

SECTION 106 - CONTROL OF MATERIAL

106.01 - Source of Supply and Quality Requirements

The materials used throughout the work shall conform to the requirements of the Contract. The Contractor shall regulate his supplies so that there will be a sufficient quantity of tested material on hand at all times to prevent any delay of work. Except as otherwise specified, materials, equipment, and components that are to be incorporated into the finished work shall be new. Within 30 days after notification of award of the Contract, but not later than 7 days prior to the beginning of construction operations under the Contract, the Contractor shall file a statement of the known origin, composition and manufacture of all materials to be used in the work, including optional or alternate items. Material requirements not previously reported shall be submitted at least 60 days prior to their use on the project, but not less than two weeks prior to delivery. The Contractor's statement shall be electronically submitted by use of Form C-25 and shall be identified by the complete project number, and all items or component materials shall be identified by the specific contract item number and the Specification reference shown in the Contract.

At the option of the Engineer, materials may be approved at the source of supply. If it is found during the life of the Contract that previously approved sources of supply do not supply materials or equipment conforming to the requirements of the Contract, do not furnish the valid test data required to document the quality of the material or equipment, or do not furnish documentation to validate quantities to document payment, the Contractor shall change the source of supply and furnish material or equipment from other approved sources. The Contractor shall notify the Department of this change, and provide the same identifying information noted in this Section, at least 60 days prior to their use on the project, but not less than two weeks prior to delivery.

Materials shall not contain toxic, hazardous, or regulated solid wastes or be furnished from a source containing toxic, hazardous or regulated solid wastes.

When optional materials are included in the Contract, the Contractor shall advise the Engineer in writing of the specific materials selected. Thereafter, the Contractor shall use the selected materials throughout the project unless a change is authorized in writing by the Engineer. However, when the Contractor has an option as to the type of pipe that may be used, he may use any of the approved types for each size of pipe, but he shall use the same type for a particular line. The Engineer may authorize other types and sources in an emergency that will not unreasonably delay delivery of the selected material.

Equipment and material guaranties or warranties that are normally given by a manufacturer or supplier, or are otherwise required in the Contract, shall be obtained by the Contractor and assigned to the Commonwealth in writing. The Contractor shall also provide an in-service operation guaranty on all mechanical and electrical equipment and related components for a period of at least six months, beginning on the date of partial acceptance of that specific item(s) or final acceptance of the project.

106.02 - Material Delivery

The Contractor shall advise the Engineer at least 2 weeks prior to the delivery of any material from a commercial source. Upon delivery of any such material to the project, the Contractor shall provide the Engineer with one copy of all invoices (prices are not required). The following materials shall also comply with the requirements of Section 109.01: asphalt concrete; dense graded aggregate, to include aggregate base, subbase, and select material; fine aggregate; open graded coarse aggregate; crusher run aggregate; and road stabilization aggregate. The printed weights of each load of these materials, as specified in Section 109.01, shall accompany the delivery, and such information shall be furnished to the Inspector at the project.

106.03 - Local Material Sources (Pits and Quarries)

The requirements set forth herein apply exclusively to non-commercial pits and quarries from which materials are obtained for use on contracts awarded by the Department.

Local material sources shall be concealed from view from the completed roadway and any existing public roadway. Concealment shall be accomplished by selectively locating the pit or quarry and spoil pile, providing environmentally compatible screening between the pit or quarry site and the roadway, or using the site for another purpose after removal of the material, or restoration equivalent to the original use (such as farm land, pasture, turf, etc.). The foregoing requirements shall also apply to any pit or quarry opened or reopened by a subcontractor or supplier. However, the requirements will not apply to commercial sand and gravel and quarry operations actively processing material at the site prior to the date of the Notice of Advertisement.

