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Supplemental Specifications - Section 200

of the

Standard Specifications for Road and Bridge Construction

Subsection 201.04- Disposal of Debris. Replace second paragraph with the following:

When permitted by the Engineer, perishable materials and debris may be removed from the rights-of-way and disposed of at locations off the project, outside the limits of view from the project during all seasons as long as the work is in accordance with the Procedures for Providing Offsite Waste and Borrow on TDOT Construction Projects Manual. The cost involved shall be included in the bid cost for the project. In addition the material shall be disposed of in accordance with all applicable laws and ordinances regarding solid wastes as per Tennessee Department of Environment and Conservation requirements.

Subsection 201.05-Method of Measurement. Revise the first paragraph to the following:

“When the bid schedule contains an item for Clearing and Grubbing on a lump sum basis, no measurement of area will be made.”

Subsection 201.06-Basis of Payments. Revise entire subsection to the following:

“Payment for Clearing and Grubbing shall be made at the contract unit price per lump sum and shall be full compensation for completing the Clearing and Grubbing as outlined on the Plans and in these Specifications.”

Payment for Clearing and Grubbing (Borrow Pits) at the contract unit price per acre (hectare) shall be full compensation for completing the Clearing and Grubbing of Department furnished borrow pits as outlined in the Plans and in these Specifications. These borrow areas will be furnished in accordance with the Procedures for Providing Offsite Waste and Borrow on TDOT Construction Projects Manual.

Subsection 202.03-General. Replace the last sentence of the first paragraph with the following:

Material disposed of on private property shall be disposed of in accordance with the Procedures for Providing Offsite Waste and Borrow on TDOT Construction Projects Manual.

Subsection 203.02-Classification. Replace the entire subsection with the following:

- (a) Road and Drainage Excavation (Unclassified).

All excavation performed under this Section, including portland cement concrete located above subgrade elevation, other than Borrow Excavation, Channel Excavation, and Undercutting, will be considered unclassified excavation regardless of the nature of the material excavated.

(b) Borrow Excavation.

Borrow Excavation shall consist of material required for the construction of embankments or other portions of the work and shall be obtained from approved sources outside the right-of way limits in accordance with the Procedures for Providing Offsite Waste and Borrow on TDOT Construction Projects Manual, unless otherwise designated in the Plans. However, any material, other than Borrow Excavation (Unclassified), as may be found in the excavation that meets the specifications of the designated borrow material may be used in the project in accordance with the conditions prescribed in **Subsection 104.10**. However, if the flattening of certain cut slopes on projects graded under previous contracts is desirable and approved in writing by the Engineer, the Contractor will be permitted to use this material for borrow provided the material is satisfactory and in accordance with plans approved by the Engineer, and provided he complies with the requirements of **Subsection 203.04** regarding borrow areas. Borrow material shall not be obtained from wetland areas, unless otherwise noted on the Plans.

Borrow shall be classified as Borrow Excavation (Solid Rock), Borrow Excavation (Graded Solid Rock), Borrow Excavation (Unclassified), or Borrow Excavation (Select Material). Borrow Excavation (Solid Rock) shall consist of the removal and satisfactory placement of non-degradable rock which cannot be economically excavated by the proper use of a power shovel or without the use of explosives. Borrow Excavation (Unclassified) shall consist of the removal and satisfactory placement of all approved material encompassed under the classification of Borrow Excavation (Solid Rock) and all other approved material.

Borrow Excavation (Graded Solid Rock) shall consist of the removal and satisfactory placement of sound, non-degradable rock with a maximum size of 3 ft. (1 m). At least 50 percent of the rock shall be uniformly distributed between 1 ft. (30 cm) and 3 ft. (1 m) in diameter and no greater than 10 percent shall be less than 2 in. (50 mm) in diameter. The material shall be roughly equi-dimensional in shape. Thin, slabby material will not be accepted. The Contractor shall be required to process the material with an acceptable mechanical screening process that produces the required gradation. When the material is subjected to five alternations of the sodium sulfate soundness test (AASHTO T 104), the weighted percentage of loss shall be not more than 12. The material shall be approved by the Engineer before use.

Borrow Material other than solid rock shall be AASHTO M 145, classification A-6 or better if reasonably available. If classification A-6 is not reasonably available, the borrow shall be no worse than the predominant soil type in the roadway excavation based on AASHTO classification.

Borrow Excavation (Select Material) for special construction purposes shall meet the requirements set forth in the Contract.

Material obtained from an approved borrow source off the right-of-way as provided in this Subsection shall not be utilized to produce processed aggregate as described in

Section 903. In no case shall material excavated from an offsite borrow source be utilized in base or other paving courses above the elevation of the subgrade.

Unless otherwise designated in the Contract, the Contractor shall make his own arrangements for obtaining borrow material in accordance with the Procedures for Providing Offsite Waste and Borrow on TDOT Construction Projects Manual.

For projects that do not require a Construction General Permit, the Contractor shall obtain the borrow material from a non-exclusive site. A non-exclusive site is one which has been permitted to provide material to or accept material from multiple projects

(c) Channel Excavation (Unclassified).

