New Mexico Department of Transportation

PROCEDURE FOR APPROVAL OF TESTING LABORATORIES TO PERFORM MATERIALS TESTING AND MIX DESIGN SERVICES

I. SCOPE

This procedure has been implemented to formally qualify testing laboratories to perform services for the New Mexico Department of Transportation (NMDOT). It establishes the minimum requirements for a laboratory to provide testing, or mix design services.

This document is not intended to address project level acceptance testing. The requirements for both technician certification and laboratory equipment for project level acceptance testing are contained in Section 901 of the Most Current NMDOT Standard Specifications.

For purposes of this document, a testing laboratory shall be defined as any individual, group of individuals, or organization offering to provide construction materials testing or mix design services.

II. GENERAL REQUIREMENTS

The NMDOT acknowledges the mechanism established under the AASHTO Accreditation Program for recognizing the competency of a testing laboratory to perform specific tests on construction materials. If available, AASHTO accreditation shall be obtained for all AASHTO and ASTM test methods to be performed by the laboratory for an NMDOT project. AASHTO accreditation must also be obtained for all AASHTO and ASTM test methods that are modified or referenced by NMDOT. Approval shall be obtained in accordance with the provisions of Section II.A.

If AASHTO accreditation is not offered for a specific test method or procedure, approval shall be obtained in accordance with the provisions of Section II.B.

A. The laboratory shall be currently accredited under the AASHTO Accreditation Program for each specific test procedure that will be performed. Accreditation status shall be determined based on current information contained in the AASHTO re:source (formerly AMRL) official website. This documentation shall be submitted to the State Materials Bureau QC Engineer annually for review and approval. A copy of the laboratory's Quality Manual should also be submitted to the State Materials QC Engineer.

Copies of AASHTO re:source and CCRL inspection reports and responses to any deficiencies shall be transmitted to the NMDOT State Materials Bureau within 30 days of receipt of the inspection report.

Copies of AASHTO re:source and CCRL proficiency sample test result reports and responses to any deficiencies shall be transmitted to the NMDOT State Materials Bureau within 30 days of receipt of the final report.

The laboratory shall, as needed, participate in all applicable proficiency sample and referee sample-testing programs administered by the NMDOT State Materials Bureau.

B. The laboratory shall provide documentation for each of the requirements specified below. This documentation shall be submitted to the State Materials Bureau annually for review and approval.

1. Organization.

(a) A description of the organization including the legal name and address of the laboratory and the main office if different.

(b) A listing of relevant technical services offered.

2. Staff.

(a) An organizational chart defining operational personnel and their lines of responsibility and authority.

(b) A description of methods used to insure that personnel are trained to perform applicable test methods and procedures.

(c) A description of the methods used to evaluate staff competency including the maintenance of records to document the results. At a minimum, each person shall be evaluated semi-annually for each test that person is authorized to perform.

3. Personnel Qualifications.

(a) All relevant testing and inspection services shall be provided under the direction of a Technical Manager who shall: (1) be a full time employee of the laboratory, and (2) be a Professional Engineer registered in the State of New Mexico, or a person with equivalent science oriented education, or a person with at least three (3) years' experience directing materials testing and/or inspection services.

(b) The supervising laboratory technician shall have at least three (3) years relevant testing and inspection experience and shall have demonstrated competence in performing the specified test(s) (Note 1).

(c) The supervising field technician or inspector shall have at least three (3) years relevant testing and inspection experience and shall have demonstrated competence in performing the specified test(s) and inspection duties (Note 1).

(d) Inspecting and testing technicians shall have had sufficient on the job training to properly perform the relevant tests or inspection duties and shall have demonstrated competence in the same (Note 1). Inspecting and testing technicians shall work under the direction of a supervising technician.

Note 1 – Current certification by an NMDOT recognized authority for a specific test method or inspection process shall be considered as one means of initial evidence of competency. Examples of recognized certification authorities include the NMDOT Technician Training and Certification Program, ACI and NICET. Annual re-evaluation of competency will be required in accordance with Section II.B.2.(c).

4. **Equipment.**

(a) A list of all test equipment used in performing the specific test procedure(s)

(b) A record of the most recent calibration or verification of all significant testing equipment associated with a specific test. As a minimum, equipment shall be calibrated or verified at the intervals specified in AASHTO R 18. For any equipment not listed in AASHTO R 18, calibration and verification shall be at the frequency specified in the appropriate test method or as required by specification. If a frequency is not specified, the maximum interval between calibrations shall be twelve (12) months.

