

# **MATERIALS FIELD SAMPLING AND TESTING MANUAL**

**ISSUED BY**

**COMMONWEALTH OF KENTUCKY  
TRANSPORTATION CABINET  
DEPARTMENT OF HIGHWAYS**



**DIVISION OF MATERIALS  
FRANKFORT, KENTUCKY**

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## - PURPOSE AND SCOPE -

This manual has been prepared by the Division of Materials (Division) for the purpose of outlining practices for the sampling, inspection, testing and acceptance of materials in highway work. If there should be a conflict 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 the Field Engineers and Inspectors. Together with the Specifications, Special Provisions, Project Proposals and Plans, it outlines the practices for sampling and testing materials to ascertain whether materials, and related highway work conform with plans and specifications. The Division maintains a List of Approved Materials (LAM) which is referenced often in this manual.

The procedures specified in this manual 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 may also reduce inspection and/or testing when it can be justified according to specific project situations.

In addition to establishing procedures for acceptance of materials, this manual outlines the Independent Assurance sampling and testing requirements for all National Highway System Federal-Aid 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.kytc.state.ky.us/materials> and is available to the public from this location. If you have comments or suggestions, please contact the Director of this division by phone at 502.564.3160 or by fax 502.564.7034. The mailing address is Transportation Cabinet, Department of Highways, Division of Materials, 1227 Wilkinson Boulevard, Frankfort, KY 40601. The Director's Internet e-mail address is enclosed in parentheses (Wesley.Glass@mail.state.ky.us).

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Wesley Glass, P.E., P.G., Director, Division of Materials

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Date

**NOTE:** This manual supersedes the May 24, 2002, edition of this manual and will be updated annually. Should you not have Internet access and wish to obtain a hard copy of this manual, contact the Cabinet's Office of Policy and Budget at 502.564.6927.

**DISCLAIMER:** This manual assumes no liability on the part of the Transportation Cabinet.

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## GENERAL NOTES FOR ACCEPTANCE REQUIREMENTS FOR MATERIALS AND 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 of materials or construction work taken and tested at the construction site by project personnel or materials personnel and results submitted to the District Materials Engineer (DME).
  - b. Samples of materials or construction work 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 of materials 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 or at the point of sampling.
  - d. Samples taken and tested by the manufacturer or supplier with certificates as to conformity with specifications.
  - e. Samples taken and tested by contractor personnel with verification performed by construction or materials personnel.

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

2. The rate (frequency) of sampling, testing, etc., specified in this Manual 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 should make sure that the total quantities assigned to multiple projects do not exceed the quantity represented by the sample.
3. All sampling forms 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 should check the certification for correctness.
5. Transfer of materials from one project to another - When a quantity of material originally sampled for a project is later used on another project, the transfer shall be recorded in the KMIMS system.
6. 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.
7. In order to obtain unbiased samples and tests Kentucky Method 64-113 "Sampling Materials By Random Number Sampling" will be used to determine the time or location a sample will be taken from a lot of material.

8. Definition of Lot - Unless otherwise designated, whenever “LOT” is used to define the rate (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.
9. 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.
10. Definition of shipment - Whenever “SHIPMENT” is used to define the rate (frequency) of sampling and testing in this Manual, it is intended to mean an individual transport or other vehicle quantity.
11. The Kentucky Materials Information Management System (KMIMS) is the Cabinet’s materials database and all project samples will be entered into and completed in KMIMS.



12. Listed below are the permissible inspection types in KMIMS and explanations of how they are used:

<b>Inspection Type</b>	<b>Sample Required?</b>	<b>Quantity Required?</b>	<b>Project Assignment Required?</b>	<b>Comments</b>
Prj_Acpt	Yes	Yes	Yes	A sample that is taken for assigning results and quantities to project
Certify	No	Yes	Yes	Material accepted based on certification from supplier or manufacturer.
Verify	Yes	Yes	Yes	Required by QC/QA program or to verify tolerances for Certification.
Inform	Yes	No	No	Informational only. Not for project acceptance purposes.
Vis_Acpt	No	Yes	Yes	Material accepted based on visual acceptance by inspector and, if required, Ky. Oval.
Retest	Yes	No	Yes	Response to a failed original sample.
In_Assur	Yes	No	Yes	Comparison for Independent Assurance Testing.
Design	Yes	No	Yes	Primarily used for Geotech Design Projects.

## GENERAL NOTES FOR INDEPENDENT ASSURANCE SAMPLING AND TESTING

1. The purpose of Independent Assurance Samples and Tests (IAS) is to provide an unbiased and independent evaluation of sampling and testing procedures and testing equipment used in acceptance sampling and testing on federal-aid projects on the National Highway System (NHS). IAS is applicable when the project is on the NHS and construction costs exceed \$1,000,000, or on state-funded construction on Interstate highways where construction costs exceed \$1,000,000. It should be emphasized that these samples and tests are not for the purpose of determining the acceptability of materials or construction work.
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; when 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 independent observation of acceptance sampling and testing.
3. IAS, on projects utilizing contractor's test results for acceptance, 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. Efforts will be made to obtain IAS tests early in production.
4. IAS, on projects not utilizing contractor's test results for acceptance, will be performed at a frequency of ten times the acceptance quantity frequency.
5. It is recommended that each District Materials staff include one or more qualified individuals whose primary responsibility is IAS. Each District's workload, personnel staffing, and geographical distribution of federal-aid projects will determine the assignments for IAS personnel.
6. Independent Assurance samples shall normally be taken at the same point and time as the comparison sample 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. All IAS results shall be reported using IN\_ASSUR as the type of inspection.
8. IAS results shall be analyzed promptly by the District Materials Engineer (DME). When excessive differences between the IAS and comparison results occur or other discrepancies are noted, the DME and project personnel should 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.)
9. All construction personnel should be knowledgeable of the purpose of IAS and intended use of the results from these tests. This purpose should be emphasized by the DME, with the support of the District Construction Branch Manager, in staff meetings, training sessions, and on the job.
10. Construction projects let jointly, but which have separate plans and contract estimates, will be considered as separate projects in order to simplify this program. Separate project files shall be

maintained for the IAS test reports. Individual test reports shall be maintained in each project file according to the prescribed sampling or testing frequency outlined in the summaries.

11. 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 project by the Division's Independent Assurance Section. This practice is due to the variable quantities involved from project to project on these types of construction.

# **SUMMARY OF ACCEPTANCE REQUIREMENTS FOR MATERIALS OR PRODUCTS TESTED BY THE AGGREGATE SECTION**

## ***GENERAL NOTES PERTAINING TO AGGREGATES***

1. Aggregate quality samples should be taken during the progress of the work on the project if possible. Coarse aggregate requires two identically sampled bags of material (one is for verification). In no case shall samples be taken more than one month prior to beginning the use of the material.
2. The sampling point for samples other than quality shall be at the last practical point prior to incorporation into the finished work.
3. The DME is responsible for acceptance of all aggregate used in the district.
4. DME assigns a roving inspector to periodically inspect sources on the Aggregate Source List.
5. The DME is responsible for finished product quality sampling for all aggregates.
6. Partial Payment, when authorized:
  - a. Generally, the partial payment sampling and testing is completed at a frequency of one half the acceptance frequency and is performed when the aggregate stockpile is being built. The Acceptance Sampling and Testing is performed when the aggregate is used from the stockpile at one half the acceptance frequency.
  - b. The Resident Engineer (RE), the District's construction engineer in charge of the project, shall verify that all specification requirements for partial payments are met by the Contractor such as control of site, protection from theft or damage, minimum quantity limitations, etc.
  - c. The RE shall authorize partial payment on basis of acceptance gradation and quality information from the DME.

(AGGREGATE)

**AGRICULTURAL LIMESTONE**

- A. SAMPLING FREQUENCY: No sample required.
- B. SAMPLE METHOD: AASHTO T2  
Sample size - 15 lbs. (for suspect material only)
- C. FUNCTION OF THE RESIDENT ENGINEER:
  - 1. Files certification letter from Department of Agriculture in project file (see remarks).
  - 2. Assure the assessment of any necessary weight penalty.
  - 3. Visually inspect aglime delivered to job site and may reject any unsuitable material.
  - 4. Documents visual inspection and logs inspection type in KMIMS as CERTIFY.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Submit suspect material to the Division for quality testing, log inspection type in KMIMS as VERIFY.
- E. REMARKS:
  - 1. Each licensed source is sent a letter by the Kentucky Department of Agriculture showing 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 Engineer for inclusion in the project file to document that the source is licensed by the Kentucky Department of Agriculture.
  - 2. Sources requesting to be included on the licensed list should be advised to contact the Department of Agriculture, Division of Weights and Measures, 106 W. Second St., Frankfort, KY 40601 at 502.564.4870 to obtain information on the procedures necessary for them to be included on the Department of Agriculture's Licensed List.

(AGGREGATE)

**ASPHALT MIXTURE AGGREGATES**

- A. SAMPLING FREQUENCY:
  - 1. QUALITY: (see remarks)
    - a. Each 50,000 tons of mixture or fraction thereof - Each type of mix requires one sample of each coarse aggregate and fine aggregate utilized in mixture.
    - b. SMALL QUANTITY - Aggregate for each type of mix may be accepted by visual inspection when less than 5,000 tons of mixture.

2. SPECIFIC GRAVITY OR ABSORPTION: (see remarks)
  - a. No testing required when past experience indicates the specific gravity (BOD) of the aggregates does not vary or that the absorption is substantially below the specified limits.
  - b. One test per size prior to start of job and for each 5,000 tons of mix thereafter, when suspect aggregate is used.
3. GRADATION: Accept individual aggregates by visual inspection; if satisfactory, no testing or documentation required.
4. CRUSHED PARTICLES AND SAND EQUIVALENT: (See remarks)
  - a. One test for each 10,000 tons of mix or fraction thereof.
  - b. 5000 tons or less of mixture - No testing required.
5. CHEMICAL ANALYSIS-SURFACE AGGREGATES: (Superpave Polish-Resistant Types A and B and OGFC).
  - a. One sample per project of asphalt mixture from the paver hopper or roadway for chemical analysis of extracted aggregate(s).
  - b. One sample of the polish-resistant coarse aggregate from the plant site (blends will require sampling of both aggregates).

B. SAMPLE METHOD:

1. AASHTO T2:
  - a. Sample size for 'QUALITY'  
Coarse - 150 lbs. (2 bags)  
Fine - 75 lbs.
  - b. Samples for chemical testing - approximately 25 lbs. sampled from stockpile or cold-feed.
  - c. 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).
  - d. 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.
2. Sample project asphalt mixture for chemical analysis in the same manner as outlined in KM 64-439. Sample size - 7,500 - 10,000 grams

C. FUNCTION OF THE RESIDENT ENGINEER:

1. Obtain name of aggregate sources and sizes to be used from Contractor and notify DME. Verify that sources are on the Aggregate Source List.
2. Inspect stockpiles for contamination and segregation.
3. For visually accepted material, log inspection type in KMIMS as VIS\_ACPT.
4. For sampled material, log inspection type in KMIMS as PRJ\_ACPT.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:

1. Review mix designs for valid polish-resistant aggregate proportions and sources prior to approval.
2. Obtains quality samples and sends to the Division for testing as required, log inspection type in KMIMS as PRJ\_ACPT.
3. Obtains project asphalt mixture samples for chemical analysis as required, log inspection type in KMIMS as PRJ\_ACPT.
4. Obtains polish-resistant coarse aggregate(s) from the plant site for chemical analysis (blends require sampling of both aggregates). Use KMIMS ID # for project asphalt mixture sample to identify coarse aggregate samples (see remarks).

E. REMARKS:

1. At the option of the DME, quality approval of natural sand may be based upon biannual samples or at the frequency stated above. The samples shall be submitted to the Division by DME. If biannual sampling by source is performed, individual-project samples will not be required. Individual-project acceptance will be based on visual inspection.
2. Testing for crushed particles is waived when all aggregate is quarried material.
3. SAND EQUIVALENT - Individual-project testing will not be required when past experience indicates the sand equivalent of the aggregates are substantially above the minimum requirements. The DME may so certify for normal-project distribution and documentation.
4. The DME will determine when sampling for specific gravity or absorption is required. Contact the Division if guidance is needed.
5. It is not necessary to log polish-resistant coarse aggregate samples into KMIMS. The Division will enter into KMIMS if required. It is necessary that the polish-resistant coarse aggregate(s) and related project asphalt mixture sample be sent simultaneously to the Division.

**BASE AGGREGATES (DGA and CSB)**

A. SAMPLING FREQUENCY:

1. QUALITY:

- a. Each 50,000 tons or fraction thereof.
- b. SMALL QUANTITY - Accept by visual inspection when less than 5,000 tons.

2. GRADATION AND DELETERIOUS:

- a. One test per 2,000 tons.
- b. SMALL QUANTITY - Accept by visual inspection when less than 1,000 tons for DGA, 200 tons for CSB.
- c. IAS - One test per 20,000 tons.

3. SAND EQUIVALENT - One test per 25,000 tons or fraction thereof.

4. TARGET DENSITY BY CONTROL STRIP: Control strip constructed prior to start of job and for each successive lift.

5. APPROVAL OF MIXING PLANT: All mixing plants are to be inspected and approved prior to initial use for KY highway work and will be inspected once every two years.

6. FIELD DENSITY TESTS:

- a. Five densities per test section (approx. 2,500 yd<sup>2</sup>).
- b. IAS - One test per 25,000 yd<sup>2</sup> - one test consists of the average of five density readings per test section.

7. THICKNESS MEASUREMENTS: One full depth thickness measurement per 1,000 linear feet per roadway.

8. MOISTURE TESTS ON AGGREGATE BASE AFTER PUGGING OPERATIONS: One test per day of operation.

B. SAMPLING METHOD: AASHTO T2

- a. Gradation sample to be taken from roadway prior to compaction unless exceptions apply.
- b. Sample size for 'QUALITY' - 150 lbs. (2 bags)

C. FUNCTION OF THE RESIDENT ENGINEER:



1. Obtain name of aggregate sources and sizes to be used from Contractor and notify DME, verify that sources are on the Aggregate Source List.
2. Inspect stockpiles for contamination and segregation.
3. TARGET DENSITY BY CONTROL STRIP:
  - a. Determine when maximum density is achieved during compaction of control strip.
  - b. Perform density measurements.
4. MIXING PLANT APPROVAL - Contact DME to determine if plant has been inspected and approved by the Kentucky Transportation Cabinet (KYTC) before permitting use on project.
5. FIELD DENSITY, AND THICKNESS MEASUREMENTS - Project inspector at roadway performs required tests and thickness measurements.
6. MOISTURE TESTS ON AGGREGATE BASE AFTER PUGGING OPERATIONS: Project inspector performs test.
7. For visually accepted material, log inspection type in KMIMS as VIS\_ACPT.
8. For sampled material, log inspection type in KMIMS as PRJ\_ACPT.
9. Moisture, thickness and density measurements are not entered in KMIMS, but are documented in the project file.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:

1. Approval of Mixing Plant - (see remarks).
2. Samples gradations at the prescribed frequency, log inspection type into KMIMS as PRJ\_ACPT.
3. Obtains quality samples and sends to the Division for testing as required, log inspection type in KMIMS as PRJ\_ACPT.

E. REMARKS:

1. Plasticity index testing or documentation is required if failing SE's are encountered.
2. APPROVAL OF MIXING PLANT:
  - a. The inspection report is prepared and filed by the DME.
  - b. Verbal approval is given by resident engineer for state projects.

- c. For Federal-Aid projects, distribution is made to Resident Engineer, DME and the Division files.
- 3. Thickness measurements are to be made upon the base course after planing or other base finishing operations.
- 4. Moisture may be performed at the pugmill or roadway.

(AGGREGATE)

**CHANNEL LINING, CYCLOPEAN STONE RIP RAP, DUMPED STONE - (DEFLECTOR AND RIFLE STRUCTURE), GABION STONE, AND SLOPE PROTECTION**

A. SAMPLING FREQUENCY:

- 1. QUALITY - Accept by visual inspection.
- 2. GRADATION - Accept by visual inspection.

B. SAMPLE METHOD: None

C. FUNCTION OF THE RESIDENT ENGINEER:

- 1. Obtain name of aggregate sources and sizes to be used from Contractor and notify DME, verify that sources are on the Aggregate Source List (see remarks).
- 2. Inspect stockpiles for contamination and segregation.
- 3. For visually accepted material, log inspection type in KMIMS as VIS\_ACPT.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: When notified by resident engineer, visually accepts or rejects material and logs in appropriate KMIMS information.

E. REMARKS: Channel Lining Class IV is usually excavated from the jobsite and should be logged into KMIMS using producer number P099814 (Jobsite-General Use).

(AGGREGATE)

**CONCRETE AGGREGATES FOR PAVEMENT OR BASE**

A. SAMPLING FREQUENCY:

- 1. QUALITY:
  - a. Each 100,000 yd<sup>2</sup> of concrete or fraction thereof - One sample of each coarse aggregate and fine aggregate.

b. SMALL QUANTITY - Accept by visual inspection when less than 20,000 yd<sup>2</sup> of concrete and aggregate is on the Aggregate Source List.

2. GRADATION, DELETERIOUS AND MINUS NO. 200 WASH:

a. Coarse - One per 12,000 yd<sup>2</sup> of concrete or fraction thereof.

b. Fine (gradation and deleterious only) - One per 12,000 yd<sup>2</sup> of concrete or fraction thereof.

3. IAS:

a. One gradation each aggregate and minus no. 200 wash on coarse aggregate per 120,000 yd<sup>2</sup> of concrete.

b. No gradation test required when project contains less than 50,000 yd<sup>2</sup> of concrete.

4. SAND EQUIVALENT - (Fine Aggregate) - One sample per 50,000 yd<sup>2</sup> of concrete.

5. LIGHTWEIGHT PARTICLES - Sample as necessary.

B. SAMPLE METHOD: AASHTO T2

1. Coarse - 150 lbs. (2 bags) if for 'QUALITY' only. However, an additional 225 lbs. (3 bags) are required for alkali-reactivity and/or freeze-thaw.

2. Fine - 75 lbs.

C. FUNCTION OF THE RESIDENT ENGINEER:

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

2. Obtain name of aggregate sources and sizes to be used from Contractor and notify DME. Verify that sources are approved.

3. Inspect stockpiles for contamination and segregation.

4. Obtain aggregate specific gravities and absorption values from DME and forward to concrete producer's technician for determination of the various mix designs needed.

5. For visually accepted material, log inspection type in KMIMS as VIS\_ACPT.

6. For sampled material, log inspection type in KMIMS as PRJ\_ACPT.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:

1. Determine if any alkali-expansive, or freeze-thaw specifications apply, notifying the Division's Aggregate Section when indicated.

2. Obtains quality samples and sends to the Division for testing as required, log inspection type in KMIMS as PRJ\_ACPT.
3. Performs specific gravity and absorption tests on fine and coarse aggregates being used at concrete plants.

E. REMARKS:

1. Coal & Lignite to be sent to the Division for testing when deemed necessary.
2. Average recent test results for use on mix design report or recent results from the Division may be used to supplement DME tests.
3. Material should be tested and approved for alkali carbonate reactivity (minimum 6-month test time) and freeze-thaw (minimum 10-week test time) prior to use. These tests are NOT performed concurrently.

(AGGREGATE)

**CONCRETE AGGREGATES FOR STRUCTURAL AND INCIDENTAL USE**

A. SAMPLING FREQUENCY:

1. QUALITY:

- a. Each 5,000 yd<sup>3</sup> concrete or fraction thereof - One sample of each coarse aggregate and fine aggregate.
- b. SMALL QUANTITY - Accept by visual inspection when less than 500 yd<sup>3</sup> of concrete and aggregate is on the Aggregate Source List.

2. GRADATION, DELETERIOUS AND MINUS NO. 200 WASH:

- a. Coarse - One per 200 yd<sup>3</sup> of concrete or fraction thereof.
- b. Fine (gradation and deleterious only) - One per 200 yd<sup>3</sup> of concrete.

3. IAS:

- a. One test each aggregate per 2,000 yd<sup>3</sup> of concrete.
- b. No test required when project contains less than 1,500 yd<sup>3</sup> of concrete.

4. SAND EQUIVALENT - (Fine Aggregate) - One sample per 5,000 yd<sup>3</sup> of concrete.

5. LIGHTWEIGHT PARTICLES - Sample as necessary.

B. SAMPLE METHOD: AASHTO T2

1. Coarse - 150 lbs. (2 bags) if for 'QUALITY' only. However, an additional 225 lbs. (3 bags) are required for alkali-reactivity and/or freeze-thaw.
2. Fine - 75 lbs.

C. FUNCTION OF THE RESIDENT ENGINEER:

1. Inform DME of anticipated concrete pours in sufficient time to allow for required sampling and testing of aggregate.
2. Obtain name of aggregate sources and sizes to be used from Contractor and notify DME. Verify that sources are approved.
3. Inspect stockpiles for contamination and segregation.
4. Obtain aggregate specific gravities and absorption values from DME and forward to concrete producers' technician for determination of the various mix designs needed.
5. For visually accepted material, log inspection type in KMIMS as VIS\_ACPT.
6. For sampled material, log inspection type in KMIMS as PRJ\_ACPT.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:

1. Performs specific gravity and absorption tests on fine and coarse aggregates being used at concrete plants.
2. Determine if any alkali-expansive, or freeze-thaw specifications apply, notifying the Division's Aggregate Section when indicated.
3. Obtains quality samples and sends to the Division for testing as required, log inspection type in KMIMS as PRJ\_ACPT.

E. REMARKS:

1. Coal & Lignite to be sent to the Division for testing when deemed necessary.
2. Average recent test results for use on mix design report, or recent results from the Division may be used to supplement DME tests.
3. Material should be tested and approved for alkali carbonate reactivity (minimum 6-month test time) and if required, freeze-thaw (minimum 10-week test time) prior to use. These tests are NOT performed concurrently.
4. Where minus no. 200 content is required for IAS, a split sample of the acceptance sample will be checked for minus no. 200 comparison by the Division.
5. IAS requirement does not apply to concrete for Bridge Deck Overlays.

**CONCRETE PIPE AGGREGATE**

A. SAMPLING FREQUENCY:

1. QUALITY:

- a. Sources on Aggregate Source List - Accept each aggregate by visual inspection.
- b. Sources not on the Aggregate Source List - Requires testing and approval prior to initial use of each aggregate. Sample each aggregate at least (3) times annually thereafter when source regularly furnishes concrete pipe aggregate.

2. GRADATION - Accept by visual inspection.

B. SAMPLE METHOD: AASHTO T2

1. Coarse - 150 lbs. (2 bags) if for 'QUALITY' only. However, an additional 225 lbs. (3 bags) are required for alkali-reactivity and/or freeze-thaw.
2. Fine - 75 lbs.

C. FUNCTION OF THE RESIDENT ENGINEER: None

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:

1. Visually inspect aggregates, if on the Aggregate Source List, log inspection type in KMIMS as VIS\_ACPT.
2. Check to see if any carbonate alkali restrictions apply to aggregate source, notifying the Division's Aggregate Section when indicated.
3. Submit aggregates not on Aggregate Source List to the Division for quality testing, log inspection type in KMIMS as INFORM.

E. REMARKS:

1. Requirements for sand equivalent, gradation, uncompacted voids and minus no. 200 wash are waived.
2. When pipe is manufactured, the latest approval tests should be current to within (6) months.
3. Material should be tested and approved for alkali carbonate reactivity (minimum 6-month test time) and, if required, freeze-thaw (minimum 10-week test time) prior to use. These tests are NOT performed concurrently.

**AGGREGATE FOR CONCRETE PRECAST PRODUCTS**

A. SAMPLING FREQUENCY:

1. QUALITY:

- a. Sources on 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.
- b. Sources not on Aggregate Source List - Tested and accepted prior to initial use and sampled every (3) months thereafter.

2. GRADATION , DELETERIOUS, SAND EQUIVALENT AND MINUS NO. 200 WASH

- a. Coarse – Once per month.
- b. Fine (gradation, sand equivalent and deleterious only) - Once per month.

B. SAMPLE METHOD: AASHTO T2

1. Coarse - 150 lbs. (2 bags) if for ‘QUALITY’ only. However, an additional 225 lbs. (3 bags) are required for alkali-reactivity and/or freeze-thaw.
2. Fine - 75 lbs.

C. FUNCTION OF THE RESIDENT ENGINEER: None

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:

1. Obtains quality samples and sends to the Division for testing as required, log inspection type in KMIMS as INFORM.
2. Check to see if any carbonate alkali or freeze-thaw restrictions apply to aggregate source, informing the Division’s Aggregate Section if necessary.
3. Distributes gradation results to plant inspector and the Division.

E. REMARKS: The requirements for gradation and minus no. 200 will be waived for precast reinforced concrete box culvert sections.

1. Material should be tested and approved for alkali carbonate reactivity (minimum 6-month test time) and, if required, freeze thaw (minimum 10-week test time) prior to use. These tests are not performed concurrently.

