SECTION 200 REVISIONS

The Standard Specifications are revised as follows:

SECTION 203, BEGIN LINE 136, DELETE AND INSERT AS FOLLOWS: [203.09]

All spongy and yielding material which does not readily compact, and all vegetation shall be removed from within slope-stake limits and to such depths as ~~ordered~~ *directed*. Soft or unstable materials which are encountered where the proposed embankment will be placed, shall be removed. If ground water is encountered, backfilling shall be accomplished using B borrow in accordance with 211.02~~(b)~~ to an elevation at least 0.6 m (2 ft) above the ground water level. Compaction of the

SECTION 203, BEGIN LINE 157, DELETE AND INSERT AS FOLLOWS: [203.09]

If the original ground cannot be compacted to the required density because of unstable soils, ~~if a~~ high water table, ~~condition results in a yielding foundation,~~ or ~~if~~ other ~~similar~~ conditions ~~exist~~, the use of ~~a~~ stabilizing ~~mat made~~ *materials consisting* of B borrow in accordance with 211.02~~(b)~~ *or chemical modification in accordance with 215* ~~to cross the area is acceptable~~ *may be used*. The ~~mat~~ *materials* shall be ~~a minimum of~~ 0.3 m ~~(1 ft) thick, a maximum of~~ *to* 0.6 m (*1 to* 2 ft) thick, and shall be extended so as to daylight at the toe of slope. ~~Where~~ B borrow, ~~is~~ *when* exposed, ~~it~~ shall be capped with 150 mm (6 in.) of *coarse aggregate* No. 2 ~~aggregate to prevent erosion~~.

SECTION 203, BEGIN LINE 483, DELETE AS FOLLOWS: [203.16(b)]

If water is present, the backfill shall be with material in accordance with 211.02~~(b)~~. Placement of this material shall follow as closely behind the removal of the

SECTION 203, BEGIN LINE 844, DELETE AND INSERT AS FOLLOWS:

203.26 Proofrolling. When proofrolling is specified, the work shall be performed
with a pneumatic tire roller in accordance with ~~408.03(d)3~~ *409.03(d*), ~~except the minimum tire size shall be 9:00 by 20~~. *Other approved equipment such as a fully legally loaded tri-axle dump truck may be substituted for the pneumatic tire roller***.** There shall be one or two complete coverages as directed. Roller
marks, irregularities, or failures shall be corrected.

SECTION 204, LINE 11, DELETE AS FOLLOWS: [204.02]

B Borrow ..... 211.02~~(b)~~

SECTION 205, BEGIN LINE 262, DELETE AND INSERT AS FOLLOWS: [205.05]

Coarse Aggregate, Class F or ~~higher~~ Higher ..... 904.~~02~~
Geotextile for Silt Fence 913.20
Geotextile Under Riprap 913.18
Metal End Section 908.06
Pipe Drains ..... 715.02(d)
Revetment Riprap ..... 904.~~04(b)~~
Stakes ..... 914.09(b)

SECTION 207, DELETE LINES 1 THROUGH 154.

SECTION 207, AFTER LINE 155, INSERT AS FOLLOWS:

SECTION 207 – SUBGRADE

207.01 Description. *This work shall consist of the construction of the subgrade in accordance with 105.03.*

MATERIALS

207.02 Materials. *Materials shall be in accordance with the following.*

Chemical Modifiers
- *Fly Ash, Class C 901.02*
- *Lime..... 913.04(b)*
- *Portland Cement, type I..... 901.01(b)*

Coarse Aggregate, Class D or Higher, Size No. 11, 12, 53, or 73 ..... 904.02

Recycled concrete pavement meeting the requirements of coarse aggregate size No. 53 may be used when crushed stone size No. 53 is specified.

CONSTRUCTION REQUIREMENTS

207.03 General Requirements. *The subgrade shall be treated by chemical modification in accordance with 215, excavation and replacement, or compaction in accordance with AASHTO T 99.*

Soils containing greater than 3% by dry weight calcium, magnesium carbonate or organic material, or with a maximum dry density of less than 1600 kg/m³ (100 pcf), or with liquid limit of greater than 50, will not be permitted within the specified thickness of the subgrade. Density shall be determined in accordance with AASHTO T 99 and loss of ignition shall be determined in accordance with AASHTO T 267. Liquid limits shall be determined in accordance with AASHTO T 89.

Coal encountered within the specified thickness of the subgrade shall be excavated if directed, and disposed of in accordance with 202.05. Coal or coal blossoms that are allowed to remain shall be mixed thoroughly with subgrade soils and compacted in accordance with 207.04.