This item shall consist of the removal and satisfactory disposal of all material, regardless of its nature and the manner in which it may be removed, that is excavated for channel changes in widening, deepening, and straightening existing channels or constructing new ones, which have a width at the bottom of more than 14 ft. (4 m) as indicated on the Plans. All other similar excavation with a bottom width 14 ft. (4 m) or less, as shown on the Plans, shall be paid for as Road and Drainage Excavation (Unclassified).

(d) Undercutting.

This item shall consist of removing and disposing of unsatisfactory materials below grade in cut sections, from areas upon which embankments are to be placed, and may also include material excavated below the Foundation elevation for pipe, box culverts and box bridges as described in **Subsection 204.12**. Undercutting does not include the stripping, stockpiling and placing of topsoil, described in **Subsection 203.06**, nor does it include step-benching in the preparation of embankment areas on hillsides. Disposal of undercutting material off rights-of-way shall be conducted in accordance with the Procedures for Providing Offsite Waste and Borrow on TDOT Construction Projects Manual.

Subsection 203.04 General. Replace the entire subsection with the following:

203.04-General. Prior to beginning excavation, grading, and embankment operations in any area, all necessary Clearing and Grubbing, Removal of Structures and Obstructions and placement of Erosion Control Devices in that area shall have been performed in accordance with **Section 201**, **Section 202** and **Section 209**, respectively, of these Specifications.

Excavation materials shall be removed in such a manner that the slopes may be neatly trimmed to the lines given. The Engineer may change the slopes shown on the original cross sections, depress raised medians or islands, raise depressed medians or islands or daylight cuts to increase or decrease the quantity of Road and Drainage Excavation (Unclassified) provided the material can be excavated without blasting and these changes are set in the slope stakes prior to commencement of excavation of the affected slopes, medians or islands. Any additional material thus obtained shall be paid for at the contract unit price bid for Road and Drainage Excavation (Unclassified).

Excavation required to correct slides, regardless of its location relative to the theoretical slope line, or excavation required to prevent potential slides including blasting, and the dressing, reshaping or flattening of the affected slopes as directed by the Engineer, shall be paid for under the Item for Road and Drainage Excavation (Additional Material) in accordance with **Subsection**

203.10. If it becomes necessary to flatten a slope to correct a slide or prevent a potential slide after the cut has been started but not completed, payment under Road and Drainage Excavation (Additional Material) will be limited to material removed between the original staked slope line and the newly established slope line above the elevation to which the cut has been made. All other material will be paid for at the contract unit price of Road and Drainage Excavation (Unclassified). Seeding, sod and other incidental items required to repair the slide area will be paid for at the contract unit price bid for the respective items.

If more material is required to complete the embankments after all cuts have been brought to grade and all Road and Drainage Excavation (Unclassified) has been removed from within the balance, additional materials shall be obtained from within the rights-of-way by flattening, widening or daylighting cut slopes, and by depressing raised medians or islands at locations designated and as directed by the Engineer provided:

- (a) The cost of this material is more economical than borrow excavation.
- (b) The material is available within the adjusted balance where the shortage exists or the material may be hauled outside the limits of adjusted balance if the cost of the material is more economical than borrow when the additional cost of overhaul is considered.
- (c) The material can be excavated without blasting.
- (d) There is a minimum of 20 ft. (6 m) between the top of the existing slope and the top of the new slope and minimum of 5 ft. (1.5 m) between the top of the new slope and Rights-of-Way Line or Control Access fence. The 20 ft. (6 m) minimum will not apply when the existing slope is 4:1 or flatter or to overlapping or near overlapping slopes in medians or between parallel roads or ramps. The 20 ft. (6 m) minimum may be reduced at the written request of the Contractor.

This additional material is to be paid for under the item for Road and Drainage Excavation (Additional Material) in accordance with **Subsection 203.10**.

When additional material is paid for under the item for Road and Drainage Excavation(Additional Material) and additional clearing and grubbing is required, the additional clearing and grubbing will be measured and paid for by the acre (hectare), provided the item for Adjusted Clearing and Grubbing is in the Contract, or as negotiated. No additional payment will be made for extra handling of stockpiled topsoil made necessary by the use of the item for Road and Drainage Excavation (Additional Material).

The roadbed through rock cuts shall be constructed to the grading line shown on the Plans, with an allowable working tolerance of plus 1 to minus 3 in. (plus 25 to minus 75 mm). The portions of the roadway that are less than 3 in. (75 mm) below grade shall be brought to grade with spalls or other suitable granular material that is available from the excavation within the balance. If such excavation is not available, the Engineer may direct the Contractor to use approved base material for capping. Payment for furnishing and placing said base material will be made at the contract unit price bid per ton (metric ton) for the applicable Item in **Subsection 303.14**. When base material is not a bid item in the Contract, the material shall be furnished under the provisions of **Subsection 104.03**. If the roadbed is excavated in excess of 3 in. (75 mm) below the grading line shown on the Plans, the Contractor will be required to furnish and

place at his own expense sufficient amounts of spalls or base material to bring the roadbed to a line 3 in. (75 mm) below the grading line.

Where sodding is indicated on the Plans to be placed on rock cuts, the rock shall be removed to 1 ft. (30 cm) below the grading line and backfilled to grade with earthen material prior to placing the sod. Measurement and payment of this work will be made under Items for Roadway and Drainage Excavation (Unclassified) and Sodding (New Sod).

