE's crew. The district providing plant inspection will authorize the corresponding sample ID.

MATERIALS FIELD SAMPLING

Chapter

CONCRETE

Subject

Flowable Fill

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sample Checklist for the contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE:

- Checks certifications to insure the producer is furnishing a mix that meets the specifications
- Makes appropriate SiteManager entries and authorizes sample
- Samples ingredient materials at the concrete plant and logs them into SiteManager

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

CONCRETE

Subject

Concrete Pipe (RCP)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sample Checklist for the contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE:

- Obtains the signed certification and verifies that all items included in the shipment are included on the certification

  Note: The certification should also include the county, project number, dates of manufacture, and a statement of compliance to the current specifications.

- Makes appropriate SiteManager entries and authorizes sample

DISTRICT MATERIALS ENGINEER (DME) The DME:

- Samples ingredient materials at the pipe plant
- Logs samples taken at the plant as informational

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

CONCRETE

Subject

Elastomeric Bearing Pads

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sample Checklist for the contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE:

- Obtains the signed certification and verifies that the bearing pads conform to the specifications
- Checks to make sure the size supplied meets the requirements on the plans
- Makes appropriate SiteManager entries and authorizes sample

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

CONCRETE

Subject

Manhole Steps

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sample Checklist for the contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE:

- Obtains the signed certification stating the steps conform to ASTM C 478

  Note: Manufacturer must be on the List of Approved Materials.

- Makes appropriate SiteManager entries and authorizes sample

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

CONCRETE

Subject

Detectable Sidewalk Warning Pavers (Concrete)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sample Checklist for the contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE:

- Obtains the signed certification from the producer stating that the pavers conform to ASTM C 936, ASTM C 902 Class SX-Type I, or ASTM C 1272 (Type R or F)
- Makes appropriate SiteManager entries and authorizes sample

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS None

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 plants.

SAMPLING METHOD Obtain a one-quart sample in a plastic one-quart container.

RESIDENT ENGINEER (RE) None

DISTRICT MATERIALS ENGINEER (DME) The DME makes appropriate SiteManager entries (informational) and sends the sample to the Central Office Laboratory (T415).

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.

SAMPLING FREQUENCY

See SiteManager sampling checklist for contract sampling requirements.

SAMPLING 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 are to 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 validity of the standard proctor results is in question.

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)
- 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 then 60 percent durable coarse material in some instances. However, the inspector shall perform a sieve analysis and include the results in SiteManager. When a density test cannot be performed, determine compaction by visual inspection.

- The project plans or proposal waives the density requirements

RESIDENT ENGINEER (RE)

The field inspector is to perform all nuclear density tests and record these results along with any coarse material corrections and One Point Proctor results into SiteManager by use of the Nuclear Density Spreadsheet.

DISTRICT MATERIALS ENGINEER (DME) Performs **KM 64-511** “Standard Procter Test” on samples as needed.

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

GEOTECHNICAL

Subject

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

See SiteManager sampling checklist for contract sampling requirements.

SAMPLING METHOD

Obtain one Plastic bag containing 40 lbs of soil from each soil horizon. A minimum of one sample per area not to exceed one acre.

RESIDENT ENGINEER (RE)

The RE:

- Obtains the sample
- Logs the sample into SiteManager to have the test method "GTPROCTOR" assigned to be tested

DISTRICT MATERIALS ENGINEER (DME)

The DME:

- Performs GTPROCTOR on samples as needed
- Forwards the sample to the Geotechnical Branch if the CBR test is required in addition to the GTPROCTOR test

REMARKS

None

MATERIALS FIELD SAMPLING

Chapter

GEOTECHNICAL

Subject

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.

SAMPLING FREQUENCY

See SiteManager sampling checklist for contract sampling requirements.

SAMPLING METHOD

Follow **KM 64-002-03** and manufacturer's instructions for conducting nuclear density tests.

RESIDENT ENGINEER (RE)

The RE performs the nuclear density test and records all results in SiteManager into test template "GTNUCDENS" using the appropriate nuclear density spreadsheet.

DISTRICT MATERIALS ENGINEER (DME)

The DME performs any IAS testing as necessary. 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

See SiteManager sampling checklist for contract sampling requirements.

See remarks.

SAMPLING METHOD

Obtain one 40-pound sample of soil in a plastic bag.

Follow **KM 64-002-03** and manufacturer's instructions for conducting nuclear density tests.

RESIDENT ENGINEER (RE)

The RE:

- Performs nuclear density test and records all results in SiteManager into test template "GTNUCDENS" using the appropriate nuclear density spreadsheet
- Obtains the 40-pound sample
- Logs sample into SiteManager and assigns test template "GTDENSITY"

DISTRICT MATERIALS ENGINEER (DME)

The DME:

- Forwards 40-pound soil sample to the Geotechnical Branch for testing
- Performs any IAS testing (see **MFS-1200**) as necessary

REMARKS

One bag sample for every 1000 linear feet of roadway

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

See SiteManager sampling checklist for contract sampling requirements.

SAMPLING METHOD

Follow **KM 64-002-03** and manufacturer's instructions for conducting nuclear density tests.

RESIDENT ENGINEER (RE)

The RE performs the nuclear density test and records all results in SiteManager into test template "GTNUCDENS" using the appropriate nuclear density spreadsheet.

DISTRICT MATERIALS ENGINEER (DME)

The DME performs any IAS testing as necessary. See **MFS-1200** for details.

REMARKS

None

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 See remarks.

SAMPLING METHOD Perform 8 to 10 borings using a soil probe, auger, or spade; collect the cuttings; and combine into one sample of at least 5 pounds.

RESIDENT ENGINEER (RE) The RE obtains the sample and sends to the Geotechnical Branch.

DISTRICT MATERIALS ENGINEER (DME) The DME obtains the sample and sends to the Geotechnical Branch.

REMARKS One sample per area not to exceed one acre

MATERIALS FIELD SAMPLING

Chapter

LIQUID ASPHALT

Subject

General Notes

For any questions pertaining to the information presented in this section, please 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
(RS-2, SS-1h, & SS-1)

INSPECTOR QUALIFICATION

None

SAMPLING FREQUENCY

See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD

Sample the material, or witness the contractor's personnel sampling the material.

Obtain two 1-gallon samples from the contractor's distributor according to **KM 64-404**.

Place the samples in polyethylene containers and identify them with the special labels available from the Liquid Asphalt Section. Completely fill out the labels. Obtain signatures of the project and contractor personnel involved in sampling.

RESIDENT ENGINEER (RE)

The RE:

- Verifies the material is certified by locating the twelve digit lot number (three letters followed by a three-digit tank designation and date) on the producer's bill-of-lading.
- Ensures that the date of shipment is not over 30 days from the approval date (last six digits of the lot number) and that it is used before it expires. The material expires if it is not used within 30 days from the date of shipment.
- Forwards the sample to the division.
- If the material fails to satisfy the applicable certification requirements, rejects the material.

DISTRICT MATERIALS ENGINEER (DME)

None

REMARKS

Submit the samples to the division within seven days of sampling.

Protect emulsion samples from freezing.

Sample stored material seven days prior to its expiration to avoid delays in the use of the material.

If the material is expired:

- Obtain one sample
- Forward the sample to the division
- **Do not use the material until it is tested and approved**

MATERIALS FIELD SAMPLING

Chapter

LIQUID ASPHALT

Subject

Asphalt Mastic

INSPECTOR QUALIFICATION

None

SAMPLING FREQUENCY

See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD

Obtain one 1-quart sample in a metal, friction-top can.

