

LPA Guidance: ODOT Requirements for Asphalt Production at Plants (7/18/2013)

Below in outline form is guidance for properly administering QC/QA requirements for asphalt production at asphalt plants for LPA funded projects accepted under Ohio DOT specifications. The below DOES NOT cover requirements for laydown of asphalt at the roadway.

General Subject Areas Requiring Oversight, Review and Documentation

1. Approval of Asphalt Plants and Labs (*pre-production/construction*)
2. Approval of Quality Control Plan (QCP) (*pre-production/construction*)
3. Approval of Raw Materials (*pre-production/construction*)
4. Approval of Job Mix Formulas (JMF) (*pre-production/construction*)
5. Quality Control/ Quality Assurance (QC/QA) Requirements (*production/construction*)
6. Sampling (*production/construction*)
7. Acceptance Testing (*production/construction*)

Applicable Ohio DOT Specifications:

- **Construction and Materials Specification (C&MS)** book by applicable date/ project letting
- **Supplemental Specification 800** applicable by date/ project letting having updates to C&MS book.
- **Supplement 1041 Asphalt Concrete Quality Assurance Program Administration**
- **Supplement 1032 Asphalt Material Certification Requirements**
- **Supplement 1069 Pre-qualified Aggregate Supplier Program**

Applicable other Ohio DOT Documents:

- **ODOT Sampling and Testing Manual, Appendix J** for detailed plant, testing and monitoring questions.
- **ODOT Sampling and Testing Manual, Appendix K** for small quantity asphalt requirements.
- **510-009 (SP)** policy for non-specification material.
- **Web links as noted below.**

1. Approval of Asphalt Plants and Labs

Asphalt Plants: Asphalt plant requirements are found in 402 of C&MS. Ohio DOT inspects and approves asphalt plants. Lists of approved plants can be found on the CMS Portal web site:

<http://www.odotonline.org/cmsportal/>

Asphalt Labs: Level 2 Asphalt labs must be located at the asphalt plant site and must meet the requirements of Supplement 1041 prior to production. This should have occurred for plant approval but needs checked.

2. Approval of Quality Control Plan (QCP)

The Ohio DOT will annually approve QCPs and issue to the Contractor an approval letter prior to asphalt plant approvals. QCPs must meet the requirements of 403.03. The LPA should request for review from the Contractor the letter and QCP prior to production.

3. Approval of Raw Materials

All aggregates, Recycled Asphalt Pavement (RAP), Reclaimed Asphalt Shingles (RAS), Asphalt Binders and tack products, and any required additives are to be approved prior to use.

Aggregate: Approved aggregate suppliers AND each component aggregate must be on the Supplement 1069 Pre-qualified Aggregate Supplier Program list found on the Contracts web site:
<http://www.dot.state.oh.us/Divisions/ConstructionMgt/Materials/Pages/CertifiedSuppliers.aspx>

RAP/ RAS: RAP and/or RAS must meet requirements of C&MS 401.04. RAP/RAS must be identified on the JMF, be processed according to 401.04 and be in identifiable piles on site.

Asphalt Binders and Tack Coats: Asphalt binders (ex. PG 64-22 etc) and tack products (ex. SS-1H etc) must be from prior approved suppliers and be on the Ohio DOT Supplement 1032 Asphalt Material Certification Requirements list found on the Contracts web site:
<http://www.dot.state.oh.us/Divisions/ConstructionMgt/Materials/Pages/CertifiedSuppliers.aspx>
Asphalt binders and tack products must also be sampled from the project to determine adequacy and payment.

4. Job Mix Formula

Requirements: JMFs must be approved prior to production. General requirements for JMFs depend on mix type specified. For 301, 302 base mixes JMF requirements are found in C&MS 301 and 302. For Type 1, Type 2 etc JMF requirements are found in 441.02. For Superpave mixes (12.5mm etc) JMF requirements are found in C&MS 442.