The Contractor shall furnish the Engineer a statement signed by the property owner in which the property owner agrees to the use of his property as a source of material for the project. Upon completion of the use of the property as a material source, the Contractor shall furnish the Engineer a release signed by the property owner indicating that the property has been satisfactorily restored. This requirement will be waived for commercial sources, sources owned by the Contractor, and sources furnished by the Department.

Local material pits and quarries that are not operated under a local or State permit shall not be opened or reopened without authorization by the Engineer. The Contractor shall submit for approval a site plan, including, but not limited to, the following

- (1) the location and approximate boundaries of the excavation;
- (2) procedures to minimize erosion and siltation;
- (3) provision of environmentally compatible screening;
- (4) restoration;
- (5) cover vegetation;
- (6) other use of the pit or quarry after removal of material, including the spoil pile;
- (7) the drainage pattern on and away from the area of land affected, including the directional flow of water and a certification with appropriate calculations that verify all receiving channels are in compliance with Minimum Standard 19 of the Virginia Erosion and Sediment Control Regulations;
- (8) location of haul roads and stabilized construction entrances if construction equipment will enter a paved roadway;
- (9) constructed or natural waterways used for discharge;
- (10) a sequence and schedule to achieve the approved plan and;
- (11) the total drainage area for temporary sediment traps and basins shall be shown. Sediment traps are required if the runoff from a watershed area of less than three acres flows across a disturbed area. Sediment basins are required if the runoff from a watershed area of three acres or more flows across a disturbed area. The Contractor shall certify that the sediment trap or basin design is in compliance with VDOT Standards and Specifications, and all local, state, and federal laws. Once a sediment trap or basin is constructed, the dam and all outfall areas shall be immediately stabilized.

The Contractor's design and restoration shall be in accordance with the Contract requirements and in accordance with the requirements of the federal, state, and local laws and regulations.

If the approved plan provides for the continued use or other use of the pit or quarry beyond the date of final acceptance, the Contractor shall furnish the Department a bond made payable to the Commonwealth of Virginia in an amount equal to the Engineer's estimate of the cost of performing the restoration work. If the pit or quarry is not used in accordance with the approved plan within 8 months after final acceptance, the Contractor shall perform restoration work as directed by the Engineer, forfeit his bond, or furnish the Engineer with evidence that he has complied with the applicable requirements of the State Mining Law.

Topsoil on Department owned or furnished borrow sites shall be stripped and stockpiled as directed by the Engineer for use as needed within the construction limits of the project or in the reclamation of borrow and disposal areas.

If payment is to be made for material measured in its original position, material shall not be removed until Digital Terrain Model (DTM) or cross-sections have been taken. The material shall be reserved exclusively for use on the project until completion of the project or until final DTM or cross-sections have been taken.

If the Contractor fails to provide necessary controls to prevent erosion and siltation, if such efforts are not made in accordance with the approved sequence, or if the efforts are found to be inadequate the Department will withdraw approval for the use of the site and may cause the Contractor to cease all contributing operations and direct his efforts toward corrective action or may perform the work with state forces or other means as determined by the Engineer. If the work is not performed by the Contractor, the cost of performing the work, plus 25 percent for supervisory and administrative personnel, will be deducted from monies due the Contractor.

Costs for applying seed, fertilizer, lime, and mulch; restoration; drainage; erosion and siltation control;

regrading; haul roads; and screening shall be included in the Contract price for the type of excavation or other appropriate items.

If the Contractor fails to fulfill the provisions of the approved plan for screening or restoring material sources, the Department may withhold and use for the purpose of performing such work any monies due the Contractor at the time of the final estimate. The Contractor shall be held liable for penalties, fines, or damages incurred by the Department as a result of his failure to prevent erosion or siltation and take restorative action.

After removing the material, the Contractor shall remove metal, lumber, and other debris resulting from his operations and shall shape and landscape the area in accordance with the approved plan for such work.