RESIDENT ENGINEER (RE)

The RE:

- Obtains the producer's certification stating that the material satisfies Subsection 807.03.04 A) of the Specifications
- Ensures the material has not expired

  Note: The material must be used within six months of the date of shipment or must be retested before using.
- Forwards the sample to the division
- If the material fails to satisfy the applicable certification requirements, rejects the material

DISTRICT MATERIALS ENGINEER (DME)

None

REMARKS

If the material has expired:

- Obtain one sample for each lot
- Forward the sample to the division
- **Do not use the material until it is tested and approved**

MATERIALS FIELD SAMPLING

Chapter

LIQUID ASPHALT

Subject

Asphalt Mop Coat
(Waterproofing: Type A)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD Obtain one 5-pound piece (or 5 pounds in small pieces) and place the sample in a clean, plastic-lined bag.

RESIDENT ENGINEER (RE) The RE:

- Obtains the producer's certification indicating the material satisfies ASTM D 449
- Forwards the sample to the division
- If the material fails to satisfy the applicable certification requirements, rejects the material

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

LIQUID ASPHALT

Subject

Asphalt Seal Coat
(HFRS-2 & RS-2)

INSPECTOR QUALIFICATION

None

SAMPLING FREQUENCY

See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD

Sample the material, or witness the contractor's personnel sampling the material.

Obtain two 1-gallon samples from the contractor's distributor according to **KM-64-404**.

Place the samples in polyethylene containers and identify them with the special labels available from the Liquid Asphalt Section. Completely fill out the labels. Obtain signatures of the project and contractor personnel involved in sampling.

RESIDENT ENGINEER (RE)

The RE:

- Verifies the material is certified by locating the twelve-digit lot number (three letters followed by a three-digit tank designation and date) on the producer's bill-of-lading
- Ensures that the date of shipment is not over 30 days from the approval date (last six digits of the lot number) and that it is used before it expires

  Note: The material expires if not used within 30 days from the date of shipment.
- Forwards the sample to the division
- If the material fails to satisfy the applicable certification requirements, rejects the material

DISTRICT MATERIALS ENGINEER (DME)

None

REMARKS

Submit the samples to the division within seven days of sampling.

Protect emulsion samples from freezing.

Sample stored material seven days prior to its expiration to avoid delays in the use of the material.

If the material has expired:

- Obtain one sample
- Forward the sample to the division
- **Do not use the material until it is tested and approved**

MATERIALS FIELD SAMPLING

Chapter

LIQUID ASPHALT

Subject

Butyl Rubber Sealants

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD Obtain a 5-foot sample of sealant.

RESIDENT ENGINEER (RE) The RE:

- Obtains the producer's certification stating that the material satisfies the applicable portions of AASHTO M 198
- Forwards the sample to the division
- If the material fails to satisfy the applicable certification requirements, rejects the material

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

LIQUID ASPHALT

Subject

Emulsified Asphalts
(Non-Polymer)

INSPECTOR QUALIFICATION

None

SAMPLING FREQUENCY

See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD

Sample the material, or witness the contractor's personnel sampling the material.

Obtain two 1-gallon samples from the contractor's distributor according to **KM 64-404**.

Place the samples in polyethylene containers and identify them with the special labels available from the Liquid Asphalt Section. Completely fill out the labels. Obtain signatures of the project and contractor personnel involved in sampling.

RESIDENT ENGINEER (RE)

The RE:

- Verifies the material is certified by locating the twelve-digit lot number (three letters followed by a three-digit tank designation and date) on the producer's bill-of-lading
- Ensures that the date of shipment is not over 30 days from the approval date (last six digits of the lot number) and that it is used before it expires

  Note: The material expires if not used within 30 days from the date of shipment.
- Forwards the sample to the division
- If the material fails to satisfy the applicable certification requirements, rejects the material

DISTRICT MATERIALS ENGINEER (DME)

None

REMARKS

Sample the material based upon the total combined tonnage of mix on the contract.

Submit the samples to the division within seven days of sampling.

Protect emulsion samples from freezing.

Sample stored material seven days prior to its expiration to avoid delays in the use of the material.

If the material has expired:

- Obtain a sample for each storage tank
- Forward the sample to the division
- **Do not use the material until it is tested and approved**

MATERIALS FIELD SAMPLING

Chapter

LIQUID ASPHALT

Subject

Fiberglass Asphalt Waterproofing Membrane (One-Step Membrane)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD Obtain a 10-foot long sample.

RESIDENT ENGINEER (RE) The RE:

- Obtains the producer's certification stating that the material satisfies Subsection 808.05 of the Specifications
- Forwards the sample to the division
- If the material fails to satisfy the applicable certification requirements, rejects the material

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

LIQUID ASPHALT

Subject

Hot-Poured Elastic Joint Sealers

INSPECTOR QUALIFICATION

None

SAMPLING FREQUENCY

See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD

Extrude two 5-pound samples of the heated material directly from the kettle. "Turkey size" *Reynolds* oven bags placed inside small cardboard boxes or cement cylinder molds have been found suitable. Ensure the product temperature is 400° F or less at the time of sampling.

RESIDENT ENGINEER (RE)

The RE:

- Obtains the producer's certification stating that the material satisfies ASTM D 6690 (Type II)
- Verifies that the material has not expired

  Note: The material must be used within one year of the shipment date on the bill-of-lading/load ticket.
- Forwards the sample to the division
- If the material fails to satisfy the applicable certification requirements, rejects the material

DISTRICT MATERIALS ENGINEER (DME)

The DME assists the resident engineer as necessary. If a sample is required, the DME forwards the sample to the division.

REMARKS

If the material has expired:

- Obtain a sample for each lot
- Forward the sample to the division
- **Do not use the material until it is tested and approved**

MATERIALS FIELD SAMPLING

Chapter

LIQUID ASPHALT

Subject

Layered, Fiber-Reinforced Waterproofing Membrane

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD Not applicable

RESIDENT ENGINEER (RE) The RE:

- Obtains the producer's certification stating that the material satisfies ASTM C 877, Type II (excluding the steel straps)
- If the material does not satisfy ASTM C 877, Type II (excluding the steel straps), rejects the material

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

LIQUID ASPHALT

Subject

Liquid Asphalt for Cold-Patching Mixtures (AE-200)

INSPECTOR QUALIFICATION

None

SAMPLING FREQUENCY

See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD

Sample the material, or witness the contractor's personnel sampling the material.

Obtain two 1-gallon samples from the contractor's distributor according to **KM 64-404**.

Identify the samples with the special labels available from the Liquid Asphalt Section. Completely fill out the labels. Obtain signatures of the project and contractor personnel involved in sampling.

RESIDENT ENGINEER (RE)

The RE:

- Verifies the material is certified by locating the twelve-digit lot number (three letters followed by a three-digit tank designation and date) on the producer's bill-of-lading
- Ensures that the date of shipment is not over 30 days from the approval date (last six digits of the lot number) and that it is used before it expires

  Note: The material expires if it is not used within 30 days from the date of shipment.
- Forwards the sample to the division
- If the material fails to satisfy the applicable certification requirements, rejects the material

DISTRICT MATERIALS ENGINEER (DME)

None

REMARKS

Submit the samples to the division within seven days of sampling.

Protect emulsion samples from freezing.

Sample stored material seven days prior to its expiration to avoid delays in the use of the material.

If the material has expired:

- Obtain one sample
- Forward the sample to the division
- **Do not use the material until it is 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

See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD

Sample the material, or witness the contractor's personnel sampling the material.

For KP-2 and KP-6, obtain two 1-gallon samples from the contractor's tank according to **KM 64-404**. Place the sample in a metal can.

For KP-4, obtain two 1-gallon samples from the contractor's tank according to **KM 64-404**. Place the sample in a polyethylene container.

