SECTION 106

CONTROL OF MATERIAL

106.1 Source of Supply and Quality Requirements.

106.1.1 All material needed in the work shall be furnished by the contractor, unless otherwise stated in the contract. The contractor shall assume full responsibility for ordering material of the required quality and quantity. The contractor shall be responsible for the delivered costs of all material ordered.

106.1.2 The material used in the work shall meet all quality requirements of the contract, and shall be obtained from supply sources that meet the approval of the engineer. If a uniform product is not being furnished from a supply source or if for any reason, the product from any source at any time proves to be unsatisfactory, the contractor may be required to furnish approved material from other sources. The engineer may reject the entire output of any source where it is impractical to secure a continuous flow of uniformly satisfactory material.

106.1.3 Any work incorporating material having no prior approval from the engineer shall be performed at the contractor's risk and may be considered unacceptable and unauthorized and, if so considered, will not be paid for. If a change in source will affect the control or appearance of the work, the use of any one kind or class of material for a specific project from more than one source will be prohibited, except as approved by the engineer. If approved, the engineer will set forth the conditions under which the change may be made.

106.1.4 Material will be subject to inspection or test at any time during production or manufacture or at any subsequent time prior to or after incorporation into the work. The points of inspection will be determined by the engineer. Material for sampling will be selected by the engineer. Material provided by the source solely as a sample of that material for testing verification will not be permitted. Initial inspection, testing and approval or rejection will be made as early as practical. The engineer may waive any of the requirements regarding determination of quality and accept material on certification or visual inspection if, in the judgment of the engineer, the quantity involved is too small or the material use is not sufficiently important to warrant tests.

106.1.5 To expedite the inspection and testing of material, the contractor shall submit a list of proposed sources of material to the engineer at the pre-construction conference or two weeks prior to beginning work, whichever is earlier. The list shall be in a format acceptable to the engineer. At the option of the engineer, material may be approved at the source of supply before delivery is started.

106.2 Local Material Sources.

106.2.1 Designated Sources. The Commission may acquire the right and make available to the contractor the right to take material from sources designated on the plans or described in the contract including the right to use designated property if so specified, for plant site, stockpiles and haul roads. In general, the quality of material contained in such sources will be considered acceptable, but the contractor shall determine the method of operation, equipment and work required to produce a material meeting the specifications from the source. Designation of a source for material will not be a representation of the quantity of acceptable

material obtainable or the method, equipment or work required to obtain material from the source. It is not feasible to ascertain from samples the limits for an entire deposit, and variations will be considered as usual and are to be expected. The engineer may order procurement of material from any portion of a deposit and may reject portions of the deposit as unacceptable.

106.2.2 Contractor Furnished Sources. If sources of material are not designated on the plans or described in the contract, or if the contractor desires to use material from sources other than those designated, the contractor shall acquire the necessary rights to take material from the sources and shall pay all costs related thereto, including any that may result from an increase in length of haul. All costs of exploring, meeting environmental requirements and developing such other sources shall be at the contractor's expense. Environmental compliance documentation shall follow MoDOT guidance for contractor furnished borrow and shall be submitted to Design for review and approval. The use of material from other than designated sources will not be permitted until representative samples taken by the contractor in the presence of the engineer have been approved and written authority is issued for the use thereof. If sources of material or material deposits are provided by the contractor, the engineer will test the samples and determine the suitability of the material.

106.2.3 Operation of Sources. Whether sources of material are acquired and made available by the Commission or are furnished by the contractor, activities shall be in compliance with all federal and state laws and the areas shall be excavated or worked in such a manner to comply with the current MoDOT Pollution Prevention Plan and minimize siltation of streams, lakes, ponds and reservoirs.

106.2.4 Final Condition of Sources. Unless otherwise permitted, pits and quarries shall be excavated such that water will not collect and stand therein. Sites from which material has been removed shall be left in such a condition to avoid or minimize siltation of streams, lakes, ponds and reservoirs, and shall be left in a neat and presentable condition upon completion of the work.