5. **Proficiency Samples.**

(a) The laboratory shall routinely participate in all applicable AASHTO re:source and CCRL proficiency sample programs. Copies of AASHTO re:source and CCRL proficiency sample test result reports and responses to any deficiencies shall be transmitted to the NMDOT State Materials Bureau within 30 days of receipt of the final report.

(b) The laboratory shall routinely participate in all applicable proficiency sample programs administered by the NMDOT State Materials Bureau.

6. **Facility Inspection.**

(a) The laboratory shall have its facilities, personnel, and procedures inspected at intervals of approximately 24 months by either the NMDOT or a national evaluation authority.

(b) If the inspection is performed by an organization other than the NMDOT, the laboratory shall authorize that organization to send copies of all inspection reports directly to the NMDOT State Materials Bureau.

7. **Records and Reports.**

(a) The laboratory shall maintain a system of records that permits verification of any report issued.

(b) All test reports shall be reviewed and signed by the technical manager of the organization.

8. Test Methods and Procedures

(a) The laboratory shall maintain current copies of all applicable testing and inspection procedures.

(b) Copies of all applicable procedures shall be readily available to technicians performing the work.

III. SPECIFIC REQUIREMENTS

A. Portland Cement Concrete Mixture Design. The laboratory shall be approved in accordance with the provisions of Section II to perform all tests normally associated with the development of Portland cement concrete mix designs (Note 2). Additionally, documentation must be submitted verifying that the supervising laboratory technician has at least three (3) years' experience in the development of Portland cement concrete mix designs and is certified by the American Concrete Institute as a Level 1 Lab Technician and a Level 1 Field Technician.

Note 2 - As a minimum, approval is required for the following test methods: AASHTO/ASTM T 11/C 117, T 19/C 29, T 22/C 39, T 27/C 136, T 84/C 128, T 85/C 127, T119/C143, T 121/C 138, T 126/C 192, and T 152/C 231.

After confirmation that the proper certifications have been achieved, the State Concrete Engineer shall visit the testing facility and provide the necessary instructions regarding proper electronic documentations and submittal procedures.

B. Asphalt Mixture Design. The laboratory shall be approved in accordance with the provisions of Section II to perform all tests normally associated with the development and analysis of bituminous mixture designs (Note 3). Additionally, documentation must be submitted verifying that the supervising laboratory technician has at least three (3) years' experience in the development and analysis of bituminous mixture designs and has received appropriate training for each type of mix design to be developed.

Note 3 - As a minimum, approval is required for the following test methods: Superpave Mix Designs - AASHTO T 11, T 27, T 30, T 84, T 85, T 165, T 166, T 167, T 176, T 209, T 248, T 269, T 275, T 283, T 304, T 308, **T 312, T 324.

**Must use NMDOT approved Gyratory Compactor.

C. Aggregate Index Testing. The laboratory shall be approved in accordance with the provisions of Section II to perform the following procedures: soundness loss testing, AASHTO T 104, using magnesium sulfate solution, abrasion and impact testing, AASHTO T 96/ C 131; and absorption of coarse aggregate, AASHTO T 85/C 127. Additionally, the laboratory shall participate in the Aggregate Index control sample testing program administered by the NMDOT. Documentation must be submitted verifying that the supervising laboratory technician has at least three (3) years' experience in performing the referenced test procedures.

IV. ON-SITE INSPECTION

An on-site review by the NMDOT of facilities, equipment, and procedures may be required before final approval is granted.

Any laboratory approved to perform testing, inspection, or mix design services is subject to no notice or short notice on-site inspections of its facilities, equipment, personnel, and relevant records by appropriate representatives from the NMDOT and/or the Federal Highway Administration (FHWA).

V. REVOCATION OF APPROVAL

A. Revocation. A laboratory may have its entire approval or its approval for a specific inspection, testing or mix design service revoked for any of the following reasons:

1. Failure to maintain compliance with any of the requirements specified in this document.

2. Failure to maintain compliance with any of the requirements specified for AASHTO accreditation.

3. Failure to perform tests in accordance with NMDOT designated procedures.

4. Failure to perform mix designs in accordance with NMDOT designated procedures.

5. Failure to correct deficiencies noted during any on-site inspection by an evaluation authority or Department representatives.

6. Failure to adequately address a rating of 2 or less on any proficiency sample test result.

7. Failure to attain a rating of 3 or greater on a specific test method for two (2) consecutive proficiency samples.

B. Re-approval. A laboratory whose approval has been revoked may seek re-approval by demonstrating compliance with the above requirements.