Identify the samples with the special labels available from the Liquid Asphalt Section. Completely fill out the labels. Obtain signatures of the project and contractor personnel involved in sampling.

RESIDENT ENGINEER (RE)

The RE:

- Verifies the material is certified by locating the twelve-digit lot number (three letters followed by a three-digit tank designation and date) on the producer's bill-of-lading
- Ensures that the date of shipment is not over 30 days from the approval date (last six digits of the lot number) and that it is used before it expires

  Note: The material expires if it is not used within 30 days from the date of shipment.
- Forwards the sample to the division
- If the material fails to satisfy the applicable certification requirements, rejects the material

DISTRICT MATERIALS ENGINEER (DME) The DME assists the resident engineer as necessary.

REMARKS Submit the samples to the division within seven days of sampling.

Protect emulsion samples from freezing.

Sample stored material seven days prior to its expiration to avoid delays in the use of the material.

If the material has expired:

- Obtain one sample for each lot
- Forward the sample to the division
- **Do not use the material until it is tested and approved**

MATERIALS FIELD SAMPLING

Chapter

LIQUID ASPHALT

Subject

Longitudinal Joint Adhesive (Pavement Joint Adhesive, Joint Adhesive)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD Extrude two 5-pound samples of the heated material directly from the kettle. "Turkey size" *Reynolds* oven bags placed inside small cardboard boxes or cement cylinder molds have been found suitable. Ensure the product temperature is 400° F or less at the time of sampling.

RESIDENT ENGINEER (RE) The RE:

- Obtains the producer's certification stating that the material satisfies the *Special Note of Longitudinal Joint Adhesive*
- Forwards the sample to the division
- If the material fails to satisfy the applicable certification requirements, rejects the material

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

LIQUID ASPHALT

Subject

Performance-Graded (PG) Binders

INSPECTOR QUALIFICATION

None

SAMPLING FREQUENCY

See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD

Sample the material, or witness the contractor's personnel sampling the material.

Obtain two 1-quart samples according to **KM 64-404**.

Obtain the samples from the contractor's storage tank or the feed line between the pugmill and the storage tank.

Place the samples in metal cans and identify them with the special labels available from the Liquid Asphalt Section. Completely fill out the labels. Obtain signatures of the project and contractor personnel involved in sampling.

RESIDENT ENGINEER (RE)

The RE:

- Ensures the supplier and material are on the Approved Materials List
- Verifies the material is certified by locating the twelve-digit lot number (three letters followed by a three-digit tank designation and date) on the producer's bill-of-lading
- Ensures that the date of shipment is not over 30 days from the approval date (last six digits of the lot number) and that it is used before it expires

  Note: The material expires if not used within 60 days from the date of shipment.
- Forwards the sample to the division
- If the material fails to satisfy the applicable certification requirements, rejects the material

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS Submit samples of stored material seven days prior to its expiration to avoid delays in the use of the material.

When the contractor's personnel 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.

The district materials engineer should assist the resident engineer as necessary.

If the material has expired:

- Obtain a sample for each lot
- Forward the sample to the DME
- **Do not use the material until it is tested and approved**

MATERIALS FIELD SAMPLING

Chapter

LIQUID ASPHALT

Subject

Polymer Asphalt Emulsions (CRS-2P)

INSPECTOR QUALIFICATION

None

SAMPLING FREQUENCY

See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD

Sample the material, or witness the contractor's personnel sampling the material.

Obtain two 1-gallon samples from the contractor's distributor according to **KM 64-404**.

Place the samples in polyethylene containers and identify them with the special labels available from the Liquid Asphalt Section. Completely fill out the labels. Obtain signatures of the project and contractor personnel involved in sampling.

RESIDENT ENGINEER (RE)

The RE:

- Verifies the material is certified by locating the twelve-digit lot number (three letters followed by a three-digit tank designation and date) on the producer's bill-of-lading
- Ensures that the date of shipment is not over 30 days from the approval date (last six digits of the lot number) and that it is used before it expires

  Note: The material expires if not used within 30 days from the date of shipment.
- Forwards the sample to the division
- If the material fails to satisfy the applicable certification requirements, rejects the material

DISTRICT MATERIALS ENGINEER (DME)

None

REMARKS

Submit the samples to the division within seven days of sampling.

Protect emulsion samples from freezing.

Sample stored material seven days prior to its expiration to avoid delays in the use of the material.

If the material has expired:

- Obtain a sample for each storage tank
- Forward the sample to the division
- **Do not use the material until it is tested and approved**

MATERIALS FIELD SAMPLING

Chapter

LIQUID ASPHALT

Subject

Preformed Compression Joint Sealers (Neoprene)

INSPECTOR QUALIFICATION

None

SAMPLING FREQUENCY

See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD

If a sufficient length of material will not remain for the job after sampling, reject the material.

Obtain one 6-foot sample.

RESIDENT ENGINEER (RE)

The RE:

- Verifies the seal, in the appropriate width, is on the Approved Materials List
- Obtains the producer's certification stating that the material satisfies Subsection 807.03.02 A) of the Specifications
- Verifies that the lot number and size marked on the seal are the same as the lot number and size on the producer's certification
- Verifies that the material has not expired

  Note: The material must be used within one year of the date of shipment to the jobsite.

- If the material fails to satisfy the applicable certification requirements, rejects the material

DISTRICT MATERIALS ENGINEER (DME)

None

REMARKS If the material has expired:

- For both bridge and pavement seals, obtain one sample per size and cross-section shape per project
- Forward the sample to the division
- **Do not use the material until it is tested and approved**

MATERIALS FIELD SAMPLING

Chapter

LIQUID ASPHALT

Subject

Preformed Expansion Joint Strip Seals (Neoprene)

INSPECTOR QUALIFICATION

None

SAMPLING FREQUENCY

See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD

If a sufficient length of material will not remain for the job after sampling, reject the material.

Obtain one 6-foot sample.

RESIDENT ENGINEER (RE)

The RE:

- Obtains the producer's certification stating that the material satisfies Subsection 807.03.03 A) of the Specifications
- Verifies that the strip seal satisfies any dimension requirements on the plans
- Verifies that the lot number and size marked on the seal are the same as the lot number and size on the producer's certification
- Verifies that the material has not expired

  Note: The material must be used within one year of the date of shipment to the jobsite.

- If the material fails to satisfy the applicable certification requirements, rejects the material

DISTRICT MATERIALS ENGINEER (DME)

None

REMARKS If the material has expired:

- Obtain a sample
- Forward the sample to the division
- **Do not use the material until it is tested and approved**

MATERIALS FIELD SAMPLING

Chapter

LIQUID ASPHALT

Subject

Rubber Gaskets

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD Obtain two representative gaskets.

RESIDENT ENGINEER (RE) The RE:

- Obtains 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, rejects the material

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

LIQUID ASPHALT

Subject

Silicone Rubber Sealant (One Component, Non-Sag, & Self-Leveling)

INSPECTOR QUALIFICATION

None

SAMPLING FREQUENCY

See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD

Obtain one 12-ounce *Semco* tube sample during application of the material.

Do not open the product container for sampling only.

Sampling containers may be obtained from the Liquid Asphalt Section.