106.3 Samples, Tests and Cited Specifications. Samples for tests will be taken and shipped to the laboratory in accordance with MoDOT's *Materials Manual*. There shall be no direct charge to the Commission for material taken as samples, either for field tests or for laboratory tests. If a specification of a recognized national standard agency (AASHTO, ASTM, AWS, AWWA, etc.) is designated, the material shall meet either the designated specification if a date is indicated or the latest revision thereof in effect at the time of bid opening. Tests of samples of material will be conducted by the engineer in accordance with the methods specified in the contract or in accordance with the latest methods in effect at the time of bid opening, as prescribed by the national standard agency. Such national standard specifications and methods of tests will include those designated as tentative, interim or amended and officially approved and published by the sponsoring agency. If appropriate methods have not been so prescribed, tests shall be performed in a manner determined by the engineer.

106.4 Plant Inspection. The engineer may inspect material at the source. If plant inspection is undertaken the following conditions shall be met.

106.4.1 The engineer shall have the cooperation and assistance of the contractor and the producer of the material.

106.4.2 The engineer shall be permitted unlimited access to all parts of the plant as required for adequate inspection of the plant equipment and for selection of samples. Facilities shall be furnished for the procurement of samples, performance of the tests and for the protection of testing equipment and supplies when tests are conducted at the source of production.

106.4.3 If bituminous shipments are considered by the engineer to justify testing at the source, laboratory facilities and testing equipment meeting requirements of the prescribed methods shall be provided by the supplier. The space and equipment shall be adequate for the orderly and proper testing of material without interference to or by the refinery personnel.

106.4.4 When requested, a Type 1 field laboratory shall be furnished at the aggregate source in accordance with Sec 601.

106.4.5 The Commission will refuse to provide plant inspection at sources where adequate safety measures are not provided and maintained.

106.4.6 The Commission reserves the right to inspect plant equipment and to retest all material prior to or after incorporation into the work and to reject all material which, when retested, do not meet the requirements of the specifications.

106.5 Storage of Material. The contractor shall be responsible for proper storage and handling of all material to ensure preservation of required quality and shall be arranged such as to facilitate inspection.

106.6 Handling Material. All material shall be handled in such a manner as to preserve the material's quality and fitness for the work. Aggregate shall be transported from the storage site to the work in tight vehicles constructed to prevent loss or segregation of material after loading and measuring.

106.7 Unacceptable Material. All material not in accordance with the specifications, when initially inspected and tested, will be considered defective, and all such material, whether in place or not, will be rejected and unless remedied, shall be removed from the site of the work. Any approved material that, in the judgment of the engineer, is no longer specification compliant will be rejected. Defective material, including any material furnished by the Commission that has been damaged by the contractor after delivery, shall be replaced or reconditioned by the contractor at the contractor's expense. Rejected material that has been reconditioned or corrected such that the material satisfactorily meets the specifications shall not be used without the engineer's written approval.

106.8 Material Furnished by the Commission. If any material is to be furnished by the Commission, special provisions designating such material will be included in the contract documents. The cost of handling and placing such material after delivery to the contractor will be considered as part of the contract price for that material or work. The contractor shall be responsible for all material upon receipt, and deductions will be made from any monies due to the contractor to make good any shortages and deficiencies, from any cause whatsoever, for any damage that may occur after such delivery and for any demurrage charges.

106.9 Buy America Requirement. On all federal-aid projects, the contractor's attention is directed to Title 23, CFR, titled *Buy America Requirements*. Where steel or iron products are to be permanently incorporated into the contract work, steel and iron material shall be manufactured in the USA except for "minor usage" as described herein. Furthermore, any coating process of the steel or iron shall be performed in the USA. The use of pig iron and processed, pelletized and reduced iron ore manufactured outside of the USA will be permitted in the domestic manufacturing process for steel or iron material.

106.9.1 Any sources other than the USA as defined will be considered foreign. The required domestic manufacturing process shall include formation of ingots and any subsequent process. Coatings shall include any surface finish that protects or adds value to the product.

106.9.2 "Minor usage" of foreign steel, iron or coating processes will be permitted, provided the cost of such products does not exceed 1/10 of one percent of the total contract cost or $2500.00, whichever is greater. If foreign steel, iron or coating processes are used, invoices to document the cost of the foreign portion, as delivered to the project, shall be provided and the engineer's written approval obtained prior to placing the material in any work.