## **AGGREGATE FOR CONCRETE PRESTRESSED PRODUCTS**

### A. SAMPLING FREQUENCY:

#### 1. QUALITY:

- a. Sources on 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.
- b. Sources not on Aggregate Source List - Tested and accepted prior to initial use and sampled every (3) months thereafter.

#### 2. GRADATION, DELETERIOUS, SAND EQUIVALENT AND MINUS NO. 200 WASH:

- a. Coarse - Once per month.
- b. Fine (gradation, sand equivalent and deleterious only) - Once per month.

### B. SAMPLE METHOD: AASHTO T2

1. Coarse - 150 lbs. (2 bags) if for 'QUALITY' only. However, an additional 225 lbs. (3 bags) are required for alkali-reactivity and/or freeze-thaw.
2. Fine - 75 lbs.

### C. FUNCTION OF THE RESIDENT ENGINEER: None

### D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:

1. Obtains quality samples and sends to the Division for testing as required, log inspection type in KMIMS as INFORM.
2. Check to see if any carbonate alkali or freeze-thaw restrictions apply to aggregate source, informing the Division's Aggregate Section if necessary.
3. Distributes gradation results to plant inspector and the Division's.

### E. REMARKS: None

1. Material should be tested and approved for alkali carbonate reactivity (minimum 6-month test time) and, if required, freeze-thaw (minimum 10-week test time) prior to use. These tests are NOT performed concurrently.

(AGGREGATE)

## **EPOXY-SAND SLURRY MIXTURES AND EPOXY SEAL COATS (High Silica Sand)**

### A. SAMPLING FREQUENCY:



1. QUALITY:
  - a. Sources on the Aggregate Source List - Accept by visual inspection.
  - b. Sources not on the Aggregate Source List - One sample tested and approved prior to project use.
2. GRADATION - One prior to project use.

B. SAMPLE METHOD: AASHTO T2 (15 lbs.)

C. FUNCTION OF THE RESIDENT ENGINEER:

1. Obtain name of aggregate sources to be used from Contractor and notifies DME.
2. Submits sample for gradation to DME with sample identification form, log inspection type in KMIMS as PRJ\_ACPT and await approval before using.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:

1. Verifies aggregate eligibility if on Aggregate Source List, performs gradation prior to project use.
2. If source is not on the Aggregate Source List, submit sample to the Division for quality testing, log inspection type in KMIMS as PRJ\_ACPT.

E. REMARKS: Sampling Precautions - Samples taken from bags should be obtained from throughout the bag since samples from the top are not normally representative.

(AGGREGATE)

**FREE DRAINING BEDDING AND BACKFILL**

A. SAMPLING FREQUENCY:

1. QUALITY - Accept by visual inspection.
2. GRADATION, DELETERIOUS AND MINUS NO. 200 WASH
  - a. Each 2,000 tons or fraction thereof.
  - b. SMALL QUANTITY - Accept by visual inspection when less than 200 tons.

B. SAMPLE METHOD: AASHTO T2

C. FUNCTION OF RESIDENT ENGINEER:

1. Obtain name of aggregate sources and sizes to be used from Contractor and notify DME.

2. Inspect stockpiles for contamination and gradation.
  3. For visually accepted material, log inspection type in KMIMS as VIS\_ACPT.
  4. For sampled material, log inspection type in KMIMS as PRJ\_ACPT.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: When notified by resident engineer, visually accepts or samples material, logs in appropriate KMIMS information and performs required tests.
- E. REMARKS: Aggregate not required to be from a source on the Aggregate Source List.

(AGGREGATE)

**GRANULAR EMBANKMENT - ROADWAY FILL**

- A. SAMPLING FREQUENCY:
1. QUALITY AND MINUS NO. 200 WASH TEST:
    - a. On-site material - Accept by visual inspection.
    - b. Off-site material - Each 50,000 tons or fraction thereof.
  2. GRADATION AND SHALE:
    - a. On-site material - Accept by visual inspection.
    - b. Off-site material - Each 25,000 tons or fraction thereof.
- B. SAMPLE METHOD: AASHTO T2: Sample size for 'QUALITY' - 150 lbs. (2 bags - Off-site materials only)
- C. FUNCTION OF RESIDENT ENGINEER:
1. Visually inspect on-site material for approval.
  2. For visually accepted material, log inspection type in KMIMS as VIS\_ACPT (see remarks).
  3. Notify DME if off-site material is to be used.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:
1. Samples off-site materials and submits to the Division for testing as required, log inspection type in KMIMS as PRJ\_ACPT.
  2. Performs gradation and shale testing on off-site material.

E. REMARKS: KMIMS producer code for on-site material is PRDYFLL.

(AGGREGATE)

### **MASONRY STONE**

A. SAMPLING FREQUENCY:

1. QUALITY - Accept by visual inspection.
2. GRADATION - Accept by visual inspection.

B. SAMPLE METHOD: AASHTO T2: Sample size for 'QUALITY' - 150 lbs. (2 bags) – for suspect material only

C. FUNCTION OF THE RESIDENT ENGINEER:

1. Visually inspects material, logs in KMIMS as VIS\_ACPT for inspection type.
2. Notify DME if material is suspect.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:

1. Visually inspects suspect material on request of resident engineer.
2. Samples and submits suspect material to the Division for quality testing, logs inspection type in KMIMS as PRJ\_ACPT.

E. REMARKS: Masonry stone is not required to be from Aggregate Source List.

(AGGREGATE)

### **MORTAR SAND**

A. SAMPLING FREQUENCY:

1. QUALITY - One sample tested and approved prior to use on project.
2. GRADATION - One sample tested and approved prior to use on project.

B. SAMPLE METHOD: AASHTO T2: Sample size - 15 lbs.

C. FUNCTION OF THE RESIDENT ENGINEER:

1. Sample and submit to DME with sample identification form logged into KMIMS with an inspection type of PRJ\_ACPT.

2. Await approval before permitting use of material.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: DME performs gradation testing and submits sample to the Division for quality testing.
- E. REMARKS: Aggregate is not required to be from the Aggregate Source List.

(AGGREGATE)

**PIPE BEDDING AND SAND FOR BLOTTER**

- A. SAMPLING FREQUENCY:
1. QUALITY - Accept by visual inspection.
  2. GRADATION:
    - a. Each 2,000 tons or fraction thereof.
    - b. SMALL QUANTITY - Accept by visual inspection when less than 200 tons.
  3. SAND EQUIVALENT - Fine Aggregate - One per 25,000 tons or fraction thereof.
- B. SAMPLE METHOD: AASHTO T2: Sample size for gradation:
- a. Coarse - 25 lbs.
  - b. Fine -15 lbs.
- C. FUNCTION OF THE RESIDENT ENGINEER:
1. Obtain name of aggregate sources and sizes to be used from Contractor and notify DME.
  2. Inspect stockpiles for contamination and segregation.
  3. For visually accepted material, log inspection type in KMIMS as VIS\_ACPT.
  4. For sampled material, log inspection type in KMIMS as PRJ\_ACPT.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: When notified by the project engineer, visually accepts or samples material, logs in appropriate information and performs required tests.
- E. REMARKS: When fine or coarse aggregates are used, they may be accepted by visual inspection by project personnel.

(AGGREGATE)

**ROCK DRAINAGE BLANKET, STRUCTURE GRANULAR BACKFILL AND REINFORCED FILL MATERIALS**

A. SAMPLING FREQUENCY:

1. QUALITY:

- a. Sources on Aggregate Source List - Accept by visual inspection.
- b. Sources not on the Aggregate Source List - Requires testing and approval prior to initial use.

2. GRADATION and MINUS NO. 200 WASH:

- a. Each 2,000 tons or fraction thereof. Minus no. 200 wash may be accepted visually if there is a significant amount of individual fragments greater than 1 1/2".
- b. SMALL QUANTITY - Accept by visual inspection if less than 200 tons.

B. SAMPLE METHOD: AASHTO T2: Sample size for 'QUALITY'- 150 lbs. (2 bags)

C. FUNCTION OF RESIDENT ENGINEER:

- 1. Obtain name of aggregate sources and sizes to be used from Contractor and notify DME, verify that sources are approved.
- 2. Inspect stockpiles for contamination and segregation.
- 3. For visually accepted material, log inspection type in KMIMS as VIS\_ACPT.
- 4. For sampled material, log inspection type in KMIMS as PRJ\_ACPT.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: If material is not on the Aggregate Source List, sample and submit to the Division, log inspection type in KMIMS as PRJ\_ACPT.

E. REMARKS: None

(AGGREGATE)

**SAND DRAINAGE BLANKET**

A. SAMPLING FREQUENCY:

1. QUALITY - Accept by visual inspection.

2. GRADATION:

- a. Each 2,000 tons or fraction thereof.

- b. SMALL QUANTITY - Accept by visual inspection if less than 200 tons.
- 3. SAND EQUIVALENT - Each 25,000 tons or fraction thereof.
- B. SAMPLE METHOD: AASHTO T2: Sample size - 25 lbs.
- C. FUNCTION OF THE RESIDENT ENGINEER:
  - 1. Obtain name of aggregate sources and sizes to be used from Contractor and notify DME, verify that sources are approved.
  - 2. Inspect stockpiles for contamination and segregation.
  - 3. For visually accepted material, log inspection type in KMIMS as VIS\_ACPT.
  - 4. For sampled material, log inspection type in KMIMS as PRJ\_ACPT.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: When notified by the resident engineer, visually accepts or samples material, logs in appropriate information and performs required tests.
- E. REMARKS: None

(AGGREGATE)

**SEAL COAT AGGREGATE (Chip Seal)**

- A. SAMPLING FREQUENCY:
  - 1. QUALITY:
    - a. Each 50,000 tons of mixture or fraction thereof.
    - b. SMALL QUANTITY - Accept by visual inspection if less than 5,000 tons.
  - 2. GRADATION, DELETERIOUS, CRUSHED PARTICLES AND MINUS NO. 200: (see remarks)
    - a. Each 2,000 tons of mixture or fraction thereof.
    - b. SMALL QUANTITY - Accept by visual inspection if less than 200 tons.
- B. SAMPLE METHOD: AASHTO T2: Sample size for 'QUALITY' - 150 lbs. (2 bags)
- C. THE FUNCTION OF THE RESIDENT ENGINEER:
  - 1. Obtain name of aggregate sources and sizes to be used from Contractor and notify DME, verify that sources are approved.

2. Verify gradation approval of aggregate from DME before permitting use.
  3. For visually accepted material, log inspection type in KMIMS as VIS\_ACPT.
  4. For sampled material, log inspection type in KMIMS as PRJ\_ACPT.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Obtains quality samples and sends to the Division for testing as required, log inspection type in KMIMS as PRJ\_ACPT.
- E. REMARKS: Testing for crushed particles is waived when all aggregate is quarried material.

(AGGREGATE)

***TRAFFIC BOUND USES (BASE, ENTRANCES, MAILBOX TURNOUTS, OR SHOULDERS)***

- A. SAMPLING FREQUENCY:
1. QUALITY:
    - a. Each 50,000 tons or fraction thereof.
    - b. SMALL QUANTITY - Accept by visual inspection if less than 5,000 tons.
  2. GRADATION, MINUS NO. 200 WASH, DELETERIOUS: (see remarks)
    - a. Each 2,000 tons or fraction thereof.
    - b. SMALL QUANTITY - Accept by visual inspection if less than 200 tons.
- B. SAMPLE METHOD: AASHTO T2: Sample size for QUALITY - 150 lbs. (2 bags)
- C. FUNCTION OF THE RESIDENT ENGINEER:
1. Obtain name of aggregate sources and sizes to be used from Contractor and notify DME, verify that sources are approved.
  2. Inspect stockpiles for contamination and segregation.
  3. For visually accepted material, log inspection type in KMIMS as VIS\_ACPT.
  4. For sampled material, log inspection type in KMIMS as PRJ\_ACPT.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:
1. Performs gradation, shale and minus no. 200 wash test.
  2. Obtains quality samples and sends to the Division for testing as required, log inspection type in KMIMS as PRJ\_ACPT.

E. REMARKS: Minus no. 200 wash test is waived on size #57.

(AGGREGATE)

**UNDERDRAIN AND LATERAL DRAIN AGGREGATES**

A. SAMPLING FREQUENCY:

1. QUALITY:

a. Coarse Aggregate - Sources on the Aggregate Source List - Accept by visual inspection. Sources not on the Aggregate Source List - One sample tested and approved prior to project use.

b. Fine Aggregate - Accept by visual inspection.

2. GRADATION, MINUS NO. 200 WASH AND DELETERIOUS:

a. Each 2,000 tons or fraction thereof for coarse or fine (-200 wash applies only to coarse aggregate).

b. SMALL QUANTITY - Accept by visual inspection if less than 200 tons.

3. SAND EQUIVALENT: Each 25,000 tons or fraction thereof (fine aggregate only).

B. SAMPLE METHOD: AASHTO T2: Sample size for 'QUALITY'

1. Coarse - 150 lbs. (2 bags)

2. Fine - 75 lbs.

C. FUNCTION OF THE RESIDENT ENGINEER:

1. Obtain name of aggregate sources and sizes to be used from Contractor and notify DME.

2. Inspect stockpiles for contamination and segregation.

3. For visually accepted material, log inspection type in KMIMS as VIS\_ACPT.

4. For sampled material, log inspection type in KMIMS as PRJ\_ACPT.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Obtains quality samples for material not on the Aggregate Source List and sendsto the Division for testing as required, log inspection type in KMIMS as PRJ\_ACPT.

E. REMARKS: None



**UNTREATED DRAINAGE BLANKETS, (Type I) - PAVEMENT**

- A. SAMPLING FREQUENCY:
  - 1. QUALITY:
    - a. Each 50,000 tons or fraction thereof.
    - b. SMALL QUANTITY - Accept by visual inspection if less than 5,000 tons.
  - 2. GRADATION and DELETERIOUS:
    - a. Each 2,000 tons or fraction thereof.
    - b. SMALL QUANTITY - Accept by visual inspection if less than 200 tons.
- B. SAMPLE METHOD: AASHTO T2: Sample size for 'QUALITY'- 150 lbs. (2 bags)
- C. FUNCTION OF THE RESIDENT ENGINEER:
  - 1. Obtain name of aggregate sources and sizes to be used from Contractor and notify DME. Verify that sources are approved.
  - 2. Verify gradation approval of aggregate from DME before permitting use.
  - 3. For visually accepted material, log inspection type in KMIMS as VIS\_ACPT.
  - 4. For sampled material, log inspection type in KMIMS as PRJ\_ACPT.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Obtains quality samples and sends to the Division for testing as required, log inspection type in KMIMS as PRJ\_ACPT.
- E. REMARKS: None

# **MATERIALS OR PRODUCTS TESTED BY THE ASPHALT MIXTURES TESTING SECTION**

## ***ASPHALT MIXTURES, GENERAL TERMS AND DEFINITIONS***

Acceptance Testing: The asphalt-mixture testing performed by the contractor for the determination of the appropriate pay value as described hereinafter.

Compaction Option A or B: See Subsection 402.03.02 D) 4) of the Specifications.

Excel Spreadsheet (Asphalt Mixtures Acceptance Workbook): Used to enter test data, pertinent daily information, and remarks which can be electronically transferred into KMIMS.

Lot: Normally 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.

Sublot: Normally 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.

Superpave Plant Technologist (SPT) or Superpave Mix Design Technologist (SMDT): An inspector qualified by the KYTC to perform daily inspection, process-control, acceptance testing, and/or verification testing for all mixtures.

Verification Testing: The asphalt-mixture testing performed by the KYTC to verify the contractor's acceptance test results as described hereinafter.

**Superpave Mixtures**

All Superpave mixtures placed on mainline, shoulders, ramps, approaches, entrances, cross-overs, and medians that could be used for turning.

A. SAMPLING FREQUENCY:

1. Mixture Verification: Verify one of the contractor's acceptance tests for mixture volumetrics per lot (see Subsection 402.03.03 of the Specifications).
2. Core Density: For Compaction Option A mixtures, randomly select four locations per subplot from the mainline area and two locations per subplot from the joint area for the contractor to obtain one density core at each location [see Subsection 402.03.02 D) 4 of the Specifications] After obtaining the cores from the contractor, determine the percent of solid density of each core according to KM 64-442.
3. Aggregate: See Asphalt Mixture Aggregates in the Aggregate Section.
4. Performance-Graded (PG) Binder: See the appropriate PG binder requirements in the Liquid Asphalt Section.
5. Independent Assurance Sampling and Testing (IAS): Perform tests for mixture volumetrics only. See the "General Notes for Independent Assurance Sampling and Testing" for the applicable testing frequency.

B. SAMPLE METHOD:

1. KM 64-113, Sampling Materials by Random Number Sampling.
2. KM 64-425, Sampling Asphalt Mixtures.
3. KM 64-442, Method for Coring and Determining Percent of Solid Density of In-Place, Compacted, Asphalt Mixture Courses.

C. FUNCTION OF THE RESIDENT ENGINEER:

1. Furnish a qualified SPT or SMDT for the purpose of verifying the contractor's acceptance test (one subplot per lot) and performing acceptance testing of density cores for Compaction Option A Mixtures (four mainline cores and two joint cores per subplot).
2. Enter the appropriate testing information into the Excel spreadsheet (Asphalt Mixtures Acceptance Workbook) for transfer into KMIMS.
3. Obtain a KMIMS identification number, and transfer the Excel spreadsheet (Asphalt Mixtures Acceptance Workbook) into KMIMS, as follows:
  - a. When appropriate, select "Visual Acceptance" from the Inspection Type list. Enter the total tons being visually accepted (must be less than 500 tons).

- b. Select “Project Acceptance” from the Inspection Type list when any acceptance testing is performed on a specific mixture type. Enter the total tons for the lot (not to exceed 4000 tons). Enter the KMIMS identification number in the Excel spreadsheet (Asphalt Mixtures Acceptance Workbook), and transfer the completed test data into KMIMS. For approval, the mixture will be considered COMPLETE.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Assist the Resident Engineer in verification (mixture volumetrics) and acceptance (core density) testing when necessary.

E. REMARKS:

1. KYTC personnel shall not perform solvent extractions for any purpose.
2. Always use the most current version of the Excel spreadsheet (Asphalt Mixtures Acceptance Workbook) available from the Division’s Asphalt Field Operations Section (AFOS), or from the Division’s website.
3. Compaction Option A or B for density will be specified in the contract. When Compaction Option A or B isn’t specified, Compaction Option B applies.

(ASPHALT MIXTURES)

***SPECIALTY MIXTURES: Superpave mixtures used for leveling and wedging; scratch courses; base failure repair; mountable medians; maintenance (price contract); trenching, incidental, and/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; and Slurry Seal.***

A. SAMPLING FREQUENCY:

1. Mixture Verification: Verify one of the contractor’s acceptance tests for asphalt binder content (AC) and gradation per lot (see Subsection 402.03.03 of the Specifications).
2. Aggregate: See Asphalt Mixture Aggregates in the Aggregate Section.
3. PG Binder: See the appropriate PG binder requirements in the Liquid Asphalt Section.
4. IAS (for ATDB only): Perform tests for AC and gradation. See the “General Notes for Independent Assurance Sampling and Testing” for the applicable testing frequency.

B. SAMPLE METHOD:

1. KM 64-113, Sampling Materials by Random Number Sampling.
2. KM 64-425, Sampling Asphalt Mixtures.

C. FUNCTION OF THE RESIDENT ENGINEER:

1. Furnish a qualified SPT or SMDT for the purpose of verifying the contractor's acceptance test (one subplot per lot).
2. Enter the appropriate testing information into the Excel spreadsheet (Asphalt Mixtures Acceptance Workbook) for transfer into KMIMS.
3. Obtain a KMIMS identification number, and transfer the Excel spreadsheet (Asphalt Mixtures Acceptance Workbook) into KMIMS, as follows:
  - a. When appropriate, select "Visual Acceptance" from the Inspection Type list. Enter the total tons being visually accepted (must be less than 1000 tons).
  - b. Select "Project Acceptance" from the Inspection Type list when any acceptance testing is performed on a specific mixture type. Enter the total tons for the lot (not to exceed 4000 tons). Enter the KMIMS identification number in the Excel spreadsheet (Asphalt Mixtures Acceptance Workbook), and transfer the completed test data into KMIMS. For approval, the mixture will be considered COMPLETE.

D. **FUNCTION OF THE DISTRICT MATERIALS ENGINEER:** Assist the Resident Engineer in verification testing when necessary.

E. **REMARKS:**

1. KYTC personnel shall not perform solvent extractions for any purpose.
2. Always use the most current version of the Excel spreadsheet (Asphalt Mixtures Acceptance Workbook) available from the Division's, AFOS or from the Division's website.

## **SUMMARY OF ACCEPTANCE REQUIREMENTS FOR MATERIALS OR PRODUCTS TESTED BY THE CHEMISTRY SECTION**

(CHEMISTRY)

### ***AASHTO M 200 EPOXY SAND SLURRY***

- A. SAMPLING FREQUENCY: No sample is required.
- B. SAMPLE METHOD: Obtain the manufacturer's certification indicating compliance with AASHTO M 200 for each lot of material used.
- C. FUNCTION OF THE RESIDENT ENGINEER:
  - 1. Obtain the manufacturer's certification and enter the appropriate information in KMIMS as CERTIFY and assign the epoxy to the project.
  - 2. See Remarks.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: If the Resident Engineer does not have access to KMIMS, enter all data and assign the material to the project.
- E. REMARKS: MATERIALS RECEIVED ON THE PROJECT:
  - 1. Containers shall be identified as "Component A- Contains Epoxy Resin" and "Component B - Contains Hardener", and shall show the type, mixing directions, and usable temperature range.
  - 2. Each container shall be marked with the name of the manufacturer, lot or batch number, date of packaging, type of pigmentation, and quantity in gallons.

(CHEMISTRY)

### ***ADHESIVE FOR RAISED PAVEMENT MARKERS***

- A. SAMPLING FREQUENCY: No Sample is Required.
- B. SAMPLE METHOD: Obtain Manufacturer's Certification from Contractor for each lot of material used.
- C. FUNCTION OF THE RESIDENT ENGINEER:
  - 1. Obtain manufacturer's certification. The written statement provided by the manufacturer of the adhesive shall certify that the material furnished conforms to the requirements of AASHTO M 237, and state the minimum temperature which the adhesive can be satisfactorily mixed and applied.

2. Allow the contractor to use the material if the certifications indicate compliance.
3. Enter the appropriate information in KMIMS. Inspection type for KMIMS is Certify.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:

E. REMARKS:

(CHEMISTRY)

**ASTM C881 EPOXIES**

A. SAMPLING FREQUENCY: Take one sample per batch per product and manufacturer. SMALL QUANTITY - may accept quantities of less than five (5) gallons, without sampling.

B. SAMPLE METHOD:

1. Obtain manufacturer's certification of compliance with ASTM C 881 through the contractor.
2. Obtain transport tubes (8-ml capacity) from the DME and fill approximately half full with epoxy. Separate tubes shall be used for each component.
3. Place the tubes with packing in a sample can to prevent breakage.

C. FUNCTION OF THE RESIDENT ENGINEER:

1. Inspect the containers and certificate of compliance to verify the product appears on the LAM.
2. Enter appropriate information in KMIMS forward sample label and sample to the Division and assign the epoxy to the project. The inspection type for KMIMS is PRJ\_ACPT. If the material is accepted without a sample the inspection type for KMIMS is CERTIFY.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:

E. REMARKS: MATERIALS RECEIVED ON THE PROJECT:

1. Shall be identified as "Component A- Contains Epoxy Resin" and "Component B - Contains Hardener", and shall show the type, mixing 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 gallons.
2. Potential hazards shall be stated on the package in accordance with the Federal Hazardous Products Labeling Acts.
3. If the epoxy is not a bid item, the material is accepted as incidental to pavement quantities.

**BRIDGE PAINTS**

- A. **SAMPLING FREQUENCY:** Obtain manufacturer's certification indicating compliance with project specific notes or specifications. Obtain a sample of each component of each batch for each shipment of paint that is to be used. If more than one batch or lot of paint is shipped to the project each batch must be sampled and tested. **SMALL QUANTITY** - May allow the use of paint contained in the KYTC's LAM based on the manufacturer's Certification, if the total project quantity does not exceed five (5) gallons.
  
- B. **SAMPLE METHOD:**
  - 1. Mix or agitate the individual components prior to obtaining the samples.
  - 2. Make sure that the one-quart sample containers are clean and dry.
  - 3. Label each sample container with the batch or lot number that the sample is taken from.
  - 4. Seal the containers tightly, to prevent leaks or moisture contamination of the materials.
  
- C. **FUNCTION OF THE RESIDENT ENGINEER:**
  - 1. Check the KYTC's LAM to determine if the Manufacturer of the paint is approved to supply products for the project.
  - 2. Obtain a sample as detailed in B. and enter the appropriate information in KMIMS. The KMIMS inspection type for this sample is Prj\_Acpt. A multi-component product is entered as one sample. For small quantities enter appropriate information in KMIMS as Certify inspection type.
  - 3. Do not allow the contractor to apply material that has not been tested and approved.
  