All suitable materials removed from the excavation areas shall be used in the construction of embankments, intersecting road approaches, and in such other places as directed. Embankment construction shall be performed in accordance with the provisions of **Section 205** of these Specifications.

When boulder formations occur, the roadbed in the excavation area shall be scarified and all boulders removed to a depth of 12 in. (30 cm) below grade. The cavities thus formed shall be backfilled with suitable material and compacted.

All rock cuts shall be presplit at the outside limits of the cut areas. Presplitting shall consist of forming a plane of split rock prior to any primary blasting. The plane shall be formed for the entire depth of the cut or to a predetermined bench level. Presplitting shall be accomplished by drilling holes of appropriate size to the desired depth along the outside limits of the cut area, loading such holes with appropriate charges of explosives, stemming with minus 3/8 in. (9.5 mm) clean stone chips to the collar of the holes and detonating simultaneously. The initial horizontal spacing of holes and vertical spacing of charges and blasting cord for simultaneous detonation shall be as recommended by a reliable powder company. Adjustments of horizontal hole spacing and vertical spacing of charges shall be made as necessary to obtain a relatively smooth shear plane. Sand, gravel, clay, or dirt will not be permitted for stemming. In drilling holes for presplitting, the drills shall be plumbed for vertical slopes or set on the required slope when other than vertical slopes are specified, and all holes shall be drilled in the same plane. Presplitting will not be required on slopes flatter than 1 to 1. After presplitting is done, the drilling of primary blast holes shall be kept at least 3 ft. (1 m) or more from the presplit face. Presplitting of rock cuts under bridge sites shall be in accordance with the provisions of this Subsection and hole spacing shall be as specified under **Subsection 204.08**. Blasting records shall be made available on request by the Engineer. Blasting shall not be permitted within 300 ft. (100 m) of any Structure or concrete until at least 72 hours have elapsed after placement of the concrete. The Contractor will be responsible and replace and/or repair any and all damages at no expense to the Department.

All loose rock on cut slopes shall be removed immediately. Excavation material shall not be wasted, deposited or disposed of outside the construction lines unless directed by the Engineer. Obliteration of old roadways shall include all grading operations necessary to incorporate the old roadway into the new roadway and surroundings in order to provide a pleasing appearance from the new roadway.

Removal of concrete pavement, base, parking strip, sidewalk, curb and gutter, etc. will be paid for under the classifications as prescribed in **Subsections 202.06 and 203.02(a)**. Roadway obliteration will be paid for as Road and Drainage Excavation (Unclassified).

When the Contractor's excavating operations encounter remains of prehistoric people's dwelling sites or artifacts of historical or archaeological significance, the operations shall be temporarily discontinued. The Engineer will contact archaeological authorities to determine the disposition thereof.

The Engineer shall designate as unsuitable those soils that cannot be properly compacted in embankments. All unsuitable soil shall be disposed of as directed at no additional cost.

When the location of unstable soil is shown on the Plans, its removal and replacement shall be as shown.

The Contractor shall notify the Engineer sufficiently in advance of opening any borrow area so that, after stripping, cross section elevations and measurements of the ground surface may be taken, and so that the borrow material can be tested before being used. The borrow area shall be approved in accordance with the Procedures for Providing Offsite Waste and Borrow on TDOT Construction Projects Manual. At least 14 days' time shall be allowed for testing borrow materials or other material from roadside pits that is proposed for construction purposes.

Unless otherwise permitted, borrow material shall not be placed until after the roadway excavation has been placed in the embankments. If the Contractor places more borrow than is required and thereby causes a waste of excavation, the amount of such waste will be deducted from the borrow volume as measured in the borrow area. The Contractor shall not excavate beyond the dimensions and elevations established.

When the Contractor elects to remove highway fencing to obtain borrow materials, the fencing shall be replaced with new fence at the Contractor's expense. The Contractor shall be responsible for the confinement of livestock when a portion of the fence is removed.

Borrow pits shall be approved in accordance with the Procedures for Providing Offsite Waste and Borrow on TDOT Construction Projects Manual and excavated in such a manner that they will be self-draining where possible and practicable, and shall be of a shape that can be easily cross sectioned.

When the Contractor's excavation operations are completed the area shall have a neat appearance. All borrow areas, except those portions which are under water in the case of pits which are not self-draining, shall be covered with topsoil and stabilized in accordance with the Procedures for Providing Offsite Waste and Borrow on TDOT Construction Projects Manual.

Furnishing and placing of topsoil and seeding (with mulch) shall be performed in accordance with the provisions of **Subsection 203.06** and **Section 801**, respectively.

Furnishing and placing topsoil and stabilization of borrow areas, as specified above, shall be included in the bid cost for the project as specified in the Procedures for Providing Offsite Waste and Borrow on TDOT Construction Projects Manual.

The Contractor's attention is called to **Sections 53-801 through 53-809** of the **Tennessee Code, Annotated**, the provisions of which apply to borrow pits 1 acre (4047 m²) or more in size that are not self-draining. Full information regarding the requirements to be complied with and the necessary permits which the property owner must secure for the construction of a pond, lake, borrow pits, etc., one acre or larger which is not constructed to drain, will be supplied upon application to the Tennessee Department of Environment and Conservation.