106.9.3 For each domestic permanent steel or iron item, the contractor shall furnish to the engineer for approval, a manufacturer's certification identifying the item and certifying that the manufacturing processes for the product occurred in the USA, including the coating process if applicable. For foreign items, a statement of the specific foreign manufacturing location(s) shall be provided.

106.9.4 Upon completion of the project, the contractor shall certify to the engineer that all steel, iron and coating processes for steel or iron incorporated into the contract work were in accordance with this specification, except as noted. All exceptions and associated costs shall be listed in the same document.

106.9.5 When permitted in the contract, alternate bids may be submitted for foreign steel and iron products. The award of the contract when alternate bids are permitted will be based on the lowest total bid of the contract based on furnishing domestic steel or iron products or 125 percent of the lowest total bid based on furnishing foreign steel or iron products. If foreign steel or iron products are awarded the contract, domestic steel or iron products may be used; however, payment will be at the contract unit price for foreign steel or iron products.

106.10 Missouri Domestic Products Requirement. For state funded projects, as noted on the cover of the contract, material shall be in accordance with Sec 102.18.5.

106.11 Metric Implementation.

106.11.1 Equipment. Equipment such as scales, concrete and asphalt plants, and placement equipment shall be scaled in or measured in English units, except equipment for metric projects may be in metric units. Equipment requiring calibration will be calibrated using the equipment's "as manufactured" units.

106.11.2 Material. All material shall be furnished quantified in the specified units of measure for dimensions and other physical aspects except as follows. English material may be provided in lieu of metric specified material and metric reinforcing steel may be provided in lieu of English specified reinforcing steel if the material is equivalent or better and used consistently, if other components or aspects are unaffected, and if the material is approved by the engineer. Any cost of re-design due to use of material with units of measure other than as specified by the contract shall be at the contractor's expense.

106.11.3 Project Documentation. All project tickets, paperwork for measurement, certifications or reporting of material shall be in the unit measure specified in the contract, except if metric is specified, documentation may be furnished in English units, provided documentation is done consistently for the project and supplier.

106.12 Pre-Acceptance List of Material and Sources.

106.12.1 Pre-Acceptance List Description. A PAL will indicate material products or sources that have complied with all pre-approval requirements for a specific material and indicates a source has committed to continued compliance with applicable contract requirements.

106.12.1.1 Pre-Acceptance List Material. For material acceptance based on PAL approval, Sec 106.12 will govern over all other applicable specifications. All material shall be in full compliance with Sec 106 and all other applicable contract documents, and shall be certified as such by the source of the material. Random sampling of the material will be conducted by the engineer to verify that the material is in compliance with the applicable specifications. Material on a PAL may be used on a project by the contractor prior to the engineer receiving random sample test results.

106.12.1.2 Unavailable PAL Material. If there are no PAL materials or suppliers for a specific PAL listing, or during the transition of a material to the PAL, the material may be accepted following sampling, testing and documentation review of each shipment in accordance with the specifications for that material.

106.12.2 Definition of Terms. The following definitions will apply only to Sec 106.12 and subsections:

(a) **Source.** The manufacturer, supplier, fabricator, source or any other entity that is listed on a PAL as the provider of that specific material or product.

(b) **Intermediate Agent.** A supplier of a PAL material, but who is not listed as the source of that specific material or product on the PAL.

106.12.3 Application for Placement on the PAL. A source may propose a material for PAL inclusion by submitting the information required in these specifications and other applicable contract documents, along with any required samples to Construction and Materials. Consideration of a material for PAL inclusion will be based on compliance with this specification or other applicable contract documents, the material's history and any other applicable criteria. Submittal of a request for PAL inclusion will not guarantee approval. The application shall include the following in a written document with attachments as needed:

(a) A completed, original Product Listing/New Product Evaluation Request Form (M-PAL Form).

(b) A completed, original PAL Program Inclusion Certification and Guarantee Statement Form (M-STMNT Form).

(c) A complete description of the material and how the material may be identified.

A list of all MoDOT specifications applicable to the material.

(e) All documentation required by applicable MoDOT specifications or any other contract document.

106.12.4 Material Term on a PAL. Upon approval, the material will remain on a PAL for three years, provided the material's name, formulation and properties have not changed, the specification requirements have not changed, or the material or source has not been removed from the PAL for non-compliance reasons.