- D. **FUNCTION OF THE DISTRICT MATERIALS ENGINEER:**
  
- E. **REMARKS:** Any paint provided to the project in damaged containers (i.e. missing or illegible labels or batch numbers, dented, rusty, generally abused) should be rejected by the Engineer.

**CALCIUM AND SODIUM CHLORIDE**

- A. **SAMPLING FREQUENCY:** Randomly sample shipments of deicers for specification compliance at the request of the District Operations Engineer.
  
- B. **SAMPLE METHOD:**



1. Visually inspect the shipments of deicer.
  2. Obtain the sample by scraping aside the top inch of material in the stockpile or delivery truck. Scoop out approximately 2 quarts for test purposes.
  3. Obtain a copy of the Bill of Lading indicating quantity shipped and source.
- C. FUNCTION OF THE RESIDENT ENGINEER: Not applicable.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:
1. Visually inspect the shipments and obtain the samples when requested by Operations.
  2. Perform the appropriate gradation and moisture tests.
  3. Report the results to the Division of Operations. Inspection type for KMIMS is PRJ\_ACPT.
- E. REMARKS:
1. Follow the applicable Kentucky Methods for evaluations of Moisture and Gradation of the Chlorides.
  2. Specification requirements are found in the Invitation for Bid.
  3. Test costs for the analysis of this material will be charged to the Operations Account for miscellaneous items in each District.

(CHEMISTRY)

### ***CORRUGATED METAL AND SLOTTED DRAIN PIPE***

- A. SAMPLING FREQUENCY: Accept Corrugated Metal Pipe and Slotted Drain Pipe from approved fabrication facilities with Statement of Certification. A sample is only required if the pipe is fully bituminous coated. Take one sample per source of fully bituminous-coated corrugated metal pipe. DO NOT sample slotted drainpipe. DO NOT sample half-coated and paved aluminized type II pipe. DO NOT sample uncoated corrugated metal pipe (galvanized or aluminized). SMALL QUANTITY - DO NOT sample pipe if project quantities are 100 ft or less.
- B. SAMPLE METHOD:
1. Randomly choose one length of fully (bituminous) coated pipe from a shipment.
  2. Have the Contractor cut one 3-inch x 3-inch sample from the pipe.
  3. Visually inspect slotted drainpipe for conformance to specification requirements. Choose random lengths of pipe in the shipment to verify specification compliance of the bituminous coating on the pipe. The minimum coating thickness of 0.05 inches on the crest of the corrugations on the exterior of the pipe is required.

4. Visually inspect pipe that is not fully bituminous coated for conformance to specification requirements. 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.
5. The metal gauge and weight of coating shall be clearly stenciled on the pipe, verify the gauge and weight of Aluminum or Zinc coating indicated on the uncoated or half coated pipe is the same as provided on the manufacturers certification.

C. FUNCTION OF THE RESIDENT ENGINEER:

1. Check the LAM to determine if the source is approved.
2. Check the Certificate of Compliance for the County, Project Number, quantity of pipe, diameters received and Statement of Certification to AASHTO M 36 and the Kentucky Specifications.
3. Inspect pipe fabrication and asphalt coating on random lengths of pipe.
4. Enter the information in KMIMS required to assign the pipe to the project. The type of inspection in KMIMS for pipe accepted without a sample (cut from the pipe) is CERTIFY. If a sample is cut from the pipe enter the information in KMIMS with an inspection type of VERIFY through the CO. The VERIFY inspection type does not assign quantities to your project. Therefore, pipe that requires a verification sample will also require a KMIMS entry of CERTIFY to assign the quantity of pipe to the project.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:

E. REMARKS:

(CHEMISTRY)

**DELINEATORS**

- A. **SAMPLING FREQUENCY:** Obtain two button delineators per color per project per source. Barrier wall and guardrail delineators that meet the requirements of the Standard Drawing do not require sampling. **SMALL QUANTITY** - 30 delineators or less of each color may be accepted by manufacturer's certification.
- B. **SAMPLING METHOD:** Randomly select two button delineators from each color supplied to the project.
- C. **THE FUNCTION OF THE RESIDENT ENGINEER:**
  1. Obtain samples and manufacturer's certification indicating compliance with specifications.
  2. Enter appropriate information in KMIMS.

3. Forward sample label, sample, and certification to the Division for testing.
  4. For small quantities enter the appropriate data in KMIMS and accept on certification.
  5. Type of inspection in KMIMS for quantities not requiring a sample is CERTIFY.
  6. Type of inspection in KMIMS for quantities requiring a sample is PRJ\_ACPT.
- D. THE FUNCTION OF THE DISTRICT MATERIALS ENGINEER:
- E. REMARKS:

(CHEMISTRY)

***DUCTILE, CAST IRON OR ENCASEMENT PIPE AND FITTINGS***

- A. SAMPLING FREQUENCY: No sample required.
- B. SAMPLE METHOD: Obtain the certification from the Manufacturer through the Contractor.
- C. FUNCTION OF THE RESIDENT ENGINEER:
1. Inspect the pipe for defects and conformance to dimensional requirements.
  2. Obtain the written statement of certification. The written statement provided by the manufacturer of the pipe shall certify that the material furnished conforms to project requirements and all requirements for the desired application. Accept the pipe with this certification and allow its use.
  3. Type of inspection for KMIMS is Certify.
  4. Enter the appropriate information in KMIMS and assign the material to the Project.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:
- E. REMARKS: If there is a need for cross-referencing a specification not available in the district, forward all information to the Division's Chemistry Section for review prior to use.

(CHEMISTRY)

***FERTILIZER***

- A. SAMPLING FREQUENCY: A commercial fertilizer complying with the Kentucky Fertilizer

Law may be accepted on certification. If the fertilizer is not from a source that can provide evidence of compliance with this Law obtain one sample per source per project along with the manufacturer's certification.

- B. **SAMPLE METHOD:** If the material is supplied in bulk form, obtain the sample from the delivery truck or the contractors storage area. If the material is supplied in bags, obtain a representative sample from a randomly selected bag in the shipment. A one-gallon sample shoveled from the storage bin or truck into a plastic container will be adequate. Obtain the certification from the Manufacturer through the Contractor.
- C. **FUNCTION OF THE RESIDENT ENGINEER:**
1. Allow fertilizer to be used if the manufacturer's certification states it complies with the Kentucky Fertilizer Law and is sent with the shipment. If the Manufacturer is not approved a sample is required.
  2. Obtain manufacturer's certification and/or sample. Check quantities delivered to project against bid quantities. Enter the information in KMIMS and assign the appropriate quantity to the project. Type of KMIMS inspection for fertilizer accepted by certification is Certify.
  3. If a sample is required, forward the sample, the sample label and the manufacturer's certification to the Division. The type of KMIMS inspection for material requiring a sample is PRJ\_ACPT.
- D. **FUNCTION OF THE DISTRICT MATERIALS ENGINEER:**
- E. **REMARKS:** If the fertilizer is not a bid item, the material is accepted as incidental to seeding quantities.

(CHEMISTRY)

### ***FLEXIBLE DELINEATOR POSTS***

- A. **SAMPLING FREQUENCY:** No samples are required.
- B. **SAMPLE METHOD:** Obtain manufacturer's certification. The certification should state that the product is the same as tested by the National Transportation Product Evaluation Program (NTPEP) and contained on the LAM.
- C. **FUNCTION OF THE RESIDENT ENGINEER:**
1. Inspect the bundles and certificate of compliance to verify the product appears on the LAM.
  2. Enter appropriate information in KMIMS and assign the posts to the project.
  3. Type of inspection for KMIMS is Certify.

- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:
- E. 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.

(CHEMISTRY)

**GLASS BEADS FOR TEMPORARY STRIPING**

- A. SAMPLING FREQUENCY: No Field Samples Required.
- B. SAMPLE METHOD: None.
- C. FUNCTION OF THE RESIDENT ENGINEER:
1. The beads shall be evaluated by the Resident Engineer for nighttime visibility.
  2. Enter the quantities for the project in KMIMS.
  3. The type of inspection for KMIMS is VIS\_ACPT.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:
- E. REMARKS: Glass Beads for Maintenance painting contracts, applied by State forces, will be tested by the Division and approvals will be forwarded to the Districts.

(CHEMISTRY)

**HERBICIDE (2,4-D)**

- A. SAMPLING FREQUENCY:
1. Accept material on manufacturer's certification indicating compliance with specifications in contract invitation-to-bid.
  2. Obtain random one quart informational samples when requested by the District Operations Engineer.
- B. SAMPLE METHOD:
1. Sample directly from drum or pail delivered to the Operations storage barn.
  2. It should not be necessary to mix or agitate the material prior to obtaining a sample.
- C. FUNCTION OF THE RESIDENT ENGINEER: Not Applicable

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:

1. If the Operations Engineer requests sampling and testing obtain samples.
2. Enter the information in KMIMS and forward the sample and the sample label to the Division.
3. The inspection type for KMIMS is PRJ\_ACPT.

E. REMARKS: Test costs for the analysis of this material will be charged to the Operations Account for miscellaneous items in each District.

(CHEMISTRY)

**LATEX**

A. SAMPLING FREQUENCY: Obtain 2 samples at random frequencies for each pour.

B. SAMPLE METHOD:

1. Purge the lines of water.
2. Obtain liquid latex from the mobile unit lines in clean dry sample cans.
3. Do not accept latex that is not on the KYTC's LAM.
4. Obtain a copy of the manufacturer's certification. Do not allow the use of latex without a manufacturer's certification with the following information:
  - a. Manufacturer's name
  - b. Product Name
  - c. Batch and/or Lot Number
  - d. Date of Manufacturer
  - e. Chemical and Physical test results
  - f. Quantity represented
  - g. Place of manufacture
  - h. Date of test
  - i. Signature of company representative
5. Additional sampling should be done anytime water dilution is suspected.
6. 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.

C. FUNCTION OF THE RESIDENT ENGINEER:

1. Obtain the samples and the certification.
2. Enter all of the information in KMIMS.

3. Forward the sample label, certification, and the samples to the Division.
4. Type of Inspection in KMIMS for Latex samples is PRJ\_ACPT.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:

E. REMARKS:

(CHEMISTRY)

***LIME (HYDRATED LIME AND QUICK LIME)***

A. SAMPLING FREQUENCY: Obtain a sample for each 500 tons (or fraction thereof) for each source or type of lime.

B. SAMPLE METHOD:

1. Obtain the sample from the truck when unloading.
2. Use a clean dry one-quart sample can for transporting the sample to the lab.

C. FUNCTION OF THE RESIDENT ENGINEER:

1. Obtain a copy of the bill of lading.
2. Verify that the lime producer is on the current list of approved lime suppliers.
3. Allow use of the product if the supplier is on the KYTC's LAM and the bill of lading is supplied.
4. Enter the quantities for the project in KMIMS.
5. Forward the sample label and sample to the Division.
6. Type of inspection for KMIMS is Prj\_Acpt.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: If the Resident Engineer does not have access to KMIMS, enter all data and assign the material to the project.

E. REMARKS:

(CHEMISTRY)

***METAL END SECTIONS***

A. SAMPLING FREQUENCY: Samples are not required.

B. SAMPLE METHOD:

1. Obtain the manufacturer's certification indicating compliance with AASHTO M 218 for fabrication of metal end sections and AASHTO M 190 for asphalt coating.
2. Check plan sheets and standard drawings to determine if the correct design has been supplied.

C. FUNCTION OF THE RESIDENT ENGINEER:

1. Inspect the end sections for workmanship and determine if the product supplied meets the plan and the standard drawings requirements.
2. Enter appropriate information in KMIMS and assign the end sections to the project.
3. Type of inspection for KMIMS is Certify.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:

E. REMARKS:

(CHEMISTRY)

***NETTING, MATTING EXCELSIOR BLANKET, AND STAPLES***

A. SAMPLING FREQUENCY: No sample is required.

B. SAMPLE METHOD:

1. Visually inspect netting, wood and staples for acceptance.

C. FUNCTION OF THE RESIDENT ENGINEER:

1. Visually inspect these items for conformance to the applicable requirements.
2. Enter in KMIMS the quantities accepted for installation on the project.
3. Type of Inspection for KMIMS is Vis\_Acpt.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:

E. REMARKS: If these products are not listed as specific bid items they are considered incidental to seeding quantities.

(CHEMISTRY)



## **OBJECT MARKERS**

- A. SAMPLING FREQUENCY: No sample is required.
- B. SAMPLING METHOD: None.
- C. THE FUNCTION OF THE RESIDENT ENGINEER:
  - 1. Review LAM to determine if the reflective sheeting material is supplied by an approved source.
  - 2. Check the marker sheeting face to ensure the presence of a design characteristic of the manufacturer's materials.
  - 3. Visually inspect the marker for shipment damage, discoloration, sheet wrinkles and air between the sheeting and the sign substrate or blank.  
  
Note: Acceptable grade of sheeting for object marker:  
High Intensity Type III
  - 4. Enter all information required in KMIMS and assign the material to the project.
  - 5. Type of Inspection for KMIMS is VIS\_ACPT.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:
- E. REMARKS:

(CHEMISTRY)

## **RAISED PAVEMENT MARKERS**

- A. SAMPLING FREQUENCY: Sample is not required.
- B. SAMPLE METHOD: None.
- C. FUNCTION OF THE RESIDENT ENGINEER:
  - 1. Review the KYTC LAM to make sure the products are on the appropriate list of raised pavement markers.
  - 2. Randomly check markers to determine if the dimensions meet the specification requirements.
  - 3. Enter the information in KMIMS and assign the appropriate quantity to the project.
  - 4. Allow the markers to be used if the markers are on the KYTC's LAM and the manufacturer's Certification is supplied.

5. Type of inspection for KMIMS is VIS\_ACPT.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:

E. REMARKS: If the Resident Engineer determines that the raised pavement markers do not meet specification requirements for dimensions or if the lenses of the markers are damaged or scratched reject the products.

(CHEMISTRY)

### **REINFORCING BAR GROUT ADHESIVES**

A. SAMPLING FREQUENCY: Sampling is not required but may be done at the discretion of the Resident Engineer. If the Resident Engineer elects to sample the material, obtain samples at the rate of one sample per batch per product and manufacturer.

B. SAMPLE METHOD:

1. Obtain transport tubes (8-ml capacity) from the DME and fill approximately half full.
2. Use Separate tubes for each component.
3. Place the tubes (with packing) in a sample can to prevent breakage.
4. Obtain samples so that the mix ratio of the remaining adhesive is not altered.

C. FUNCTION OF THE RESIDENT ENGINEER:

1. Inspect the containers and to verify KYTC's List of Approved Materials status and appropriate markings on the containers.
2. Enter appropriate information in KMIMS forward sample label and sample to the Division and assign the material to the project.
3. If the Resident Engineer elects not to sample the material, after verifying the product appears on the LAM, enter the information in KMIMS and assign the material to the project.
4. Type of Inspection for KMIMS is PRJ\_ACPT for materials.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:

E. REMARKS:

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

2. 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.
3. Potential hazards shall be stated on the package in accordance with the Federal Hazardous Products Labeling Acts.

(CHEMISTRY)

**SIGN SHEETING AND SUBSTRATE**

- A. SAMPLING FREQUENCY: No sample is required.
- B. SAMPLING METHOD: None.
- C. THE FUNCTION OF THE RESIDENT ENGINEER:
  1. Review LAM to determine if the material is supplied by an approved source.
  2. Check the sign sheeting face, border and legend to ensure the presence of a design characteristic of the manufacturer's materials.
  3. Visually inspect the sign for shipment damage, discoloration, sheet wrinkles and air between the sheeting and the sign substrate or blank.

Note: Acceptable grades of sheeting for:

"LOW SHOULDER" signs	Engineering Grade (or better)
All permanent signs	High Intensity Type III
Construction Zone Signing	Florescent Grade

4. Enter all information required in KMIMS and assign the material to the project.
5. Type of Inspection for KMIMS is VIS\_ACPT.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:
- E. REMARKS:

(CHEMISTRY)

**STRIPING TAPE (PERMANENT)**

- A. SAMPLING FREQUENCY: No sample is required.
- B. SAMPLE METHOD: None.
- C. FUNCTION OF THE RESIDENT ENGINEER:

1. Review manufacturer's certificate of compliance to verify that the product meets specification requirements.
2. Enter appropriate information in KMIMS and assign the material to the project.
3. Type of inspection for KMIMS is Certify.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:

E. REMARKS:

(CHEMISTRY)

***STRIPING TAPE (TEMPORARY)***

A. SAMPLING FREQUENCY: No sample is required.

B. SAMPLE METHOD: None.

C. FUNCTION OF THE RESIDENT ENGINEER:

1. Verify the product appears on the LAM.
2. Enter appropriate information in KMIMS and assign the material to the project.
3. Type of inspection for KMIMS is VIS\_ACPT.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:

E. REMARKS:

1. Temporary pavement marking tapes are approved based on performance of these products on the National Transportation Product Evaluation Program test deck.
2. If these products perform poorly on the project (i.e. do not stay in place, are difficult to remove etc.) report this to the Division.
3. This information is necessary to remove substandard products from the KYTC's LAM.

(CHEMISTRY)

***STRUCTURAL STEEL, STRUCTURAL PLATE FOR PIPES, PIPE ARCHES, SIGN BASE MATERIAL, AND OTHER RELATED MATERIALS FOR BRIDGES, SIGNING AND OTHER BUILDING STRUCTURES***

A. SAMPLING FREQUENCY: No sample is required.

- B. **SAMPLE METHOD:** Accept material on manufacturer's certification indicating compliance with appropriate ASTM or AASHTO specifications and notarized mill reports. Obtain documentation and submit to the Division of Construction for approval prior to permitting use of the materials.
- C. **FUNCTION OF THE RESIDENT ENGINEER:**
1. Reviews the manufacturer's certificate of compliance and mill test reports.
  2. Contact the Division of Construction to determine what sampling is required if the material is not adequately covered by the manufacturer's documentation.
  3. Enter appropriate data in KMIMS to assign the steel to the project.
  4. Type of inspection for KMIMS is Certify.
- D. **FUNCTION OF THE DISTRICT MATERIALS ENGINEER:** NONE
- E. **REMARKS:**
1. The manufacturer submits mill test reports and/or certification directly to the Division of Construction or Resident Engineer.
  2. The Division of Construction reviews reports and advises the Resident Engineer, TEBM for Construction and Materials Division of their approval.
  3. It is the contractor's responsibility to insure that all required reports are submitted.

(CHEMISTRY)

***THERMOPLASTIC (SCREED EXTRUDED OR HOT SPRAY)***

- A. **SAMPLING FREQUENCY:** No field sample is required.
- B. **SAMPLE METHOD:** Obtain manufacturer's certification indicating compliance with specifications.
- C. **FUNCTION OF THE RESIDENT ENGINEER:**
1. Review certificate of compliance to verify that the product meets specification requirements.
  2. Check project data in KMIMS to determine if the material has been tested and assigned to the project by the Division.
  3. If material is not assigned to project through the Division do not permit use. Contact the Division for further instructions.
- D. **FUNCTION OF THE DISTRICT MATERIALS ENGINEER:** If the Resident Engineer does not have access to KMIMS, check all data in KMIMS.

- E. REMARKS: If the Resident Engineer is unfamiliar with the application procedures for Screed or Spray application of Thermoplastic Pavement Marking materials, contact Materials or Traffic Divisions for assistance.

(CHEMISTRY)

**TRAFFIC PAINT (*Permanent & Temporary*) FOR RESURFACING OR REHABILITATION**

**PROJECTS**

- A. SAMPLING FREQUENCY: One sample per color per project is required.
- B. SAMPLE METHOD: Sample shall be taken from the paint striper gun.
- C. FUNCTION OF THE RESIDENT ENGINEER:
1. Inspect the containers and certificate of compliance to verify material meets requirements of Section 842.
  2. Enter appropriate information in KMIMS and assign the paint to the project and forward to the Division.
  3. Inspection type for KMIMS is Verify with a 0.0 quantity for the sample. CERTIFY inspection type is used to assign quantities to the project.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:
- E. REMARKS:

(CHEMISTRY)

**VARIABLE MESSAGE SIGNS**

- A. SAMPLING FREQUENCY: No Sample is Required.
- B. SAMPLE METHOD:
- C. FUNCTION OF THE RESIDENT ENGINEER:
1. Visually inspect and determine that signs are on KYTC's LAM for Variable Message Signs.
  2. Document visual inspection in Project file and assign the correct number of signs to the project through KMIMS.
  3. Inspection type for KMIMS is Vis\_Acpt.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:

E. REMARKS: Variable Message Signs includes message boards and flashing arrows.

(CHEMISTRY)

**WATER**

A. SAMPLING FREQUENCY: One sample per source per project. Municipal water sources do not require testing.

B. SAMPLE METHOD: Obtain a sample from the pump or inlet lines.

C. FUNCTION OF THE RESIDENT ENGINEER:

1. Obtain a one-quart sample and enter the appropriate information in KMIMS.
2. Forward the sample and the sample label to the Division.
3. If a municipal water source is used no data entry is required.
4. Type of inspection for KMIMS is PRJ\_ACPT for any samples obtained for analysis.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:

E. REMARKS:

# **SUMMARY OF ACCEPTANCE REQUIREMENTS FOR MATERIALS OR PRODUCTS TESTED BY THE CONCRETE/CEMENT SECTION**

## ***GENERAL NOTES FOR THE CONCRETE AND CEMENT SECTION***

### **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 form TC 64-317.

### **TRANSIT MIX CONCRETE SOURCE, APPROVAL OF**

1. Approval inspections are made by the DME and/or the Division when one of the following occur:
  - \*a. New plants are proposed for use.
  - \*b. Previously used plants are modified in their operations.
  - \*c. Previously approved plants are moved.
  - d. The inspection is requested or deemed necessary by the Resident Engineer.

\*Note: The DME should be present for this inspection.
2. Function of the Resident Engineer:
  - a. Verify that the source and brand name of each ingredient material is included on the KYTC's LAM and include on the plant inspection form TC 63-2. Also indicate the fly ash type, admixture type, the date the scales were certified, verify the time and distance from the plant to the project, and obtain the contractor's signature on the plant inspection form TC 63-2.



- b. Submit a completed TC 63-2 form to the DME and await approval before permitting use of the plant.
  - c. Assist the DME and/or the Division with inspection if plant is not currently approved.
3. Function of the District Materials Engineer:
- a. The DME and/or the Division representative inspects each plant's physical makeup for conformance to applicable specifications and reports results on the TC 64-602 form which is to be maintained on file by the DME and the Division.
  - b. Maintain scale and water measuring device reports on form TC 64-316 and keep on file.
  - c. Review the information on the TC 63-2 form and verify that all ingredient materials are included on the KYTC's LAM. If the inspection reports on file (TC 64-602 and TC 64-316) indicate the plant is currently approved and that scales and water measuring device inspections are current within six months, the DME signs the TC 63-2 form and submits it to the TEBM for Construction for final approval. If the plant is not currently approved, the DME and/or the Division makes an inspection before signing the TC 63-2 form. Also, if the scale and water measuring device inspection is not current within six months, notify the plant and obtain a satisfactory inspection report (TC 64-316).
4. The DME or a Division representative shall be present when scales and water measuring device inspections take place to verify that the inspection is performed in accordance with procedures outlined in the Concrete Plant Checklist.

#### CHECK ON CONTRACTOR'S EQUIPMENT FOR CEMENT CONCRETE PAVEMENT

- 1. The plant and equipment shall be inspected prior to use on the project. Plant approval inspections are reported on TC 64-602 with copies to Resident Engineer and DME.
- 2. Function of the Resident Engineer:
  - a. Notify the DME that an inspection is needed.
  - b. Perform a joint inspection with materials' personnel.
  - c. Inspect the concrete plant according to items listed on TC 64-602. Scales and water measuring device inspections are reported on TC 64-316 with copies maintained by Resident Engineer, DME, and the 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.

## MIX DESIGN PROPORTIONS

1. Aggregate shall be from a source on the Aggregate Source List. See Aggregate Section for frequency of Quality Samples.
2. See AASHTO T2 for sampling of Aggregates for mix design purposes.
3. Function of the Resident Engineer:
  - a. Mix Designs:
    1. Obtain a copy of the producer's KRMCA II and ACI Level I identification cards or certificates of certification.
    2. Obtain the required mix design form TC 64-305 or printouts from the Division's mix design program from the producer's KRMCA Level II technician.
    3. A qualified KRMCA Level II RE or DME reviews the mix design to verify that material ingredients are on the KYTC's LAM and checks to insure the design meets all applicable subsections of the specifications for the project. Materials, calculations, aggregate sizes and quantities shall be checked before approval. Note: Before final approval is granted, the RE or DME checks the "Aggregate Restriction List" to insure that the aggregate sources submitted do not have restrictions for the intended application.
    4. Special mix designs are forwarded to the Division for approval.
  - b. Inform the DME of anticipated concrete pours in sufficient time to allow for required sampling and testing of aggregate. Receive and file the required test reports.
5. Function of the District Materials Engineer:
  - a. Sample the aggregate and perform the required tests. The DME may make arrangements with the Resident Engineer to perform the sampling of aggregates.
  - b. Perform specific gravity and absorption tests on fine and coarse aggregates being used at the concrete plants.