RESIDENT ENGINEER (RE)

The RE:

- Obtains the producer's certification stating the material satisfies 807.03.05 A) of the Specifications
- Verifies that the lot number on the container matches the lot number on the producer's certification
- Obtains five plugs, 2 inches in length, per day of production and ensures conformance to the required geometry specified for the joint seal [See Subsection 501.03.18 D) of the Specifications for further information]
- Forwards the *Semco* tube sample to the division
- If the material fails to satisfy the applicable certification requirements, rejects the material

DISTRICT MATERIALS ENGINEER (DME)

None

REMARKS

None

MATERIALS FIELD SAMPLING

Chapter

LIQUID ASPHALT

Subject

Silicone Rubber Sealant
(Two Component, Rapid Cure)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD Not applicable

RESIDENT ENGINEER (RE) The RE:

- Obtains the producer's certification stating that the material satisfies Subsection 807.03.05 B) of the Specifications
- Verifies that the lot number on the container matches the lot number on the producer's certification
- Obtains five plugs, 2 inches in length, per day of production and ensures conformance to the required geometry specified for the joint seal [See Subsection 501.03.18 D) of the Specifications for further information]
- If the material fails to satisfy the applicable certification requirements, rejects the material

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

LIQUID ASPHALT

Subject

Traffic Loop Encapsulant

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD Obtain one pre-packaged, 32-ounce tube from the producer.

RESIDENT ENGINEER (RE) The RE:

- Obtains the producer's certification for each lot number stating it meets the requirements of Subsection 835.06 of the Specifications
- Verifies that the lot number on the container matches the lot number on the producer's certification
- Ensures that the material is used within one year from the date of manufacture
- Forwards the sample to the division
- If the material fails to satisfy the applicable certification requirements, rejects the material

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS If the material has expired:

- Obtain one sample per lot
- Forward the sample to the division
- **Do not use the material until it is tested and approved**

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

General Notes

The Physical Section has responsibility for many different types of materials. Some field testing is performed by district construction or materials crews but many materials are sampled from the project and transported by Cabinet personnel, US Postal Service, or private courier to the Division for testing. Other materials are accepted by these crews based on *certification* of materials by the producers or suppliers. Often Cabinet personnel simply collect the samples and/or accompanying documentation, accept the materials, and file the documentation in the district office project files.

Many of these materials have unique sampling requirements which must be listed individually. This manual guides the user in utilizing each unique sampling method. Actual frequencies of sampling may be found in SiteManager or by contacting the Physical 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, please contact:

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

Phone: 502.564.3160
FAX: 502-564-7034

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Bolts (A 325), Nuts, & Washers (for Bridges)

INSPECTOR QUALIFICATION

None

SAMPLING FREQUENCY

See SiteManager Sampling Checklist for contract.

SAMPLING METHOD

Samples are collected at the manufacturer, the fabricator or from the project.

Obtain as many different manufacturer symbols in sample as size of sample will allow.

Note: A shipping lot, for purposes of selecting test samples, is defined as that quantity of bolts of the same nominal size and same nominal length necessary to fill the requirements of a single purchase order.

Sample Size:

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
22,001 and over	5

RESIDENT ENGINEER (RE) The RE:

- Inspects bolts, nuts, and washers for defects
- Obtains manufacturer's certifications containing physical and chemical test results and statement that bolts, nuts, and washers conform to ASTM A 325

  Note: If structural steel has been inspected by a state shop inspector, the Division of Construction may already have manufacturer's certifications. Check with the Division of Construction.
- Obtains check sample of bolts, nuts, and washers from each shipping lot

DISTRICT MATERIALS ENGINEER (DME) The DME submits samples with manufacturer's certifications to the division for testing.

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Coated Tie Wire, Chairs, & Bolsters

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for contract.

SAMPLING METHOD Tie wire—2 feet

Chairs—3 pieces per size

Bolsters—2 per size

RESIDENT ENGINEER (RE) The RE obtains samples of tie wire, bolsters, and epoxy coated chairs and checks the LAM for plastic bolsters.

DISTRICT MATERIALS ENGINEER (DME) The DME submits samples to the division for testing.

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Corrugated Metal Pipe & Slotted Drain Pipe

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE:

- Obtains manufacturer's certification
- Visually inspects slotted drainpipe for conformance to specification requirements
- Visually inspects pipe that is not fully bituminous-coated 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% of the pipe circumference (40% 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.
- Verifies 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.
- Checks the LAM to determine if the source is approved
- Checks the certification for the county, project number, quantity of pipe, diameters received, AASHTO M 36, and the Kentucky Specifications
- Verifies heat numbers stenciled on the pipe match heat numbers on the certifications and verifies that the pipe fabricator has spray painted their symbol on the outside ends of each pipe

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Dowels, Plain (for Pier Caps)

INSPECTOR QUALIFICATION

None

SAMPLING FREQUENCY

See SiteManager Sampling Checklist for contract.

SAMPLING METHOD

For coated dowels, obtain a sample (three dowels, 24 inches long) and certifications.

RESIDENT ENGINEER (RE)

The RE:

- For uncoated dowels:
  - Visually inspects dowels
  - Obtains certification that states product conforms to ASTM A 706, 615, 996, or 617
  - Ensures that the epoxy coating product, the epoxy coater, and the reinforcing steel manufacturer appear in the LAM
- For epoxy-coated dowels:
  - Visually inspects the epoxy coating
  - Obtains sample
  - Obtains certification for steel, epoxy, and the coating that states product conforms to ASTM A 706, 615, 996, or 617

DISTRICT MATERIALS ENGINEER (DME)

The DME submits sample of coated dowels to the division for testing along with the certification.

REMARKS

None

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Dowels, Plain (Pavement, Coated)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for contract.

SAMPLING METHOD Obtain a sample (3 dowels, 18 inches long) and certification.

RESIDENT ENGINEER (RE) The RE:

- Visually inspects the epoxy coating
- Obtains sample and certifications that states product conforms to ASTM A 706, 615, 996, or 617 steel
- Ensures that the epoxy coating, the epoxy coater, and the reinforcing steel manufacturer appear in the LAM

DISTRICT MATERIALS ENGINEER (DME) The DME submits samples to the division for testing along with the certification.

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Deformed Tie Bars & Dowels

INSPECTOR QUALIFICATION

None

SAMPLING FREQUENCY

See SiteManager Sampling Checklist for contract.

SAMPLING METHOD

Deformed Tie Bars—2 bars, 30 inches long
Deformed Dowels—2 dowels, 18 inches long

RESIDENT ENGINEER (RE)

The RE:

- Obtains the TC 64-122 form and quality control documentation from epoxy coater for each shipment
- Inspects shipment for damage to coating and for conformance to requirements of the specifications
- Identifies heats of steel for each sample obtained and includes copies of certifications for powder, coater, and steel manufacturer
- Obtains samples
- Determines if powder, powder coater, and steel manufacturer are on the LAM

DISTRICT MATERIALS ENGINEER (DME)

The DME submits samples and documentation to the division for testing.

REMARKS

None

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Fabric Wrapped Backfill Drains

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE:

- Obtains manufacturer's certification for each shipment indicating the product conforms to specifications
- Visually inspects and determines if product is on the LAM

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS No sampling required unless material is in question.

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Fencing Materials

INSPECTOR QUALIFICATION

None

SAMPLING FREQUENCY

See SiteManager Sampling Checklist for contract.

SAMPLING METHOD

Fabric, tension wire, barbed wire, and tie wire—one 3-foot section

Pull, Brace, 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

RESIDENT ENGINEER (RE)

The RE:

- Performs visual inspection and obtains samples
- Submits multiple items of Fence Hardware under one sample identification number

  Note: Use the "REMARKS" space to indicate the type of hardware submitted. Use the following abbreviations:

Barb Wire Arm	BWA	Tension Bar	TB
Brace Band	BB	Tension Rod	TR
Brace Caps	BC	Tie Wire Alum.	TWA
Corner Band	CB	Tie Wire Steel	TWS
Corner Cap	CP	Top Rail Sleeve	TRS
Loop Cap	LC	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 (**MFS-936** and **MFS-937**).

DISTRICT MATERIALS ENGINEER (DME) The DME submits samples to the division for testing.