JMF Approval Process: Ohio DOT approves and assigns a JMF number. The LPA should obtain from the Contractor a copy of both the entire JMF submittal packet and the JMF approval letter. Each JMF should be reviewed for the following:

1. Each JMF must have an Ohio DOT assigned number (ODOT can verify if any doubts)

2. The JMF should be no more than 3 years old and be for the correct traffic volume.
3. Each JMF to be used must be for a contract specified pay item.
4. Each JMF must show all the properties required in the C&MS noted above are met.
5. Each JMF must show approved aggregates, binders and RAP/RAS.
6. JMFs must be created in an approved Level 3 Asphalt Mix Design lab per Supplement 1041 and be created by a certified Level 3 Mix Design person.

5. **Quality Control/ Quality Assurance (QC/QA) Requirements**

Quality Control (QC) is the responsibility of the Contractor. C&MS 403 and 441 and other minor sections specific to mix type cover QC requirements.

Quality Assurance (QA) is the responsibility of the LPA. QA may be assigned to a consultant or other assigned party having approved technicians and lab. QA covers both (a) review of QC activities of the Contractor by physical presence and sample testing **AND** (b) overseeing sampling and testing for payment.

(a) Review of Contractor QC Activities is called **Asphalt Monitoring** and is conducted by a Level 2 Certified and experienced person called an Asphalt Monitor. Knowledge in asphalt QC testing, specifications and Contractor responsibilities is essential to proper monitoring. The LPA is responsible to ensure that proper monitoring is accomplished per specification.

The Asphalt Monitors Manual is the best place to start in understanding the responsibilities of an asphalt monitor. The manual can be found on the OMM Asphalt web site at:

<http://www.dot.state.oh.us/Divisions/ConstructionMgt/Materials/Pages/AsphaltInformation.aspx>

Detailed requirements on specific topics related to asphalt monitoring can be found in the ODOT Sampling and Testing Manual Appendix J. The manual can be found at:

<http://www.dot.state.oh.us/Divisions/ConstructionMgt/Materials/STM2010/Forms/PUBLIC.aspx>

If a question arises regarding small quantity asphalt production guidance can be found in the Sampling and Testing Manual Appendix K at the above web address.

(b) Sampling and Testing for Payment: The applicable specification determines the method of sampling and testing for payment purposes. C&MS 403 covers 301, 302, 448 and other more minor specifications. C&MS 446 covers requirements for density projects. Monitors are heavily involved in determining acceptance under 403. Monitors determine if Contractor results are suitable for use in payment per 403 OR if payment will be by the contracting agency tests. For 446 the project staff should mark core locations per specification and observe the contractor obtain cores. The project staff should then obtain custody of the cores and have them tested (not by the Contractor) for payment determination per the tables in 446.

6. Sampling

General sampling requirements for asphalt mixes are contained in the appropriate section of C&MS as noted above, both samples for QC and/or QA.

One item often overlooked is the sampling and testing of asphalt binders and tack products. Table 700 Minimum Sampling Requirements for Sampling Materials covers all materials. Asphalt binders are 702.01 and tack is 702.04. The Sampling and testing Manual Appendix J has a list of suitable sampling containers. Use two metal friction top 1 quart for asphalt binders and one plastic screw top for emulsions. Sample containers MUST be labeled as to product type, name, project etc.

Sampling of asphalt binders is performed at the asphalt plant. Ask the plant personnel to take the sample with the monitor witnessing and taking immediate possession of the sample. Transfer immediately for testing.

Sampling of tack is performed by project personnel from the distributor. Be sure proper procedures are followed including draining material from the distributor sample valve before obtaining the final sample. Transfer immediately for testing.

Take samples early in the project. Assign deductions for failing results per the Ohio DOT policy on non- specification material. This policy is designated as 510-009 (SP) and is found at:
<http://www.dot.state.oh.us/Divisions/ConstructionMgt/OnlineDocs/Pages/ConstructionPolicies.aspx>

7. Acceptance Testing

See above section 5., Sampling and Testing for payment.