

SECTION 6 CONTROL OF MATERIALS

6-1 Information on Materials.

6-1.1 Location of Laboratory: The Department's laboratory is located at Gainesville. Address correspondence to the laboratory and samples for tests to: State Materials Engineer, State of Florida Department of Transportation, 2006 N.E. Waldo Rd., Gainesville, Florida, 32609.

6-1.2 Standard Operating Procedure: Department Standard Operating Procedures govern approval and production control requirements for sources of supply of certain materials. Each Section of these Specifications pertaining to a material states whether a Standard Operating Procedure (SOP) is in effect for the material specified by that Section.

6-1.3 Qualified Products List: The Product Evaluation Section in the State Specifications Office publishes and maintains a Qualified Products List (QPL). The list provides assurance to Contractors, consultants, designers, and Department personnel that specific products and materials are approved for use on Department facilities. These items have basic approval but are subject to additional testing of individual LOTs, batches, or shipments.

The Department will limit the Contractor's procurement and use of products and materials that require pre-approval in these Specifications to only those items listed on the QPL that is effective at the time of procurement.

Manufacturers seeking evaluation in accordance with Departmental procedures of an item must submit a Product Evaluation Application with a certified test report from an independent test laboratory, that shows that the material meets all applicable specifications, to the Product Evaluation Section in Tallahassee. In the absence of applicable specifications, the manufacturers must submit specifications and certified test reports with the application.

Manufacturers successfully completing the Department's evaluation are eligible for inclusion on the QPL.

The Department will consider any marked variations from original test values for a material or any evidence of inadequate field performance of a material as sufficient evidence that the properties of the material have changed, and the Department will remove the material from the QPL.

6-1.4 Definitions:

(a) Aggregate Source: A physical location, including mines, recycled material processing sites, and redistribution terminals.

(b) Aggregate Point of Use: The point of incorporation into the project, such as the actual project site, asphalt plant, or concrete plant.

6-1.5 Warranty and Guaranty: The Department may require the Contractor to warrant and guaranty that certain materials used in the construction of the project meet all specification requirements for a specified time period. The Department will specify the warranty and guaranty requirement in the appropriate Sections governing the materials.

6-1.6 Approved Products List: The State Traffic Engineering Office maintains the Approved Products List (APL) of Traffic Control Signal Devices. Traffic Monitoring Site Equipment and Materials are also included on the APL. This list provides assurance to Contractors, consultants, designers, and Department personnel that the specific items listed are approved for use on Department facilities.

The Department will limit the Contractors procurement and use of Traffic Control Signal Devices, and Traffic Monitoring Site equipment and materials to only those items listed on the APL that is effective at the time of procurement, except as provided in 603-2.2.

The approval process is described in detail in Section A601 of the Minimum Specifications for Traffic Control Signal Devices (MSTCSD). Manufacturers seeking evaluation of a specific device must submit an application on form number 750-010-12, which can be obtained from the Department's State Traffic Engineering Office.

6-2 Designation of a Specific Project as a Criterion (“Or Equal” Clause).

Reference in the Contract Documents to any proprietary article, device, product, material or fixture, or any form or type of construction, by name, make, or catalog number, with or without the words “or equal,” establishes a standard of quality and is not intended to limit competition. The Contractor may use any article, device, product, material or fixture, or any form or type of construction, that, in the judgment of the Engineer (expressed in writing), is equal, for the purpose intended, to that named.

6-3 Source of Supply and Quality Requirements.

6-3.1 Only Approved Materials to be Used: Use only materials in the work that meet the requirements of these Specifications, and have the Engineer’s approval. The Engineer may inspect or test any materials proposed for use at any time during their preparation and use. Do not use any material that, after approval, has in any way become unfit for use in the work. Do not use materials containing asbestos.

6-3.2 Notification of Placing Order: Give sufficient notification prior to placing orders for materials, and order materials sufficiently in advance of their incorporation in the work to allow time for sampling and testing.

6-3.2.1 Notification of Quality Assurance Inspection Arrangements for Fabrication of Critical Items: Submit to the Engineer a fabrication schedule for all items requiring commercial inspection, before or at the pre-construction meeting. These items include, but is not limited to steel bridge components, overhead cantilevered sign supports with cantilevered arms exceeding 45 feet [14 m], moveable bridge components or any other item identified as an item requiring commercial inspection in the Contract Documents.