- c. Check the mix design as outlined in 3.a.3. if not previously approved by the RE. Continued approval is contingent upon satisfactory jobsite test results and compliance with compressive strength requirements.
- 6. The DME reports field quality tests on a KMIMS form. The Division reports quality sample test results by computer printout.
- 7. Quality acceptance by partial payment shall be according to the general requirements at the beginning of this manual.

(CONCRETE/CEMENT)

**ADMIXTURES FOR CONCRETE (AIR ENTRAINING ADMIXTURES AND TYPES A,C,D,E,F & G CONCRETE ADMIXTURES)**

- A. SAMPLING FREQUENCY: No sample is required.
- B. SAMPLE METHOD: None
- C. FUNCTION OF THE RESIDENT ENGINEER:
  - 1. Verify the brand names of admixtures by visual inspection of containers.
  - 2. Check current KYTC LAM to determine that the brand is included.
  - 3. Enter information into KMIMS as CONCR-DO with an inspection type of VIS\_ACPT.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Indicates PASS/FAIL in KMIMS.
- E. REMARKS: Yearly samples are required for prestress and precast concrete plants. In this case, enter into KMIMS with an inspection type of INFORM.

(CONCRETE/CEMENT)

**CEMENT, PORTLAND (ALL TYPES)**

- A. SAMPLING FREQUENCY:
  - 1. Structural, Incidental, and Overlay mixtures: one sample per 650 yd<sup>3</sup> placed or fraction thereof, for each brand and type cement.
  - 2. Pavement: one sample per 6000 yd<sup>2</sup> placed concrete or fraction thereof, for each brand and type of cement.
  - 3. Pavement Drainage Blanket (Cement Treated): one sample per 12000 yd<sup>2</sup> or fraction thereof, for each brand and type of cement.
  - 4. Subgrade Stabilization: one sample per 1000 ton or fraction thereof, for each brand and type of cement.

5. Precast and Prestress plants: one sample monthly.
6. Concrete Pipe plants: one sample quarterly.
7. Small Quantities - 50 yd<sup>3</sup> or less for Structural concrete and 500 yd<sup>2</sup> or less for Pavement will not require a sample, but will require a certification or bill of lading and completed sample identification form.

B. **SAMPLE METHOD (POINT OF SAMPLING):** At destination (in the field ) for all construction projects, obtain a 1 gallon check sample according to KM 64-316. Obtain approximately one-half of the total project samples from the concrete plant weigh hopper or storage bin and the other one-half from the cement transport truck.

C. **FUNCTION OF THE RESIDENT ENGINEER:**

1. Verify that cement is on KYTC's LAM prior to permitting use of cement.
2. For PCC pavement projects, obtain a copy of bill of lading and signed certification stating the cement conforms to the specifications for each lot of cement.
3. For other types of construction, obtain a copy of bill of lading and signed certification stating the cement conforms to the specifications for those loads used in KYTC work. Verify that certification refers to proper bill of lading number.
4. All cement samples shall be accompanied with bill of lading, signed certification, and completed sample identification form and shall be submitted to DME. Use Bill of Lading for the Batch Number.
5. Enter information into KMIMS as CONCR-CO with an inspection type of PRJ\_ACPT or into KMIMS as CONCR-DO with an inspection type of CERTIFY for small quantities.

D. **FUNCTION OF THE DISTRICT MATERIALS ENGINEER:** Forward samples and KMIMS form to the Division for testing.

E. **REMARKS:**

(CONCRETE/CEMENT)

### **CONCRETE BOX CULVERTS**

A. **SAMPLING FREQUENCY:** No sample is required.

B. **SAMPLE METHOD:** None.

C. **FUNCTION OF THE RESIDENT ENGINEER:**

1. Inspect for conformity with dimensional requirements, freedom from defects, and presence of the Kentucky Oval Approval Stamp.

2. The Kentucky Oval Approval Stamp is evidence that the culvert:
  - a. has been inspected,
  - b. is approved, contingent on the absence of transportation injuries, and,
  - c. may be installed without awaiting reports.
3. Tentatively reject any members without the Kentucky Oval Approval Stamp and contact the DME immediately.
4. Enter box culvert items into KMIMS as CONCR-DO with an inspection type of VIS\_ACPT.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:

1. The DME or plant inspector samples ingredients and appurtenances thereof used in the manufacture of each box culvert.
2. The DME or plant inspector checks placement of reinforcement, observes and supervises preparation of compressive strength specimens, verifies proper curing procedures, checks finished product for freedom from defects and conformance to dimensional requirements, and stamps approved products with the KY Oval Approval Stamp.

E. REMARKS: Test reports for ingredients and appurtenances thereof used in the manufacture of the various concrete products are not distributed as part of the official test report for the finished product.

(CONCRETE/CEMENT)

**CONCRETE OVERLAYS (LATEX CONCRETE OVERLAYS AND LOW SLUMP CONCRETE OVERLAYS)**

A. SAMPLING FREQUENCY:

1. Air Content Test, Slump Test, Temperature, and Cylinders (Set of 2 for 6x12's or set of 3 for 4x8's) - One each per 25 yd<sup>3</sup> or fraction thereof per day.
2. Thickness (Newly Constructed Decks Only) - One (1) core per 50 linear feet of deck.
3. Density (Low Slump Concrete Overlays Only) - One (1) test per 50 linear feet for placement widths of 15 ft or less. One (1) per 25 linear feet for placement widths greater than 15 ft. Air content tests are required each time a density test is taken.
4. Aggregate - See Concrete Mixture Aggregate
5. Cement - See Cement

6. Fly Ash - See Fly Ash

7. Latex - See Latex

**B. SAMPLING METHOD:**

1. Air Content Test - See KM 64-303.

2. Slump Test - See KM 64-302.

3. Cylinders - See KM 64-305.

4. Thickness (Newly Constructed Decks Only) - See KM 64-315.

5. Density (Low Slump Concrete Overlays Only) - Perform density tests on plastic concrete using nuclear density equipment, See Section 606.03.18 of the Specifications.

**C. FUNCTION OF THE RESIDENT ENGINEER:**

1. Sample concrete at the site of construction operations and perform air content, slump and temperature tests. Mold, cure, and submit cylinders, with completed KMIMS form, to the DME.

2. Perform density tests (on Low Slump Concrete Overlays only).

3. Enter information into KMIMS as CONCR-DO with an inspection type of PRJ\_ACPT.

**D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:**

1. Materials representative may assist the Project Inspector in performing air content tests, slump tests, temperature, and molding cylinders.

2. Perform the compressive strength test on submitted cylinders and report the results to the Resident Engineer on the KMIMS form.

3. Indicate PASS/FAIL based on test results.

4. Furnish specific gravities to the Resident Engineer (for density calculations) and enter information into KMIMS with an inspection type of PRJ\_ACPT.

**E. REMARKS:**

1. Air content, slump and temperature test results shall be reported on the KMIMS form to the project file. Air content, slump and temperature results obtained from batches from which cylinders are cast should also be shown on the KMIMS form submitted with specimens for testing.

2. Submit cylinders to the DME. Cylinders may be moved after 4 days of field curing and should be received at the applicable laboratory to be tested at 7 days.

3. The DME cores and reports results on the KMIMS form to the Resident Engineer, the DME's project file, and records appropriate information into KMIMS.
4. Actual "in place" density data is recorded and distributed.

(CONCRETE/CEMENT)

**CONCRETE; AA, AAA, D, D MODIFIED, AND S**

**A. SAMPLING FREQUENCY:**

1. Start up Frequency: Test the first production unit daily for each class (usually a truck load) and any one of the next four for slump, air content, and temperature.
2. Air Content Test, Slump Test, Temperature, and Cylinders (Set of 2 for 6x12's or set of 3 for 4x8's)
  - a. After satisfactory control is established, one each for each 50 yd<sup>3</sup> per class daily.
  - b. When the randomly selected production unit falls outside specification limits, the above listed start up frequency (respective to the class of concrete) will be resumed until the required number of production units meet the specifications.
  - c. If time and personnel permit, one (1) air content and one (1) slump test per 25 yd<sup>3</sup> is recommended on bridge decks.
  - d. Record the temperature and perform slump and air tests on all batches from which concrete cylinders are cast.
3. Small Quantity: Applicable to non-structural quantities of less than 15 yd<sup>3</sup> per class per day. No tests are required unless concrete quality is in question.
4. Removal of Falsework or Putting a Structure into Service - cast as many cylinders as deemed necessary by the Project Engineer, but always in sets of two for 6x12's or sets of 3 for 4x8's.
5. IAS: See the IAS Section.
6. Cement - See Cement
7. Aggregate - See Concrete Mixture Aggregate
8. Fly Ash - See Fly Ash
9. Microsilica – See Microsilica
10. GGBFS – See Ground Granulated Blast Furnace Slag

**B. SAMPLING METHOD:**

1. Air Content: See KM 64-303
2. Slump Test: See KM 64-302
3. Sampling Fresh Concrete: See KM 64-301
4. Temperature: See KM 64-318
5. Cylinders: See KM 64-305
6. Cement - See Cement
7. Aggregate - See Concrete Mixture Aggregate
8. Fly Ash - See Fly Ash
9. Microsilica – See Microsilica
10. GGBFS – See Ground Granulated Blast Furnace Slag

C. FUNCTION OF THE RESIDENT ENGINEER:

1. The Project Inspector, at the site of construction operations, samples the concrete, performs slump, air content, and temperature tests according to the appropriate Kentucky Methods.
2. The Project Inspector prepares compressive strength specimens (cylinders) according to the Kentucky Method 64-305.
3. The Resident Engineer submits the specimens and KMIMS form to the DME.
4. The identification of each cylinder shall be written on the bottom of the cylinder with a marker after removal from the mold. The county and project number should be written on the specimen before submission.
5. Enter information into KMIMS as CONCR-DO with an inspection type of PRJ\_ACPT.
6. For small quantities, enter information into KMIMS as CONCR-DO with an inspection type of VIS-ACPT.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:

1. A materials representative may assist the Project Inspector in performing the slump, air content, and temperature tests.
2. A materials representative performs the compressive strength test.
3. Test results for cylinders are reported to the Resident Engineer by the DME.
4. Indicates PASS/FAIL in KMIMS.



- E. REMARKS: Slump, air content, and temperature tests should be reported on a KMIMS form. Slump, air content, and temperature results obtained from batches from which cylinders were cast should also be shown on the KMIMS form submitted with the specimens for testing.

(CONCRETE/CEMENT)

**CONCRETE; CLASS A, A MODIFIED AND B**

A. SAMPLING FREQUENCY:

1. Start up Frequency: Test the first production unit daily for each class (usually a truck load) and any one of the next four (4) for slump, air content, and temperature.
2. Air Content Test, Slump Test, Temperature, and Cylinders (Set of 2 for 6x12's or set of 3 for 4x8's)
  - a. After satisfactory control is established, one each for each 100 yd<sup>3</sup> per class daily.
  - b. When the randomly selected production unit falls outside specification limits, the above listed start up frequency will be resumed until the required number of production units meet the specifications.
  - c. Slump and air tests shall be performed on all batches from which concrete cylinders are cast.
3. Small Quantity: applicable to non-structural quantities of less than 15 yd<sup>3</sup> per class per day. No tests are required unless concrete quality is in question.
4. Removal of Falsework or Putting a Structure into Service: cast as many cylinders as deemed necessary by the Project Engineer, but always in sets of two for 6x12's or sets of 3 for 4x8's.
5. IAS: See the IAS section.
6. Cement: See Cement
7. Aggregate: See Concrete Mixture Aggregate
8. Fly Ash: See Fly Ash
9. Microsilica: See Microsilica
10. GGBFS: See Ground Granulated Blast Furnace Slag

B. SAMPLING METHOD:

1. Air Content: See KM 64-303

2. Slump Test: See KM 64-302
3. Sampling Fresh Concrete: See KM 64-301
4. Temperature: See KM 64-318
5. Cylinders: See KM 64-305
6. Cement: See Cement
7. Aggregate: See Concrete Mixture Aggregate
8. Fly Ash: See Fly Ash
9. Microsilica: See Microsilica
10. GGBFS: See Ground Granulated Blast Furnace Slag

C. FUNCTION OF THE RESIDENT ENGINEER:

1. The Project Inspector, at the site of construction operations, samples the concrete, performs slump, air content, and temperature tests according to the appropriate Kentucky Methods.
2. The Project Inspector prepares compressive strength specimens (cylinders) according to the Kentucky Method 64-305.
3. The Resident Engineer submits the specimens and KMIMS form to the DME.
4. The identification of each cylinder shall be written on the bottom of the cylinder with a marker after removal from the mold. The county and project number should be written on the specimen before submission.
5. Enter information into KMIMS as CONCR-DO with an inspection type of PRJ\_ACPT.
6. For small quantities, enter information into KMIMS as CONCR-DO with an inspection type of VIS-ACPT.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:

1. A materials representative may assist the Project Inspector in performing the slump, air content, and temperature tests.
2. A materials representative performs the compressive strength test.
3. Test results for cylinders are reported to the Project Engineer by the DME.
4. Indicates PASS/FAIL in KMIMS.

E. REMARKS: Slump, air content, and temperature results obtained should be shown on the KMIMS form submitted with the specimens for testing.

**CONCRETE - CLASS "P" (NON QC/QA)**

A. SAMPLING FREQUENCY:

1. Start Up Frequency: Test the first production unit daily and any one of the next four (4) for slump, air content, and temperature.
2. Air Content Test, Slump Test, Temperature, and Cylinders (Set of 2 for 6x12's or set of 3 for 4x8's)
  - a. After satisfactory control is established, one each for each 2500 square yards daily.
  - b. When the randomly selected production unit falls outside specification limits, the above start up frequency will be resumed until the required number of production units meet the specification.
3. Perform air content test and slump and record the temperature on all batches from which cylinders are made.
4. IAS: See the IAS Section.
5. The Division, DME, (or contractor) takes cores for thickness in accordance to the frequency established in KM 64-309.
6. Cement: See Cement Section
7. Aggregate: See Aggregate Section
8. Fly Ash: See Fly Ash Section
9. Microsilica: See Microsilica
10. GGBFS: See Ground Granulated Blast Furnace Slag

B. SAMPLING METHOD:

1. Air Content Test: See KM 64-303
2. Slump Test: See KM 64-302
3. Sampling Fresh Concrete: See KM 64-301
4. Temperature: See KM 64-318
5. Cylinders: See KM 64-305

6. Cement: See Cement Section
7. Aggregate: See Aggregate Section
8. Fly Ash: See Fly Ash Section
9. Thickness Measurements: Core Drilling: See KM 64-309
10. Microsilica: See Microsilica
11. GGBFS: See Ground Granulated Blast Furnace Slag

C. FUNCTION OF THE RESIDENT ENGINEER:

1. Air Content Test, Slump Test, and Temperature: The project inspector, at the site of construction operations, samples the concrete and performs testing according to the referenced Kentucky Methods.
2. Cylinders:
  - a. The project inspector, at the site of construction operations, prepares specimens according to KM 64-305.
  - b. The Resident Engineer submits the specimens and KMIMS form to the DME.
  - c. The identification of each cylinder shall be written on the bottom of the cylinder with a marker after removal from the mold. The county and project number should be written on the specimen before submission.
3. Enter information into KMIMS as CONCR-DO with an inspection type of PRJ\_ACPT.
4. Thickness Measurements:
  - a. When coring for Rigid Pavement is required by specification, the Resident Engineer notifies the Division and/or the DME that the project is ready for coring.
  - b. Coring is performed according to KM 64-309, "Coring Rigid Pavement for Thickness."
  - c. Measurement of all cores is performed according to KM 64-308, "Method of Measuring Length of Drilled Cores."
  - d. Enter the appropriate information into KMIMS as CONCR-DO with an inspection type of PRJ\_ACPT.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:

1. A materials representative may assist the Project Inspector in performing slump, air content and temperature tests.
2. A materials representative performs the compressive strength test.

3. Test results for cylinders are reported to the Resident Engineer by the DME.
  4. Indicates PASS/FAIL in KMIMS.
- E. REMARKS: Thickness Measurements: For projects of less than 2,500 yd<sup>2</sup>, cores are not required.

(CONCRETE/CEMENT)

**CONCRETE - CLASS "P" (QC/QA NOTE)**

A. SAMPLING FREQUENCY:

1. Verification Sampling Frequency – One set of tests per every eight acceptance tests made by the contractor. A test includes air content, slump, temperature and a set of cylinders (set of two for 6x12's or set of 3 for 4x8's).
2. When the verification test falls outside the tolerance limits, the discrepancy must be resolved.
3. IAS: See the IAS Section.
4. The Division, DME, (or contractor) takes cores for thickness in accordance to the frequency established in KM 64-309.
5. Cement: See Cement Section
6. Aggregate: See Aggregate Section
7. Fly Ash: See Fly Ash Section
8. Microsilica: See Microsilica
9. GGBFS: See Ground Granulated Blast Furnace Slag

B. SAMPLING METHOD:

1. Air Content Test: See KM 64-303
2. Slump Test: See KM 64-302
3. Sampling Fresh Concrete: See KM 64-301
4. Temperature: See KM 64-318
5. Cylinders: See KM 64-305
6. Cement: See Cement Section

7. Aggregate: See Aggregate Section
8. Fly Ash: See Fly Ash Section
10. Thickness Measurements: Core Drilling: See KM 64-309
10. Microsilica: See Microsilica
11. GGBFS: See Ground Granulated Blast Furnace Slag

C. FUNCTION OF THE RESIDENT ENGINEER:

1. The Project Inspector, at the site of construction operations, samples the concrete, performs verification slump, air content, and temperature tests according to the appropriate Kentucky Methods.
2. The Project Inspector prepares verification compressive strength specimens (cylinders) according to Kentucky Method 64-305.
3. Insure the project acceptance and the verification tests are within the specified tolerances.
4. The Resident Engineer submits the specimens and KMIMS form to the DME.
5. The identification of each cylinder shall be written on the bottom of the cylinder with a marker after removal from the mold. The county and project number should be written on the specimen before submission.
6. Enter information into KMIMS as CONCR-DO with an inspection type of VERIFY.
7. Enter the results from the contractor's testing into KMIMS as CONCR-DO with an inspection type of PRJ\_ACPT.
8. Thickness Measurements:
  - a. When coring for Rigid Pavement is required by specification, the Resident Engineer notifies the Division and/or the DME that the project is ready for coring.
  - b. Coring is performed according to KM 64-309, "Coring Rigid Pavement for Thickness."
  - c. Measurement of all cores is performed according to KM 64-308, "Method of Measuring Length of Drilled Cores."
  - d. Enter the appropriate information into KMIMS as CONCR-DO with an inspection type of PRJ\_ACPT.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:

1. A materials representative may assist the Project Inspector in performing slump, air content and temperature tests.
  2. A materials representative performs the compressive strength test.
  3. Test results for cylinders are reported to the Resident Engineer by the DME.
  4. Indicates PASS/FAIL in KMIMS.
- E. REMARKS: Thickness Measurements: For projects of less than 2,500 yd<sup>2</sup>, cores are not required.

(CONCRETE/CEMENT)

**CONCRETE MEMBERS; ALL PRESTRESSED AND PRECAST UNITS EXCLUDING CONCRETE PIPE AND BOX CULVERTS**

- A. SAMPLING FREQUENCY: No sample is required.
- B. SAMPLE METHOD: None.
- C. FUNCTION OF THE RESIDENT ENGINEER:
1. Inspect for conformity with dimensional requirements, freedom from defects, and presence of the Kentucky Oval Approval Stamp.
  2. The Kentucky Oval Approval Stamp is evidence that the member:
    - a. has been inspected,
    - b. is approved, contingent on the absence of transportation injuries, and,
    - c. may be installed without awaiting reports.
  3. Tentatively reject any members without the Kentucky Oval Approval Stamp and contact the DME immediately.
  4. Enter precast items into KMIMS as CONCR-DO with an inspection type of VIS\_ACPT.
  5. No KMIMS entry is required for Prestressed items.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:
1. The DME or plant inspector samples ingredients and appurtenances thereof used in the production of each particular item.
  2. The DME or plant inspector checks pretensioning, checks placement of reinforcement, observes and supervises preparation of compressive strength specimens, verifies proper curing procedures, checks finished product for freedom from defects and conformance to

dimensional requirements, and stamps approved products with the Kentucky Oval Approval Stamp.

3. Enter Prestressed items into KMIMS as CONCR-DO with an inspection type of PRJ\_ACPT.
  4. Plant inspection of Precast items is not entered into KMIMS.
- E. REMARKS: Test reports for ingredients and appurtenances thereof used in the production of the various concrete products are not distributed as part of the official test report for the finished product

(CONCRETE/CEMENT)

### ***CURING COMPOUNDS***

- A. SAMPLING FREQUENCY: One sample taken randomly for each 2000 gallons per project for verification testing. Small Quantities - Projects utilizing 110 gallons (2 Drums) or less do not require samples to be submitted by the Resident Engineer. The signed certification is placed in the Project File.
- B. SAMPLE METHOD: Obtain 3/4 of a quart in a 1 quart container.
- C. FUNCTION OF THE RESIDENT ENGINEER:
1. Determine if the producer is on the KYTC's LAM.
  2. Review the signed certification and test data (moisture loss, unit weight, reflectance for type II only) that is required to be furnished for each lot in each shipment for compliance to the following Test Data Limits:
    - a. Moisture Loss - 0.55 kg/m<sup>2</sup> or 0.055 g/cm<sup>2</sup> (maximum)
    - b. Unit Weight - No specific requirement
    - c. Reflectance - 60% minimum
  3. If acceptable, the curing compound may be used immediately.
  4. If the producer is not on the KYTC's LAM the compound shall be rejected and removed from the jobsite.
  5. Submit sample and Curing Compound Test Report to the DME.
  6. Enter information into KMIMS as CONCR-CO with an inspection type of PRJ\_ACPT.
  7. Enter information into KMIMS as CONCR-DO with an inspection type of CERTIFY for small quantities.



D. **FUNCTION OF THE DISTRICT MATERIALS ENGINEER:** Forward sample and completed Curing Compound Test Report to the Division for testing.

E. **REMARKS:**

1. Special Sampling Instructions - Type II Curing Compounds must be supplied in agitating type drums. When supplied in 5-gallon pails, agitating type containers are not required. Curing Compounds tend to settle (especially Type II). Therefore, the drum(s) should be thoroughly agitated before sample is taken.
2. All shipments will be subject to retest:
  - a. Twelve (12) months after date of initial testing or
  - b. when they have been exposed to freezing conditions.
3. Partial drums or individual containers which show evidence of having been previously opened shall be sampled and tested prior to use.

***CURING MATERIALS FOR CONCRETE***

(CONCRETE/CEMENT)

**BURLAP**

A. **SAMPLING FREQUENCY:** No sample is required.

B. **SAMPLING METHOD:** None.

C. **FUNCTION OF THE RESIDENT ENGINEER:**

1. Visually inspect the burlap. Burlap shall be free from cuts, tears, broken or missing yarns, thin, open or weak places, grease spots or stains.
2. No documentation of approval is required.

D. **FUNCTION OF THE DISTRICT MATERIALS ENGINEER:** None

E. **REMARKS:**

(CONCRETE/CEMENT)

**WATERPROOF PAPER**

A. **SAMPLING FREQUENCY:** No sample is required.

B. SAMPLING METHOD: None.

C. FUNCTION OF THE RESIDENT ENGINEER:

1. Visually inspect the waterproof paper. Waterproof paper shall consist of two (2) sheets of plain Kraft paper cemented together with a bituminous material. The paper shall be light in color, free of visual defects, and shall have a uniform appearance. It shall be sufficiently strong and tough to permit its use without tearing.
2. No documentation of approval is required.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: None.

E. REMARKS:

(CONCRETE/CEMENT)

#### POLYETHYLENE COATED BURLAP AND WHITE POLYETHELENE SHEETING

A. SAMPLING FREQUENCY: No sample is required.

B. SAMPLING METHOD: None.

C. FUNCTION OF THE RESIDENT ENGINEER:

1. Visually inspect the polyethylene coated burlap and white polyethylene sheeting.
2. No documentation of approval is required.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: None.

E. REMARKS:

(CONCRETE/CEMENT)

#### **ELASTOMERIC BEARING PADS**

A. SAMPLING FREQUENCY: No sample is required.

B. SAMPLE METHOD: Obtain the signed certification from the Producer stating that the bearing pads conform to the specifications.

C. FUNCTION OF THE RESIDENT ENGINEER:

1. Obtain copy of producer's certification.
2. Check to see that pads meet size requirements on plans.
3. Enter information into KMIMS as CONCR-DO with an inspection type of CERTIFY

4. Allow use of material.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: None.

E. REMARKS:

(CONCRETE/CEMENT)

**FLOWABLE FILL**

A. SAMPLING FREQUENCY: None

1. Cement - See Cement

2. Aggregate - See Aggregate

3. Fly ash - See Fly ash

B. SAMPLE METHOD: None

C. FUNCTION OF THE RESIDENT ENGINEER:

1. The resident engineer will approve flowable fill, delivered to the project, based on signed certifications indicating proper design for the intended use.

