MINNESOTA DEPARTMENT OF TRANSPORTATION
STATE AID FOR LOCAL TRANSPORTATION GROUP

Technical Memorandum No. 00-SA-03

March 8, 2000

TO: County Engineers
City Engineers
Consulting Engineers
District State Aid Engineers

FROM: Julie Skallman
State Aid Engineer

SUBJECT: Materials Certification on Local Federal Projects

PURPOSE

Mn/DOT has developed a new, streamlined Materials Certification process for all of their construction and maintenance contract projects. The process has been formalized under Technical Memorandum No. 99-34-MRR-07, dated October 4, 1999. Since there is no longer a Mn/DOT process for certifying materials on local federal projects, State Aid for Local Transportation (SALT) has developed a process which is similar to Technical Memorandum 99-34-MRR-07 and satisfies the requirements for materials certification.

BACKGROUND

The Quality Assurance Program consists of all those planned and systematic actions necessary to provide confidence that a product or service provided by a highway construction contractor or a construction product vendor will satisfy requirements for quality.

The Quality Assurance Program consists of two parts, the Acceptance Program and the Independent Assurance Program. The Acceptance Program includes field testing, contractor's quality control testing and the agency's verification testing, as well as approved and certified products. The completion of the Acceptance Program for a project is the Materials Certification Process.

This State Aid Technical Memorandum establishes a new process for the Materials Certification portion of the Quality Assurance Program for local federal projects.

DEFINITIONS

The following definitions apply. For ease of association, the types of sampling and testing have been organized into three categories of acceptance, proficiency, and independent assurance sampling and testing.

Acceptance Program. All factors that comprise the determination of the quality of products as specified in the contract requirements. These factors include verification sampling, testing, and inspection and may include results of quality control sampling and testing.

> **Field sampling and testing.** Acceptance tests identified in the most current *Schedule of Materials Control* as "Field Tests", taken and performed by a county or city representative. Field tests are commonly run in the field or in a field laboratory, but may be run at any qualified laboratory.
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> **Quality control sampling and testing.** Testing performed by the contractor on samples taken by the contractor for process control which is used as a part of the acceptance decision as defined by the most current *Schedule of Materials Control*. Also known as QC testing or process control testing. A county or city representative is required to observe a minimum number of some types of quality control samples and tests.
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> **Verification sampling and testing.** Sampling and testing which is performed by county or city on samples taken by county or city personnel independently of the quality control samples and which is used as a part of the acceptance decision to validate the quality of the material which is being accepted based upon quality control testing.
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> **Certified Products.** Products which can be accepted based upon a manufacturer's certificate of compliance. Certified products are sometimes referred to as from "certified sources" or "approved manufacturers." Common examples are asphalt, cement, fly ash, paint, and seed.
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> **Approved Products.** Products which can be accepted based upon a manufacturer's representation that a product complies with all contract requirements, usually identified by a product name. Common examples are concrete admixtures, joint sealers, raised pavement markers, and sign sheeting.

Proficiency samples. Homogeneous samples that are distributed and tested by two or more laboratories. The test results are compared to assure that the laboratories are obtaining the same results. Commonly, two homogenous samples are created by splitting a larger sample and are called "companion samples."

> **Laboratory testing** or field companion testing. Tests performed by a county, city, district, or other central laboratory on a companion sample to the field test, as identified in the most current *Schedule of Materials Control*.

Quality assurance testing or quality control companion testing**.** Testing performed by county or city on companion samples to the contractor or vendor's quality control samples. Also known as QA testing.

Verification companion testing. Testing performed by the contractor or vendor on a companion to county or city verification sample. These test results are required to be used in the contractor or vendor's quality control program.

Materials Certification. A process that provides reasonable assurance that all aspects of the Acceptance Program have been satisfactorily completed.

Independent Assurance (IA) Program. Activities that are an unbiased and independent evaluation of all the sampling and testing procedures used in the acceptance program. The program covers sampling procedures, testing procedures, and testing equipment, and is defined in the *Schedule of Independent Assurance Sampling and Testing*.

OMRR. The Office of Materials and Road Research which, among other sections, includes the Materials Section and the Pavement Engineering Section. The Pavement Engineering Section contains the Grading and Base, Bituminous, and Concrete Units, traditionally referred to as the Aspecialty offices.

Project Engineer. The County or City Engineer, or other registered professional engineer, delegated by the County or City Engineer to have responsible charge of the project.

Qualified laboratories. Laboratories that are capable as defined by appropriate Mn/DOT programs. As a minimum, each laboratory has a program for checking test equipment and the laboratory keeps records of calibration checks. Qualified sampling and testing personnel are used whenever performing acceptance tests for Mn/DOT or Federal-aid projects.