All existing roads within the right-of-way and not in the graded area that are to be abandoned shall be scarified, obliterated, top-soiled, and seeded. Scarifying and obliterating the pavement will not be measured and paid for directly, but the cost will be included in the cost of other items. Topsoil will be measured and paid as outlined in **Section 203.09** and **203.10**. Seeding, in accordance with **Section 801** of these Specifications, will be measured and paid for under the item for Seeding.

When additional material is paid for under the item for Road and Drainage Excavation(Additional Material) and additional clearing and grubbing is required, the additional clearing and grubbing will be measured and paid for by the acre (hectare), provided the item for

Adjusted Clearing and Grubbing is in the Contract, or as negotiated. No additional payment will be made for extra handling of stockpiled topsoil made necessary by the use of the item for Road and Drainage Excavation (Additional Material).

Subsection 203.05-Undercutting. Add the following as the last sentence of the first paragraph:

If undercutting material is to be disposed of off rights-of-way, disposal shall be conducted in accordance with the Procedures for Providing Offsite Waste and Borrow on TDOT Construction Projects Manual.

Subsection 203.06-Stripping, Stockpiling and Placing Topsoil. Revise the first paragraph to the following:

203.06-Stripping, Stockpiling and Placing Topsoil. The Engineer will designate areas between slope stake points in both cut and fill from which the existing topsoil shall be stripped and stockpiled. The quantity of topsoil to be stripped shall be sufficient to provide, over all areas to be seeded, a depth of 2 to 3 in. (50 to 75 mm) of the material. If the quantity of topsoil available in such areas is insufficient, the Contractor shall make up the deficiency with topsoil from an approved borrow area in accordance with the Procedures for Providing Offsite Waste and Borrow on TDOT Construction Projects Manual. The quantity of topsoil from such a source shall be measured by cross sectioning the area before and after removal.

Subsection 203.07-Disposal of Excess or Unsuitable Material. Revise the entire subsection to the following:

203.07-Disposal of Excess or Unsuitable Material. Excess excavation material shall be used to raise, widen or flatten the slopes of embankments; to fade embankments into cuts; or be placed in such other locations and for such purposes as the Engineer may direct.

Specific instructions will be given by the Engineer regarding the disposal of surplus material. Excess or unsuitable material placed within the rights-of-way limits shall be placed and compacted in accordance with **Subsection 205.04**. Foundation preparation for and drainage through these waste areas shall be equivalent to that provided for the adjacent roadway embankment.

If no suitable place can be found to dispose of excess or unsuitable material within the limits of the rights-of-way, the Engineer may direct the Contractor to provide a suitable site off the rights-of-way at no additional cost in accordance with the Procedures for Providing Offsite Waste and Borrow on TDOT Construction Projects Manual.

Furnishing and placing topsoil and seeding waste areas inside the Rights-of-Way shall be measured and paid for at the contract unit prices bid for the respective items. Furnishing and placing topsoil and seeding on waste areas outside the Rights-of-Way in accordance with the above provisions will not be paid for directly, and the costs thereof shall be included in the unit price bid for other items of construction.

When waste material is placed off the rights-of-way which, in the judgment of the Engineer, are so removed from the rights-of-way as to not constitute a potential threat to the stability of the project, the contractor should follow the requirements outlined in the Procedures for Providing Offsite Waste and Borrow on TDOT Construction Projects Manual to ensure the waste area is properly designed, regulated, and implemented.

For projects that do not require a Construction General Permit, the Contractor shall dispose of all unsuitable and/or excessive material to a non-exclusive site. A non-exclusive site is one which has been permitted to provide material to or accept material from multiple projects

Subsection 203.09-Method of Measurement. Delete the next to the last paragraph which begins with, "Overhaul of Road and Drainage Excavation".

Subsection 203.10-Basis of Payment. Delete the last paragraph.

Subsection 204.02-Classification (g) Bedding Material for Support for Pipe Culverts. Add the following sentence to (g):

"Payment for Type "A" or Type "B" backfill including bedding material will be included in the unit price of the pipe unless otherwise specified in the plans."

Subsection 204.06 Add the following before section (a)

"The contractor shall submit for approval a proposed mix design in accordance with **Subsection 604.03.**"

Subsection 204.06 (a), second paragraph, Delete the first sentence and replace with the following:

"The above Specification Limits may be adjusted by the Engineer to obtain the consistency required for satisfactory flow."

Subsection 204.08-Excavation (a). Replace the third paragraph of subsection (a) with the following:

No excavated materials shall be deposited or disposed of outside the construction lines unless directed by the Engineer and approved in accordance with the Procedures for Providing Offsite Waste and Borrow on TDOT Construction Projects Manual.

Subsection 204.10-Foundation Preparation, (b) Pipe culverts. Add following as the fourth paragraph:

"When plastic pipe is to be placed, the bedding and backfill shall be granular compactable Type "A" or Type "B" Aggregate, Grading D or E material meeting the requirements of **Subsection 903.05.** Open graded aggregates will not be allowed. A minimum of 6 inches of bedding compacted to a minimum 90% Standard Proctor Density shall be provided prior to placement of the pipe unless otherwise specified."