6-3.3 Approval of Source of Supply: Before delivering material, obtain the Engineer’s approval of the source of supply. Submit for examination representative preliminary samples, of the character and quantity prescribed. The Department will test the samples in accordance with the method referred to under 6-5, and in Division III. If, after trial, the Department determines that an approved source of supply does not contain a uniform, acceptable product, or the product from any source is unacceptable at any time, furnish material from other approved sources.

Use only mineral aggregates that are produced under a Department-approved Producer Quality Control Program (QC) that is in accordance with the Department’s requirements and procedures for obtaining and maintaining Department approval of developed and operational mineral aggregate sources (mines and redistribution terminals), and with the Department's Mineral Aggregate Manual. Furnish an individual certification with each haul unit load of materials shipped, attesting that those specific materials were produced under a Department-approved QC and that they fully meet the requirements of these Specifications.

Do not use materials that were produced after July 1, 1991, by convict labor for Federal-aid highway construction projects unless the prison facility has been producing convict-made materials for Federal-aid highway construction projects before July 1, 1987. Use materials that were produced prior to July 2, 1991, by convicts on Federal-aid highway construction projects free from the restrictions placed on the use of these materials by 23 U.S.C. 114.

The Department will limit the use of materials produced by convict labor for use in Federal-aid highway construction projects to: (1) materials produced by convicts on parole, supervised release, or probation from a prison or (2) materials produced in a qualified prison facility. The amount of such materials produced for Federal-aid highway construction during any 12-month period shall not exceed the amount produced in such facility for use in such construction during the 12-month period ending July 1, 1987.

6-3.4 Source of Supply, Steel (Federal-Aid Contracts Only): For Federal-aid Contracts, only use all steel and iron produced in the United States. Ensure that all manufacturing processes for this material occur in the United States, except as noted below. When using steel and iron as a component of any manufactured product incorporated into the project (e.g., concrete pipe, prestressed beams, corrugated steel pipe, etc.), use only steel and iron produced in the United States, except that the manufacturer may

use minimal quantities of foreign steel and iron when the cost of such foreign materials does not exceed 0.1% of the total Contract amount or \$2,500, whichever is greater. The coating of steel is part of the manufacturing process.

These requirements are not applicable to steel and iron items that the Contractor uses but does not incorporate into the finished work.

Provide a certification from the producer of steel or iron, or any product containing steel or iron as a component, stating that all steel or iron furnished or incorporated into the furnished product, with the exception of the allowable quantity of foreign steel or iron, was manufactured in the United States. Furnish such certification to the Engineer prior to incorporating the material into the project.

When FHWA allows the use of foreign steel on a project, furnish invoices to document the cost of such material, and obtain the Engineer's written approval prior to incorporating the material into the project.

6-4 Inspection and Tests at Source of Supply.

6-4.1 General: If the volume, progress of the work, and other considerations warrant, the Engineer may inspect the materials at the source of supply.

6-4.2 Cooperation by Contractor: Provide the Engineer with free entry at all times to such parts of the plant that concern the manufacture or production of the materials ordered, and bear all costs incurred in providing all reasonable facilities to assist the Engineer in determining whether the material furnished meets the requirements of these Specifications.

6-4.3 Department Not Obligated to Make Inspection at Source: The Department is not obligated to make an inspection of materials at the source of supply. The Contractor is fully responsible for supplying satisfactory materials.

6-4.4 Retest of Materials: The Department may retest materials that it has tested and accepted at the source of supply, after they have been delivered to the project. The Department will reject all materials that, when retested, do not meet the requirements of these Specifications.

6-5 Control by Samples and Tests.

6-5.1 Materials to be Tested, Samples: The Engineer may test materials by means of samples, or otherwise, at production points and after delivery. The Department will perform and pay for such tests. Afford such facilities as the Engineer requires for collecting and forwarding samples, and do not make use of, or incorporate in the work, any materials represented by the samples until the Engineer tests and finds the materials acceptable. Furnish and deliver the required material necessary to take samples, to the point that the Engineer designates, at no expense to the Department. The Department will furnish boxes for shipping concrete cylinders.

6-5.2 Pavement Samples: For both base course and surface course pavements, furnish samples taken from the completed work at any location that the Engineer indicates, and immediately replace the areas so removed with materials and construction that meet the requirements of these Specifications and to the line and grade of the immediate surrounding pavement surface. The Department will not allow additional compensation for furnishing such samples and replacing the areas with new pavement.

6-5.3 Applicable Standards: Methods of sampling and testing materials are in accordance with Florida Methods so far as covered therein. Otherwise, they shall be in accordance with standards of AASHTO, ASTM, or other criteria as specifically designated. Where an AASHTO, ASTM or other non-Florida Method is designated, and a Florida Method which is similar exists, the Department will require sampling and testing in accordance with the Florida Method.