2. Enter information into KMIMS as CONCR-DO with an inspection type of CERTIFY.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Indicates PASS/FAIL in KMIMS.

E. REMARKS:

(CONCRETE/CEMENT)

**FLY ASH (CONCRETE/ BASE STABILIZATION)**

A. SAMPLING FREQUENCY:

1. Structural and Incidental Concrete - one sample per 1650 yd<sup>3</sup> or fraction thereof.

2. PCC Pavement - one sample per 12,000 yd<sup>2</sup> or fraction thereof.

3. Base or Subgrade Stabilization - one sample per 24,000 yd<sup>2</sup> or fraction thereof.

4. Small Quantities - 50 yd<sup>3</sup> or less for Structural concrete and 500 yd<sup>2</sup> or less for Pavement will not require a sample, but will require a signed certification or bill of lading and completed KMIMS form.

B. SAMPLE METHOD: Obtain a 1 gallon sample at the frequencies indicated.

C. FUNCTION OF THE RESIDENT ENGINEER:

1. Verify that fly ash source is on the LAM and then obtain concrete mix design for desired classes utilizing fly ash.
2. Obtain a copy of the signed certification and bill of lading for those loads used in KYTC work. The certification shall state that the product conforms to the specifications.
3. Periodically review test results for fineness and loss on ignition kept on file by concrete plant for conformance to specifications.
4. Submit sample(s) to the DME with a copy of the signed certification and two copies of a completed KMIMS form.
5. Enter information into KMIMS as CONCR-DO with an inspection type of PRJ\_ACPT or into KMIMS as CONCR-DO with an inspection type of CERTIFY for small quantities.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:

1. Report mix design proportions utilizing fly ash to Engineer on Fly Ash Test Report.
2. Forwards sample with certification and bill of lading to the Division for testing.
3. Informs Resident Engineer of status after receiving test information.

E. REMARKS:

(CONCRETE/CEMENT)

### **GROUND GRANULATED BLAST-FURNACE SLAG (GGBFS)**

A. SAMPLING FREQUENCY:

1. Structural, Incidental, and Overlay mixtures: one sample per 650 yd<sup>3</sup> concrete placed or fraction thereof, for each brand and type GGBFS.
2. Pavement: one sample per 6000 yd<sup>2</sup> placed concrete or fraction thereof, for each brand and type of cement.
3. Precast and Prestress plants: one sample monthly.
4. Concrete Pipe plants: one sample quarterly.
5. Small Quantities - 50 yd<sup>3</sup> or less for Structural concrete and 500 yd<sup>2</sup> or less for Pavement will not require a sample, but will require a certification or bill of lading and completed KMIMS form.

B. **SAMPLE METHOD (POINT OF SAMPLING):** At destination (in the field ) for all construction projects, obtain a 1 gallon check sample according to KM 64-316. Obtain approximately one-half of the total project samples from the concrete plant weigh hopper or storage bin and the other one-half from the cement transport truck.

C. **FUNCTION OF THE RESIDENT ENGINEER:**

1. Verify that GGBFS is on LAM prior to permitting its use.
2. For Pavement projects obtain a copy of bill of lading and signed certification stating that the product conforms to the specifications for each lot of GGBFS.
3. For other types of construction, obtain a copy of bill of lading and signed certification stating that the product conforms to the specifications for those loads used in KYTC work. Verify that the signed certification refers to proper bill of lading number.
4. All GGBFS samples shall be accompanied with bill of lading, signed certification, and completed KMIMS form and shall be submitted to DME. Use bill of lading for the Batch Number.
5. Enter information into KMIMS as CONCR-DO with an inspection type of PRJ\_ACPT or into KMIMS as CONCR-DO with an inspection type of CERTIFY for small quantities.

E. **FUNCTION OF THE DISTRICT MATERIALS ENGINEER:** Forward samples to the Division for testing.

E. **REMARKS:**

(CONCRETE/CEMENT)

### **GROUT (NON-SHRINK)**

A. **SAMPLING FREQUENCY:** No sample is required.

B. **SAMPLE METHOD:** Obtain a signed certification from the contractor or producer stating that the product conforms to the specifications.

C. **FUNCTION OF THE RESIDENT ENGINEER:**

1. Verify brand name of grout or grout admixture by visual inspection of containers.
2. Determine if brand of grout is on LAM.
3. If included on the LAM, obtain a copy of manufacturer's signed certification and submit with completed KMIMS form to DME.
4. Enter information into KMIMS as CONCR-DO with an inspection type of CERTIFY.

- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Check the signed certification for correct information, indicate PASS/FAIL, and makes necessary KMIMS entries.
- E. REMARKS:

(CONCRETE/CEMENT)

**MANHOLE STEPS**

- A. SAMPLING FREQUENCY: No sample is required.
- B. SAMPLING METHOD: None.
- C. FUNCTION OF THE RESIDENT ENGINEER:
  - 1. Obtain producer-signed certification stating that the product conforms to the ASTM 478.
  - 2. Visually inspect and determine if product is on the KYTC's List of Approved Materials.
  - 3. For project documentation, submit a completed copy of the KMIMS form and a copy of the signed certification to the DME for approval.
  - 4. Enter information into KMIMS as CONCR-DO with an inspection type of CERTIFY.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Check certification, indicate PASS/FAIL, and make appropriate KMIMS entries.
- E. REMARKS:

**MASONRY UNITS**

(CONCRETE/CEMENT)

**BLOCK, CONCRETE**

- A. SAMPLING FREQUENCY: A minimum of six (6) blocks per lot.
- B. SAMPLING METHOD: Randomly select blocks from the lot.
- C. FUNCTION OF THE RESIDENT ENGINEER:
  - 1. Randomly select blocks from the lot and check for conformity to dimensional requirements and freedom from defects.
  - 2. All units should be free of cracks and other defects that would interfere with proper placing of the unit.

3. Enter information into KMIMS as CONCR-CO with an inspection type of PRJ\_ACPT.
4. Await Division approval before permitting use of material.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Forward the sample and completed KMIMS form to the Division.

E. REMARKS:

(CONCRETE/CEMENT)

#### BRICK, CLAY SEWER AND MANHOLE

A. SAMPLING FREQUENCY: A minimum of ten (10) bricks per lot.

B. SAMPLING METHOD: Randomly select bricks from the lot.

C. FUNCTION OF THE RESIDENT ENGINEER:

1. Inspect brick at the point of destination for conformity to requirements for size, shape and freedom from defects. The brick shall be of rectangular crossends and at least one edge shall have plain surfaces. The brick shall be free from cracks, warpage, stone, pebbles, or particles of lime that could affect serviceability.
2. Submit sample and completed KMIMS form to DME. Include statement on KMIMS form that brick meets visual inspection requirements.
3. Enter information into KMIMS as CONCR-CO with an inspection type of PRJ\_ACPT.
4. Await the Division approval before permitting use of material.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Forward the sample and completed KMIMS form to the Division.

E. REMARKS:

(CONCRETE/CEMENT)

#### BRICK, CONCRETE

A. SAMPLING FREQUENCY: A minimum of ten (10) bricks per lot.

B. SAMPLING METHOD: Randomly select bricks from the lot.

C. FUNCTION OF THE RESIDENT ENGINEER:

1. Inspect brick at the point of destination for conformity to requirements for size, shape and freedom from defects. The brick shall be of rectangular crossends and at least one edge

shall have plain surfaces. The brick shall be free from cracks, warpage, stone, pebbles, or particles of lime that could affect serviceability.

2. No overall dimension (width, depth, or length) shall differ more than 1/8 inch from the specified standard dimension.
  3. Submit sample and completed KMIMS form to DME. Indicate the standard dimensions for the brick as designated by the producer or plans on the KMIMS form.
  4. Enter information into KMIMS as CONCR-CO with an inspection type of PRJ\_ACPT.
  5. Await Division approval before permitting use of material.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Forward the sample and completed KMIMS form to the Division.
- E. REMARKS: Minor indentations or surface cracks incidental to the usual method of production, or minor chipping resulting from the customary method of handling in shipping and delivery shall not be grounds for rejection.

(CONCRETE/CEMENT)

### **MASONRY COATING**

- A. SAMPLING FREQUENCY: No sample is required.
- B. SAMPLING METHOD: None.
- C. FUNCTION OF RESIDENT ENGINEER:
1. Determine if the brand of coating as shown on the containers is included on the current LAM and that the required color has been supplied.
  2. If the brand is included on the LAM, obtain a copy of the coating producer's signed certification (stating that the product conforms to the specifications) for each shipment and submit with completed KMIMS form to DME.
  3. Enter information into KMIMS as CONCR-DO with an inspection type of CERTIFY.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Check the signed certification for correct information, indicate PASS/FAIL, and make necessary KMIMS entries.
- E. REMARKS: Check the LAM for the producer's recommendations pertaining to minimum application temperature and to surface condition (dry or wet) at the time of application.

(CONCRETE/CEMENT)



## **MICROSILICA (ALL TYPES)**

- A. SAMPLING FREQUENCY:
1. One sample per project per brand per type.
  2. Precast and Prestress plants: one sample monthly.
  3. Concrete Pipe plants: one sample quarterly.
- B. SAMPLE METHOD (POINT OF SAMPLING): At destination (in the field) for all construction projects, obtain a 1-gallon check sample from the bin or packaged material.
- C. FUNCTION OF THE RESIDENT ENGINEER:
1. Verify that microsilica is on the LAM prior to permitting its use.
  2. For PCC pavement projects, obtain a copy of bill of lading and signed certification stating that the product conforms to the specifications for each lot of microsilica.
  3. For other types of construction, obtain a copy of bill of lading and signed certification stating that the product conforms to the specifications for those loads used in KYTC work. Verify that the signed certification refers to proper bill of lading number.
  4. All microsilica samples shall be accompanied with bill of lading, signed certification, and completed KMIMS form and shall be submitted to DME. Use bill of lading for the Batch Number.
  5. Enter information into KMIMS as CONCR-CO with an inspection type of PRJ\_ACPT.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Forward to the Division for testing.
- E. REMARKS:

(CONCRETE/CEMENT)

## **“RAPID” AND “VERY RAPID” CONCRETE REPAIR PATCH (ALL TYPES)**

- A. SAMPLING FREQUENCY: One sample per project per brand per type.
- B. SAMPLE METHOD (POINT OF SAMPLING): At destination (in the field ) for all construction projects, obtain a 1 gallon check sample.
- C. FUNCTION OF THE RESIDENT ENGINEER:
1. Verify that patch material is on the LAM prior to permitting its use.

2. Obtain a copy of bill of lading for those loads used in KYTC work.
  3. All patch materials shall be accompanied with bill of lading, and completed KMIMS form and shall be submitted to DME. Use bill of lading for the Batch Number.
  4. Enter information into KMIMS as CONCR-CO with an inspection type of PRJ\_ACPT.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Forward to the Division for testing.
- E. REMARKS:

(CONCRETE/CEMENT)

### ***PIPE***

#### **CONCRETE PIPE AND MANHOLE SECTIONS**

- A. SAMPLING FREQUENCY: No sample required.
- B. SAMPLING METHOD: Obtain the signed certification from the producer.
- C. FUNCTION OF THE RESIDENT ENGINEER:
1. Check the LAM to determine if a source is approved.
  2. Check the producer's signed Certificate of Compliance for the County, Project Number, quantity of pipe, diameters received and Statement of Certifications to current Specifications Section 810, and Kentucky Method 64-115.
  3. Visually inspect pipe for conformance to specification requirements, and correct markings indicating class, date cast, and producer name and location.
  4. Enter into KMIMS as CONCR-DO with an inspection type of CERTIFY.
  5. Allow use of material.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:
- E. REMARKS:

# **SUMMARY OF ACCEPTANCE REQUIREMENTS FOR MATERIALS OR PRODUCTS TESTED BY THE GEOTECHNICAL BRANCH**

## ***GENERAL NOTES RELATED TO EMBANKMENT AND SUBGRADE CONSTRUCTION***

1. Field density tests are not required, unless specified on the plans or proposal when:
  - a. Embankments or subgrade are constructed of durable rock (limestone, sandstone, or durable shale, SDI>95).
  - b. Soil contains greater than 60 percent coarse material (plus No. 4 sieve). The size of the rock may preclude performing tests on material containing less than 60 percent coarse material in some instances. However, the inspector shall perform a sieve analysis and the results attached to the density report. When a density test cannot be performed, determine compaction by visual inspection.
  - c. The project plans or proposal waives the density requirements.
2. Field density tests will be performed by nuclear gages in accordance with KM 64-002 and according to instructions from the gage manufacturer.
4. Target densities used in the field shall be representative of the material tested by KM 64-511. Use the correction chart in KM 64-511 to correct for the amount of plus No. 4 material in a sample when different from the original test. Perform additional proctor density tests when the validity is in question. KM 64-512, "One Point Proctor Method" should be used when applicable.
5. Report field density test results on form TC 63-47, "Density Test Results". Reference the source of the proctor density test. Reference the basis for waving any tests in one area on Form 63-47. Projects or sections with rock embankment and/or rock roadbed shall be noted in the Daily Inspector's Report.

(GEOTECHNICAL)

## ***BORROW***

- A. **SAMPLING FREQUENCY:** One Sample per soil horizon of the proposed borrow pit when proctor density is required. CBR testing is required when borrow soil is used for subgrade.
- B. **SAMPLING METHOD:**
  1. Any method that gives a representative sample, however a backhoe is recommended.
  2. Sample size is 40 lb., one full plastic sampling bag.
- C. **FUNCTION OF THE RESIDENT ENGINEER:**

1. Grade and drain inspector obtains sample and enters information into KMIMS. Enter sample as Geotech\_CO with an inspection type of PRJ\_ACPT if CBR test is required.
  2. Test may be performed in Resident's office for proctor density only.
  3. Forwards sample to the Division's Geotechnical Branch when CBR test is required. Enter sample as either Geotech\_DO or Geotech\_CO with an inspection type of INFORM For Proctor Density only.
- D. **FUNCTION OF THE DISTRICT MATERIALS ENGINEER:** Performs proctor density when requested or forwards sample to the Division's Geotechnical Branch for testing.
- E. **REMARKS:**
1. Samples submitted to the Division shall be accompanied by a KMIMS form.
  2. Results will be reported in KMIMS.

(GEOTECHNICAL)

***EMBANKMENTS (NUCLEAR DENSITY TESTS)***

- A. **SAMPLING FREQUENCY:**
1. One test per 2 feet in elevation per 1000 linear feet for roadways.
  2. One test per one foot in elevation at bridge ends.
  3. **IAS:**
    - a. One test per 100,000 yd<sup>3</sup> of embankment with tests spaced to provide a good representation of the entire project.
    - b. No IAS tests will be required for projects involving less than 10,000 yd<sup>3</sup> of embankment
- B. **SAMPLE METHOD:** See KM 64-002-03 and Manufacturer's instructions for nuclear gage.
- C. **FUNCTION OF THE RESIDENT ENGINEER:** Grade and drain inspector performs acceptance test.
- D. **FUNCTION OF THE DISTRICT MATERIALS ENGINEER:** Performs all IAS sampling and testing.
- E. **REMARKS:**
1. Report test results on form TC 63-47 to project file.
  2. No distribution necessary.

3. Perform test as close to the bridge end as possible.
4. Point of testing shall be any point in elevation below the subgrade of an embankment section.
5. IAS:
  - a. Each time an IAS density test is run a complete proctor density shall be performed on material from the test site and recorded. Reference to the source of the acceptance proctor density test results shall also be noted. All field density tests shall be compared to the standard proctor for differences from optimum moisture as stated in Section 206.03.03 of specification.
  - b. When an embankment section consists of material in sizes not suitable for density determination, the reported evidence of such shall substitute for density test results. Test results and description of area where coarse material renders the density test not applicable are reported.

(GEOTECHNICAL)

***SUBGRADE (NON-STABILIZED AND CHEMICALLY STABILIZED)***

**A. SAMPLING FREQUENCY:**

1. One sample per 1000 linear feet per roadway (see general notes for definition of roadway) for chemically stabilized subgrade. No sample is required for non-stabilized subgrade.
2. Nuclear Density Tests:
  - a. One test minimum per 500 feet per roadway (see general notes for definition of roadway), stabilized or non-stabilized.
  - b. IAS:
    - i. One test minimum per 5000 feet per roadway, or fraction thereof exceeding 1000 feet of roadway with tests spaced to provide a good representation of the entire project.
    - ii. No IAS tests will be required for projects involving less than 1500 feet of roadway.

**B. SAMPLE METHOD:**

1. Any method that gives a representative sample. Sample size is 40 lb.
2. Nuclear Density Tests:
  - a. Perform test at the same location the target sample was taken.

- b. IAS: Point of testing shall be the final grade and drain subgrade and/or finished subgrade (see Remarks)

C. FUNCTION OF RESIDENT ENGINEER:

1. Grade and drain inspector obtains sample and forwards to the Division's Geotechnical Branch for chemically stabilized subgrade. No sample is required for non-stablized subgrade.
2. Enter sample information into KMIMS as Geotech\_CO with an inspection type of INFORM.
3. Grade and drain inspector performs acceptance density testing.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:

1. Obtains sample when requested and forwards to the Division's Geotechnical Branch.
2. Performs all IAS sampling and testing.

E. REMARKS:

1. Samples submitted to the Division shall be accompanied by a KMIMS form.
2. CBR tests are not required for chemically stabilized subgrades.
3. Report density results on form TC 63-47 to project file, no distribution necessary.
4. Densities shall be rechecked in the spring prior to paving on grade and drain projects completed in the fall and not paved or on separate paving contracts.
5. Separate surfacing contracts shall have a copy of the density results for the preceding grade and drain project placed in the project file.
6. When chemical stabilization is specified, perform density tests prior to and after treatment.
7. Perform a one-point proctor when proctor densities are not available.
8. IAS:
  - a. A complete proctor density shall be performed on material from the test site and recorded each time an IAS density test is run, unless the subgrade has been chemically stabilized (lime or cement). When the subgrade has been chemically stabilized, use the proctor results given by the Division. Make note of the source of acceptance proctor density test results. Compare all density test results to the standard proctor for differences from optimum moisture as stated in Section 206.03.03 of specification.

- b. When an embankment section of subgrade consists of material in sizes not suitable for density determination, the reported evidence of such shall substitute for density test results. Test results and description of area where coarse material renders the density test not applicable are reported.
- c. If the project is a combined grade, drain and surfacing contract, only one series of field density tests on subgrade is required, unless the grade is left over winter after tests are performed.
- d. For separate surfacing contracts where the grade has not been left over a winter, the responsible DME shall determine the necessity of performing a new series of field density tests on the subgrade. If additional tests are not deemed necessary in this case, reports of density for the preceding grade and drain project must be made a part of the IAS file for the surfacing contract.

(GEOTECHNICAL)

**TOPSOIL**

- A. SAMPLING FREQUENCY: One sample per area not to exceed one acre.
- B. SAMPLING METHOD:
  - 1. Perform 8 to 10 borings using a soil probe, auger, or spade, collect cuttings and combine for one sample.
  - 2. Sample size is 5 lb.
- C. FUNCTION OF THE RESIDENT ENGINEER: Grade and drain inspector obtains sample and forwards to the Division's Geotechnical Branch. Enter sample information into KMIMS as Geotech\_CO with an inspection type of PRJ\_ACPT.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Obtains sample when requested and forwards to the Division's Geotechnical Branch.
- E. REMARKS:
  - 1. Sample shall be accompanied by a KMIMS form.
  - 2. Normal topsoil depths are 4 to 8 inches, however some areas may be greater in depth.

# SUMMARY OF ACCEPTANCE REQUIREMENTS FOR MATERIALS OR PRODUCTS TESTED BY THE LIQUID ASPHALT SECTION

(LIQUID ASPHALT)

## **ASPHALT MASTIC**

### A. SAMPLING FREQUENCY:

1. Certified Material:
  - a. Obtain one sample per lot number.
  - b. Obtain the producer's certification.
2. Expired Material: Sample each lot.

### B. SAMPLING METHOD: Obtain one 1-quart sample in a metal, friction-top can.

### C. FUNCTION OF THE RESIDENT ENGINEER:

1. Certified Material:
  - a. Obtain the producer's certification stating that the material satisfies Subsection 807.03.04 A) of the Specifications.
  - b. Ensure the material has not expired. The material must be used within six months of the date of shipment or must be retested before using.
  - c. Log the sample into KMIMS as LASPH-CO, JOINT MATERIALS, ASPHALT MASTIC, CERTIFIED, with the type of inspection being PRJ\_ACPT.
  - d. Forward the sample to the DME.
  - e. If the material fails to satisfy the applicable certification requirements, reject the material.
2. Expired Material:
  - a. Obtain one sample for each lot.
  - b. Log the sample into KMIMS as LASPH-CO, JOINT MATERIALS, ASPHALT MASTIC, EXPIRED with the type of inspection being PRJ\_ACPT.
  - c. Forward the sample to the DME.
  - d. DO NOT USE THE MATERIAL UNTIL IT IS TESTED AND APPROVED.



D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: If the Resident Engineer does not have access to KMIMS, enter the appropriate information into the system. Forward the sample to the Division.

E. REMARKS: None.

(LIQUID ASPHALT)

**ASPHALT MOP COAT**

A. SAMPLING FREQUENCY:

1. Obtain one sample for each lot number.
2. SMALL QUANTITIES: If material is used on less than 50 square yards, no sample is required.
3. Obtain the producer's certification.

B. SAMPLE METHOD: Obtain one 5-lb. piece (or 5 lb. in small pieces), and place the sample in a clean, plastic-lined bag.

C. FUNCTION OF THE RESIDENT ENGINEER:

1. Obtain the producer's certification indicating the material satisfies ASTM D 449.
2. Log the sample into KMIMS as LASPH-CO, WATERPROOFING MATERIALS, ASPHALT MOP COAT, with the inspection type being PRJ\_ACPT.
3. Forward the sample to the DME.
4. SMALL QUANTITIES: Log the information into KMIMS as LASPH-DO, WATERPROOFING MATERIALS, ASPHALT MOP COAT, with the inspection type being CERTIFY.
5. If the material fails to satisfy the applicable certification requirements, reject the material.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: If the Resident Engineer does not have access to KMIMS, enter the appropriate information into the system. If a sample is required, forward it to the Division.

E. REMARKS: None.

(LIQUID ASPHALT)

**BUTYL RUBBER SEALANTS**

A. SAMPLING FREQUENCY:

1. Obtain one sample per project.
  2. Obtain the producer's certification.
- B. SAMPLING METHOD: Obtain a 5-ft sample of sealant.
- C. FUNCTION OF THE RESIDENT ENGINEER:
1. Obtain the producer's certification stating that the material satisfies the applicable portions of AASHTO M 198.
  2. Log the sample into KMIMS as LASPH-CO, JOINT MATERIALS, BUTYL RUBBER SEALANTS, with the inspection type being PRJ\_ACPT.
  3. Forward the sample to the DME.
  4. If the material fails to satisfy the applicable certification requirements, reject the material.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: If the Resident Engineer does not have access to KMIMS, enter the appropriate information into the system. Forward the sample to the Division.
- E. REMARKS: None.

(LIQUID ASPHALT)

***EMULSIFIED ASPHALTS (Non-polymer)***

- A. SAMPLING FREQUENCY:
1. Certified Material:
    - a. Obtain samples for each type and grade of material per source of supply.
    - b. Obtain one sample per 15,000 tons of asphalt mixture, or fraction thereof.
    - c. SMALL QUANTITIES: If less than 1000 tons of asphalt mixture are used on a project, no sample is required.
    - d. CHIP SEAL AND OTHER SPECIALTY APPLICATIONS: Obtain samples at the rate of one per type and grade of material per source of supply.
  2. Expired Material: Obtain a sample.
- B. SAMPLE METHOD:
1. Sample the material, or witness the contractor's personnel sampling the material.
  2. Obtain two 1-gallon samples from the contractor's distributor according to KM 64-404.

3. 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.

C. FUNCTION OF THE RESIDENT ENGINEER:

1. Certified Material:

- a. Verify 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.
- b. Ensure 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.
- c. Log the sample into KMIMS as LASPH-CO, ASPHALT MATERIALS, EMULSIFIED ASPHALTS, CERTIFIED, emulsion type, with the inspection type being PRJ\_ACPT.
- d. Forward the sample to the DME.
- e. SMALL QUANTITIES: Log the information into KMIMS as LASPH-DO, ASPHALT MATERIALS, EMULSIFIED ASPHALTS, emulsion type, with the inspection type being CERTIFY.
- f. If the material fails to satisfy the applicable certification requirements, reject the material.

2. Expired Material:

- a. Obtain a sample for each storage tank.
- b. Log the sample into KMIMS as LASPH-CO, ASPHALT MATERIALS, EMULSIFIED ASPHALTS, EXPIRED, emulsion type, with the inspection type being PRJ\_ACPT.
- c. Forward the sample to the DME.
- d. DO NOT USE THE MATERIAL UNTIL IT IS TESTED AND APPROVED.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: If the Resident Engineer does not have access to KMIMS, enter the appropriate information into the system. If sample is required, forward it to the Division.