Subsection 204.11 Backfilling, (b) Pipe culverts. Add The following as the third paragraph:

"When plastic pipe is to be placed, structural backfill must be worked into the haunch area and compacted by hand after placement of the pipe. Special compaction means may be necessary in the haunch area. Structural backfill may then be placed in layers not to exceed an 6 inch loose lift thickness and brought up evenly and simultaneously on both sides of the pipe to an elevation not less than one foot above the pipe. A minimum compaction level of 90% Standard Proctor Density per *AASHTO T99* shall be achieved by the use of a vibratory plate. Hydrohammer type compactors shall not be used over the pipe. All compaction equipment used shall be approved by the Engineer."

204.12-Method of Measurement. Add the following as the last paragraph:

“Payment for Type “A” or Type “B” backfill including bedding material will be included in the unit price of the pipe.”

204.13-Basis of Payment, (h) Concrete for Class A Bedding. **Remove** paragraph and **replace** with the following:

“Payment for Type “A” bedding material will be included in the unit price of the pipe unless otherwise provided in the plans. If specified by the plans, concrete for Class A Bedding will be paid for at the contract unit price per cubic yard (m³) for Bedding Material (Pipe) Class A, complete in place.”

204.13-Basis of Payment, (i) Material for Class B Bedding. **Remove** paragraph and **replace** with the following:

“Payment for Type “B” bedding material will be included in the unit price of the pipe unless otherwise provided in the plans.” If specified by the plans, material for Class B Bedding will be paid for at the contract unit price per cubic yard (cubic meter) for Bedding Material (Pipe) Class B, complete in place.

204.13-Basis of Payment, (l) Backfill Material (Flowable Fill). **Add** the following as the last paragraph:

“Payment for “Flowable Fill” as backfill material for pipe shall be included in the unit price of the pipe unless otherwise provided in the plans.”

Subsection 205.04 Insert the following, between the fifth and sixth paragraph:

“Where the contract includes the placement of base stone or other components of a pavement structure upon the subgrade, the top 6 in. (150 mm) in both cut and fill sections shall be compacted to a density equal to 100 percent of the maximum density in accordance with the provisions of **Subsection 207.04.**”

Subsectin 206.03-Method and Scope of Work. **Revise** the entire subsection to the following:

206.03-Method and Scope of Work. Final Dressing shall be performed by hand work and machines to produce a uniform satisfactory finish to all parts of the roadway and other components of the project. The roadbed, shoulders, ditches and slopes shall be shaped within reasonably close conformity to the specified lines, grades and cross sections. Spoil banks, borrow areas, waste areas, etc. shall be dressed in a satisfactory manner in accordance with the Procedures for Providing Offsite Waste and Borrow on TDOT Construction Projects Manual. Rock cuts shall be scaled of all loose fragments and left in a neat, safe and workmanlike condition.

The entire rights-of-way shall be cleaned of all weeds, briars and brushes unless otherwise specified on the Plans. All structures, both old and new, shall be cleared and cleaned of all brush, drifts, heavy vegetation, sediment, rubbish, obstructions and other objectionable material. Final dressing shall be performed prior to sodding and seeding operations when these construction items are included in the Contract.

Tracked machines used in the dressing of slopes shall be run up and down slopes as opposed to longitudinally.

Section 209, Revise Section title to the following:

**SECTION 209-PROJECT EROSION PEVENTION
AND SEDIMENT CONTROL**

Subsection 209.01, Revise Subsection to the following:

209.01-Description. This work shall consist of temporary and permanent best management practices to prevent erosion and control sediment through the use of structural and non-structural controls.

Erosion prevention and sediment control measures shall be implemented during all phases of construction, including all approved waste and borrow areas.

Subsection 209.02, Revise Subsection to the following:

209.02-Classification. Structural and Non-Structural best management practices will be classified in accordance with manual for Management of Storm Water Discharges Associated with Construction Activities. Best management practices are structural and non-structural controls required for the project and shall be implemented in accordance with the TN Construction General Permit, Manual for Management of Storm Water Discharges Associated with Construction Activities, the project Stormwater Pollution Prevention Plan, and Roadway Standard Drawings, whichever is more restrictive.

Subsection 209.04, Revise Subsection to the following:

209.04-Project Review. Prior to the preconstruction conference, the Contractor shall meet with the Engineer to discuss potential problems with erosion prevention and sediment control due to construction activities and actions to be taken to prevent such problems. Pursuant to this discussion the Contractor shall prepare a comprehensive erosion and sediment control plan in accordance with Subsection 209.05 below and the approved SWPPP. The plan shall be continuously implemented to effectively control erosion during the term of the contract.

If it is determined that a waste or borrow area is needed, the Contractor shall prepare a waste and borrow plan in accordance the Procedures for Providing Offsite Waste and Borrow on TDOT Construction Projects Manual.

Subsection 209.05, Revise Subsection to the following:

209.05-Preconstruction Conference. At the preconstruction conference, the Contractor shall submit for acceptance his plan for the staging of his operations and for accomplishment of temporary and permanent erosion prevention and sediment control work for: (1) All areas within the rights-of-way as are applicable for clearing and grubbing, grading, bridges and other structures at water courses, paving and incidental construction and (2) Areas outside the rights-of-way that will be disturbed by the construction such as borrow and waste areas (which must have an approved waste and borrow plan and be properly permitted), haul roads and staging areas. The Contractor's plan for erosion prevention and sediment control work shall incorporate and supplement, as applicable, the basic control devices shown in the plans to provide acceptable temporary and permanent erosion prevention and sediment controls during all stages of construction. No work shall be started until the erosion prevention and sediment control plan, including the staging of temporary and permanent erosion control measures, has been accepted

by the Engineer. Rejection of all or part of the plan shall not constitute a basis for an extension of contract time.