All rock greater than 150 mm (6 in.) encountered shall be removed or broken off at least 150 mm (6 in.) below the subgrade surface. Holes or depressions resulting from the removal of unsuitable material shall be filled with an acceptable material and compacted to conform with the surrounding subgrade.

During subgrade preparation, adequate drainage shall be provided at all times to prevent water from standing on the subgrade.

Even though the subgrade has been previously accepted, the condition of the subgrade at the time paving material is placed shall be in accordance with 105.03 and 207.04. Just prior to placing the base course on the subgrade, proofrolling in accordance with 203.26 shall be completed. Undue distortion of the subgrade shall be avoided. If

limits of the work make mechanical preparation of the subgrade impractical, appropriate hand methods may be used.

The grade and cross section of the subgrade shall be finished within a tolerance of 13 mm (1/2 in.) from a true subgrade. It is permissible to finish within this tolerance by blading or other mechanical means without the use of side forms. If these methods do not finish within this tolerance, side forms shall be used.

207.04 Subgrade Treatments. *Subgrade materials shall be compacted to 100 percent of maximum dry density in accordance with 203.23.*

When conditions are encountered below the specified subgrade treatment depth that prevent achieving the specified subgrade compaction, such conditions shall be treated as directed.

Within each of the following subgrade treatment types, for at-grade, cut, and cut-to-fill transitions, the Contractor shall choose from the applicable options for each type.

Type A. 400 mm (16 in.) chemical soil modification, or 300 mm (12 in.) of the subgrade excavated and replaced with coarse aggregate No. 53. Where granular soils classified in accordance with AASHTO M 145 as A-1, A-2, or A-3 exist, the subgrade may be treated by 600 mm (24 in.) compacted to density and moisture requirements.

Type B. 200 mm (8 in.) chemical soil modification, or 150 mm (6 in.) of the subgrade excavated and replaced with coarse aggregate No. 53. Where granular soils classified in accordance with AASHTO M 145 as A-1, A-2, or A-3 exist, the subgrade may be treated by 300 mm (12 in.) compacted to density and moisture requirements.

Type C. 600 mm (24 in.) compacted to the density and moisture requirements, or 300 mm (12 in.) of subgrade excavated and replaced with coarse aggregate No. 53, or 400 mm (16 in.) chemical soil modification.

Type D. 300 mm (12 in.) compacted to the density and moisture requirements, or 150 mm (6 in.) of subgrade excavated and replaced with coarse aggregate No. 53, or 200 mm (8 in.) chemical soil modification.

Type E. 150 mm (6 in.) compacted to the density and moisture requirements, or 150 mm (6 in.) of subgrade excavated and replaced with coarse aggregate No. 53 and compacted in accordance with 301.06.

When the Contractor elects coarse aggregate No. 53 replacement as the subgrade treatment, the aggregate surface shall be primed in accordance with 405 if HMA pavement is to be placed directly on the coarse aggregate No. 53.

207.05 Fill and Cut Sections.

(a) Fill Sections. *In sections equal to or greater than 600 mm (24 in.) in height, the top 600 mm (24 in.) shall be compacted to 100% of maximum dry density in accordance with 203.23 as the fill is constructed. The Contractor may substitute 400 mm (16 in.) of chemical soil modification, or 300 mm (12 in.) of coarse aggregate No. 53. Fill sections less than 600 mm in height will be treated in accordance with 207.04.*

(b) Cut Sections. *Where density and moisture controls are used, the top lifts shall be removed, and the bottom 150 mm (6 in.) compacted in-place to comply with the specified density and moisture requirements. Removal of the upper lifts may be waived and only the upper 150 mm (6 in.) treated when it is determined, through testing in accordance with 203.24, that the lower lifts comply with the specified density and moisture requirements.*

In sections where shale, shale and soft rock mixtures, or soft rock are encountered, these materials shall be undercut 150 mm (6 in.) below the subgrade elevation and replaced with coarse aggregate No. 53 or No. 73 and compacted in accordance with 301.06. All irregularities and holes shall be graded to provide positive drainage. Where necessary, finishing to subgrade elevation shall be accomplished using No. 11 or No. 12 crushed stone.

207.06 Method of Measurement. *Subgrade treatment will be measured by the square meter (square yard) per type. Prime coat materials will not be measured.*

207.07 Basis of Payment. *The accepted quantities of subgrade treatment, will be paid for at the contract unit price per square meter (square yard) per type, complete in place.*

Payment will be made under:

Pay Item	***Metric Pay Unit Symbol (English Pay Unit Symbol)***
Subgrade Treatment, Type ____	*..... m2 (SYS)*

The cost of subgrade treatments including testing, sampling, aggregates, prime coat, modifiers, water, or the excavation required for the methods chosen by the Contractor shall be included in the cost of the pay item for subgrade treatment.