- (a) **Sources Furnished by the Department:** Sources furnished by the Department will be made available to the Contractor together with the right to use such property as may be required for a plant site, stockpiles, and haul roads. The Contractor shall confine his excavation operations to those areas of the property specified in the Contract.

The Contractor shall be responsible for excavation that shall be performed in order to furnish the specified material.

- (b) **Sources Furnished by the Contractor:** When the Contractor desires to use local material from sources other than those furnished by the Department, he shall first secure the approval of the Engineer. The use of material from such sources will not be permitted until test results have been approved by the Engineer and written authority for its use has been issued.

The Contractor shall acquire the necessary rights to take material from sources he locates and shall pay all related costs, including costs that may result from an increase in the length of the haul. Costs of exploring, sampling, testing, and developing such sources shall be borne by the Contractor. The Contractor shall obtain representative samples from at least two borings in parcels of 10 acres or less and at least three additional borings per increment of 5 acres or portion thereof to ensure that lateral changes in material are recorded. Drill logs for each test shall include a soil description and the moisture content at intervals where a soil change is observed or at least every 5 feet of depth for consistent material. Samples obtained from the boring shall be tested by an approved laboratory for grading, Atterberg limits, CBR, maximum density, and optimum moisture. The Department will review and evaluate the material based on test results provided by the Contractor. The Department will reject any material from a previously approved source that fails a visual examination or whose test results show that it does not conform to the Specifications or specific contract requirements.

106.04 - Disposal Areas

Unsuitable or surplus material shown on the plans shall be disposed of as specified herein. Material not used on the project shall be disposed of by the Contractor off the right of way. The Contractor shall obtain the necessary rights to property to be used as an approved disposal area. For the purpose of this Specification an approved disposal area is defined as that which is owned privately, not operated under a local or State permit and has been approved by the Department for use in disposing of material not used on the project.

When neither unsuitable nor surplus material is shown on the plans, the Contractor shall dispose of it as shown herein. If the Contractor, having shown reasonable effort, is unsuccessful in obtaining the necessary rights to property to be used as an approved disposal area, the Department will obtain rights for disposal unless otherwise provided for in the contract Compensation, if not shown in the Contract, will be in accordance with the requirements of Section 104.02.

Prior to the Department approving a disposal area, the Contractor shall submit a site plan. The plan shall show:

- (1) the location and approximate boundaries of the disposal area;
- (2) procedures to minimize erosion and siltation;
- (3) provision of environmentally compatible screening;
- (4) restoration;
- (5) cover vegetation;
- (6) other use of the disposal site;

- (7) the drainage pattern on and away from the area of land affected, including the directional flow of water and a certification with appropriate calculations that verify all receiving channels are in compliance with Minimum Standard 19 of the Virginia Erosion and Sediment Control Regulations;
- (8) location of haul roads and stabilized construction entrances if construction equipment will enter a paved roadway;
- (9) constructed or natural waterways used for discharge;
- (10) a sequence and schedule to achieve the approved plan and;
- (11) the total drainage area for temporary sediment traps and basins shall be shown. Sediment traps are required if the runoff from a watershed area of less than three acres flows across a disturbed area. Sediment basins are required if the runoff from a watershed area of three acres or more flows across a disturbed area. The Contractor shall certify that the sediment trap or basin design is in compliance with VDOT Standards and Specifications, all local, state, and federal laws. Once a sediment trap or basin is constructed, the dam and all outfall areas shall be immediately stabilized.
- (12) Disposal areas shall be cleared but need not be grubbed. The clearing work shall not damage grass, shrubs, or vegetation outside the limits of the approved area and haul roads thereto. After the material has been deposited, the area shall be shaped to minimize erosion and siltation of nearby streams and landscaped in accordance with the approved plan for such work or shall be used as approved by the Engineer. The Contractor's design and restoration shall conform to the requirements of the contract and federal, state, and local laws and regulations.