The erosion prevention and sediment control plan shall be updated as work progresses to show changes due to revisions in work schedules or sequence of construction, or when directed by the Engineer.

Subsection 209.06, Revise Subsection to the following:

209.06-Construction Requirements. Prior to or simultaneously with the clearing and grubbing operations, the Contractor shall install erosion prevention and sediment control devices in accordance with the approved erosion prevention and sediment control plan. Such work may involve the construction of temporary berms, dams, silt fences, sediment basins, lined channels, permanent cut-off ditches, slope drains or other control devices as necessary to prevent and control erosion. Water from cofferdams is not to be pumped directly into streams, but is to be pumped into sediment basins, traps, or filter bags. No grading shall be performed until the erosion prevention and sediment control devices are in place to the satisfaction of the Engineer. Areas to be graded may be cleared and grubbed prior to beginning grading operations in accordance with the TN Construction General Permit. Stockpiled topsoil or fill material is to be protected so the sediment runoff will not contaminate surrounding areas or enter nearby streams. In order to reduce sediment in runoff, erosion prevention and sediment control structures shall be installed promptly during all construction phases.

The Contractor's operations shall be staged so that graded or otherwise disturbed erodible surfaces are protected as the work progresses. Once the Contractor begins grading for a roadway cut or embankment, he shall maintain a continuous, viable operation to complete the cut or embankment to subgrade elevation, unless otherwise approved in writing by the Engineer. Exposed erodible cut or embankment slopes shall be final dressed, topsoiled and protected with permanent seeding, sodding, matting or other acceptable erosion prevention and sediment control measures in vertical increments not exceeding 25 ft. (7.5 m) as the work progresses; and no portion of these slopes shall remain unprotected longer than allowed by the TN Construction General Permit unless the Engineer determines that weather conditions or other special circumstances preclude current placement of permanent control measures. Additionally, temporary erosion control measures shall be implemented as directed by the Engineer.

Seeding, sodding, matting or other acceptable erosion prevention and sediment control operations shall be initiated within 48 hours after any one of the following conditions occurs:

1. Each 25 ft. (7.5 m) vertical increment is graded or
2. Upon suspension or completion of grading operations in a specific area.

The above requirements for progressive erosion prevention and sediment control, as well as additional requirements, also apply to graded areas off the rights-of-way such as waste areas, borrow areas and haul roads. A borrow and waste site plan must be developed for any waste or borrow area selected according to Statewide Storm Water Management Plan – Procedures for Providing Offsite Waste and Borrow on TDOT Construction Projects.

The Contractor shall incorporate all permanent erosion prevention and sediment control practices into the project at the earliest practicable time. Temporary erosion prevention and sediment control features shall be used to control erosive conditions that warrant protection prior to installation of permanent control features or that are needed to temporarily control erosion that

develops during construction but which is not associated with permanent control features on the project.

Where construction activities cross or border areas of depression (ie. Sinkholes without openings or open throats), erosion prevention and sediment control measures shall be installed and maintained as shown in the plans. When construction activities encounter an open throated sinkhole (Class V Injection Well), the Engineer shall be notified immediately and applicable measures as described in the approved SWPPP shall be employed. The measures mentioned above shall encircle the sinkhole opening so as not to allow any silt to enter the opening.

In the event of conflict between these requirements and erosion prevention and sediment control laws, rules or regulations of other Federal or State or local agencies, the more restrictive laws, rules or regulations shall apply.

Subsection 209.07, Revise entire subsection to the following:

209.07-Construction of Structures. Structural controls include, but are not limited to, bonded fiber matrix, riprap, inlet protection, check dams, silt fence, and sediment basins. Structural measures shall be installed and maintained in accordance with the Manual for Management of Storm Water Discharges Associated with Construction Activities, TN Construction General Permit, and the Roadway Standard Drawings.

(a) Berms.

A berm shall be constructed of compacted soil, with a minimum width of 24 in. (60 cm) at the top and a minimum height of 12 in. (30 cm) with or without a shallow ditch, constructed at the top of fill slopes or transverse to center one on fills. Berms shall be graded so as to drain to a compacted outlet at a slope drain. The area adjacent to the berm in the vicinity of the slope drain must be properly graded to enable this inlet to function efficiently and with minimum ponding in this area. All transverse berms required on the downstream side of a slope drain shall extend across the grade to the highest point at approximately a 10 degree angle with a perpendicular to center line. The top width of these berms may be wider and the side slope flatter on transverse berms to allow equipment to pass over these berms with minimal disruptions. When practical and until final roadway elevations are approached, embankments should be constructed with a gradual slope to one side of the embankment to permit the placement of berms and slope drains on only one side of the embankment.

(b) Slope Drains.

Slope drains shall consist of metal pipe, plastic pipe, flexible rubber pipe, or other materials which can be used as temporary measures to carry water accumulating in the cuts and on the fills down the slopes prior to installation of permanent facilities or growth of adequate ground cover on the slopes.

