

207-R-781 SUBGRADE TREATMENT

(Adopted 10-19-23)

SECTION 207, BEGIN LINE 9, DELETE AND INSERT AS FOLLOWS:

207.02 Materials

Materials shall be in accordance with the following:

Coarse Aggregate, Class D or Higher, Size No. 5, 8, 43, 53, or 73	904.03
Fly Ash, Class C.....	901.02
Geocell Confinement System.....	918.04
Geogrid, Type IB	918.05
Geotextile Properties for Pavement or Subgrade Stabilizations.....	918.02(c)
Geotextile	918.02
Lime	913.04(b)
Portland Cement, Type I.....	901.01(b)
<i>Portland-Limestone Cement, Type II</i>	<i>901.01(b)</i>
Water	913.01

~~Air-cooled blast furnace slag shall not be used for subgrade treatment Type ID, Type IV, and Type IVA.~~

Soil Property	Test Method	Requirements
Dry Weight Organic Material	AASHTO T 267	≤ 3%
Max Dry Density	AASHTO T 99	≥ 100 pcf
Liquid Limit	AASHTO T 89	≤ 50
Soluble Sulfate	ITM 510	≤ 1000 ppm
Notes: Only soils meeting these <i>the above</i> requirements will be allowed within the specified thickness of the subgrade treatment in cut sections. Only soils meeting these <i>the above</i> requirements will be allowed within 24 in. of the finished subgrade elevation in fill sections.		

Recycled concrete pavement processed into *coarse* aggregate-sized material, *No. 53, and ACBF* shall not be used as coarse aggregate in ~~any~~ subgrade treatment ~~types~~*when an underdrain is specified.*

CONSTRUCTION REQUIREMENTS

207.03 Construction Requirements

(a) Subgrade Construction Methods

The subgrade shall be constructed ~~uniformly~~ transversely across the width of the pavement including shoulders or curbs *in a uniform manner* unless shown otherwise on the plans, by one of the following methods:

1. chemical modification in accordance with 215,

2. aggregate No. 53 in accordance with 301, *or*
3. ~~geosynthetic in accordance with 214 placed under coarse aggregate in accordance with 301, or~~
43. soil compaction to 100% of maximum dry density.

~~Longitudinally, the treatment may vary depending on the method of construction.~~

(b) General Requirements

All rock greater than 3 in. shall be removed or broken off and placed at least 6 in. below the specified subgrade. Holes or depressions resulting from the removal of unsuitable material shall be filled with soils in accordance with 207.02, *structure backfill*, or B borrow and compacted in accordance with 203.23.

Coal within the specified thickness of the subgrade shall be excavated if directed, and disposed of in accordance with 202.02.

SECTION 207, BEGIN LINE 69, DELETE AND INSERT AS FOLLOWS:

~~Finishing within this tolerance by blading or other mechanical means without the use of side forms will be allowed. If these methods do not finish within this tolerance, side forms shall be used.~~

207.04 Subgrade Treatment Types

The subgrade treatment type shall be as specified on the contract plans. If required, the subgrade foundation shall be corrected as directed by the Engineer prior to subgrade treatment.

Type	Subgrade Description
I	24 in. of soil compacted in accordance with 203.23
IA	{blank}
IBC	14 in. chemical soil modification using cement
IBL	14 in. chemical soil modification using lime
IC	12 in. coarse aggregate No. 53 in accordance with 301
ID	12 in. coarse aggregate with Type 2B geotextile in accordance with 918.02(e)
II	6 in. coarse aggregate No. 53 in accordance with 301
III	In-place compaction in accordance with 203.23
IV	12 in. coarse aggregate No. 53 with Type IB geogrid in accordance with 214
IVA	12 in. coarse aggregate with geocell confinement system in accordance with 214
V	3 in. of subgrade excavated and replaced with 3 in. coarse aggregate No. 53

~~Type ID subgrade treatment shall be constructed with 9 in. of coarse aggregate No. 53 over 3 in. of coarse aggregate No. 5 or No. 8. Geotextile Type 2B in accordance with 918.02(e) shall be placed above and below the layer of No. 5 or No. 8 coarse aggregate. Prior to placement of the 3 in. coarse aggregate No. 53 as part of the subgrade treatment Type V, the grade shall be proofrolled, and then the coarse aggregate shall be~~

compacted to 100% prior to the placement of the pavement.

In areas where shallow utilities are encountered or chemical modification is not allowed, the Contractor may submit a request to the Engineer to substitute Type IC for Type IBC or Type IBL. *Oscillatory rollers in accordance with 409.03(d)5 shall be operated at locations indicated on the plans but the vertical impact force capability shall not be used.*

SECTION 207, BEGIN LINE 96, DELETE AND INSERT AS FOLLOWS:

In sections where rock, shale, sandstone or its mixtures are encountered, these materials shall be undercut ~~24~~12 in. below the subgrade ~~elevation~~ surface and replaced with coarse aggregate No. 53 ~~or No. 73~~ and compacted in accordance with 301.06. ~~Geotextiles used shall be in accordance with 918.02. Type IBC and Type IBL will not be allowed when shallow rock is encountered within 12 in. from the bottom of the subgrade treatment. Type IC shall be used in areas where shallow rock is encountered.~~

All irregularities and holes shall be graded with ~~either coarse aggregate No. 53 or No. 73~~. If an aggregate base is part of the HMA pavement structure, the ~~24 in. excavation depth shall be reduced by the thickness of the aggregate base.~~

~~The 3 in. compacted aggregate as part of the subgrade treatment Type V shall be compacted to 100% prior to the placement of the pavement.~~

SECTION 207, BEGIN LINE 118, DELETE AND INSERT AS FOLLOWS:

~~Geosynthetic specified for use in addition to that required for the specified subgrade treatment will be measured in accordance with 214.05.~~

The undercutting of rock, where encountered, will be measured in accordance with 203.27(b).

Testing, sampling, *proofrolling*, coarse aggregates, chemicals for modification, water, *and* excavation, ~~geogrid, geotextile, and geocell confining system~~ for specified subgrade treatment types will not be measured.

SECTION 207, BEGIN LINE 143, DELETE AND INSERT AS FOLLOWS:

The cost of subgrade treatments including testing, sampling, *proofrolling*, coarse aggregates, chemicals for soil modification with cement or lime, water, *and* excavation, ~~geogrid, geotextile and geocell confinement system~~ for specified subgrade treatment types shall be included in the cost of the pay item.

The cost of excavation and grading of existing railroad ballast and railroad bed material shall be included in the cost of subgrade treatment, Type V.

~~Geosynthetic specified for use in addition to that required for the specified subgrade treatment will be paid for in accordance with 214.06.~~

SECTION 301, BEGIN LINE 15, DELETE AS FOLLOWS:

301.02 Materials

Materials shall be in accordance with the following:

Coarse Aggregate, Class D or Higher904.03
Geosynthetic Materials.....918

~~ACBF shall not be used for subgrade treatment Type ID, Type IV, and Type IVA.~~