If the Contractor fails to provide and maintain necessary controls to prevent erosion and siltation, if such efforts are not made in accordance with the approved sequence, or if the efforts are found to be inadequate, the Department will withdraw approval for the use of the site and may cause the Contractor to cease all contributing operations and direct his efforts toward corrective action or may perform the work with state forces or other means as determined by the Engineer. If the work is not performed by the Contractor, the cost of performing the work, plus 25 percent for supervisory and administrative personnel, will be deducted from monies due the Contractor.

The Contractor shall furnish the Engineer a statement signed by the property owner in which the owner agrees to the use of his property for the deposit of material from the project. Upon completion of the use of the property as an approved disposal area, the Contractor shall furnish the Engineer a release signed by the property owner indicating that the property has been satisfactorily restored. This requirement will be waived for commercial sources, sources owned by the Contractor, and sources furnished by the Department.

Material encountered by the Contractor shall be handled as follows:

- (a) **Unsuitable material** for the purpose of this Specification is defined as material having poor bearing capacity, excessive moisture content, extreme plasticity or other characteristics as defined by the Engineer that makes it unacceptable for use in the work and shall be disposed of at an approved disposal area or landfill licensed to receive such material.
- (b) **Surplus material** as shown on the plans shall be disposed of by flattening slopes, used to fill in ramp gores and medians, or if not needed, disposed of at an approved disposal area or a landfill licensed to receive such material.

Surplus material stockpile areas on the right-of-way shall be cleared but need not be grubbed. The clearing work shall not damage grass, shrubs, or vegetation outside the limits of the approved area and the haul roads thereto. Placement of fill material shall not adversely affect existing drainage structures. If necessary, modified existing drainage structures, as approved by the Engineer, shall be paid for in accordance with Section 109.05. Within 7 days after the material has been deposited, the area shall be shaped and stabilized to minimize erosion and siltation.

- (c) **Organic materials** such as, but not limited to, tree stumps and limbs (not considered merchantable timber), roots, rootmat, leaves, grass cuttings, or other similar materials shall be chipped or shredded and used on the project as mulch, given away, sold as firewood or mulch, burned at the Contractor's option if permitted by local ordinance, or disposed of at a facility licensed to receive such materials. Organic material shall not be buried in state rights of way or in an approved disposal area.

- (d) **Rootmat** for the purpose of this Specification is defined as any material that, by volume, contains approximately 60 percent or more roots and shall be disposed of in accordance with (c) herein.
- (e) **Inorganic materials** such as brick, cinder block, broken concrete without exposed reinforcing steel, or other such material may be used in accordance with Section 303.04 or shall be disposed of at an approved disposal area or landfill licensed to receive such materials. If disposed of in an approved disposal area, the material shall have enough cover to promote soil stabilization in accordance with the requirements of Section 303 and shall be restored in accordance with other provisions of this Section.
Concrete without exposed reinforcing steel, may be crushed and used as rock in accordance with Section 303. If approved by the Engineer, these materials may be blended with soils that meet AASHTO M57 requirements and deposited in fill areas within the right-of-way in accordance with the requirements of Section 303 as applicable.
- (f) **Excavated rock** in excess of that used within the project site in accordance with the requirements of Section 303 shall be treated as surplus material.
- (g) **Other materials** such as, but not limited to, antifreeze, asphalt (liquid), building forms, concrete with reinforcing steel exposed, curing compound, fuel, hazardous materials, lubricants, metal, metal pipe, oil, paint, wood or metal from building demolition, or similar materials shall not be disposed of at an approved disposal area but shall be disposed of at a landfill licensed to receive such material.

106.05 - Rights for and Use of Materials Found on Project

With the approval of the Engineer, the Contractor may use in the project any materials found in the excavation that comply with the requirements of the Specifications. Unless otherwise specified, the Contractor will be paid for both the excavation of such materials at the contract unit price and for the pay item for which the excavated material is used. However, the Contractor shall replace at his own expense with other acceptable material the excavation material removed and used that is needed for use in embankments, backfills, approaches, or otherwise. The Contractor shall not excavate or remove any material from within the construction limits that is not within the grading limits, indicated by the typical section, slope and grade lines shown in the plans without written authorization by the Engineer.