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Gabions & Mattress Units

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for contract.

SAMPLING METHOD Tie or lacing wire samples should be 2 feet long.

Gabion samples should be 20 inches wide by 40 inches long with a selvedge wire in the center. Mattress unit samples should 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.

RESIDENT ENGINEER (RE) The RE obtains samples and manufacturer's certification that states that the material meets all requirements of the specifications and lists specific test results for the size of each wire and the weight of the zinc coating

DISTRICT MATERIALS ENGINEER (DME) The DME submits sample and manufacturer's certification to the division.

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Gabion Interlocking Fasteners

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE:

- Verifies the brand name and manufacturer of the product
- Checks for inclusion on the LAM

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Geotextiles

INSPECTOR QUALIFICATION

None

SAMPLING FREQUENCY

See SiteManager Sampling Checklist for contract.

SAMPLING METHOD

Provide 1 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 its roll will be identifiable. Roll, do not fold, the fabric sample.

RESIDENT ENGINEER (RE)

The RE:

- Samples the rolls
- Visually inspects fabric for evidence of improper storage

  Note: Fabric must have in no instance been exposed to direct sunlight, rain, ultraviolet rays, dirt, dust and debris, or temperatures greater than 140 degrees F.
- Obtains a copy of the manufacturer's certification indicating conformance to the specifications from the contractor for each "style" of fabric
- Determines if the vender and manufacturer's fabric "styles" are included on the LAM
- Forwards documentation and samples to the DME

DISTRICT MATERIALS ENGINEER (DME)

The DME obtains sample and manufacturer's certification and forwards them to the division for testing.

REMARKS

None

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Gray Iron Castings,
AASHTO M105 or M306

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE:

- Obtains foundry's certification for each lot identifying the dates-of-manufacture or lot numbers contained in the shipment and checks to see if foundry is on the LAM
- Accepts on manufacturer's certification that the castings have been sampled, tested, and manufactured in accordance with AASHTO M105, Class 30-5, or M306
- Verifies that the castings meet the applicable standard drawing
- Inspects the castings for freedom from defects and verifies that the castings received are those covered by the certification

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Guardrail & Temporary Guardrail

INSPECTOR QUALIFICATION

None

SAMPLING FREQUENCY

See SiteManager Sampling Checklist for contract.

SAMPLING METHOD

Project testing of zinc coating will be by thickness gauge.

The referee test for coating thickness will be the stripping method, which is performed in the division. This requires cutting samples from the rail and submitting them for test. (Samples shall be cut from the same spot that thickness measurements are taken.)

The sample size shall be 3 inches x 14 inches when cut with a torch or 2 inches x 14 inches when cut smoothly with a saw.

Referee testing is required when the zinc coating weight fails to meet the minimum requirements.

Thickness measurements shall be taken at the middle of the width of the element on both ends (no closer than 3 inches from the end and the middle of the full length section).

No sample of the hook bolts is required.

RESIDENT ENGINEER (RE)

The RE:

- Checks to insure that the guardrail is from a fabricator on the LAM for Guardrail Manufacturers
- Checks all items in shipment for conformity to dimensional requirements
- Obtains manufacturer's certification attesting conformance to AASHTO M 180 and M 232 for all items in the shipment
- Checks for manufacturer's brand marking

RESIDENT ENGINEER (RE) (CONT.)

- Makes a visual inspection during installation of each delivery of the rail and/or accessories for white rust and other surface defects
- Performs check tests for zinc coating weight and completes the Guardrail Galvanizing Thickness Worksheet
- When necessary, obtains referee samples
- Inspects accessories for conformity to dimensional requirements and obtains certification

DISTRICT MATERIALS ENGINEER (DME) The DME submits required samples to the division.

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Strand (Pre- & Post-Tensioning)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Post-Tensioning:
See SiteManager Sampling Checklist for contract.

Pre-Tensioning:
One sample per heat

SAMPLING METHOD Two 54-inch specimens from the same reel in the heat

Note: The ends must be brazed before shipping.

RESIDENT ENGINEER (RE) The RE obtains the sample for post-tensioning strand and certification.

DISTRICT MATERIALS ENGINEER (DME) The DME:

- Obtains sample and any accompanying documentation and forwards to the division
- Samples pre-tensioning strand and obtains certification

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Hook Bolts
For PCC Pavement (Coated)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for contract.

SAMPLING METHOD Two (2) bolts, fully assembled

RESIDENT ENGINEER (RE) The RE obtains samples.

DISTRICT MATERIALS ENGINEER (DME) The DME submits required samples to the division for testing.

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Load Transfer Assemblies

INSPECTOR QUALIFICATION

None

SAMPLING FREQUENCY

See SiteManager Sampling Checklist for contract.

SAMPLING METHOD

A sample shall be of sufficient length to provide at least six dowel bars.

Resample contraction assemblies two weeks prior to actual use if coated with bond breaker and not used within 6 months of initial test.

RESIDENT ENGINEER (RE)

The RE:

- Obtains certifications for epoxy powder, steel manufacturer, epoxy coater, and assembly fabricator for each shipment indicating the product meets the specifications
- Verifies that the manufacturers for the powder, steel and assemblies, and the bond breaker are on the LAM
- Inspects assemblies for conformity to standard drawing dimensional requirements, including skew of dowels
- Obtains sample

DISTRICT MATERIALS ENGINEER (DME)

The DME submits all documentation and samples to the division for testing.

REMARKS

None

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Manhole Adjusting Rings

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE:

- Obtains manufacturer's certification through the contractor stating the material conforms to the specifications
- Visually inspects for conformance to the standard drawings
- Verifies that material is on the LAM

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Pile Points

INSPECTOR QUALIFICATION

None

SAMPLING FREQUENCY

See SiteManager Sampling Checklist for contract.

SAMPLING METHOD

None

RESIDENT ENGINEER (RE)

The RE:

- Obtains manufacturer's certification
- Verifies that the manufacturer is on the List of Approved Materials
- Verifies pile points have been sampled, tested, and manufactured in accordance with AASHTO M103, Grade 65/35, or ASTM A148

DISTRICT MATERIALS ENGINEER (DME)

None

REMARKS

Contractors may propose to use other suppliers and other points. Sufficient information shall be submitted for the Division of Construction's review and approval.

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

Corrugated HDPE Pipe M252
(Underdrains, Edge Drains, Etc.)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for contract.

SAMPLING METHOD Size of Sample:

- Type C Wall—3 pieces, 6 feet in length
- Type S (Smooth wall)—3 pieces, 18 inches in length

RESIDENT ENGINEER (RE) The RE:

- Inspects pipe for conformity with requirements for markings, dimensions, and freedom from defects
- Obtains sample and manufacturer's certification that the product meets AASHTO M 252

  Note: No entries required when sampling frequency has been met and additional material is received on the project.

DISTRICT MATERIALS ENGINEER (DME) The DME submits samples to the division for testing.

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Corrugated HDPE Pipe M294 (Type S) for Entrances, Cross Drains, Storm Sewers, & Culverts

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE:

- Inspects pipe for defects and conformance to plans
- Obtains manufacturer's certification covering shipment stating that the material conforms to AASHTO M 294
- Ensures the manufacturer is on the LAM

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS No physical sample required unless notified by the Division of Materials

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

PVC Pipe (Drainage Pipe)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE:

- Obtains manufacturer's certification covering shipment stating that the material conforms to the specifications
- Inspects for conformity with certification, dimension requirements, and freedom from defects

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Posts, Sign (Types I & II)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for contract.

SAMPLING METHOD Sample Size—One (1) full length post or a length of 7 feet

Note: Do not sample all individual lengths. Sample only one length to represent all lengths within a given type.