106.12.4.1 Material Reapplication on a PAL. During the last 12 months of a material's term on a PAL, the source shall reapply for placement on the PAL in accordance with Sec 106.12.3. No term expiration notification will be sent to the source, and the source shall be responsible for initiating reapplication.

106.12.4.2 Material Updates. Any name, source, or physical or chemical property changes to the material shall be submitted in writing and approved by Construction and Materials prior

to use of the revised material. All physical or chemical changes to a material required to meet new or updated specifications shall be accompanied by identifiable name or identification changes, including revisions of any pertinent product information and certifications affected by the change. This information shall be provided in addition to the documentation required under Sec 106.12.3. When an update is properly submitted and approved, the update will be considered the same as a PAL reapplication, and the expiration date will be extended for three years from the date the changes were approved.

106.12.5 Material Removal from a PAL. Any material proposed for use after removal from a PAL, including use on existing contracts, will not be accepted by PAL methods. Unless stated otherwise, material removed from a PAL for reasons other than failure to re-apply will not be considered for reinstatement until one year after the date of removal. A material may be removed from a PAL for any of the following reasons.

106.12.5.1 Material and sources may be removed immediately from a PAL based on the discretion of Construction and Materials, for reasons including, but not limited to, failure of material to meet specifications, falsification of documentation, not providing required documentation or notification, lack of response to engineers' inquiries by the material's approved source, unsatisfactory performance in the field or other reasons indicating lack of consistent material quality or suitability.

106.12.5.2 Material that fails more than one random sample test in any 12-month period, for whatever reason, including improper manufacture, improper sampling, or improper supplier or contractor handling, will be subject to removal immediately from the PAL without recourse.

106.12.5.3 If a reapplication in accordance with Sec 106.12.4.1, as determined by postmark, is not received prior to the material's termination date, the material will automatically be removed from the PAL at the end of the material's term. For reinstatement of these materials to a PAL, the source shall submit an application in accordance with Sec 106.12.3.

106.12.5.4 Material that has not been documented as being used on MoDOT projects in any three consecutive years will be removed from a PAL. Once removed, a material will not be reinstated until substantial evidence of recent satisfactory use is provided and specific intended use on MoDOT work is established. No other time suspension will apply for considering reinstatement of these requests.

106.12.5.5 Any material or source removed from a PAL twice for any reason in any two-year period will be subject to permanent removal, with a minimum suspension of three years.

106.12.5.6 If a source has more than two materials removed from a PAL in any three-year period, all material from that source may be subject to removal from all PALs.

106.12.6 Reinstatement of a Material on a PAL. Consideration for reinstatement of a material once removed from a PAL will be no sooner than specified under Sec 106.12.5, will require a written document from the source stating the reasons for removal of the material from a PAL, the action taken to correct those deficiencies, written concurrence from Construction and Materials that the cause has been suitably addressed, followed by an application in accordance with Sec 106.12.3 for PAL approval.

106.12.7 Source Certification and Guarantee. Material to be accepted by the engineer under PAL approval shall include a source's certification, which may include certified test results, and a guarantee in accordance with the applicable material specification in the contract documents. The written documentation shall also certify that the material provided is similar in all aspects to the material originally approved and placed on the PAL, and shall indicate the specific date of approval. An intermediate agent shall furnish a manufacturer and supplier's

certification identifying the material, and stating that the material meets all contract document requirements for the specified intended use. Required documentation shall be retained by the manufacturer and each intermediate agent for a period of two years from the date of shipment of the material. The documentation shall be traceable to the destination or destination project and shall be immediately available to the engineer when requested.

106.12.8 Notification of PAL Material Delivery. Prior to delivery to the job site, the source, intermediate agent, shipper or contractor's representative shall notify Construction and Materials by mail, fax or electronically of the impending shipment of PAL material. The source shall ensure that any intermediate agent of the source's approved PAL material carries out the required notification. This notification shall include, at minimum, the following:

(a) The specific contract number.

(b) Line number for which the material will be used.

(c) Type and quantity of material.

(d) Date of expected delivery to the job site.

(e) Brand and manufacturer name of the material.

106.12.8.1 All of the above information shall have been received by Construction and Materials five working days prior to delivery of the material to the job site. Additional material may be considered part of the original shipment when the ordered quantity was underestimated or material was lost or damaged. Construction and Materials shall be notified prior to the shipment of additional material. No material shall be used on a project until Construction and Materials approves such use.