106.06 - Samples, Tests, and Cited Specifications

Materials will be inspected and tested by the Engineer before or during their incorporation in the work. However, the inspection and testing of such material shall not relieve the Contractor of the responsibility for furnishing material that conforms to the requirements of the Specifications. The Department may retest all materials that have been accepted at the source of supply after delivery and will reject those that do not conform to the requirements of the Specifications. Stored material may be re-inspected prior to use. Work in which untested materials are used without the written permission of the Engineer may be considered unacceptable.

Unless reference is made to a specific dated Specification, references in these Specifications to AASHTO, ASTM, VTM, and other standard test methods and materials requirements shall refer to either the test specifications that have been formally adopted or the latest interim or tentative specifications that have been published by the appropriate committee of such organizations as of the date of the Notice of Advertisement. Unless otherwise indicated, tests for compliance with specification requirements will be made by and at the Department's expense except that the cost of retests, exclusive of the first retest, shall be borne by the Contractor. Samples shall be furnished by the Contractor at his expense, and those that are not tested by the Contractor will be tested by a representative of the Department.

The inspection cost of structural steel items fabricated in a country other than the continental United States shall be borne by the Contractor. Inspection of structural fabrication shall be performed in accordance with the requirements of the appropriate VTM by a commercial laboratory approved by the Department. Additional cleaning or repair necessary because of environmental conditions in transit shall be at the Contractor's expense.

In lieu of testing, the Engineer may approve the use of materials based on the receipt of a certification furnished by the Contractor from the manufacturer. However, furnishing the certificate shall not relieve the Contractor of the responsibility for furnishing materials that conform to the requirements of the Specifications or the contract requirements.

Materials requiring an MSDS will not be accepted at the project site for sampling or at the Department's

laboratories for testing without the document.

106.07 - Plant Inspection

If the Engineer inspects materials at the source, the following conditions shall be met:

- (a) The Engineer shall have the cooperation and assistance of the Contractor and producer of the materials.
- (b) The Engineer shall have full access to parts of the plant that concern the manufacture or production of the materials being furnished.
- (c) For materials accepted under a quality assurance plan, the Contractor or producer shall furnish equipment and maintain a plant laboratory at locations approved for plant processing of materials. The Contractor or producer shall use the laboratory and equipment to perform quality control testing

The laboratory shall be of weatherproof construction, tightly floored and roofed, and shall have adequate lighting, heating, running water, ventilation, and electrical service. The ambient temperature shall be maintained between 68 degrees F and 86 degrees F and thermostatically controlled. The laboratory shall be equipped with a telephone, intercom, or other electronic communication system connecting the laboratory and scale house if the facilities are not in close proximity to each other. The laboratory shall be constructed in accordance with the requirements of local building codes.

The Contractor or producer shall furnish, install, maintain, and replace, as conditions necessitate, testing equipment specified by the appropriate ASTM, AASHTO method or VTM being used and provide necessary office equipment and supplies to facilitate keeping records and generating test reports. The Contractor or producer's technician shall maintain current copies of test procedures performed in the laboratory. The Contractor shall calibrate or verify all balances, scales and weights associated with testing performed as specified in AASHTO R18. The Contractor or producer shall also provide and maintain an approved test stand for accessing truck beds for the purpose of sampling and inspection. The Department may approve a single laboratory to service more than one plant belonging to the same Contractor or producer.

For crushed glass, the plant equipment requirements are waived in lieu of an independent third-party evaluation and certification of crushed glass properties by an AASHTO Materials Reference Laboratory (AMRL)-accredited commercial soil testing laboratory demonstrating that the supplied material conforms to the specified requirements of Section 203. Random triplicate samples will be evaluated and analyzed for every 1,000 tons of material supplied to the project. The averaged results will be used for evaluation purposes. Suppliers of crushed glass shall maintain third party certification records for a period of three years.