RESIDENT ENGINEER (RE) The RE:

- Obtains manufacturer's certification containing physical and chemical test results indicating that the product meets the specification
- Inspects posts for conformity with dimensional requirements
- Obtains sample

DISTRICT MATERIALS ENGINEER (DME) The DME submits samples to the division for testing.

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Wire, Steel (Reinforcement)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for contract.

SAMPLING METHOD Sample Size—two wires, each 2 feet in length

RESIDENT ENGINEER (RE) The RE obtains sample and manufacturer's certification.

DISTRICT MATERIALS ENGINEER The DME submits sample to the division 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 See SiteManager Sampling Checklist for contract.

SAMPLING METHOD One 2-foot by 5-foot section

RESIDENT ENGINEER (RE) The RE:

- Inspects for defects (rust, etc.) and conformity to standard drawing dimensions
- Obtains sample and certification

DISTRICT MATERIALS ENGINEER (DME) The DME submits sample to the division for testing.

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Posts, Metal Sign (Structural Shapes)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE awaits approval from Division of Construction, based on satisfactory certification reports.

DISTRICT MATERIALS ENGINEER (DME) 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 specification.

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 See SiteManager Sampling Checklist for contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE obtains a copy of the manufacturer's certification through the contractor indicating that the product meets the specification.

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Preformed Expansion Joint Fillers—
Bituminized Fiber
(AASHTO M 213)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for contract.

SAMPLING METHOD Sample size: one (1) 12-inch × 36-inch specimen for large sheets or depth of pavement (i.e., 10”) × 36” for pre-cut sheets

RESIDENT ENGINEER (RE) The RE:

- Obtains samples
- Inspects for dimensional requirements

DISTRICT MATERIALS ENGINEER (DME) The DME submits samples to the division for testing.

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Reinforcing Strips
(for Reinforced Earth Walls)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for contract.

SAMPLING METHOD Sample Size: 2 specimens 24 inches long. Both may be cut from the same strip.

RESIDENT ENGINEER (RE) The RE:

- Obtains manufacturer's certification indicating compliance with the special note in the proposal
- Inspects for defects and conformity to plans or approved shop drawings
- Obtains sample

DISTRICT MATERIALS ENGINEER (DME) The DME submits samples to the division for testing.

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Reinforcing Steel, Epoxy Coated

INSPECTOR QUALIFICATION

None

SAMPLING FREQUENCY

See SiteManager Sampling Checklist for contract.

SAMPLING METHOD

All samples shall be 2 bars, 60 inches in length.

RESIDENT ENGINEER (RE)

The RE:

- Obtains the TC 64-122 form and material certifications from the powder, coater, and steel manufacturer
- Inspects shipment for damage to coating and for conformance to requirements of the specifications
- Ensures the material is stored onsite properly to protect the coating in accordance with Standard Specification 602.03.05
- Identifies heats of steel for each sample obtained and includes copies of certifications
- Determines if powder, coater, steel manufacturer, and/or fabricator are on the LAM
- Obtains sample if required

Note: All steel, regardless of quantity, must be certified and from an approved source.

DISTRICT MATERIALS ENGINEER (DME)

The DME submits samples and documentation to the division for testing.

REMARKS

None

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Reinforcing Steel, Uncoated

INSPECTOR QUALIFICATION

None

SAMPLING FREQUENCY

See SiteManager Sampling Checklist for contract.

SAMPLING METHOD

All samples shall be 2 bars, 60 inches in length.

RESIDENT ENGINEER (RE)

The RE:

- Visually inspects the shipment and compares with the TC 64-122 form to verify if accurate information has been provided
- Checks manufacturer's certification to determine if steel meets specifications
- Visually inspects the shipment for defects, rust, proper grade markings, etc.
- Determines if the fabricator and manufacturer are included on the LAM
- Obtains sample if required
- Identifies heats of steel for each sample obtained and includes copies of documentation

Note: All steel, regardless of quantity, must be certified and from an approved source.

DISTRICT MATERIALS ENGINEER (DME)

The DME submits samples and documentation to the Division.

REMARKS

For district maintenance steel obtain 1 sample per 5000 pounds or fraction thereof. A TC 64-122 form and mill test report are not necessary.

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Reinforcing Steel Splices, Welded or Mechanical

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for contract.

SAMPLING METHOD Sample size: 2 completed splices, each at least 30 inches in length with the splice in the center

RESIDENT ENGINEER (RE) The RE:

- Observes process as splice is made to insure compliance with manufacturer's instructions
- Obtains sample

DISTRICT MATERIALS ENGINEER (DME) The DME submits samples to the division for testing.

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Cable Barriers

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for project.

SAMPLING METHOD Sampling of materials is performed by the manufacturer or supplier at the place of assembly and sent to the Division of Materials.

RESIDENT ENGINEER (RE) The RE ensures manufacturer is on the LAM.

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Welder, Shielded Metal Arc

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY None

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE:

- For a **qualified** welder, verifies welder's qualification status and identifies by examining his or her identification card and driver's license or other identification and checking with the Division if status is questionable
- For an **unqualified** welder, refers welder to the division or to an approved vocational school or testing lab (see LAM)

  Note: Welders must be qualified before welding on a KYTC project.

DISTRICT MATERIALS ENGINEER (DME) None

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 welding.

Each welder shall keep a work record that he or she shall show to the resident engineer upon request.

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Wire, Steel, Welded Fabric
(Concrete Pipe & Precast Products)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY Quarterly

SAMPLING METHOD One 2-foot by 5-foot section of flat fabric and one 2-foot section of a typical pipe cage and manufacturer's certification

RESIDENT ENGINEER (RE) None

DISTRICT MATERIALS ENGINEER (DME) The DME:

- Obtains sample quarterly
- Logs sample into SiteManager as "Informational"
- Notifies the concrete pipe plant as to status of sample after testing by the division

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Timber, Untreated Posts & Lumber

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for contract.

SAMPLING METHOD No sample is required.

RESIDENT ENGINEER (RE) The RE:

- Since untreated timber is normally not plant inspected, inspects and approves the products at the job site
- Inspects pieces for conformity to specification requirements for dimensions, freedom from defects, grade, species, etc.

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Timber, Treated (Posts, Poles, Piling, Structural Timber, Offset Blocks, Etc.)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for contract.

SAMPLING METHOD No sample is required.

RESIDENT ENGINEER (RE) The RE:

- Informs contractors at pre-construction conference or earlier that treated timber products must be inspected by the division either at the treating plant or after delivery to the job site
- Checks all pieces for the KY stamp approval, other approval stamp of an approved third party inspecting company when applicable, and/or the inspection report

  Note: If none of these are available, contact the division immediately and do not permit use of unsampled timber without authorization. If these are available, inspect pieces for freedom from defects, etc.

  Note: See the *List of Approved Materials* for approved third party inspectors.

DISTRICT MATERIALS ENGINEER (DME) The DME verifies documentation from an approved third party if not stamped with the KY Oval.

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Structural Steel (Frames, Grates, Lids, ASTM A-36)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for contract.

SAMPLING METHOD No sample is required.

RESIDENT ENGINEER (RE) The RE:

- Visually inspects for conformance to applicable standard drawing and obtains producer's certification stating that the items conform to the KYTC specifications
- Verifies that the producer is on the LAM for Manufacturers of Steel Welded Grates

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

PHYSICAL

Subject

Stay-in-Place Forms

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for contract.

SAMPLING METHOD Project testing of zinc coating will be by thickness gauge.

The referee test for coating thickness will be the stripping method and is performed in the division. This requires cutting samples from the stay-in-place form and submitting them for test. (Samples shall be cut from the same spot that thickness measurements are taken.)