Qualified sampling and testing personnel. Personnel who are certified by the Technical Certification Program for tests they perform.

IMPLEMENTATION

This Technical Memorandum will become effective immediately, and will apply to all local federal aid projects for which the letter of Materials Certification has not been completed.

For projects where the Project Engineer and District Materials Engineer have completed form TP-02171-01 (the current Materials Certification form) and have submitted the form to OMRR, the Materials Section of OMRR will certify those projects and will notify the Office of Construction and Contract Administration.

For projects where work has been completed, but the form TP-02171-01 has not yet been completed and submitted to OMRR, the project shall be certified by this process. Agencies may use either the old form TP-02171-01 if documentation has already commenced using that form, or the new form TP-

02171-02.

For projects in progress and for all future projects, documentation shall be completed using form TP-02171-02.

MATERIALS CERTIFICATION PROCESS

Field Documentation

The Acceptance Program is used to verify material quality as materials are incorporated into a project, accepted, and paid for. Whenever exceptions to the Acceptance Program requirements occur, those exceptions and resolutions are documented.

During the course of the project, and prior to or at the time of Final Acceptance of Work (Mn/DOT Spec 1516.2), the Project Engineer will record exceptions and resolutions on form TP-02171-02. The Project Engineer may consult with and request input from the District Materials Engineer and the appropriate Specialty Offices. Both the Project Engineer and the District Materials Engineer sign form TP-02171-02 to indicate that they have had the opportunity to provide inpu
t. Specialty Offices provide input to form TP-02171-02 or provide separate documentation that allows the Project Engineer to complete the form. At the time of Final Acceptance of Work, form TP-02171-02 should be completed and all exceptions resolved.

As per procedures issued by the Office of Construction and Contract Administration, after Final Acceptance of Work, the Project Engineer submits the Finals package to the Office of Construction and Contract Administration for the quantity documentation audit. Form TP-02171-02 is one of the required components of the Finals package.

If form TP-02171-02 is not included, the Office of Construction and Contract Administration will contact the local agency and request form TP-02171-02 and delay the processing of the Final Voucher until it is submitted. If form TP-02171-02 is present, and upon completion of other required activities, the Office of Construction and Contract Administration will send the Final Voucher to the Project Engineer for signature. When the Project Engineer signs the Final Voucher, the project is certified.

The Office of Construction and Contract Administration need not review the content of form TP-02171-02 to complete the certification. The Office of Materials and Road Research may review the content of the form for its own information and to provide feedback to local agency personnel. All exceptions to the Acceptance Program requirements must be recorded on form TP-02171-02. The following are considered to be exceptions:

Failing Tests	Any failure of a field test, quality control test, or verification test. Corrections or deducts resulting from failing tests must be listed as resolutions of exceptions.
Missing Tests	Any missed field test, quality control test, or verification test. Tests include required observations of quality control tests.

Test Tolerance	Any tolerance failure between an acceptance test and the corresponding companion proficiency or Independent Assurance sample test. Companion sample tests are performed between: Field and Laboratory samples Quality control and quality assurance samples Verification and verification companion samples Field and Independent Assurance samples Quality control and Independent Assurance samples Plant observer's quality assurance or verification samples and IA samples
Non-Certified Testers	Any acceptance samples taken or tests performed by non-certified or under-certified testers. This includes contractor quality control tests when used for acceptance and agency verification tests. Tests not performed in a qualified laboratory are also exceptions.
Other Exceptions	Material accepted from a non-approved source, missing certificates of compliance, etc.

Resolutions to exceptions are recorded on form TP-02171-02. Resolutions can be brief, but must describe the action taken or the rationale for taking no action. Supporting documentation should be contained in the file. Examples of actions taken as resolutions may include "standard deduct applied," or "$ per unit deduct applied," or "mix change made and testing rate increased," or testing equipment recalibrated, test rerun and passed," or "see Supplemental Agreement #," etc.

Resolutions may also result in no actions having been taken. This is an acceptable resolution when accompanied by appropriate rationale. Often, "substantial compliance" or "in close conformity" will be used as resolutions in these situations. Generally these resolutions should only be used for a minor test failure or the omission of a few out of many required tests. Rationale for taking no action must be included on the form or referenced.