SECTION 211, DELETE LINES 3 THROUGH 161: [211.01]

SECTION 211, BEGIN LINE 162, INSERT AS FOLLOWS:

211.01 Description. *This work shall consist of backfilling excavated or displaced peat deposits; filling up to designated elevations of spaces excavated for structures and not occupied by permanent work; constructing bridge approach embankment; and filling over structures and over arches between spandrel walls, all with special material.*

MATERIALS

211.02 Materials. *Materials shall be in accordance with the following.*

B-Borrow	*As Defined **
Geotextile	*913.18*
Structure Backfill	*904*

** The material used for special filling shall be of acceptable quality, free from large or frozen lumps, wood, or other extraneous matter and shall be known as B borrow. It shall consist of suitable sand, gravel, crushed stone, ACBF, GBF, or other approved material. The material shall contain no more than 10% passing the 75 µm (No. 200) sieve and shall be otherwise suitably graded. The use of an essentially one-size material will not be permitted unless approved.*

The Contractor has the option of either providing B borrow or structure backfill from a established CAPP source, or supplying the material from another source. The Contractor has the following options for supplying B borrow or structure backfill from a local site:

(a) the establishment of a CAPP Producer Yard at the local site in accordance with 917; or

(b) use a CAPP Certified Aggregate Technician or a consultant on the Department's list of approved Geotechnical Consultants For Gradation Control Testing.

The frequency of gradation control testing shall be one test per 2000 Mg (2000 t) based on production samples into a stockpile or by over the scales measurement, with a minimum of two tests per contract (one in the beginning and one near the mid-point). The sampling and testing of these materials shall be in accordance with applicable requirements of 904 for fine and coarse aggregates. The Contractor shall advise, in writing, the Engineer and the District Materials and Testing Engineer of the plan to measure the material.

When B borrow or structure backfill is specified, the Contractor may substitute flowable mortar in accordance with 213. However, flowable mortar shall not be placed into or through standing water, unless approved in writing.

CONSTRUCTION REQUIREMENTS

211.03 General Requirements. *If B borrow or structure backfill is obtained from borrow pits, the items of obtaining the pits, their locations, depths, drainage, and final finish shall be in accordance with 203.*

Unless otherwise specified, if excavated material complies with 211.02 and if B borrow or structure backfill is required for special filling, the excavated material shall be used as such. If there is a surplus of this material, such surplus shall be used in embankment. The provisions of 203.19 shall apply to placing this material at structures. All surplus in excess of the directed or specified use on the right-of-way shall be disposed of in accordance with 201.03.

If fill or backfill as described in this specification is within embankment limits, and if it is not required that the entire fill or backfill be of B borrow and placed as such, then that portion above free-water level shall be placed in accordance with applicable provisions of 203 and compacted to the required density.

If borrow is required outside the specified limits of B borrow, material in accordance with the specifications for B borrow may be furnished at the contract unit price for borrow; however, the quantity of borrow measured for payment outside the limits of structure backfill will not exceed the theoretical quantity of B borrow furnished.

Unless otherwise specified, all spaces excavated for and not occupied by bridge abutments and piers, if within embankment limits, shall be backfilled to the original ground line with B borrow, and placed in accordance with 211.04.

Where B borrow or structure backfill is required as backfill at culverts, retaining walls, sewers, manholes, catch basins, and other miscellaneous structures, it shall be compacted in accordance with 211.04.

211.04 Mechanical Compaction. *Where B borrow or structure backfill is to be compacted by mechanical compaction, it shall, unless otherwise specified, be placed in accordance with the applicable provisions of 203.23 except, if mechanical tamps or vibrators are used, the material shall be deposited in approximately 150 mm (6 in.) lifts, loose measurement, and each lift compacted to density requirements.*

211.05 Embankment for Bridges. *When special filling is required, the embankment for bridges shall be constructed using B borrow within the specified limits shown on the plans. All embankment construction details specifically set out in this specification for embankment for bridges shall be considered in accordance with the applicable requirements of 203.*

At the time B borrow is being placed for approach embankment, a well compacted watertight dam shall be constructed in level lifts, the details of which are shown on the plans. Except as hereinafter specified for material to be used in constructing the enclosing dam, and for growing vegetation, and unless otherwise provided, the material for constructing bridge approach embankment shall be B borrow compacted by mechanical methods. If approach embankment or shoulders are constructed of material not suitable for growing seed or sod, and if one or both of these is required, then such areas shall, unless otherwise specified, be covered with a layer of clay, loam, or other approved material. This layer shall be approximately 0.3 m (1 ft) thick after being compacted into place.