All slope drains shall be adequately anchored to the slope to prevent disruption by the force of the water flowing in the drains. The base for slope drain shall be compacted and concavely formed to channel the water or hold the slope drain in place. The inlet end shall be properly constructed to channel water into the slope drain. Energy dissipaters, sediment basins or other approved devices shall be constructed at the outlet end of the slope drains to reduce erosion downstream. An ideal dissipater would be rip rap or a small sediment basin which would slow the water as well as pick up some sediment. All slope drains shall be removed when no longer necessary and the site restored to match the surroundings.

(c) Sediment Structures.

Sediment structures shall be utilized to control sediment at the foot of embankments where slope drains outlet; at the bottom as well as in the ditchlines atop waste sites; in the ditchlines or borrow pits. Sediment structures may be used in most drainage situations to prevent excessive siltation of pipe structures. Sediment structures shall be constructed in accordance with sizes shown on the Plans or as approved by the Engineer.

When use of sediment structures is to be discontinued, all sediment accumulation shall be removed, and all excavation backfilled and properly compacted. The existing ground shall be restored to its natural or intended condition.

(d) Check Dams.

Check dams shall be utilized to retard stream flow and catch small sediment loads. Materials utilized to construct check dams are varied and should be clearly illustrated or explained in the Contractor's erosion control plan. All check dams shall be keyed into the sides and bottom of the channel a minimum depth of 2 ft. (60 cm). A design is not needed for check dams but some typical designs are shown in the standard plans. Stone check dams should generally not be utilized where the drainage area exceeds 50 acres (20 hectares). Log and pole structures should generally not be used where the drainage area exceeds 5 acres (2 hectares).

(e) Temporary Seeding and Mulching.

Seeding and Mulching shall be performed in accordance with Section 801-Seeding. Mulching may also be required on areas that have not been seeded. An approved tackifier from the QPL shall be applied to all mulch as recommended by the manufacturer.

Fertilizer and agricultural limestone shall be applied as specified in **Subsection 801.05** for permanent seeding.

(f) Baled Hay or Straw Erosion Checks.

Hay or Straw Erosion Checks shall be embedded in the ground a minimum of 4 in. (10 cm) to prevent water flowing under them. The bales shall also be anchored securely to the ground by wooden stakes driven through the bales into the ground. Bales can remain in place until they rot, or be removed after they have served their purpose, as determined by the Engineer. The Contractor shall keep the checks in good condition by replacing broken or damaged bales immediately after damage occurs. Normal debris clean-out will be considered routine maintenance.

(g) Silt Fence and Filter Barriers.

Temporary Silt Fences and Filter Barriers shall be placed on the natural ground, at the bottom of fill slopes, in ditches, or other areas where siltation is an issue. Silt fences and filter barriers shall be placed with the filter cloth material on the upper grade side of the fence and anchored into the soil. (See standard drawings)

The Contractor shall be required to maintain the silt fence and filter barriers in a satisfactory condition for the duration of the project or until its removal is requested by the Engineer. The silt accumulation at the fence may be left in place and seeded, removed, etc. as directed by the Engineer. Unless otherwise directed by the Engineer, all silt fence or filter

barrier shall be removed prior to completion of the project and shall become the property of the Contractor.

(h) Sediment Filter Bags.

The sediment bags may be utilized either on slope drains, pipe culverts, box bridges, or for pumping sediment from sediment traps and sediment basins. This construction shall be performed as shown on plans or as directed by the Engineer. The material shall be a non-woven geotextile fabric bag resistant to rot, mildew, puncture and tearing, with a minimum seam breaking strength of 200 lbs (90 kgs) the seams shall demonstrate less elongation and Deformation of the geotextile fabric. The Division of Materials and Test will certify the fabric for the Temporary Sediment Filter Bags, and place them on the Departments Qualified Products List. Temporary Sediment Filter Bags shall meet the following specifications.

GEOTEXTILE FABRIC SPECIFICATIONS

Properties		Test Method
Weight	10.0 oz/yd.	ASTM D 3776
Tensile Strength	250 lbs.	ASTM D 4632
Tensile Elongation at Break	50%	ASTM D 4632
Puncture Strength	115 lbs.	ASTM D 4833
Trapezoidal Tear	100 lbs.	ASTM D 4533
Mullen Burst	350 lbs.	ASTM D 3786
Water, Flow Rate	80 gpm/ft. ²	ASTM D 4491
Permittivity	1.2 sec.-1	ASTM D 4491
UV Resistance	70% str. Ret.	ASTM D 4355

Standard Bag Minimum Dimensions

15 x 10 ft. and 15 x 15 ft.

Maximum Flow Rate

15 x 10 ft. up to 1,500 gpm

15 x 15 ft. up to 2,000 gpm

A manufacturer’s label designating the maximum allowable flow rate of the bag in gallons per minute shall be permanently attached to each bag.

The Contractor shall install and maintain all temporary erosion prevention and sediment control features until no longer needed or permanent control measures are installed. Any materials removed shall become the property of the Contractor. In order to insure erosion prevention and sediment control structures work properly, it is imperative the sediment be removed; therefore, inspection and maintenance of structures is to be performed on a regular basis. During sediment removal, the Contractor shall take care to insure that structural components of erosion prevention and sediment control structures are not damaged and thus made ineffective. If damage does occur, the Contractor shall repair the structures at his own

expense. Upon complete removal of sediment traps, special ditches, etc., the area where they were constructed is to be topsoiled, seeded and mulched.

