

OFFICE OF STATE AID ROAD CONSTRUCTION			S.O.P. NO. SA II-3-21
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Subject: S.O.P. FIELD VERIFICATION OF CONCRETE JOB MIX FORMULAS			Distribution A, B, C, D, E
EFFECTIVE July 1, 2005	ISSUED July 1, 2005	SUPERSEDES Page of S.O.P. NO. EFFECTIVE:	APPROVED J. Brooks Miller, Sr. STATE AID ENGINEER

PURPOSE: To establish a uniform method for field verifying concrete job mix formulas (JMF's) in accordance with Subsection S-804.02.10.3 of the Standard Specifications.

1. GENERAL

Field verification of a JMF is the responsibility of the Contractor's Quality Control (QC) Technician and will be observed by the County/LSBP Engineer's Quality Assurance (QA) Technician. Prior to field verification, JMF's are only tentatively approved for use on State Aid work. Acceptable field verification results are required prior to final acceptance of the JMF. Mix designs may be transferred to other projects without additional field verification testing, once the mix design has passed the field verification process.

The objective is to batch the concrete using proportions tentatively approved for the JMF within the tolerances listed for both the individual component materials as listed in the specification and combined materials as listed in this SOP. Batching shall include all of the water, after proper moisture compensation has been made for the aggregates. The mix must yield within 2% of the correct volume, produce a slump within minus 1½ inches tolerance (minus 2½ inches with Type F or G chemical admixture) of the maximum permitted, and must have a total air content within minus 1 ½ percent of the maximum allowed.

2. TESTING

2.1. Aggregate Testing

- 2.1.1. Samples of aggregate are to be taken by the Contractor's QC Technicians at the concrete batch plant.
- 2.1.2. The samples are to be representative of aggregate used to produce the concrete for which the field verification tests are to be made.
- 2.1.3. The samples are to be protected from loss of moisture until total moisture, specific gravity and gradation tests can be performed.

2.2. Concrete Field Testing

- 2.2.1. Field verification tests of fresh concrete are to be made by the Contractor's Quality Control (QC) Technician and are to begin within fifteen minutes of when the concrete truck reaches the area of placement. Slump, air content and unit weight tests are to be performed before adding any water to the load.

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2.2.2. The County/LSBP Engineer's Quality Assurance (QA) Technician is to observe the verification testing.

3. REQUIRED DATA

- 3.1. The batch plant printout (or total batch weights recorded during loading of manual operations) for the load of concrete tested is to be used by the Contractor's QC Technician to calculate the yield, water content and actual dry weights of individual materials batched. Aggregate moisture, gradation and specific gravities shall be calculated. A copy of this information is to be provided to the Engineer.
- 3.2. Using Form TMD-892-SA, a summary of all field verification testing and calculations are to be completed by the Contractor's QC Technician and submitted to the Engineer for concurrence and forwarding to the Lab that approved the JMF. When this Lab is other than the MDOT Central Lab, the Lab will forward the field verification test summary to the Concrete Section of the MDOT Central Laboratory for placement in the JMF file. A copy of this correspondence will be furnished to the State Aid Materials Engineer by the County/LSBP Engineer.

4. VERIFICATION FAILURE

- 4.1. When the requirements of Section 1 above are not met, then the field verification testing will be repeated after JMF adjustments are made by the Contractor. If the requirements of yield, slump, or air are not met after three attempts, subsequent field verification testing shall not be permitted. This JMF shall not be used until the requirements listed above are met.
- 4.2. Any changes in the JMF will require additional field verification testing.