E. REMARKS:

1. Submit the samples to the Division within seven days of sampling.
2. Protect emulsion samples from freezing.

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

(LIQUID ASPHALT)

**FIBERGLASS ASPHALT WATERPROOFING MEMBRANE**

A. SAMPLING FREQUENCY:

1. Obtain one sample per project.
2. Obtain the producer's certification.

B. SAMPLING METHOD: Obtain a 10-ft long sample.

C. FUNCTION OF THE RESIDENT ENGINEER:

1. Obtain the producer's certification stating that the material satisfies Subsection 808.05 of the Specifications.
2. Log the sample into KMIMS as LASPH-CO, WATERPROOFING MATERIALS, FIBERGLASS WATERPROOFING MEMBRANE, with inspection type being PRJ\_ACPT.
3. Forward the sample to the DME.
4. If the material fails to satisfy the applicable certification requirements, reject the material.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: If the Resident Engineer does not have access to KMIMS, enter the appropriate information into the system. Forward the sample to the Division.

E. REMARKS: None.

(LIQUID ASPHALT)

**HOT-POURED ELASTIC JOINT SEALERS**

A. SAMPLING FREQUENCY:

1. Certified Material:
  - a. Obtain one sample per lot.
  - b. SMALL QUANTITIES: If the material is utilized in less than 5000 square yards of pavement, no sample is required.
2. Expired Material: Obtain one sample per lot.

B. SAMPLING METHOD:

1. Obtain one complete 10-lb. container as supplied by the producer when possible.
2. Otherwise, cut a 10-lb. sample from the material on hand, and submit the sample to the Division for testing.

C. FUNCTION OF THE RESIDENT ENGINEER:

1. Certified Material:

- a. Obtain the producer's certification stating that the material satisfies ASTM D 6690 (Type II).
- b. Verify that the material has not expired. The material must be used within one year of the shipment date on the bill-of-lading/load ticket.
- c. Log the sample into KMIMS as LASPH-CO, JOINT MATERIALS, HOT-POURED, ELASTIC JOINT SEALER, CERTIFIED, with the inspection type being PRJ\_ACPT.
- d. Forward the sample to the DME.
- e. SMALL QUANTITIES: Log the information into KMIMS as LASPH-DO, JOINT MATERIALS, HOT-POURED, ELASTIC JOINT SEALER, with the inspection type being CERTIFY.
- f. If the material fails to satisfy the applicable certification requirements, reject the material.

2. Expired Material:

- a. Obtain a sample for each lot.
- b. Log the sample into KMIMS as LASPH-CO, JOINT MATERIALS, HOT-POURED, ELASTIC JOINT SEALER, EXPIRED, with the inspection type being PRJ\_ACPT.
- c. Forward the sample to the DME.
- d. DO NOT USE THE MATERIAL UNTIL IT IS TESTED AND APPROVED.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: If the Resident Engineer does not have access to KMIMS, enter the appropriate information into the system. If a sample is required, forward it to the Division.

E. REMARKS: None.

(LIQUID ASPHALT)

**LAYERED, FIBER-REINFORCED WATERPROOFING MEMBRANE**

- A. SAMPLING FREQUENCY:
  - 1. No sample is required.
  - 2. Obtain the producer's certification.
- B. SAMPLING METHOD: Not applicable.
- C. FUNCTION OF THE RESIDENT ENGINEER:
  - 1. Obtain the producer's certification stating that the material satisfies ASTM C 877, Type II (excluding the steel straps).
  - 2. Log the information into KMIMS as LASPH-DO, WATERPROOFING MATERIALS, LAYERED, FIBER REINFORCED WATERPROOFING MEMBRANE, with inspection type being CERTIFY.
  - 3. If the material does not satisfy ASTM C 877, Type II (excluding the steel straps), reject the material.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: If the Resident Engineer does not have access to KMIMS, enter the appropriate information into the system, and approve (pass) the material.
- E. REMARKS: None.

(LIQUID ASPHALT)

**LIQUID ASPHALT FOR COLD-PATCHING MIXTURES (KP-2, KP-4, KP-6)**

- A. SAMPLING FREQUENCY:
  - 1. Certified Material:
    - a. Obtain one sample per lot.
    - b. Obtain the producer's bill-of-lading.
  - 2. Expired Material: Obtain a sample.
- B. SAMPLE METHOD:
  - 1. Sample the material, or witness the contractor's personnel sampling the material.

2. For KP-2 and KP-6, obtain two 1-gallon samples from the distributor's transport according to KM 64-404. Place the sample in a metal can.
3. For KP-4, obtain two 1-gallon samples from the contractor's distributor according to KM 64-404. Place the sample in a polyethylene container.
4. 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.

C. FUNCTION OF THE RESIDENT ENGINEER:

1. Certified Material:
  - a. Verify 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.
  - b. Ensure 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.
  - c. Log the sample into KMIMS as LASPH-CO, ASPHALT MATERIALS, LIQUID ASPHALT FOR COLD PATCHING, CERTIFIED, liquid asphalt type, with the inspection type being PRJ\_ACPT.
  - d. Forward the sample to the DME.
  - e. If the material fails to satisfy the applicable certification requirements, reject the material.
2. Expired Material:
  - a. Obtain a sample.
  - b. Log the sample into KMIMS as LASPH-CO, ASPHALT MATERIALS, LIQUID ASPHALT FOR COLD PATCHING, EXPIRED, liquid asphalt type, with the inspection type being PRJ\_ACPT.
  - c. Forward the sample to the DME.
  - d. DO NOT USE THE MATERIAL UNTIL IT IS TESTED AND APPROVED.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: If the Resident Engineer does not have access to KMIMS, enter the appropriate information into the system. Forward the sample to the Division.

E. REMARKS:

1. Protect the samples from freezing.

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

(LIQUID ASPHALT)

### **LONGITUDINAL JOINT ADHESIVE**

#### **A. SAMPLING FREQUENCY:**

1. Obtain one sample per lot.
2. Obtain the producer's bill-of-lading.

#### **B. SAMPLE METHOD:**

1. Obtain one complete container as supplied by the producer when possible.
2. Otherwise, cut a 10-lb, sample from the material on hand, and submit the sample to the Division for testing.

#### **C. FUNCTION OF THE RESIDENT ENGINEER:**

1. Obtain the producer's certification stating the material satisfies the *Special Note of Longitudinal Joint Adhesive*.
2. Log the sample into KMIMS as LASPH-CO, JOINT MATERIALS, LONGITUDINAL JOINT ADHESIVE, with the inspection type being PRJ\_ACPT.
3. Forward the sample to the DME.
4. If the material fails to satisfy the applicable certification requirements, reject the material.

#### **D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:** If the Resident Engineer does not have access to KMIMS, enter the appropriate information into the system. Forward the sample to Division.

#### **E. REMARKS:** None.

(LIQUID ASPHALT)

### **PERFORMANCE-GRADED (PG) BINDERS**

#### **A. SAMPLING FREQUENCY:**

1. Certified Material:
  - a. Obtain samples for each grade of material per source of supply.



- b. Obtain one sample per 6500 tons of asphalt mixture, or fraction thereof.
- c. **SMALL QUANTITIES:** If less than 1000 tons of asphalt mixture are used on a project, no sample is required.

2. Expired Material: Obtain a sample.

**B. SAMPLE METHOD:**

1. Sample the material, or witness the contractor's personnel sampling the material.
2. Obtain two 1-quart samples according to KM 64-404.
3. Obtain the samples from the contractor's storage tank or the feed line between the pugmill and the storage tank.
4. 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.

**C. FUNCTION OF THE RESIDENT ENGINEER:**

1. Certified Material:

- a. Ensure the supplier and material are on the Approved Materials List.
- b. Verify 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.
- c. Ensure 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 60 days from the date of shipment.
- d. Log the sample into KMIMS as LASPH-CO, ASPHALT MATERIALS, PERFORMANCE GRADED (PG) BINDERS, CERTIFIED, PG binder grade, with the inspection type being PRJ\_ACPT.
- e. Forward the sample to the DME.
- f. **SMALL QUANTITIES:** Log the information into KMIMS as LASPH-DO, ASPHALT MATERIALS, PERFORMANCE GRADED (PG) BINDERS, PG binder grade, with the inspection type being CERTIFY.
- g. If the material fails to satisfy the applicable certification requirements, reject the material.

2. Expired Material:

- a. Obtain a sample.

- b. Log the sample into KMIMS as LASPH-CO, ASPHALT MATERIALS, PERFORMANCE GRADED (PG) BINDERS, EXPIRED, PG binder grade, with the inspection type being PRJ\_ACPT.
  - c. Forward the sample to the DME.
  - d. DO NOT USE THE MATERIAL UNTIL IT IS TESTED AND APPROVED.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: If the Resident Engineer does not have access to KMIMS, enter the appropriate information into the system. If sample is required, forward it to the Division.
- E. REMARKS:
- 1. Submit samples of stored material seven days prior to its expiration to avoid delays in the use of the material.
  - 2. 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.

(LIQUID ASPHALT)

***POLYMER ASPHALT EMULSIONS AND PRIMER L***

- A. SAMPLING FREQUENCY:
- 1. Certified Material:
    - a. Obtain samples for each type and grade of material per source of supply.
    - b. Obtain one sample per 15,000 tons of asphalt mixture, or fraction thereof.
    - c. SMALL QUANTITIES: If less than 1000 tons of asphalt mixture are used on a project, no sample is required.
    - d. CHIP SEAL AND OTHER SPECIALTY APPLICATIONS: Obtain samples at the rate of one per type and grade of material per source of supply.
  - 2. Expired Material: Obtain a sample.
- B. SAMPLE METHOD:
- 1. Sample the material, or witness the contractor's personnel sampling the material.
  - 2. Obtain two 1-gallon samples from the contractor's distributor according to KM 64-404.

3. 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.

C. FUNCTION OF THE RESIDENT ENGINEER:

1. Certified Material:

- a. Verify 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.
- b. Ensure 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.
- c. Log the sample into KMIMS as LASPH-CO, ASPHALT MATERIALS, asphalt type, CERTIFIED, with the inspection type being PRJ\_ACPT.
- d. Forward the sample to the DME.
- e. SMALL QUANTITIES: Log the information into KMIMS as LASPH-DO, ASPHALT MATERIALS, asphalt type, with the inspection type being CERTIFY.
- f. If the material fails to satisfy the applicable certification requirements, reject the material.

2. Expired Material:

- a. Obtain a sample for each storage tank.
- b. Log the sample into KMIMS as LASPH-CO, ASPHALT MATERIALS, asphalt type, EXPIRED, with the inspection type being PRJ\_ACPT.
- c. Forward the sample to the DME.
- d. DO NOT USE THE MATERIAL UNTIL IT IS TESTED AND APPROVED.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: If the Resident Engineer does not have access to KMIMS, enter the appropriate information into the system. If sample is required, forward it to the Division.

E. REMARKS:

1. Submit the samples to the Division within seven days of sampling.
2. Protect emulsion samples from freezing.
3. Sample stored material seven days prior to its expiration to avoid delays in the use of the material.

**PREFORMED COMPRESSION JOINT SEALERS (NEOPRENE)**

A. SAMPLING FREQUENCY:

1. Certified Material:
  - a. No sample is required.
  - b. Obtain the producer's certification.
2. Expired Material: For both bridge and pavement seals, obtain one sample per size and cross-section shape per project.

B. SAMPLING METHOD FOR EXPIRED MATERIAL:

1. If a sufficient length of material will not remain for the job after sampling, reject the material.
2. Obtain one 6-ft sample.

C. FUNCTION OF THE RESIDENT ENGINEER:

1. Certified Material:
  - a. Verify the seal, in the appropriate width, is on the Approved Materials List.
  - b. Obtain the producer's certification stating that the material satisfies Subsection 807.03.02 A) of the Specifications.
  - c. Verify that the lot number and size marked on the seal are the same as the lot number and size on the producer's certification.
  - d. Verify that the material has not expired. The material must be used within one year of the shipment date on the bill-of-lading/load ticket.
  - e. Log the information into KMIMS as LASPH-DO, JOINT MATERIALS, PREFORMED, COMPRESSION JOINT SEALER, with the inspection type being CERTIFY.
  - f. If the material fails to satisfy the applicable certification requirements, reject the material.
2. Expired Material:
  - a. Obtain a sample.

- b. Log the sample into KMIMS as LASPH-CO, JOINT MATERIALS, PREFORMED, COMPRESSION JOINT SEALER, with the inspection type being PRJ\_ACPT.
  - c. DO NOT USE THE MATERIAL UNTIL IT IS TESTED AND APPROVED.
  - d. Forward the sample to the DME.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: If the Resident Engineer does not have access to KMIMS, enter the appropriate information into the system. If sample is required, forward it to the Division.
- E. REMARKS: None.

(LIQUID ASPHALT)

***PREFORMED EXPANSION JOINT STRIP SEALS***

- A. SAMPLING FREQUENCY:
- 1. Certified Material:
    - a. No sample is required.
    - b. Obtain the producer's certification.
  - 2. Expired material: Obtain a sample.
- B. SAMPLING METHOD FOR EXPIRED MATERIAL:
- 1. If a sufficient length of material will not remain for the job after sampling, reject the material.
  - 2. Obtain one 6-ft sample.
- C. FUNCTION OF THE RESIDENT ENGINEER:
- 1. Certified Material:
    - a. Obtain the producer's certification stating that the material satisfies Subsection 807.03.03 A) of the Specifications.
    - b. Verify that the strip seal satisfies any dimension requirements on the plans.
    - c. Verify that the lot number and size marked on the seal are the same as the lot number and size on the producer's certification.
    - d. Verify that the material has not expired. The material must be used within one year of the shipment date on the bill-of-lading/load ticket.

- e. Log the information into KMIMS as LASPH-DO, JOINT MATERIALS, PREFORMED, EXPANSION JOINT STRIP SEALS, with the inspection type being CERTIFY.
- f. If the material fails to satisfy the applicable certification requirements, reject the material.

2. Expired Material:

- a. Obtain a sample.
- b. Log the sample into KMIMS as LASPH-CO, JOINT MATERIALS, PREFORMED, EXPANSION JOINT STRIP SEALS, with the inspection type being PRJ\_ACPT.
- c. Ward the sample to the DME.
- d. NOT USE THE MATERIAL UNTIL IT IS TESTED AND APPROVED.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: If the Resident Engineer does not have access to KMIMS, enter the appropriate information into the system. If sample is required, forward sample to the Division.

E. REMARKS: None.

(LIQUID ASPHALT)

**RUBBER GASKETS**

A. SAMPLING FREQUENCY:

- 1. Obtain one sample per project.
- 2. SMALL QUANTITIES: If less than 75 gaskets are used on the project, no sample is required.
- 3. Obtain the producer's certification.

B. SAMPLING METHOD: Obtain two representative gaskets.

C. FUNCTION OF THE RESIDENT ENGINEER:

- 1. Obtain the producer's certification stating that the material satisfies the applicable portions of AASHTO M 315 for each size and lot.
- 2. Log the information into KMIMS as LASPH-CO, JOINT MATERIALS, RUBBER GASKETS, with the inspection type being PRJ\_ACPT.
- 3. SMALL QUANTITIES: Log the information into KMIMS as LASPH-DO, JOINT MATERIALS, RUBBER GASKETS, with the inspection type being CERTIFY.

4. If the material fails to satisfy the applicable certification requirements, reject the material.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: If the Resident Engineer does not have access to KMIMS, enter the appropriate information into the system. If a sample is required, forward it to the Division.
- E. REMARKS: None.

(LIQUID ASPHALT)

**SILICONE RUBBER SEALANT (ONE COMPONENT, NON-SAG and SELF LEVELING)**

- A. SAMPLING FREQUENCY:
1. Obtain one Semco tube sample per lot per project.
  2. SMALL QUANTITIES: If the material is utilized in less than 5000 square yards of pavement, no sample is required.
- B. SAMPLING METHOD:
1. Obtain one 12-oz. Semco tube sample during application of the material.
  2. Do not open the product container for sampling only.
  3. Sampling containers may be obtained from the Liquid Asphalt Section.
- C. FUNCTION OF THE RESIDENT ENGINEER:
1. Obtain the producer's certification stating the material satisfies 807.03.05 A) of the Specifications.
  2. Verify that the lot number on the container(s) matches the lot number on the producer's certification.
  3. Obtain five plugs, 2 in. in length, per day of production. Ensure conformance to the required geometry specified for the joint seal. See Subsection 501.03.18 D) of the Specifications for further information.
  4. Log the sample into KMIMS as LASPH-CO, JOINT MATERIALS, SILICONE RUBBER SEALANT, ONE PART, with the inspection type being PRJ\_ACPT.
  5. Forward the sample to the DME.
  6. SMALL QUANTITIES: Log the information into KMIMS as LASPH-DO, JOINT MATERIALS, SILICONE RUBBER SEALANT, ONE PART, with the inspection type being VIS\_ACPT.
  7. If the material fails to satisfy the applicable certification requirements, reject the material.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: If the Resident Engineer does not have access to KMIMS, enter the appropriate information into the system. If a sample is required, forward it to the Division.

E. REMARKS: None.

(LIQUID ASPHALT)

**SILICONE RUBBER SEALANT (TWO COMPONENT, RAPID CURE)**

A. SAMPLING FREQUENCY:

1. No sample is required.
2. Obtain the producer's certification.

B. SAMPLING METHOD: Not Applicable

C. FUNCTION OF THE RESIDENT ENGINEER:

1. Obtain the producer's certification stating that the material satisfies Subsection 807.03.05 B) of the Specifications.
2. Verify that the lot number on the container(s) matches the lot number on the producer's certification.
3. Obtain five plugs, 2 in. in length, per day of production. Ensure conformance to the required geometry specified for the joint seal. See Subsection 501.03.18 D) of the Specifications for further information.
4. Log the information into KMIMS as LASPH-DO, JOINT MATERIALS, SILICONE RUBBER SEALANT, TWO PART, with the inspection type being VIS\_ACPT.
5. If the material fails to satisfy the applicable certification requirements, reject the material.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: If the Resident Engineer does not have access to KMIMS, enter the appropriate information into the system.

E. REMARKS: None.

(LIQUID ASPHALT)

**TRAFFIC LOOP ENCAPSULANT**

A. SAMPLING FREQUENCY:

1. Certified Material:



- a. Obtain one sample per lot.
    - b. Obtain the producer's certification.
  2. Expired Material: Obtain one sample per lot.
- B. SAMPLING METHOD: Obtain one pre-packaged, 32-oz. tube from the producer.
- C. FUNCTION OF THE RESIDENT ENGINEER:
1. Certified Material:
    - a. Obtain the producer's certification for each lot number stating it meets the requirements of Subsection 835.06 of the Specifications.
    - b. Verify that the lot number on the container(s) matches the lot number on the producer's certification.
    - c. Ensure that the material is used within one year from the date of manufacture.
    - d. Log the sample into KMIMS as LASPH-CO, TRAFFIC LOOP ENCAPSULANT, CERTIFIED, with the inspection type being PRJ\_ACPT.
    - e. Forward the sample to the DME.
    - f. If the material fails to satisfy the applicable certification requirements, reject the material.
  2. Expired Material:
    - a. Obtain a sample.
    - b. Log the sample into KMIMS as LASPH-CO, TRAFFIC LOOP ENCAPSULANT, EXPIRED, with the inspection type being PRJ\_ACPT.
    - c. Forward the sample and to the DME.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: If the Resident Engineer does not have access to KMIMS, enter the appropriate information into the system. Forward the sample to Division.
- E. REMARKS: None.

# SUMMARY OF ACCEPTANCE REQUIREMENTS FOR MATERIALS OR PRODUCTS TESTED BY THE PHYSICAL SECTION

(PHYSICAL SECTION)

## **RECTANGULAR CORE BACKFILL DRAINS (Fabric Wrapped)**

- A. SAMPLING FREQUENCY: No sampling required unless material is in question.
- B. SAMPLE METHOD: Obtain manufacturer's certification indicating the product conforms to specifications.
- C. THE FUNCTION OF THE RESIDENT ENGINEER:
  - 1. Obtain manufacturer's certification for each shipment.
  - 2. Visually inspect and determine if product is on the LAM.
  - 3. Log sample into KMIMS as PHYSL-DO - Fabric-Wrapped Backfill Drain with an inspection type of CERTIFY.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Indicate PASS/FAIL in KMIMS.
- E. REMARKS:

(PHYSICAL SECTION)

## **BOLTS (A 325), NUTS, AND WASHERS (For Bridges)**

- A. SAMPLING FREQUENCY:

- 1. 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

- 2. NUTS & WASHERS

Number of Nuts in Lot	Number of Specimens
-----------------------	---------------------

800 and under	1
801 to 8,000	2
8,001 to 22,000	3
Over 22,000	5

B. SAMPLE METHOD:

1. Obtain manufacturer's certifications containing physical and chemical test results and statement that bolts, nuts, and washers conform to ASTM A 325.
2. 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.

C. FUNCTION OF THE RESIDENT ENGINEER:

1. Inspect bolts, nuts, & washers for defects.
2. Obtain manufacturer's certifications. Submit all certifications to the Division of Construction.

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 bridge construction section.

3. Obtain check sample of bolts, nuts, and washers from each shipping lot and log samples into KMIMS as PHYSL-CO Fasteners - nuts, bolts or washers with an inspection type of PRJ\_ACPT.
4. Await approval from both the Divisions of Construction and Materials prior to permitting use of the bolts, nuts, and washers.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Submit samples with manufacturer's certifications to the Division for testing.

E. REMARKS:

(PHYSICAL SECTION)

**COATED TIE WIRES AND CHAIRS**

A. SAMPLING FREQUENCY: Obtain samples of chairs, bolsters and tie wires - one sample per type per shipment.

B. SAMPLE METHOD: Sample Size:

1. tie wire - 2 ft.
  2. chairs - 3 pieces per size
  3. bolsters - 1 per size per shipment
- C. FUNCTION OF THE RESIDENT ENGINEER: Obtain samples and log it into KMIMS as:
1. Tie wire - PHYSL-CO with an inspection type of PRJ\_ACPT.
  2. Bolsters - PHYSL-CO-epoxy coated or plastic with an inspection type of PRJ\_ACPT.
  3. Epoxy Coated Chairs - PHYSL-CO with an inspection type of PRJ\_ACPT.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Submit samples to the Division for testing.
- E. REMARKS:

(PHYSICAL SECTION)

## ***DOWELS***

Smooth, A36 (For Pier Caps)

- A. SAMPLING FREQUENCY:
1. Uncoated - No sample required unless deemed necessary.
  2. Epoxy Coated - two dowels.
- B. SAMPLE METHOD:
- C. FUNCTION OF THE RESIDENT ENGINEER:
1. Uncoated:
    - a. Visually inspect.
    - b. Obtain certification that states product conforms to ASTM A 36 and allow immediate use.
    - c. Log material in KMIMS as PHYSL-DO Dowels - uncoated with an inspection type of CERTIFY.
  2. Epoxy Coated:

- a. Obtain certification that states product conforms to ASTM A 36 steel and insure both the epoxy coating and the coater appears in the LAM.
- b. Await approval before permitting use of the material.
- c. Log samples in KMIMS as PHYSL-CO with an inspection type of PRJ\_ACPT.
- d. Submit samples to the Division for testing.
- e. Await approval before using the material.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Indicate PASS/FAIL in KMIMS for uncoated dowels.

E. REMARKS:

(PHYSICAL SECTION)

Smooth, A-36 (Pavement)

A. FREQUENCY: Each shipment.

B. SAMPLE METHOD: Obtain a sample (2 dowels) and certification that states product conforms to ASTM A 36 steel. Insure both the epoxy coating and the coater appears in the LAM.

C. FUNCTION OF THE RESIDENT ENGINEER:

- 1. Visually inspect the epoxy coating.
- 2. Obtain sample and certifications and log into KMIMS as PHYSL-CO with an inspection type of PRJ\_ACPT.
- 3. Await approval before permitting use of the material.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Submit samples to the Division for testing along with the certification.

E. REMARKS:

(PHYSICAL SECTION)

Deformed Tie Bars

A. SAMPLING FREQUENCY: Obtain one sample from each heat totaling 10,000 lb. for each day's delivery. Accept quantities less than 10,000 lb. based on manufacturer's certification (no sample required).