Whenever any Florida, AASHTO, ASTM, or other standards are referenced in these Specifications without identification of the specific time of issuance, use the most current issuance, including interims or addendums thereto, at the time of advertisement for bids for a project.

6-5.4 Soil Bearing Tests: The Department will determine the bearing value of soils using the Department's Florida Soil Bearing Tests or by the methods required for the Limerock Bearing Ratio Method, whichever is designated in the plans.

6-5.5 Sieves: Use sieves meeting the requirements of AASHTO M 92.

6-5.6 Acceptance on Tests of Producer's Samples: The Department, in order to expedite the work, may accept certain materials on the basis of tests made on advance samples taken and submitted by the producer, provided that the Engineer tests a representative number of samples of the material after the material arrives at the worksite and the Department confirms that the material meets the requirements of these Specifications. In the event that the Engineer's tests of these samples do not substantiate those made on the advance samples submitted by the producer, and the Engineer determines that there is evidence that this privilege of expediting the use of the material is being abused, then the Department will no longer extend this privilege to such producer.

6-5.7 Preparation and Shipping of Samples: Attach a card to each producer's sample, showing the following information: Project designation, intended use of material, name of producer, source of supply, quantity represented by sample, date sampled, and any other information pertinent to the material or work. Use care in preparing and shipping samples. Check that packages are clean before placing material therein. Tie or close and securely wrap the packages.

6-5.8 Inspection at Plants: Provide the Engineer with access to all parts of all paving or other plants connected with the work to verify weights or proportions and character of materials, and to determine temperatures used in preparing materials and mixtures. Facilitate and assist in the Engineer's verification of the accuracy of all scales, measures, and other devices, and protect such devices from the wind and elements whenever such protection is necessary.

6-5.9 Aggregate Samples: The Engineer will select and take all samples from all aggregates entering into asphalt concrete mixes. Advise the Engineer as to location and source three weeks prior to the time the aggregates are needed for the design of the mix, so that the Engineer can arrange to take the samples.

6-5.10 Asphalt Concrete Mix Designs: For the designs of asphalt concrete mixes that are to be provided by the Department, the Department will establish not more than three design mixes, without charge, for each type of mixture on any one contract.

6-5.11 Materials Accepted Based on Producers' Certification: Identify materials that the Engineer has accepted based on producers' certification by production LOT or other acceptable means that shows a direct tie between the certification and the material being used. The Department will use such identification when doing verification testing. Ensure that the certification is signed by a legally responsible person from the producer and is provided on the producer's letterhead.

6-5.12 Materials Accepted Based on Manufacturer's Certification: The Engineer will accept certain manufactured products for use on Department Contracts upon receipt of a satisfactory certification stating that the product meets the acceptance criteria requirements of the Department's specifications. Manufactured products whose acceptance is based on a manufacturer's certification are so identified in the appropriate Division III Sections of these Specifications. The Engineer reserves the right to sample these materials in accordance with the provisions of this Section.

Manufacturers may obtain the sample certification forms through the Department's web site. The URL for obtaining the certification forms is www11.myflorida.com/statematerialsoffice/administration/publications/certifications/sampleforms.htm.

It is the sole responsibility of the Contractor to obtain, verify completeness and submit the certification to the Engineer before incorporating such manufactured products into the project.

6-6 Storage of Materials.

6-6.1 Method of Storage: Store materials in such a manner as to preserve their quality and fitness for the work, to facilitate prompt inspection, and to minimize noise impacts on sensitive receivers.

More detailed specifications concerning the storage of specific materials are prescribed under the applicable Sections. The Department may reject improperly stored materials.

6-6.2 Use of Right-of-Way for Storage: If the Engineer allows, the Contractor may use a portion of the right-of-way for storage purposes and for placing the Contractor's plant and equipment. Use only the portion of the right-of-way that is outside the clear zone, which is the portion not required for public vehicular or pedestrian travel. Provide any additional space required at no expense to the Department.

6-6.3 Department Not Responsible for Stored Materials: The protection of stored materials is the Contractor's responsibility. The Department is not liable for any loss of materials, by theft or otherwise, or for any damage to the stored materials.

6-7 Defective Materials.