The sample size, 1 piece, shall be 3 inches x 14 inches when cut with a torch or 2 inches x 14 inches when cut smoothly with a saw.

Referee testing is required when the zinc coating weight fails to meet the minimum requirements.

RESIDENT ENGINEER (RE) The RE:

- Inspects forms for white rust
- Performs tests for zinc coating

DISTRICT MATERIALS ENGINEER (DME) The DME submits samples to the division for testing.

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

CONSTRUCTION

Subject

General Notes

This section outlines acceptance requirements for individual materials or products used in construction of rest areas, loadometer stations, or other types of building 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 that the assigned Resident Engineer will perform. The Division of Construction has responsibility for these types of materials.

GENERAL NOTES:

1. Items not specifically listed within this section or other portions of this manual shall be subject to inspection and approval by the 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 Resident Engineer 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 should be advised to make five copies available as soon as possible. Do not provide 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 Resident Engineer 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.

   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 any questions pertaining to this information, please contact the Division of Construction at 502.564.4780.

MATERIALS FIELD SAMPLING

Chapter

CONSTRUCTION

Subject

Fertilizer

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE:

- Ensures the product meets the requirements detailed in the LAM
- Obtains manufacturer's certification

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS If the fertilizer is not a bid item, the material is accepted as incidental to seeding quantities or erosion control blanket.

MATERIALS FIELD SAMPLING

Chapter

CONSTRUCTION

Subject

Lime

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE:

- Ensures that the lime producer is on the LAM
- Obtains manufacturer's certification

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

CONSTRUCTION

Subject

Mulch

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE performs visual inspection of placed materials.

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS Also applies to temporary mulch as a bid item.

MATERIALS FIELD SAMPLING

Chapter

CONSTRUCTION

Subject

Rolled Erosion Control

INSPECTOR QUALIFICATION

None

SAMPLING FREQUENCY

See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD

Visually inspect netting, wood, and staples for acceptance.

RESIDENT ENGINEER (RE)

The RE:

- Visually inspects material for conformance to the applicable requirements
- Verifies that the blanket is on the LAM
- Enters the appropriate information into SiteManager

DISTRICT MATERIALS ENGINEER (DME)

None

REMARKS

If the materials are not listed as bid items they are considered incidental to seeding quantities.

MATERIALS FIELD SAMPLING

Chapter

CONSTRUCTION

Subject

Straw

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE performs visual inspection of placed materials.

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS Material is accepted as incidental to seeding quantities and as a pay item as temporary mulch.

MATERIALS FIELD SAMPLING

Chapter

CONSTRUCTION

Subject

Structural Plate for Armored Edge and Pipes, & Pipe Arches

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE obtains and reviews manufacturer's certification for compliance with the contract and all applicable specifications.

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

CONSTRUCTION

Subject

Substrate for Sign Sheeting

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for the contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE obtains and reviews manufacturer's certification for compliance with the contract and all applicable specifications.

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

CONSTRUCTION

Subject

Handrail, Metal, Types B & C

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY None

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE visually inspects and obtains manufacturer's certification through the contractor stating that the product meets the specifications or obtains mill test.

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

CONSTRUCTION

Subject

Lighting Fixtures

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE:

- Obtains shop drawings or brochures
- Approves fixtures not covered by brochures or shop drawings by visual inspection
- Submits any brochures or shop drawings to the Division of Construction for review and approval

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

CONSTRUCTION

Subject

Interior/Exterior Building Paint

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE:

- Visually inspects labels to verify that the paint supplied is a permitted optional brand
- Where paint is supplied to be "equal" to another quoted brand or brands, obtains manufacturer's certification indicating compliance with proposal notes and project plans and submits to the Division of Construction for review and approval

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS Method of acceptance is by visual inspection or manufacturer's certification.

MATERIALS FIELD SAMPLING

Chapter

CONSTRUCTION

Subject

Ash Trays, Asphalt Shingles, Blower & Motor Drive, Carpet, Fans, Etc. (see Remarks)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE:

- Obtains brochures and submits to the Division of Construction for review and approval
- Performs visual inspection

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS Ash Trays, Asphalt Shingles, Blower and Motor Drive, Carpet, Fans, Fountain Display, Hand Dryers, Heaters (Baseboard & Water), Lighting Controls, Mirrors, Plumbing Materials, Sewage Treatment, Toilet Partitions, Waste Receptacles

MATERIALS FIELD SAMPLING

Chapter

CONSTRUCTION

Subject

Sealers

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE obtains brochures and manufacturer's certification for various items indicating compliance with proposal notes and project plans and submits to the Division of Construction for review and approval.

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

CONSTRUCTION

Subject

Doors

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE obtains manufacturer's certification and shop drawings of compliance with proposal notes and project plans and submits to the Division of Construction for review and approval.

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

CONSTRUCTION

Subject

Windows

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE:

- Obtains manufacturer's certification and shop drawings and submits to the Division of Construction for review and approval
- Performs visual inspection

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

CONSTRUCTION

Subject

Wiring Devices

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE:

- Obtains brochures, shop drawings, and manufacturer's certifications indicating compliance with proposal notes and project plans and submits to the Division of Construction for review and approval
- Performs visual inspection

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS Submit sample to the Division of Construction.

MATERIALS FIELD SAMPLING

Chapter

CONSTRUCTION

Subject

Hardware

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE obtains hardware schedule and visually inspects material for conformance with schedule.

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

CONSTRUCTION

Subject

Hollow Metal

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE obtains shop drawings and submits to the Division of Construction for review and approval.

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

CONSTRUCTION

Subject

Ceramic Tile & Adhesives

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE obtains manufacturer's certification indicating compliance with proposal notes and project plans and submits to the Division of Construction for review and approval.

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

CONSTRUCTION

Subject

Dielectric Coupling, Floor Drain, Clean Out & Air Chamber, Etc. (see Remarks)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE performs visual inspection.

DISTRICT MATERIALS ENGINEER (DME) None

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

Caulking, Mortar & Related Components, and Pipe & Fittings (Cast Iron, Copper, & Transite)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE visually inspects and approves on the basis of manufacturer's certification of compliance with proposal notes and project plans.

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

CONSTRUCTION

Subject

Sod (Kentucky Bluegrass or Tall Fescue)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE:

- Obtains letter of certification
- Inspects for conformity with the standard drawing and the specifications

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

CONSTRUCTION

Subject

Seed, Wildflower

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE:

- Obtains letter of certification
- Inspects for conformity with the standard drawing and the specifications

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

CONSTRUCTION

Subject

Seed, Temporary

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE obtains manufacturer's certification.

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

CONSTRUCTION

Subject

Seed, Permanent (Grasses, Native Grasses, Legumes)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE:

- Obtains vendor's seed tag for each lot received
- Insures that all bags have a tag
- Checks for the following information/requirements on the tag to insure results are within allowable ranges in the Standard Specifications:
  - Lot number identification
  - Vendor's name and address
  - Kind of seed
  - Variety of seed
  - Pure seed %, (see **Section 827.04**)
  - Germination %, (see **Section 827.04**)
  - Hard seed %, (see **Section 827.04**)
  - Inert matter %
  - Crop seed %
  - Date of test
  - Weed seed %
  - Seed origin (state)
  - List of noxious weed seeds and amounts (if any)
- For premixed seed, obtains the Master Blend Sheet from the vendor

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

CONSTRUCTION

Subject

Utility Appurtenances (Permanent & Temporary) (see Remarks)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE:

- Obtains through the contractor a letter of acceptance from the local municipality

  Note: The letter shall state that all work and materials meet or exceed the local and/or state codes.