B. SAMPLE METHOD: N/A

- C. FUNCTION OF THE RESIDENT ENGINEER:
  - 1. Visually inspect the epoxy coating.
  - 2. Handle in same manner as other deformed, epoxy-coated reinforcing steel
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Submit samples to the Division for testing.
- E. REMARKS:

(PHYSICAL SECTION)

### **FENCING MATERIALS**

- A. SAMPLING FREQUENCY:
  - 1. Right-of-Way or Chain Link: One sample of fabric, tension wire, barbed wire and tie wire per 15000 ft., of fence, or fraction thereof, per manufacturer. One sample of each type of post and one sample of each fitting per manufacturer.
  - 2. Pedestrian Walkways: One sample of fabric, each type of post and each type of hardware or accessory per walkway.
  - 3. Small quantities: Visually accept up to 250 ft. of Right-of-Way or Chain Link fence per project. Small quantities are not applicable to Pedestrian Walkways.
- B. SAMPLE METHOD:
  - 1. Fabric, tension wire, barbed wire and tie wire - one 3 ft. section.
  - 2. Pull, Brace and Line (round) Posts - one 2-ft. section.
  - 3. Line (stud tee) posts - one 2-ft. section from end without anchor plate.
  - 4. Fittings - one unit of each item involved.
- C. FUNCTION OF THE RESIDENT ENGINEER:
  - 1. Perform visual inspection and obtain samples.
  - 2. For small quantities accepted visually, log into KMIMS as PHYSL-DO FENCING - VIS\_ACPT.
  - 3. Log samples into KMIMS as PHYSL-CO FENCING-(BARB WIRE, FABRIC, FENCE HARDWARE OR FENCE POSTS). Use an inspection type of PRJ\_ACPT for BarbWire and Fabric. Use an inspection type of PRJ\_ACPT for Fence Hardware and Fence Posts.

4. Submit multiple items of Fence Hardware under one Sample Identification number. Use the Batch No. field 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

If there is not enough space in the Batch No. field, attach a note to that field.

5. Await the Division's approval before use of material.

NOTE: Metal fence posts of structural shapes are accepted by certification by Division of Construction. For wood posts, see Timber Products.

- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Submit samples to the Division for testing.
- E. REMARKS:

(PHYSICAL SECTION)

### ***FILTER FABRIC***

- A. SAMPLING FREQUENCY:

1. No sampling is required if quantity is less than 6000 yd<sup>2</sup> per fabric "type" per project.
2. Obtain samples for quantities over 6000 yd<sup>2</sup> per fabric "type" per project.

- B. SAMPLE METHOD:

1. Obtain the manufacturer's certification indicating conformance to the specifications from the contractor for each "style" of fabric.
2. Provide 1 swatch for every 20 rolls of fabric up to 5 swatches. Each swatch should be 3 ft. long by the full width of the roll and should not be taken from the outside layer of the roll or the inner layer next to the core. Mark each swatch so that its roll will be identifiable. Roll, do not fold the fabric sample.

- C. FUNCTION OF THE RESIDENT ENGINEER:

1. Visually inspect fabric for evidence of improper storage. 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.

2. Obtain a copy of the manufacturer's certification.
  3. Determine if the vender and manufacturer's fabric "types" and "styles" are included on the LAM.
  4. For quantities less than 6000 yd<sup>2</sup> per fabric "type" per project, enter material into KMIMS as PHYSL\_DO with an inspection type of VIS\_ACPT. For quantities over 6000 yd<sup>2</sup> per fabric "type" per project, enter material into KMIMS as PHYSL\_CO with an inspection type of PRJ\_ACPT.
  5. Forward paperwork and or samples to the DME.
- A. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Obtain sample, manufacturer's certification and KMIMS ID# and forward to the Division for testing.
- E. REMARKS: No partially used, unprotected rolls of fabric may be transferred to another job. "Style" is a particular product by a manufacturer. "Type" means the category in the Specifications, Section 843.01.01 that the "style" satisfies. Any "style" satisfying "type 1" requirements also satisfies "types 2, 3, and 4" requirements.

(PHYSICAL SECTION)

### **GABIONS AND MATTRESS UNITS**

- A. SAMPLING FREQUENCY: One sample per 500 cu. yd. of Gabion or Mattresses.
- B. SAMPLE METHOD:
1. Tie or lacing wire samples should be 2 ft. long.
  2. Gabion samples should be 20 in. wide by 40 in. long with a selvedge wire in the center and mattress unit samples should be two pieces, each 40-in. wide by 8 in. long with a selvedge wire along one of the 20 in. sides of each piece.
  3. Pieces should be laced together on the selvedge as described in the Specifications.
- C. FUNCTION OF THE RESIDENT ENGINEER:
1. Obtain 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.
  2. Log material in KMIMS as PHYSL\_CO with an inspection type of PRJ\_ACPT.
  3. Await Division approval before permitting use of material.
- D. THE FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Submit sample and manufacturer's certification to the Division.



E. REMARKS:

(PHYSICAL SECTION)

**GABION INTERLOCKING FASTENERS**

- A. SAMPLING FREQUENCY: No sampling required.
- B. SAMPLE METHOD: Check for inclusion on the LAM.
- C. FUNCTION OF THE RESIDENT ENGINEER:
  - 1. Verify the brand name and manufacturer of the product.
  - 2. Check for inclusion on the LAM.
  - 3. Log material into KMIMS as PHYSL-DO Gabion Interlocking Fasteners with an inspection type of VIS\_ACPT.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Indicate PASS/FAIL in KMIMS.
- E. REMARKS:

(PHYSICAL SECTION)

**GRAY IRON CASTINGS, ASTM A-48**

- A. SAMPLING FREQUENCY: No sample is required.
- B. SAMPLE METHOD: Accept on manufacturer's certification that the castings have been sampled, tested, and manufactured in accordance with ASTM A-48. Obtain certification from contractor.
- C. FUNCTION OF THE RESIDENT ENGINEER:
  - 1. Obtain foundry's certification for each shipment identifying the dates-of-manufacture or lot numbers contained in the shipment. Check to see if foundry is on the LAM.
  - 2. Verify that the castings meet the applicable standard drawing.
  - 3. Inspect the castings for freedom from defects and verify that the castings received are those covered by the certification. Circle the applicable test dates or lot numbers on the certifications furnished by the manufacturer.
  - 4. Log material into KMIMS as PHYSL-CO with an inspection type of CERTIFY.

- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Submit certifications to the Division.
- E. REMARKS:

(PHYSICAL SECTION)

**GUARDRAIL/TEMPORARY GUARDRAIL**

- A. SAMPLING FREQUENCY: The minimum frequency for verifying zinc coating weight shall be one test for each component of the guardrail system for each 3000 linear feet of guardrail system per source.
- B. SAMPLE METHOD:
  - 1. Project testing of zinc coating will be by thickness gauge.
  - 2. 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.)
  - 3. The sample size shall be 3 in. x 14 in. when cut with a torch or 2 in. x 14 in. piece when cut smoothly with a saw.
  - 4. Referee testing is required when the zinc coating weight fails to meet the minimum requirements.
  - 5. Thickness measurements shall be taken at the middle of the width of the element on both ends (no closer than 3 in. from the end and the middle of the full length section).
- C. FUNCTION OF THE RESIDENT ENGINEER:
  - 1. Check to insure that the guardrail is from a fabricator on the LAM for Guardrail Manufacturers.
  - 2. Check all items in shipment for conformity to dimensional requirements.
  - 3. Obtain manufacturer's certification attesting conformance to AASHTO M 180 and M 232 for all items in the shipment.
  - 4. Check for manufacturer's brand marking.
  - 5. Make a visual inspection during installation of each delivery of the rail and/or accessories for white rust and other surface defects.
  - 6. Perform check tests for zinc coating weight. Fill out Guardrail Galvanizing Thickness Worksheet. Login material as PHYSL-DO with an inspection type of PRJ\_ACPT. Create separate I.D. for each 3000 linear feet of system.

7. When necessary obtain referee samples and login material in KMIMS as PHYSL-CO with an inspection type of PRJ\_ACPT and then the applicable sub types. (Accessories, Beam, End Treatment/Crash Cushion, Posts or Spacer Blocks). Enter wood posts and spacer blocks as PHYSL-DO with an inspection type of CERTIFY. Create an ID for each 3000 linear feet of rail.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Submit required samples to the Division.

E. REMARKS:

1. Any item may be sampled for testing and sent to the Division for testing if either the dimensions or the quality of the galvanizing is questionable.
2. For Timber Posts, see section on Timber Products.
3. Guardrail received on Prestressed Beams has been pre-tested and can be used when received without additional sampling or documentation.

(PHYSICAL SECTION)

### **HANDRAIL, METAL TYPES "B", & "C"**

A. SAMPLING FREQUENCY: No sampling is required.

B. SAMPLE METHOD: Obtain manufacturer's certification through the contractor stating that the product meets the specifications.

C. FUNCTION OF THE RESIDENT ENGINEER:

1. Visually inspect and obtain manufacturer's certification or mill test.
2. Log material in KMIMS as PHYSL-DO Handrail-CERTIFY.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Indicate PASS/FAIL in KMIMS.

E. REMARKS:

(PHYSICAL SECTION)

### **HOOK BOLTS**

A. SAMPLING FREQUENCY:

1. For PCC Pavement Construction: One sample per 300 assemblies.

2. For Bridge Guardrail Use: No sample required. Accept on manufacturer's certification indicating the product meets the specifications.
3. For Concrete Pavement & Concrete Base Widening (Expansion Hook Bolts): one sample per 300 assemblies. NOTE: Notify the Division's Physical Properties Testing Section when expansion type anchors have been installed. They will then perform pullout test and report results to DME. Pullout tests are performed at the minimum rate of one test per 100 anchors or as deemed necessary to insure specification compliance. Up to 10 assemblies per project may be accepted by small quantities.

B. **SAMPLE METHOD:**

1. For PCC Pavement Construction: Two (2) bolts, fully assembled.
2. For Bridge Guardrail Use: Inspect bolts for conformity to dimensional requirements. Obtain manufacturer's letter of certification covering bolts.
3. For Concrete Pavement & Concrete Base Widening (Expansion Hook Bolts): Log samples in KMIMS as PHYSL-CO with an inspection type of PRJ\_ACPT. Size of Sample - two (2) bolts.

C. **FUNCTION OF THE RESIDENT ENGINEER:** Take samples and log in to KMIMS as PHYSL-CO HOOKBOLTS with an inspection type of PRJ\_ACPT.

D. **FUNCTION OF THE DISTRICT MATERIALS ENGINEER:** Submit required samples to the Division for testing.

E. **REMARKS:**

(PHYSICAL SECTION)

**LOAD TRANSFER ASSEMBLIES**

A. **SAMPLING FREQUENCY:**

1. Contraction Assembly - one per 30,000 square yards of roadway PCCP per source.
2. Expansion Assembly - one per project per source.
3. Small Quantity Acceptance - 15 contraction assemblies or 2 expansion assemblies.

B. **SAMPLE 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.

C. **FUNCTION OF THE RESIDENT ENGINEER:**

1. Obtain certificate of compliance originating from epoxy coater for each shipment indicating the product meets the specifications.

2. Check to see that the manufacturer is on the LAM.
  3. Inspect assemblies for conformity to standard drawing dimensional requirements, including skew of dowels.
  4. Obtain and log sample into KMIMS as PHYSL-CO Load Transfer Assemblies-Contraction or Expansion with an inspection type of PRJ\_ACPT.
  5. For small quantities log sample into KMIMS as PHYSL-DO Load Transfer Assemblies-Contraction or Expansion with an inspection type of VIS\_ACPT.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Submit to the Division for testing.
- E. REMARKS:

(PHYSICAL SECTION)

**MANHOLE ADJUSTING RINGS**

- A. SAMPLING FREQUENCY: No sample is required.
- B. SAMPLE METHOD: Obtain certification through the contractor stating the material conforms to the specifications.
- C. FUNCTION OF THE RESIDENT ENGINEER:
1. Obtain manufacturer's certification.
  2. Visually inspect for conformance to Standard Drawing RDM-105-01 and project requirements.
  3. Allow the contractor to use the material.
  4. Log the sample in KMIMS as PHYSL-DO with an inspection type of CERTIFY.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Indicate PASS/FAIL in KMIMS.
- E. REMARKS:

(PHYSICAL SECTION)

**PERFORATED PIPE SOCKS (Circular-Knit Geotextile)**

- A. SAMPLING FREQUENCY: No sampling required.

- B. **SAMPLE METHOD:** Obtain certification through the contractor stating the material conforms to ASTM D 6707.
- C. **FUNCTION OF THE RESIDENT ENGINEER:**
  - 1. Obtain manufacturer's certification for each shipment.
  - 2. Visually inspect.
  - 3. Log sample into KMIMS as PHYSL\_DO with an inspection type of CERTIFY.
- D. **FUNCTION OF THE DISTRICT MATERIALS ENGINEER:** Indicate PASS/FAIL in KMIMS.
- E. **REMARKS:**

(PHYSICAL SECTION)

**PIPE**

Corrugated Polyethylene Pipe M252 (for Underdrains, Edge drains, etc.)

- A. **SAMPLING FREQUENCY:**
  - 1. One sample per size of pipe per 25,000 linear feet per source.
  - 2. Up to 1000 linear feet per project may be accepted by small quantities.
- B. **SAMPLING METHOD:**
  - 1. Size of Sample - Type C Wall - 3 pieces - 6 feet in length
  - 2. Type S (Smooth wall) - 3 pieces - 18 in. in length
- C. **FUNCTION OF THE RESIDENT ENGINEER:**
  - 1. Inspect pipe for conformity with requirements for markings, dimensions, and freedom from defects.
  - 2. Obtain sample and manufacturer's certification that the product meets AASHTO M 252 and login appropriate information in to KMIMS as PHYSL-CO- M 252 with an inspection type of PRJ\_ACPT.
  - 3. No entries required when sampling frequency has been met and additional material is received on the project.
  - 4. For small quantities log into KMIMS as PHYSL-DO M 252 with an inspection of VIS\_ACPT.

5. Await approval prior to use.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Submit samples to the Division for testing.

E. REMARKS:

(PHYSICAL SECTION)

#### Corrugated Polyethylene Pipe M-294 (Type S) - for Entrances and Cross drains

A. SAMPLING FREQUENCY: No sample is required.

B. SAMPLING METHOD: Obtain manufacturer's certification through the contractor stating that the material conforms to AASHTO M 294.

C. FUNCTION OF THE RESIDENT ENGINEER:

1. Inspect pipe for defects and conformance to plans.
2. Obtain manufacturer's certification covering shipment and make sure the manufacturer is on the LAM.
3. Log material in KMIMS as PHYSL-DO PIPE M294 with an inspection type of CERTIFY. Allow use of material.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Indicate PASS/FAIL in KMIMS.

E. REMARKS:

(PHYSICAL SECTION)

#### PVC PIPE (Drainage Pipe)

A. SAMPLE FREQUENCY: No sample is required.

B. SAMPLE METHOD: Obtain manufacturer's certification through the contractor stating that the material conforms to the specifications.

C. FUNCTION OF THE RESIDENT ENGINEER:

1. Obtain manufacturer's certification covering shipment.
2. Inspect for conformity with certification, dimension requirements, and freedom from defects.
3. Log material in KMIMS as PHYSL-DO PIPE PVC with an inspection type of CERTIFY.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Indicate PASS/FAIL in KMIMS.

E. REMARKS:

(PHYSICAL SECTION)

**POSTS**

Sign Posts (Type I & II)

A. SAMPLING FREQUENCY:

1. One sample per 5000 feet of post per type per source.
2. Up to 5 posts per project may be accepted by small quantities.

B. 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.

C. FUNCTION OF THE RESIDENT ENGINEER:

1. Obtain manufacturer's certification containing physical and chemical test results indicating that the product meets the specification.
2. Inspect posts for conformity with dimensional requirements.
3. Take sample, login sample into KMIMS as PHYSL-CO Posts - Sign (Type I or II) with an inspection type of PRJ\_ACPT.
4. Await Division approval before permitting use of posts.
5. For small quantity acceptance login as PHYSL-DO with an inspection type of VIS\_ACPT.

C. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Submit samples to the Division for testing.

D. REMARKS:

1. Type I = square shape
2. Type II = U or channel Shape

(PHYSICAL SECTION)



Metal Fence Posts - See FENCING MATERIALS

Metal Guard Rail Posts - See GUARD RAIL.

Metal Sign Posts (Structural Shapes)

- A. SAMPLING FREQUENCY: No sampling required
- B. SAMPLING METHOD: 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.
- C. FUNCTION OF THE RESIDENT ENGINEER:
  - 1. Await approval from Division of Construction, based on satisfactory certification reports.
  - 2. Log into KMIMS as PHYSL-DO Posts - Sign Post Structural with an inspection type of CERTIFY.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Indicate PASS/FAIL in KMIMS.
- E. REMARKS:

(PHYSICAL SECTION)

***PREFORMED EXPANSION JOINT FILLERS***

SPONGE RUBBER (Type I), CORK (Type II) or SELF EXPANDING CORK (Type III) AASHTO M 153

- A. SAMPLING FREQUENCY: No sample is required.
- B. SAMPLE METHOD: Obtain a copy of the manufacturer's certification through the contractor indicating that the product meets the specification.
- C. FUNCTION OF THE RESIDENT ENGINEER: Log material into KMIMS as PHYSL-DO Expansion Joint Material - Cork with an inspection type of CERTIFY.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Indicate PASS/FAIL in KMIMS.
- E. REMARKS:

(PHYSICAL SECTION)

BITUMINIZED FIBER (AASHTO M 213)

- A. SAMPLING FREQUENCY: No sample is required. Obtain a copy of shipping form (TC64-609 Form).
- B. SAMPLE METHOD: N/A
- C. FUNCTION OF THE RESIDENT ENGINEER:
1. Determine if material is from tested stock. A Shipment Approval Form will accompany shipments of tested stock materials.
  2. Check Shipment Approval Form for the following information:
    - a. Project number and county;
    - b. Name of contractor;
    - c. The type, thickness, and quantity of material shipped;
    - d. The lot number(s) of the material;
    - e. A signed statement that the material is from tested and approved lot(s). A KMIMS identification number will be included on the approval form and the PASS/FAIL status of the lot can be determined in the system.
  3. Inspect for dimensional requirements.
  4. Verify by visual inspection that each sheet or piece has a lot number stamped on it. Verify each lot received has an associated KMIMS ID number on the listed approval form.
  5. Log sample into KMIMS as PHYSL-DO Expansion Joint Material - Bituminous Fiber with an inspection type of VIS\_ACPT.
  6. Allow the use of the material.
  7. Contact DME if a KMIMS ID number is not provided for the lot shipped. Do not allow use.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:
- E.
1. DME samples the bituminous fiber from the suppliers storage facility, assigns a lot number to the material, marks the lot for identification and enters in KMIMS as PHYSL-CO with an inspection type of INFORM. (Sample size - three 5 in. x 10 in. pieces but not from one section.)
  2. DME submits samples to the Division for testing.
  3. When notified by the RE that unsampled material has shown up at the jobsite, the material may be sampled as noted above and submitted to the Division for testing. When passing results are obtained allow use of material.

- E. REMARKS: After testing is completed the Division will notify the supplier of test results and KMIMS number for inclusion on the TC 64-609 form.

(PHYSICAL SECTION)

***REINFORCING AND TIE STRIPS (For Reinforced Earth Walls)***

Reinforcing Strips

- A. SAMPLING FREQUENCY: One sample per source.
- B. SAMPLING METHOD: Sample Size - 15 in.
- C. FUNCTION OF THE RESIDENT ENGINEER:
1. Obtain manufacturer's certification indicating compliance with the special note in the proposal.
  2. Inspect for defects and conformity to plans or approved shop drawings.
  3. Obtain sample and log into KMIMS as PHYSL-CO Reinforcing Tie Strips with an inspection type of PRJ\_ACPT.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Submit samples to the Division for testing.
- E. REMARKS:

(PHYSICAL SECTION)

Tie Strips

- A. SAMPLING FREQUENCY: One sample per delivery to the plant.
- B. SAMPLE METHOD: Sample Size - 3 pieces.
- C. FUNCTION OF THE RESIDENT ENGINEER: N/A
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:
1. Obtain manufacturer's certification indicating compliance with the special note in the proposal.
  2. DME inspects for defects and conformity to plans or approved shop drawings.
  3. DME samples tie strips at plant, logs sample in KMIMS as PHYSL-CO Reinforcing

Tie Strip with an inspection type of INFORM and submits sample and Certification to the Division for testing.

E. REMARKS:

(PHYSICAL SECTION)

## **REINFORCING STEEL**

### Epoxy Coated Bars

- A. **SAMPLING FREQUENCY:** Obtain one sample from each heat totaling 10,000 lb. for each day's delivery. Accept quantities less than 10,000 lb. based on manufacturer's certification indicating compliance with the specifications (no sample required).
- B. **SAMPLING METHOD:** Sample Size -
1. Bar Size 10 – 25 mm (#3 - #8) 54 inches
  2. Bar Size 29 - 57 mm (#9 - #18) 60 inches
- C. **FUNCTION OF THE RESIDENT ENGINEER:**
1. Obtain the Fabricator's Heat Number Identification of Reinforcing Bars form (TC64-122) and quality control report from epoxy coater for each shipment.
  2. Inspect shipment for damage to coating and for conformance to requirements of the specifications.
  3. Obtain samples and log samples into the system.
  4. When sample is required inspection type is PHYSL-CO - PRJ\_ACPT. If no sample is required the inspection type is PHYSL-CO - CERTIFY. Paperwork must be attached and submitted to the Division for project certification.
  5. If quick confirmation is necessary, call the Division's Physical Section for approval. After verbal approval is obtained, the bar sizes, weights, heat numbers, bar list numbers, date and name of person giving verbal approval should be documented in the project files.
  6. Await approval by the Division before using material.
- D. **FUNCTION OF THE DISTRICT MATERIALS ENGINEER:** Submit samples to the Division for testing.
- E. **REMARKS:** When the Inspection Type is PHYSICAL-CO-CERTIFY, generate an ID number for each TC 64-122 form with the total quantity including only the heats that are not field check sampled.

PLAIN STEEL (UNCOATED)

A. SAMPLING FREQUENCY:

1. Obtain one sample from each heat totaling 20,000 lb. or more for each day's delivery. Accept quantities less than 20,000 lb. based on manufacturer's certification (no sample required).
2. For Maintenance Steel (TCT) obtain 2 samples for each 5000 lb. or fraction thereof per size. A TC64-122 form and mill test report are not necessary.

B. SAMPLING METHOD: Sample Size -

1. Bar Size 10 – 25 mm (#3 - #8) 54 inches
2. Bar Size 29 - 57 mm (#9 - #18) 60 inches

Certified steel from approved suppliers may be used immediately. Project documentation must follow and field check samples must be submitted.

C. FUNCTION OF THE RESIDENT ENGINEER:

1. Visually inspect the shipment and compare with the Fabricator's Heat Identification Of Reinforcing Bars TC 64 122 form received to verify if accurate information has been provided.
2. Check manufacturer's certification to determine if steel meets specifications.
3. Visually inspect the shipment for defects, rust, proper grade markings, etc.
4. Determine if the fabricator and manufacturer are included on the LAM.
5. Obtain sample if required and log in to KMIMS as PHYSL-CO with an inspection type of PRJ\_ACPT.
6. Allow use of steel if all requirements are met.
7. Assign all other heats as PHYSL-DO with an inspection type of CERTIFY.

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

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Notifies Resident Engineer of the approval status of field check samples after testing is completed by the Division.

E. REMARKS: Splice bars are not to be submitted as samples in substitution for the required random samples. If splice bar sampling is deemed necessary, they should be identified as splice bar samples. If 60-in. bars cannot be obtained, the longest possible length should be submitted.

(PHYSICAL SECTION)

Splices, Welded or Mechanical

- A. SAMPLING FREQUENCY: Two samples per bar size spliced for each 100 splices made on job.
- B. SAMPLING METHOD: Sample size - Two completed splices with each at least 30 in. in length.
- C. FUNCTION OF THE RESIDENT ENGINEER:
  - 1. Observe process as splice is made to insure compliance with manufacturer's instructions.
  - 2. Sample and login to system as PRJ\_ACPT.
  - 3. Await approval before continuing with splices.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Submit samples to the Division for testing.
- E. REMARKS:

(PHYSICAL SECTION)

Tack Welds (Concrete Beams)

- A. SAMPLING FREQUENCY: Tack welders shall be qualified biennially.
- B. SAMPLING METHOD:
  - 1. Tack welders' procedures shall be qualified by preparing and testing 2 sample tack welds of the following sequence: #3 (10 mm) to #6T (19T mm), #6 (19 mm) to #3T (10T mm), #4 (13 mm) Epoxy to #5T (16T mm), and #5 (16 mm) Epoxy to #4T (13T mm) where T is the short bar of the welded intersection.
  - 2. The length of the bar to be tested shall be approximately 24 in. The other bar (weld at mid-length) shall be 6-8 in. long.
  - 3. The sample shall be securely taped at the weld and submitted to the Division.
- C. FUNCTION OF THE RESIDENT ENGINEER: None
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:
  - 1. Sample tack welds (two each) for each combination of bar size prepared by the tack welder in the presence of the plant inspector.
  - 2. Login sample to KMIMS as PHYSL - CO - INFORM and submit to the Division for testing. The Division will notify the District Materials Engineer as to the status of test.