The Department will consider the following materials as defective: all materials not meeting the requirements of these Specifications; segregated materials, even though previously tested and approved; materials that are or have been improperly stored; and materials that are mixed with an excess of clay, coal, sticks, burlap, hay, straw, loam or earth, or other debris. The Engineer will reject all such materials, whether in place or not. Remove all rejected material immediately from the site of the work and from storage areas, at no expense to the Department. Do not use rejected material, the defects of which have been subsequently corrected, until the Engineer has approved the material's use. Upon failure to comply promptly with any order of the Engineer made under the provisions of this Article, the Engineer will remove and replace defective material and deduct the cost of removal and replacement from any moneys due or to become due the Contractor.

As an exception to the above, the Contractor may submit, upon approval of the Engineer, an engineering and/or laboratory analysis to evaluate the effect of defective in place materials. Any such analysis shall be performed by a Specialty Engineer. The Engineer will determine the final disposition of the material after review of the information submitted by the Contractor. No additional monetary compensation or time extension will be granted for the impact of any such analysis or review.

The Engineer will consider any haul unit load of mineral aggregates received for a Department project as defective without an individual certification as required by 6-3.3.

6-8 Quality Control Program.

Meet the requirements of the Department approved Quality Control Program for the production and construction of asphalt, portland cement concrete (structural), earthwork, cementitious materials, timber, prestressed concrete products, and drainage products. Also include transportation, storage, placement and other related construction operations required by the Contract.

When accreditation or certification is required, make available to the Department upon request, supporting documents from the two previous inspections.

Obtain Department approval prior to beginning production. Meet and maintain the qualification requirements at all times. Production and construction of these products without the Department's prior approval of a Quality Control Program may result in rejection of the products. Continued Department approval will be subject to satisfactory results from periodic evaluations, including Independent Assurance program. In case of non-compliance with the approved Quality Control Program, identify all affected material and do not incorporate or supply to the Department projects.

6-8.1 Material Producers.

6-8.1.1 Producers of Asphalt Mixes, Portland Cement Concrete (Structural), Earthwork, Cementitious Materials, Timber, and Precast Drainage Products: Have an approved Quality Control Program, developed in accordance with the guidelines specified in 105-3, during production of materials to be used on Department projects. In addition to 105-3, the producers of Portland cement concrete will meet the requirements Chapter 9.2, Concrete production Facility Guidelines, of the Department's Materials Manual.

6-8.1.2 Prestressed Concrete Plants: Ensure that prestressed concrete plants participating in the Department's Acceptance Program are qualified. Obtaining qualification will require a current PCI certification and an approved Quality Control Plan, developed in accordance with the guidelines specified in 105-3.

6-8.1.3 Quality Control Program Approval Process. Producers of cementitious materials, metal and plastic pipes, and aggregates must submit their proposed Quality Control Program to the State Materials Office for approval.

Producers of asphalt mixes, portland cement concrete (structural), earthwork, prestressed concrete products, timber, and precast drainage products must submit their proposed Quality Control Program to the local District Materials Office for approval.

The Department will respond to the producer within 21 calendar days of receipt of the proposed program. The Department may perform evaluation to verify compliance with submitted documents prior to approval.

If the Quality Control Program must be revised for any reason, including non-compliance, submit the revision to the Department. The Department will respond to the producer within seven calendar days of receipt of the revised program.

6-8.2 Contractor's Quality Control Program. Have an approved Quality Control Program meeting the requirements of Section 105 for the transportation, storage, placement, and other related construction operations required by the Contract.

6-9 Laboratory Qualification Program.

Testing Laboratories participating in the Department's Acceptance Program must be qualified under one of the following and have current Department approval during testing of Department products:

- a. Current AASHTO (AAP) accreditation.
- b. Inspected on a regular basis per ASTM D 3740 for earthwork, ASTM D 3666 for asphalt and ASTM C 1077 for concrete for test methods used in the Acceptance Program, with all deficiencies corrected, and under the supervision of a Specialty Engineer.
- c. Construction Materials Engineering Council (CMEC) program and other independent inspection programs acceptable to the Engineer and equivalent to a or b above.

Obtain Department approval prior to beginning testing. The application is available from the Department's website:

www11.myflorida.com/statematerialsoffice/Administration/Publications/publications.htm

Meet and maintain the qualification requirements at all times. Testing without the Department's prior approval may result in rejection of the test results. Continued Department approval will be subject to satisfactory results from periodic evaluations, including Independent Assurance program. In case of disapproval, resolve the issues to the Department's satisfaction and obtain approval prior to further testing.

It is prohibited as a conflict of interest for a non-Department laboratory to perform Contractor Quality Control testing and other Acceptance Program testing on the same Contract.