- Files acceptance letter in the project file and forwards a copy to the division

DISTRICT MATERIALS ENGINEER (DME) None

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, and sewers.

MATERIALS FIELD SAMPLING

Chapter

CONSTRUCTION

Subject

Silt Trap Type "C" Bags

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE:

- Obtains geotextile certification
- Ensures bag material (geotextile) resides on the LAM
- Inspects for conformity with the standard drawing and the specifications

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

CONSTRUCTION

Subject

Silt Fence

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE:

- Obtains letter of certification through the contractor indicating compliance with the specification
- Inspects for conformity with the standard drawing and the specifications

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

CONSTRUCTION

Subject

Ductile, Cast Iron, or Encasement Pipe & Fittings

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for contract.

SAMPLING METHOD None

RESIDENT ENGINEER (RE) The RE:

- Inspects the pipe and fittings for defects and conformance to dimensional requirements
- Obtains steel manufacturer's certification

DISTRICT MATERIALS ENGINEER (DME) None

REMARKS None

MATERIALS FIELD SAMPLING

Chapter

ELECTRICAL

Subject

General Notes

For any questions pertaining to this information, please contact the Division of Traffic at 502.564.3020.

MATERIALS FIELD SAMPLING

Chapter

ELECTRICAL

Subject

Wiring & Conduit (Ducted & Messenger Cable)

INSPECTOR QUALIFICATION None

SAMPLING FREQUENCY See SiteManager Sampling Checklist for project.

SAMPLING METHOD One 2-foot section.

Indicate size and type of each wire/cable submitted and exact usage of each sample of conduit.

Insulation/coating of the submitted cable shall include information including voltage and IMSA type.

RESIDENT ENGINEER (RE) The RE:

- Inspects for conformity to specifications, project plans, and proposal and obtains manufacturer's certification for conduit
- Obtains sample

DISTRICT MATERIALS ENGINEER (DME) The DME submits sample to the Division of Traffic Operations for testing.

REMARKS Sample:

- Each size and type of wire/cable
- Each size and type of conduit

The Division of Traffic checks for proper usage.

MATERIALS FIELD SAMPLING

Chapter

INDEPENDENT ASSURANCE SAMPLING

Subject

General Notes

1. The federally-mandated Independent Assurance Sampling and Testing Program (IAS) provides an unbiased and independent evaluation of sampling and testing procedures and testing equipment used in acceptance sampling and testing on National Highway System (NHS) contracts. ***It should be noted that these samples and tests are not for the purpose of determining the acceptability of materials or construction work.*** IAS applies when the construction cost of a federally-funded contract on any NHS route or a state-funded contract on an Interstate highway exceeds $1,000,000. The IAS program is in addition to the division's standard acceptance sampling and testing program.

2. IAS shall be performed by a qualified materials representative who has no direct responsibility for process-control, acceptance, and/or verification sampling and testing. Whenever possible, testing equipment other than that used for acceptance testing shall be used. No more than 20% of each test required for IAS shall be accomplished by observation of acceptance sampling and testing.

3. On contracts utilizing contractors' test results for acceptance, 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.

4. On contracts **not** utilizing contractors' test results for acceptance, IAS will typically be performed at a frequency of ten times the acceptance quantity frequency.

5. It is recommended that each district assign primary responsibility for IAS to one or more qualified individuals on the Materials staff. Each district's workload, personnel staffing, and geographic distribution of federal-aid contracts will determine the assignments for IAS personnel.

6. 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 procedures. It is not required to perform IAS exclusively on the acceptance sample.

7. 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 and comparison results occur or other discrepancies are noted, the DME and contract personnel shall work together to resolve the problem. When the situation cannot be resolved at that level, the division shall be notified. (**KM 64-112** provides numerical limits for analyzing IAS and comparison tests.)

8. All construction personnel shall be knowledgeable about the purpose of IAS and the intended use of the results from these tests. This purpose shall be emphasized by the DME, supported by the district Construction Branch manager, in staff meetings, training sessions, and on the job.

9. Construction contracts let jointly, but having separate plans and contract estimates, will be considered separate contracts in order to simplify this program. Separate contract files shall be maintained for the IAS reports. Individual test reports shall be maintained in each contract file according to the prescribed sampling or testing frequency outlined in the summaries.

10. IAS requirements for all phases of the work on ramps, shoulders, frontage roads, cross-overs, detours, entrances, storage lanes, and other miscellaneous construction will be determined and communicated prior to the start of work on the contract by the Division of Materials' IAS coordinator. This practice is due to the variable quantities involved from contract to contract on these types of construction.

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. There are many secondary routes with sections on the NHS. The Federal Highway Administration maintains and updates the official list of NHS routes. There is an online link from the Transportation Cabinet website in the Division of Planning:

- www.planning.kytc.ky.gov/maps/NHS/nhs.asp
- Click "NHS Listing by Route Number"

Be aware that some contracts may have been incorrectly identified in the proposal as being on NHS Routes. It is complicated because parts of some routes are on the NHS, but not between every mile-point and not in every county. The NHS list is very specific and must be read carefully.

FEDERAL OR STATE FUNDING

The contract award amount must be over $1,000,000 in federal or state money. However, there are some specifics related to this rule:

- Contracts are funded with federal money, state money, or a combination of both.
- Even though a contract is on the NHS and the contract award amount is over $1,000,000, 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 and an award amount over $1,000,000 will require IAS.
- A contract that is over $1,000,000 and only state-funded **will require IAS testing only if it is on an Interstate route**. For example, a state-funded Parkway contract of over $1,000,000 will **not** require IAS testing.

IDENTIFYING THE FUNDING SOURCE

The funding source for a contract can be found by noting:

- Federal/State contract number, for example:
  - For Federal Contract Numbers, IM-NH 12(3), BRZ 1234, STP 1234, BRO 123, APD 123

    Note: Typically, any numbers with a parenthesis indicate a federally-funded project.
  - For State Contract Numbers, FD04, FE01, CB06, FD52
- 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 four 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.)
4. Is the award amount over $1,000,000?

The following table shows if a contract requires IAS testing based on answers to the above questions assuming that the type of construction involves materials requiring IAS testing.

Determining Whether a Contract Requires IAS

Contract	NHS Route?	Interstate?	Funding Source	Over $1,000,000?	Is IAS Required?
A	Yes	Yes	Federal	Yes	**Yes**
B	Yes	Yes	State	Yes	**Yes**
C	Yes	No	State	Yes	**No**
D	Yes	Yes	Federal or State	No	**No**

SMALL QUANTITIES

A contract may meet all the requirements for IAS testing, but if the bid amounts of the items we test 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.

If all of the criteria are not met, no IAS testing is required.

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 (Converted from Linear Feet into Cubic yards):		
Class A, Class A Modified, Class AA, Class AA HPC, Class AAA, Class B, Class D, Class D Modified	Slump, Air & Cylinders	Total quantity equal to or greater than 500 cubic yards: 1 Set; Total quantity 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
Portland Cement:		
JPC Concrete	Slump & Air	Total quantity equal to or Greater than 10,000 Square yards: 1 Set Total quantity equal to or Greater than 40,000 Square yards: 2 Sets
Each Aggregate Coarse Aggregate	Gradation Minus # 200 Wash	1 per 120,000 square yards None for less than 50,000 square yards
Asphalt:		
Superpave Mixtures	Asphalt Binder Content Air Voids Voids in Mineral	Total quantity equal to or greater than 10,000 tons: 1 Set Total quantity equal to or Greater than 40,000 tons: 2 Sets
Asphalt-Treated Drainage Blanket	Asphalt Binder Content Gradation	Total quantity equal to or greater than 10,000 tons: 1 Set Total quantity equal to or Greater than 40,000 tons: 2 Sets