In the event that temporary erosion prevention and sediment control measures are required due to the Contractor's negligence, carelessness, or failure to install permanent controls as a part of work as scheduled, and are ordered by the Engineer, such work shall be performed by the Contractor at his own expense. (See special provisions 107F and 107P if applicable)

Where temporary erosion prevention and sediment control work is acceptably performed and failure of all or any part of the system occurs but is not attributed to the Contractor's negligence, carelessness, or failure to install permanent controls and falls within the specifications for a work item that has a contract price, the units of work will be paid for at the proper contract prices except as noted below. Should the temporary erosion prevention and sediment control work not be comparable to the project work under the applicable contract items, the Contractor shall be ordered to perform the work on a force account basis, or by agreed unit prices in compliance with **Subsection 109.04**.

Except as noted below, payment also may be made for replacement of temporary erosion prevention and sediment control devices installed according to the plans or as approved by the Engineer provided such devices are no longer effective because of deterioration or functional incapacity, except that no payment shall be made for replacement of erosion prevention and sediment control devices ineffective due to improper installation, lack of reasonable maintenance or because of failure of the Contractor to pursue timely installation of permanent erosion prevention and sediment control devices in accordance with the Plans and Specifications or as directed by the Engineer.

Unless provided for on the plans, no direct payment will be made for temporary and permanent erosion prevention and sediment control measures in disturbed areas outside the rights-of-way such as borrow areas, waste areas and haul roads unless the borrow areas or waste areas are provided for by the Department, and except for permanent Seeding (with Mulch) on borrow areas and waste areas within the limitations prescribed in **Subsection 203.04** and **Subsection 203.07**, respectively. Where the plans show separate quantities for erosion prevention and sediment control items to be used outside the rights-of-way in connection with waste areas, borrow areas or other project related construction, payment will be made for these items used and accepted to the extent of these separately listed plans quantities; but the cost of any overruns in these items, or the cost of any additional items required for erosion prevention and sediment control off the rights-of-way, shall be borne by the Contractor unless prior approval in writing is received from the Engineer.

In case of failure of the Contractor to control project related erosion, either on or off the rights-of-way, the Engineer may withhold payment of future progress estimates until the Contractor has satisfactorily performed the necessary corrective measures. If deemed necessary, the Engineer may employ outside assistance or use his own forces to provide the needed protective measures, with all incurred direct costs plus project engineering costs being charged to the Contractor by appropriate deductions from the Contractor's monthly progress estimate.

Subsection 209.08-Revise subsection to the following:

209.08-Method of Measurement. Temporary berms utilized on a daily basis will be considered as a necessary part of the unit price for road and drainage excavation and shall not be measured separately for payment.

The quantity of slope drains to be paid for shall be determined by the linear foot (meter) constructed and measured.

Excavation for the construction of sediment structures will be measured in accordance with the appropriate provisions of **Subsection 203.09**.

Sediment removal and disposal for cleaning of the sediment structures will be measured by the cubic yard (cubic meter).

Rock used for inlet and outlet control on sediment structures will be measured by the ton (tonne) in place in accordance with the appropriate provisions of **Subsection 109.01**.

Pipe used in the construction of sediment structures will be measured in accordance with the appropriate provisions of **Subsection 607.12**.

Concrete used in the construction of spillways or other structures pertaining to sediment structures will be measured in accordance with the appropriate provisions of **Section 703**.

Check dams will be paid per each.

Silt fences will be measured by the linear foot (meter) constructed and accepted.

Temporary seeding and mulching operations will be measured in accordance with the appropriate provisions of **Subsection 801.09**.

Sediment Filter Bags shall be measured per each for the size bag used per **Subsection 209.02** (i).

Subsection 209-09. Revise subsection to the following:

209.09-Basis of Payment. All Non-Structural Best Management Practices shall be included in the bid cost of the project. Accepted quantities of Structural Best Management will be paid by the following:

Temporary Slope Drains, will be paid for at the contract unit price per linear foot (meter).

Check Dams will be paid for per each.

Sediment Removal will be paid for at the unit price per C.Y. (m^3).

Silt Fence and will be paid for at the contract unit price per linear foot (meter) which price shall be full compensation for construction, maintenance, and removal.

The accepted quantities of Road and Drainage Excavation will be paid for at the contract unit price per C.Y. (m^3).

Concrete used in the construction of spillways or other structures pertaining to sediment structures will be paid for in accordance with the appropriate provisions of **Section 703**.

Seeding (with Mulch), Seeding (without Mulch), Temporary Seeding (with Mulch) and Mulch items will be paid for in accordance with the appropriate provisions of **Subsection 801.10**.

Water used in preparation of the seed bed and for maintenance will be paid for at the contract unit price per M.G. (1,000 gal.) (m^3) of water.

The Sediment filter Bags will be paid for at the contract price bid per each for the size bag used which includes installation and/or replacement along with all materials, equipment, tools, labor, and incidentals to complete the work. Payment for removal and disposal of material from bag shall be made by the C.Y. (m^3) at contract price for sediment removal.