E. REMARKS:

(PHYSICAL SECTION)

***SEED (Permanent)(Grasses, Native Grasses, Legumes)***

A. SAMPLING FREQUENCY: No sample required.

B. SAMPLE METHOD: N/A

C. FUNCTION OF THE RESIDENT ENGINEER:

1. Obtain vendor's seed tag for each lot received.
2. Check to insure that all bags have a tag.
3. Check for the following information/requirements on the tag to insure results are within allowable ranges in the specifications:
  - a. Lot number identification,
  - b. Vendor's name and address,
  - c. Kind of seed,
  - d. Variety of seed,
  - e. Pure seed %,
  - f. Germination %,
  - g. Hard seed %,
  - h. Inert matter %,
  - i. Crop seed %,
  - j. Date of test,
  - k. Weed seed %,
  - l. Seed origin (state), and
  - m. List of noxious weed seeds and amounts (if any).
4. If the seed is premixed, obtain the Master Blend Sheet from the vendor.
5. Log information/data into KMIMS as PHYSL-DO with an inspection type of CERTIFY.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Indicate PASS/FAIL in KMIMS

(PHYSICAL SECTION)

***SEED (Wildflower)***

A. SAMPLING FREQUENCY: No sample required.

B. SAMPLE METHOD: N/A

C. FUNCTION OF THE RESIDENT ENGINEER:

1. Check to insure that all bags have a vendor's seed tag attached.
2. Obtain vendor's seed tag for each lot received. Forward to the division for review.
3. Log information/data into KMIMS as PHYSL-CO with an inspection type of CERTIFY.
4. Await approval from the Division before planting.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Submit tags and KMIMS information to the division for approval.

(PHYSICAL SECTION)

***SEED (Temporary)***

A. SAMPLING FREQUENCY: No sample required.

B. SAMPLE METHOD: N/A

C. FUNCTION OF THE RESIDENT ENGINEER:

1. Obtain and file the vendor's seed tag with test results for each type and lot of seed.
2. Insure time limitations have not expired as outlined in Subsection 827.04.
3. Log information/data into KMIMS as PHYSL-DO with an inspection type of VIS-ACPT.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Indicate PASS/FAIL in KMIMS.

(PHYSICAL SECTION)

***SILT FENCE (TEMPORARY)***



- A. SAMPLING FREQUENCY: No sample is required.
- B. SAMPLE METHOD: Obtain the certification through the contractor indicating compliance with the specification.
- C. FUNCTION OF THE RESIDENT ENGINEER:
  - 1. Obtain letter of certification.
  - 2. Inspect for conformity with the Standard Drawing and the specifications.
  - 3. Log material in KMIMS as PHYSL-DO Silt Fence with an inspection type of CERTIFY.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Indicate PASS/FAIL in KMIMS.
- E. REMARKS:

(PHYSICAL SECTION)

***Sod (Kentucky Bluegrass or Tall Fescue)***

- A. SAMPLING FREQUENCY: No sampling required.
- B. SAMPLE METHOD: NA
- C. FUNCTION OF THE RESIDENT ENGINEER:
  - 1. Visually inspect the sod before cutting and removal from the source.
  - 2. Log material into KMIMS as PHYSL\_DO with an inspection type of VIS\_ACPT.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Indicate PASS/FAIL in KMIMS.
- E. REMARKS:

(PHYSICAL SECTION)

***STAY IN PLACE FORMS***

- A. SAMPLING FREQUENCY: One sample per source per project.
- B. SAMPLING METHOD:
  - 1. Project testing of zinc coating will be by Thickness Gauge.
  - 2. The referee test for coating thickness will be the stripping method, which 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.)

3. The sample size shall be 3 in. x 14 in. when cut with a torch or 2 in. x 14 in. piece when cut smoothly with a saw.
4. Referee testing is required when the zinc coating weight fails to meet the minimum requirements.

C: FUNCTION OF THE RESIDENT ENGINEER:

1. Inspect forms for white rust.
2. Perform tests for zinc coating and gage thickness.
3. If test results are passing login material in KMIMS as PHYSL-DO - Stay-In-Place-Forms PRJ\_ACPT.
4. If testing is required login material in KMIMS as PHYSL-CO-Stay-In-Place-forms PRJ\_ACPT.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Submit samples to the Division for testing.

E. REMARKS:

(PHYSICAL SECTION)

**STEEL WIRE**

Steel Wire Reinforcement

- A. SAMPLING FREQUENCY: One sample per size, per source, for each day's delivery.
- B. SAMPLING METHOD: Sample Size - two wires, each 2 feet in length.
- C. FUNCTION OF THE RESIDENT ENGINEER:
  1. Obtain sample and log into KMIMS as Steel Wire PHYSL-CO with an inspection type of PRJ\_ACPT.
  2. Await Division approval before permitting use of materials.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Submit sample to the Division for testing.
- E. REMARKS:

(PHYSICAL SECTION)

Steel Wire Welded Fabric (for pavement slope protection, paved ditches, retaining walls, etc.)

A. SAMPLING FREQUENCY:

1. One sample to represent initial quantity available and 1 sample for each day's delivery thereafter.
2. Up to 15 square yards per project may be accepted by small quantities.

B. SAMPLING METHOD: Sample Size - 2 ft. by 5 ft section.

C. FUNCTION OF THE RESIDENT ENGINEER:

1. Inspect for defects (rust, etc.) and conformity to standard drawing dimensions.
2. Sample and log into KMIMS as Steel Wire PHYSL-CO with inspection type PRJ\_ACPT.
3. Enter small quantities as PHYSL-DO - Steel Wire with an inspection type of VIS\_ACPT.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Submit sample to the Division for testing.

E. REMARKS:

(PHYSICAL SECTION)

Steel Wire Welded Fabric (for Concrete Pipe)

A. SAMPLING FREQUENCY: One sample per size, per source, every 4 months.

B. SAMPLING METHOD: Sample Size - 2 ft. by 5 ft. section.

C. FUNCTION OF THE RESIDENT ENGINEER: None.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:

1. DME obtains sample, logs into KMIMS as Steel Wire PHYSL-CO with an inspection type of INFORM and submits sample to the Division for testing.
2. DME notifies concrete pipe plant as to status of sample after completion by the Division.

E. REMARKS: List the wire sizes in batch box on login screen.

(PHYSICAL SECTION)

**STRAND (Pre-tensioning or Post-tensioning)**

- A. SAMPLING FREQUENCY: Two samples selected from one reel per heat number.
- B. SAMPLE METHOD: Sample size - two 54 in. pieces. The ends must be brazed before shipping.
- C. FUNCTION OF RESIDENT ENGINEER:
  - 1. Samples strand (if not plant sampled).
  - 2. Logs sample into KMIMS as PHYSL-CO-Prestressing Strand with an inspection type of INFORM.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:
  - 1. Prestressed plant inspector samples strand.
  - 2. DME logs sample into KMIMS as PHYSL-CO with an inspection type of INFORM and submits samples to the Division for testing.
  - 3. DME notifies prestressed plant inspector of approval status after completion of testing.
- E. REMARKS: Samples without braised ends will not be tested (for safety reasons).

(PHYSICAL SECTION)

**STRUCTURAL STEEL - (See Structural Steel in Chemistry Section)**

(PHYSICAL SECTION)

**STRUCTURAL STEEL (FRAMES, GRATES & LIDS, ASTM A-36)**

- A. SAMPLING FREQUENCY: No sample is required.
- B. SAMPLE METHOD: Obtain producer's certification through the contractor indicating compliance with the specifications.
- C. FUNCTION OF THE RESIDENT ENGINEER:
  - 1. Visually inspect for conformance to applicable standard drawing and obtain producer's certification.
  - 2. Verify that the producer is on the LAM, for Manufacturers of Steel Welded Grates.
  - 3. Log material in KMIMS as PHYSL-CO-Frames, Grates and Lids with an inspection type of CERTIFY.

4. Await Division approval before permitting use of material.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Submit paper work to the Division.

E. REMARKS:

(PHYSICAL SECTION)

### **TIMBER PRODUCTS**

Treated Posts, Piling, Structural Timber, Etc.

A. SAMPLING FREQUENCY: No sampling is necessary. Acceptance criteria is either by the presence of the KY oval stamp, or a report prepared by the independent testing firm that inspected the timber products.

B. SAMPLE METHOD: N/A

C. FUNCTION OF THE RESIDENT ENGINEER:

1. Inform 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.
2. Check all pieces for the KY stamp approval, other approval stamp when applicable, or the inspection report. If none of these are available, contact the DME immediately and do not permit use of unsampled timber without authorization. If these are available, inspect pieces for freedom from defects, etc.
3. Log sample into KMIMS as PHYSL-DO TIMBER with an inspection type of VIS\_ACPT.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER:

1. Inspect the products visually for defects.
2. Indicate PASS/FAIL in KMIMS.

E. REMARKS:

1. Timber treated either within the Commonwealth of Kentucky or within a reasonable driving distance of Frankfort, Kentucky, will be inspected, tested, and approved by the Division prior to acceptance for payment. A reasonable driving distance shall be defined as any location that allows the inspector reasonable time for inspection and round trip travel time from his work station in one working day.
2. Timber treated outside a reasonable driving distance of Frankfort, Kentucky, shall be inspected by an independent treated timber inspection company (subject to prior approval by the Division) at the expense of the supplier.

3. Test reports from the treated timber inspection company shall be furnished with each order and shall be approved by the Division prior to acceptance of the material for payment.
4. Suppliers furnishing timber which is treated outside a reasonable driving distance of Frankfort, Kentucky shall contact the Physical Properties Test Section at the Division of Materials, Kentucky Department of Highways, Frankfort, Ky. 40601 (phone 502.564.3160) at least 15 days prior to commencing an order.

#### Treated Poles

- A. **SAMPLING FREQUENCY:** No sampling is necessary. Acceptance criteria is either by the presence of the KY oval stamp, or a report prepared by the independent testing firm that inspected the timber poles.
- B. **SAMPLE METHOD:** N/A
- C. **FUNCTION OF THE RESIDENT ENGINEER:**
  1. Inform 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.
  2. Check all pieces for the KY stamp approval, other approval stamp when applicable, or the inspection report. If none of these are available, contact the DME immediately and do not permit use of unsampled timber without authorization. If these are available, inspect pieces for freedom from defects, etc.
  3. Log sample into KMIMS as PHYSL-CO TIMBER with an inspection type of CERTIFY.
- D. **FUNCTION OF THE DISTRICT MATERIALS ENGINEER:**
  1. Inspect the poles visually for defects.
  2. Submit reports to the Division.
- E. **REMARKS:**
  1. Timber treated either within the Commonwealth of Kentucky or within a reasonable driving distance of Frankfort, Kentucky, will be inspected, tested, and approved by the Division prior to acceptance for payment. A reasonable driving distance shall be defined as any location that allows the inspector reasonable time for inspection and round trip travel time from his work station in one working day.
  2. Timber treated outside a reasonable driving distance of Frankfort, Kentucky, shall be inspected by an independent treated timber inspection company (subject to prior approval by the Division) at the expense of the supplier.
  3. Test reports from the treated timber inspection company shall be furnished with each order and shall be approved by the Division prior to acceptance of the material for payment.

4. Suppliers furnishing timber which is treated outside a reasonable driving distance of Frankfort, Kentucky shall contact the Physical Properties Test Section at the Division of Materials, Kentucky Department of Highways, Frankfort, Ky. 40601 (phone 502.564.3160) at least 15 days prior to commencing an order.

(PHYSICAL SECTION)

#### Untreated Posts and Lumber

- A. **SAMPLING FREQUENCY:** Sampling is not necessary, the material is accepted by visual inspection at the job site.
- B. **SAMPLE METHOD:** N/A
- C. **FUNCTION OF THE RESIDENT ENGINEER:**
  1. Untreated timber is normally not plant inspected and complete inspection and approval is made at the job site.
  2. Inspect pieces for conformity to specification requirements for dimensions, freedom from defects, grade, species, etc.
  3. Log material into KMIMS as TIMBER PHYSL-DO with an inspection type of VIS\_ACPT.
- D. **FUNCTION OF THE DISTRICT MATERIALS ENGINEER:**  
Indicate PASS/FAIL in KMIMS.
- E. **REMARKS:**

(PHYSICAL SECTION)

#### **WATER GATES**

- A. **SAMPLING FREQUENCY:** No sampling is necessary
- B. **SAMPLE METHOD:** Obtain producer's certification indicating compliance with the project plan requirements.
- C. **FUNCTION OF THE RESIDENT ENGINEER:**
  1. Inspect for conformance to design, type and dimensional requirements as shown in the applicable standard drawing.
  2. Obtain manufacturer's certification through the contractor and log material into KMIMS as PHYSL- CO WATERGATES with an inspection type of CERTIFY.

- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Submit certifications to the Division.
- E. REMARKS:

(PHYSICAL SECTION)

**WELDER, SHIELDED METAL ARC**

- A. SAMPLING FREQUENCY: No sampling required. Approval contingent on qualification status.
- B. SAMPLE METHOD: N/A
- C. FUNCTION OF THE RESIDENT ENGINEER:
  - 1. QUALIFIED: Verify welder's qualification status and identify by examining his identification card and driver's license or other identification and checking with DME if status is questionable.
  - 2. UNQUALIFIED: Refer welder to the Division or to an approved vocational school or testing lab. (See List of Approved Materials)
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Check status of welder in a report called Approved Welders in KMIMS - LV reports - Custom Reports.
- E. REMARKS:
  - 1. The Division maintains a LAM of welding operators and recognized testing agencies.
  - 2. 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.
  - 3. Each welder should keep a work record, which he should show to the resident upon request.

(PHYSICAL SECTION)

**WIRING AND CONDUIT (Ducted and Messenger Cable)**

- A. SAMPLING FREQUENCY:
  - 1. Sample each size and type of wire/cable.
  - 2. Sample each size and type of conduit.
- B. SAMPLE METHOD: Sample Size - 2 ft. section. Please indicate size and type of each wire/cable submitted and exact usage of each sample of conduit.



C. FUNCTION OF THE RESIDENT ENGINEER:

1. Inspect for conformity to specifications, project plans and proposal and obtain manufacturer's certification for conduit.
2. Obtain sample and log into KMIMS - (log in conduit and electrical wire as PHYSL-CO with an inspection type of PRJ\_ACPT).
3. Await Division approval before permitting use of materials.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Submit sample to the Division for testing.

E. REMARKS:

1. All other traffic related items should be submitted to the Division of Traffic.
2. The Division checks only to see if material meets submitted description.
3. Division of Traffic checks for proper usage.

## **SUMMARY OF ACCEPTANCE REQUIREMENTS FOR MISCELLANEOUS MATERIALS OR PRODUCTS USED IN BUILDING CONSTRUCTION**

This section is intended as an outline of acceptance requirements for individual materials or products used in construction of Rest Areas, Loadometer Stations or other types of building or building systems which, for the most part, are not included in other sections of this manual. Primary emphasis is on outlining methods of acceptance which are considered appropriate for each individual item and the inspection function the assigned Resident Engineer will perform.

### **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, have 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 whose design is designated to be approved on the basis of brochures or shop drawings or which are to be accepted on the basis of certification should 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 Inspector's Report without need for test reports.

However, documentation in the form of inspection reports (using KMIMS form) is required for other items (not covered by brochures, shop drawings, or certifications) which are approved at jobsite on the basis of labels or other visual means.

6. Copies of approved brochures and certifications and visual inspection results requiring Project Engineer's documentation should be submitted to the District Materials Engineer and computer entries made as appropriate for reference in finalizing project certifications of materials.

(MISCELLANEOUS BUILDING CONSTRUCTION)

***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***

- A. SAMPLING FREQUENCY: No sample required.

- B. SAMPLE METHOD: Obtain brochures.
- C. FUNCTION OF THE RESIDENT ENGINEER:
  - 1. Obtain brochures and submit to the Division of Construction for review and approval.
  - 2. Performs visual inspection.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Not applicable.
- E. REMARKS:

(MISCELLANEOUS BUILDING CONSTRUCTION)

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

- A. SAMPLING FREQUENCY: No sample required.
- B. SAMPLE METHOD: Not applicable.
- C. FUNCTION OF THE RESIDENT ENGINEER: Visually inspect and approve on the basis of manufacturer's certification of compliance with proposal notes and project plans.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Not applicable.
- E. REMARKS:

(MISCELLANEOUS BUILDING CONSTRUCTION)

***Dielectric Coupling, Floor Drain, Clean Out and Air Chamber, Glass and Related Materials, Hose and Hose Rack, Insulation, Plaster Materials, Sheet Metal, Vapor Barriers***

- A. SAMPLING FREQUENCY: No sample required.
- B. SAMPLE METHOD: Not Applicable.
- C. FUNCTION OF THE RESIDENT ENGINEER: Perform Visual Inspection.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Not applicable.
- E. REMARKS:

(MISCELLANEOUS BUILDING CONSTRUCTION)

## **CERAMIC TILE AND ADHESIVES**

- A. SAMPLING FREQUENCY: No Sample Required.
- B. SAMPLE METHOD: Obtain certification of compliance with proposal notes and project plans.
- C. THE FUNCTION OF THE RESIDENT ENGINEER: Obtain manufacturer's certification and submit to the Division of Construction for review and approval.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Not applicable.
- E. REMARKS:

(MISCELLANEOUS BUILDING CONSTRUCTION)

## **DOORS**

- A. SAMPLING FREQUENCY: No Sample Required.
- B. SAMPLE METHOD: Obtain certification and shop drawings of compliance with proposal notes and project plans.
- C. THE FUNCTION OF THE RESIDENT ENGINEER: Obtain manufacturer's certification and shop drawings and submit to the Division of Construction for review and approval.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Not applicable.
- E. REMARKS:

(MISCELLANEOUS BUILDING CONSTRUCTION)

## **HARDWARE**

- A. SAMPLING FREQUENCY: No Sample Required.
- B. SAMPLE METHOD: Obtain hardware schedule.
- C. THE FUNCTION OF THE RESIDENT ENGINEER: Visually inspect for conformance with schedule.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Not applicable.
- E. REMARKS:

(MISCELLANEOUS BUILDING CONSTRUCTION)

### ***HOLLOW METAL***

- A. SAMPLING FREQUENCY: No Sample Required.
- B. SAMPLE METHOD: Obtain Shop Drawings.
- C. THE FUNCTION OF THE RESIDENT ENGINEER: Submit shop drawings to the Division of Construction for review and approval.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Not applicable.
- E. REMARKS:

(MISCELLANEOUS BUILDING CONSTRUCTION)

### ***JOINT REINFORCEMENT***

- A. SAMPLING FREQUENCY: No Sample Required.
- B. SAMPLE METHOD: Obtain certification of compliance with proposal notes and project plans.
- C. THE FUNCTION OF THE RESIDENT ENGINEER: Approve on basis of Manufacturer's Certification or submit Sample to the Division for testing.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Perform testing.
- E. REMARKS:

(MISCELLANEOUS BUILDING CONSTRUCTION)

### ***LIGHTING FIXTURES***

- A. SAMPLING FREQUENCY: No Sample Required.
- B. SAMPLE METHOD: Obtain shop drawings brochures.
- C. THE FUNCTION OF THE RESIDENT ENGINEER:
  - 1. Approve fixtures not covered by brochures or shop drawings by visual inspection.
  - 2. Submit any brochures or shop drawings to the Division of Construction for review and approval.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Not applicable.
- E. REMARKS:

(MISCELLANEOUS BUILDING CONSTRUCTION)

**PAINT**

- A. SAMPLING FREQUENCY: No Sample Required.
- B. SAMPLE METHOD: Obtain manufacturer's certification indicating compliance with proposal notes and project plans.
- C. THE FUNCTION OF THE RESIDENT ENGINEER:
  - 1. Visually inspect labels to verify that the paint supplied is one of optional brands permitted.
  - 2. Where paint is supplied to be "equal" to another quoted brand or brands, obtain manufacturer's certification, and submit to the Division of Construction for review and approval.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Not applicable.
- E. REMARKS: Method of acceptance is by visual inspection or manufacturer's certification.

(MISCELLANEOUS BUILDING CONSTRUCTION)

**ROOFING MATERIALS (FOR BUILT UP ROOFING)**

- A. SAMPLING FREQUENCY: Aggregate - one per project.
- B. SAMPLE METHOD: AASHTO T2 70 kg of Aggregate.
- C. THE FUNCTION OF THE RESIDENT ENGINEER:
  - 1. Approve components, other than aggregate, by visual inspection.
  - 2. Submit aggregate to the Division.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Division performs gradation and quality testing of gravel.
- E. REMARKS:

(MISCELLANEOUS BUILDING CONSTRUCTION)

**SEALERS**

- A. SAMPLING FREQUENCY: No Sample Required.

- B. SAMPLE METHOD: Obtain brochure and certification indicating compliance with proposal notes and project plans.
- C. THE FUNCTION OF THE RESIDENT ENGINEER: Obtain brochures and manufacturer's certification for various items and submit to the Division of Construction for review and approval.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Not applicable.
- E. REMARKS:

(MISCELLANEOUS BUILDING CONSTRUCTION)

**UTILITY APPURTENANCES (*Permanent and Temporary*)**

(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.)

- A. SAMPLING FREQUENCY: No Sample Required.
- B. SAMPLE METHOD: NA
- C. THE FUNCTION OF THE RESIDENT ENGINEER:
  - 1. Obtain through the contractor a letter of acceptance from the local municipality. The letter should state that all work and materials meet or exceed the local and/or state codes.
  - 2. File acceptance letter in the project file and forward copy to the Division.
- D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: NA
- E. REMARKS: None

(MISCELLANEOUS BUILDING CONSTRUCTION)

**WINDOWS**

- A. SAMPLING FREQUENCY: No Sample Required.
- B. SAMPLE METHOD: Obtain Certification.
- C. THE FUNCTION OF THE RESIDENT ENGINEER:
  - 1. Obtain manufacturer's certification and shop drawings and submit to the Division of Construction for review and approval.
  - 2. Perform visual inspection.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Not applicable.

E. REMARKS:

(MISCELLANEOUS BUILDING CONSTRUCTION)

**WIRING DEVICES**

A. SAMPLING FREQUENCY: Submit sample to the Division of Construction.

B. SAMPLE METHOD: Obtain brochure, shop drawing and certification indicating compliance with proposal notes and project plans.

C. THE FUNCTION OF THE RESIDENT ENGINEER:

1. Submit brochures, shop drawings and manufacturer's certifications to the Division of Construction for review and approval.

2. Perform visual inspection.

D. FUNCTION OF THE DISTRICT MATERIALS ENGINEER: Not applicable.

E. REMARKS:



## **APPENDIX**

### ***KENTUCKY MATERIALS INFORMATION MANAGEMENT SYSTEM (KMIMS) FORMS***

Obtain current forms from the Division's website at <http://www.ktyc.state.ky.us/materials/kmims.htm>.

#### ***INSTRUCTIONS FOR COMPLETING THE KMIMS FORM***

##### **PAGE ONE**

CO/DO: Select appropriate area that will be responsible for testing sample. An exception is IAS to be performed at CO, these should be indicated as DO. CO - Central Office, DO - District Office

District: Enter responsible district.  
00 - Central Office, 01-12 - Appropriate district, 13 - Contractor or consultant.

Material Description: Circle appropriate options. Continue all selections available to the right. ( ) after sample type indicates where sample can be tested and should agree with CO or DO selection made above.

Inspection Type: Circle the appropriate Inspection Type in accordance with instructions in Sampling Manual.

##### **PAGE TWO**

Sample ID Number: This field is generated by the computer. No manual entry is required when sampling a material.

Date Sampled: The date the sample is obtained by the inspector.

Inspector ID Number: Person submitting the sample. Format: xxx = Crew, xx = District, xxxx = last four digits of inspector's Social Security Number. Contractor ID's will use 999-13-xxxx

Name: Inspector's name.

Producer/Supplier Name: Name of the Producer, Supplier, Manufacturer, Fabricator, of the material or product. This information is typically found on a product certification sheet, shipping invoice etc.

Location: Location of the Producer/Supplier described above.

Product Name: This field applies to those materials that have a Manufacturer's Product name associated with them. (for example: Sikadur Epoxy, Carbomastic-15 Lo Odor). This information can be found on product labels or product certification sheets.

Sample Location: Point where the sample was taken. (for example: Contractor's Stockpile: Cement

Weigh Hopper; Project Storage Yard; Manufacturer's Warehouse)

**Original Sample ID:** This field is used if the material is being sampled for a Retest.

**Lot/Batch Number:** This field is used to identify a specific group or manufacturer's lot of material. This number may be referred to as a 'batch number' or 'heat number' by the manufacturer on a product certification or it may be stenciled on the material found in the field as the date of manufacture. Can be created to identify a batch (asphalt mixture samples, concrete cylinders, etc.)

**Project ID Number:** This number is found on the project proposal. This is required for all samples taken for the project. If the sample is representative of materials assigned to more than one project, the Project ID Number, the associated Bid Item Description and the associated Quantity of each project should be entered on the lines provided for this field.

**Quantity Inspected Units:** The quantity of material assigned to the project by the sample or certification associated with this sample ID.

**Bid Item/Bid Item Desc.:** The description for this field is found in the line item bids on the proposal. For soil samples, will be an item of earthwork (Embankment in Place, Roadway Excavation).

**Remarks:** Any remarks that are pertinent to the sample conditions etc. may be entered in this field. Field test results should be entered in the remarks section of this form. Examples are: air content and slump for concrete, shale and sand equivalent for aggregate, etc.

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