211.06 B Borrow Around Bents. *When specified, B borrow shall be placed around all bents falling within the limits of the approach grade as shown on the plans. Before placing, the surface of the ground on which it is to be placed shall be scarified or plowed as directed. The embankment slope shall be 2:1 on the sides and beneath the structure, and shall be 6:1 from the end of the bridge down to the average ground line, or it may be required to complete the approaches back to the existing grade. An*

enclosing dam and provisions for growing vegetation shall be constructed in accordance with 211.05.

211.07 Aggregate For End Bent Backfill. *When specified, coarse aggregate shall be placed behind end bents as shown on the plans. The material shall be deposited in lifts not to exceed 300 mm (12 in.) loose measurement, and each lift shall be mechanically compacted using a hand held vibratory plate compactor having a plate width of 425 mm (17 in.) or larger that delivers 13.3 to 40 kN (3000 to 9000 lb) per blow. Each lift shall be compacted with two passes of the compactor.*

Prior to placing the aggregate, a geotextile shall be installed in accordance with 616.10.

211.08 Spandrel Filling. *Unless otherwise specified, spandrel fills for arch structures shall be composed of B borrow. The fill shall be carried up symmetrically in lifts from haunch to crown and simultaneously over all piers, abutments, and arch rings. Compaction shall be in accordance with 211.04.*

211.09 Method of Measurement. *B borrow, structure backfill, and aggregate for end bent backfill will be measured by the cubic meter (cubic yard) as computed from the neat line limits shown on the plans, or as adjusted. If cubic meters (cubic yards) are set out as the pay unit for B borrow or structure backfill in the Schedule of Pay Items and if neat line limits are not specified for measurement of volume for the material, measurement will be made by the cubic meter (cubic yard) at the loading point in truck beds which have been measured, stenciled, and approved. The B borrow may be weighed and converted to cubic meters (cubic yards) by assuming the mass per cubic meter (weight per cubic foot) to be 90% of the maximum wet density in accordance with AASHTO T 99. The material may be cross sectioned in its original position and again after excavation is complete, and the volume computed by the average end area method. If B borrow is used for backfill in areas where unsuitable material is present or peat excavation has been performed, unless otherwise directed, the B borrow will be cross sectioned, and the volume will be computed by the average end area method.*

If the material is to be paid for by the megagram (ton), it will be weighed in accordance with 109.01(b).

If the material comes from a wet source such as below water or a washing plant, and weighing is involved in the method of measurement, there shall be a 12 h drainage period prior to the weighing.

Geotextile will be measured in accordance with 616.11.

211.10 Basis of Payment. *The accepted quantities of B borrow will be paid for at the contract unit price per cubic meter (cubic yard) or per megagram (ton) as specified, complete in place.*

Structure backfill will be paid for at the contract unit price per cubic meter (cubic yard), based on the neat line limits shown on the plans or as adjusted for

authorized changes, provided the material comes from outside the permanent right-of-way. If the schedule of pay items does not contain a pay item for structure backfill and it is required to backfill pipes or culverts within the project limits, a change order will be generated to establish a unit price.

B borrow material placed outside the neat lines will be paid for as borrow when such B borrow eliminates required borrow material. Otherwise, no payment will be made for backfill material placed outside the neat lines.

If material which is in accordance with the requirements for B borrow is obtained within the excavation limits of the project and is used as such, it will be paid for at the contract unit price for the class of excavation involved. No further payment will be made.

Aggregate for end bent backfill will be paid for at the contract unit price per cubic meter (cubic yard), based on the neat line limits shown on the plans or as adjusted by authorized changes.

Geotextile will be paid for in accordance with 616.12.

Flowable mortar which is substituted for B borrow or structure backfill will be paid for as B borrow or structure backfill, respectively.

If topsoil, loam, or other suitable material in accordance with 211.05 is used for expediting the growth of seed or sod, it will be paid for at the contract unit price per cubic meter (cubic yard) for borrow, unless otherwise provided.

Payment will be made under:

Pay Item	***Metric Pay Unit Symbol (English Pay Unit Symbol)***
Aggregate For End Bent Backfill	*m3 (CYS)*
B Borrow	*m3 (CYS)*
	Mg (TON)
Structure Backfill	*m3 (CYS)*

The cost of disposal of excavated material shall be included in the cost of the pay items in this section.

SECTION 213, BEGIN LINE 12, DELETE AND INSERT AS FOLLOWS: [213.02]

Coarse Aggregate, ~~except steel slag~~ *Class F or Higher* *... 904.~~02~~
Concrete Admixtures..... 912.03
Fine Aggregate, ~~except steel slag~~ *Size No. 23 or 24* *..... 904.~~01~~
Fly Ash..... 901.02
Portland Cement..... 901.01(b)
Water 913.01

** Except that steel furnace slag shall not be used*