Certificate of Final Contract Acceptance

Materials Certification applies to the Acceptance Program activities only. The certification instrument will be the Certificate of Final Contract Acceptance contained on the Final Voucher. It is the responsibility of the project engineer to verify that all aspects of the Acceptance Program were complied with and that exceptions are appropriately resolved and duly documented in the project file. For information, the statement on the Final Voucher reads as follows:

> This is to certify that to the best of my knowledge and belief the items of work shown in the statement of work certified herein have been actually furnished in accordance with the plans and specifications. This project has been completed in accordance with the laws, standards and procedures of Minnesota as they apply to projects in this category and, if applicable, approved by the Federal Highway Administration.
>
> Dated: _____ Signature: _____
> Project Engineer

By signing the Certificate of Final Acceptance, the Project Engineer is certifying that all aspects of the project have been properly completed. This Technical Memorandum describes the materials aspects of that certification. The certification for materials consists of the following:

1. All materials incorporated into the project were in conformance with the approved plans, special provisions, and specifications (including approved changes.)
2. The required number of observations were made and/or samples taken, tested, and compared to companion sample test results (where applicable) in conformance with the minimum testing rates listed in the most current *Schedule of Materials Control* and project special provisions.
3. All local agency and contractor project personnel performing acceptance testing were certified at the appropriate level for the tests performed. All acceptance tests not performed by project personnel were performed by a qualified laboratory or by Mn/DOT central or plant inspection.
4. All acceptance samples taken and tested as a companion to an independent assurance sample were within tolerance limits of the independent assurance companion samples.
5. Any exceptions to items 1-4 and resolutions to those exceptions have been duly documented and appropriate corrective measures have been taken. Form TP-02171-02 has been completed placed in the file, and copies sent.

Delegated Contract Process Projects

On Delegated Contract Process Projects (DCP's) there is no Finals package submitted to Mn/DOT's Office of Construction and Contract Administration for a quantity documentation audit. Therefore, the Project Engineer on a DCP project must maintain the completed Form TP-02171-02 in the project file and submit a copy to the District State Aid Engineer.

The Materials Certification instrument on DCP projects will be the "Report of Final Estimate" (Fig A 5-892.431 in the State Aid Manual) which contains similar certification language.

Project Certification Audits

Project Certification Audits may be conducted by SALT and by other specialty offices. The Federal Single Audit will be conducted independently by the Mn/DOT Auditor's office.

SALT will annually select projects from within various categories to audit for compliance with the requirements of the Materials Certification process. These audits will be performed by SALT personnel.

Auditing rates and project categories will be determined by SALT. The auditing rate may vary from category to category of project, and complex project categories should be audited at a higher rate. The auditing rates may be adjusted by SALT as deemed necessary to provide reasonable assurance that the Materials Certification process is being complied with.

Both irregularities and areas of outstanding performance found during audits will be reported back to the Project Engineer and the district. The Project Engineer, with the cooperation of the District/Metro

Materials Engineer, will address, and if possible correct, all irregularities. The District State Aid Engineer will receive a copy of the results and the Project Engineer's explanations.

It is the responsibility of the Materials Section of OMRR to compile the Materials Certification audits performed by the various specialty offices, State Aid Group, and the Mn/DOT Auditor's Office. The compiled results will be summarized and evaluated for needed improvements to the Quality Assurance Program.

QUESTIONS

Questions regarding this technical memorandum should be directed to Paul Stine at 651/296-9973, or Mike Pinsonneault at 651/296-9875.

Materials Certification Exceptions Summary

S.P. No. _____ Contract No._____ Project Description _____

TH _____ District _____ Contractor _____ Project Location _____

Project Engineer/Supervisor _____ Federal No._____ Page _____ of _____

Specialty	Exception Description	Resolution	Document Reference	Name/ Initials

Form TP-02171-02

_____ _____

District/Metro Materials Engineer Date Project Engineer Date

Original: Retain in Project File

Copy: State Materials Testing Engineer - MS 645
Copy: Financial Operations Section - MS 215

Copy: District Materials Engineer
Copy: Office of Construction and Contract Administration - MS 650

Exceptions include all of the following situations:

Failing Tests Any failure of a field test, quality control test, or verification test. Corrections or deducts resulting from failing tests must be listed as resolutions of exceptions.

Missing Tests Any missed field test, quality control test, or verification test. Tests include required observations of quality control tests.

Test Tolerance Any tolerance failure between an acceptance test and the corresponding companion proficiency or Independent Assurance sample test. Companion sample tests are performed between:

- Field and laboratory samples
- Quality control and quality assurance samples
- Verification and verification companion samples
- Field and IA samples
- Quality control and IA samples
- Plant observer's quality assurance or verification samples and IA samples

Non-Certified Testers Any acceptance samples taken or tests performed by non-certified or under-certified testers. This includes contractor quality control tests when used for acceptance and agency verification tests. Tests not performed in a qualified laboratory are also exceptions.

Other Exceptions Material accepted from a non-approved source, missing certificates of compliance, incomplete small quantity documentation, etc.