106.08 - Storing Materials

Materials shall be stored in a manner so as to ensure the preservation of their quality and fitness for the work. When considered necessary by the Engineer, materials shall be stored in weatherproof buildings on wooden platforms or other hard, clean surfaces that will keep the material off the ground. Materials shall be covered when directed by the Engineer. Stored material shall be located so as to facilitate their prompt inspection. Approved portions of the right of way may be used for storage of material and equipment and for plant operations. However, equipment and materials shall not be stored within the clear zone of the travel lanes open to traffic.

Additional required storage space shall be provided by the Contractor at his expense. Private property shall not be used for storage purposes without the written permission of the owner or lessee. The Contractor shall furnish copies of the owner's written permission to the Engineer. Upon completion of the use of the property, the Contractor shall furnish the Engineer a release signed by the property owner indicating that the property has been satisfactorily restored.

Chemicals, fuels, lubricants, bitumens, paints, raw sewage, and other harmful materials as determined by the Engineer shall not be stored within any floodplain unless no other location is available and only then shall the material be stored in a secondary containment structure(s) with an impervious liner. Also, any storage of these materials in proximity to natural or man-made drainage conveyances or otherwise where the materials could potentially reach a waterway if released under adverse weather conditions, must be stored in a bermed or diked area or inside a container capable of preventing a release. Double-walled storage tanks shall meet the berm/dike containment requirement except for storage within flood plains. Any

spills, leaks or releases of such materials shall be addressed in accordance with Section 107.16(b). Accumulated rain water may also be pumped out of the impoundment area into approved dewatering devices

106.09 - Handling Materials

Materials shall be handled in a manner that will preserve their quality, integrity and fitness for the work. Aggregates shall be transported in vehicles constructed to prevent loss or segregation of materials.

106.10 - Unacceptable Materials

Materials that do not conform to the requirements of the Specifications shall be considered unacceptable. Such materials, whether in place or not, will be rejected and shall be removed from the site of the work. If it is not practical for the Contractor to remove rejected material immediately, the Engineer will mark the material for identification. Rejected material whose defects have been corrected shall not be used until approval has been given by the Engineer.

106.11 - Material Furnished by the Department

The Contractor shall furnish all materials required to complete the work except those specified to be furnished by the Department.

Material furnished by the Department will be delivered or made available to the Contractor at the points specified in the Contract. The cost of handling and placing materials after delivery to the Contractor shall be included in the contract price for the item with which they are used.

After receipt of the materials, the Contractor shall be responsible for material delivered to him, including shortages, deficiencies, and damages that occur after delivery, and any demurrage charges.

106.12 - Critical Materials

Raw, manufactured materials or supplies that are necessary for the fabrication, construction, installation or completion of any item of work that is, or becomes, in extremely short supply regionally or nationally as substantiated by recognized public reports such as news media, trade association journals, etc. due to catastrophic events of nature, needs of national defense or industrial conditions beyond the control of the Department or Contractor, will be declared Critical by the Department.

When the supply of materials becomes critical, the provisions of this Section will become applicable to the Contract.

When all items of work involving noncritical materials have been completed by the Contractor or have progressed to a point where no further work is practicable prior to receipt of critical materials, a complete suspension of work will be granted by the Department. Requests for partial suspension orders because of delays attributable to nonreceipt of critical materials will be considered on the basis of merit in each case.

The Department reserves the right to substitute materials by means of a work order.

Contractors, via their manufacturers or suppliers, that request relief due to critical shortage of materials as specified in this Section shall immediately supply information concerning the product and other supporting data to permit the Department an opportunity to access possible alternatives or methods to avoid undue delay or expenditure.