106.12.8.2 Upon approval, the entity providing the notification of material delivery will be informed that the material was approved and an identification number for that specific material will be provided. This identification number shall be written on an orange tag or approved alternate label and shall be attached to the material prior to presentation for use at the job site. Requests for alternate PAL labeling shall be submitted to Construction and Materials for approval. Material without the identification number attached will not be permitted for use on a project.

106.12.9 Sampling of Material. The source for a material shall ensure all users are adequately informed and monitored to ensure proper material sampling and usage. The source shall provide instructions for proper sampling of the material, and sampling shall be performed under the observation of the engineer. The source shall be solely responsible for proper sampling, unless stated otherwise by Construction and Materials.

106.12.9.1 Additional material may be requested by the engineer at the time of shipment to allow random sampling of the material at the project site without creating a material shortage.

106.12.9.2 Sample size and sampling frequency will be at the discretion of the engineer.

106.12.10 Intermediate Agent Responsibilities.

106.12.10.1 Any intermediate agent supplying PAL material to a supplier or contractor shall be responsible for proper handling, storage, sampling (if required to be performed by the agent) and delivery in accordance with applicable specifications and the source's recommendations, including notification of PAL material in accordance with Sec 106.12.8. If the intermediate agent is negligent in performing any of these specified tasks, the intermediate

agent may be immediately denied as an intermediate agent for the PAL material without recourse and may be held responsible for material failure in accordance with Sec 106.12.13. If an intermediate agent is disapproved by Construction and Materials, that agent will not be reconsidered as an intermediate agent of any PAL material until one year after the date of removal as an intermediate agent of PAL material. Reinstatement will require a written document from the intermediate agent stating the reasons for removal as an intermediate agent for PAL material, the action taken to correct those deficiencies, and written concurrence from Construction and Materials that the problem has been suitably addressed and that the agent is approved as an intermediate agent of PAL material.

106.12.10.2 An intermediate agent will be allowed to request PAL inclusion for a product manufactured by a separate company that does not have substantial business interest in applying for PAL or for a product that is only used in small quantities. If PAL inclusion is granted, the intermediate agent shall be responsible for any material provided that does not meet the applicable specifications. The intermediate agent shall assume all penalties for non-compliant material, including removal from a PAL in accordance with Sec 106.12.5.

106.12.11 Contractor PAL Use. The source for PAL material shall be listed on the PAL at the time the material is incorporated into the project. The contractor bears the risk that material on the PAL at the time of bidding is no longer on the PAL at the time of incorporation. The contractor may obtain a list of PAL material by contacting Construction and Materials or from MoDOT's website. Use of PAL material shall not relieve the contractor or supplier of any responsibility to provide an inspected and approved material meeting all requirements of the contract documents.

106.12.12 Testing of Material. Test results from any sample will be considered representative of the material, and a final determination of specification compliance will be made on the basis of that sample.

106.12.13 Responsibility for Material Failure. When material has been incorporated into the project and fails any specified tests, Sec 106.7 will apply. The use of this material on all other projects shall be suspended until notified otherwise by Construction and Materials.

106.13 Quality Control/Quality Assurance. For material or work governed by QC/QA specifications, quality control performed by the contractor will determine acceptance of the material when test results are confirmed by the engineer's sampling, testing and assessment. When the engineer's sampling, testing or assessment do not support the contractor's results, work shall be suspended and any material in place will be subject to rejection following a review by the engineer. Final acceptance of the material, work or process will be based on the engineer's sampling, testing and assessment.

106.14 Proprietary Items. In the event a proprietary item included in a contract becomes unavailable during the term of the contract, the contractor shall promptly provide documentation to the engineer substantiating that the proprietary item is unavailable. Price or credit terms demanded of the contractor by the supplier will not constitute sufficient reason to substitute for the specified proprietary item. As part of the documentation, the contractor shall propose an alternative source or item that meets the performance requirements of the original proprietary item included in the contract. Any adjustment in the contract unit price shall be made in accordance with Sec 109.4. If an acceptable alternative item cannot be located, the proprietary item and any associated work may be underrun from the contract.