

207-R-687 SUBGRADE TREATMENT

(Revised 02-20-20)

The Standard Specifications are revised as follows:

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

207.02 Materials

Materials shall be in accordance with the following:

Chemical Modifiers..... 215.02
 Coarse Aggregate, Class D or Higher,
 Size No. 5, 8, 43, 53, or 73 904
 Geogrid, Type IB 918.05
 Geocell Confining System 214
 Geotextile for Pavement and Subgrade..... 918.02(c)
 Water 913.01

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

~~Soils containing greater than 3% by dry weight organic material, or with a maximum dry density of less than 100 pcf, or with liquid limit of greater than 50, or with a soluble sulfate content greater than 1,000 ppm, will not be allowed within the specified thickness of the subgrade treatment in cut sections and will not be allowed within 24 in. of the finished subgrade elevation in fill sections. Density will be determined in accordance with AASHTO T 99 or ITM 512 and organic content will be determined in accordance with AASHTO T 267. Liquid limits will be determined in accordance with AASHTO T 89. Sulfate content will be determined in accordance with ITM 510.~~

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

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 unless shown otherwise on the plans, by one of the following methods:

- (a) chemical modification in accordance with 215;
- (b) aggregate No. 53 in accordance with 301;
- (c) geogrid in accordance with 214 placed under aggregate No. 53 in accordance with 301, or
- (d) soil compaction to 100% of maximum dry density;
- (e) *geotextile in accordance with 214 placed under aggregate No. 5, 8, and 53 in accordance with 301.*

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

SECTION 207, BEGIN LINE 71, DELETE AND INSERT AS FOLLOWS:

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 <i>using cement</i>
IBL	<i>14 in. chemical soil modification using lime</i>
IC	12 in. coarse aggregate No. 53 in accordance with 301
ID	<i>12 in. coarse aggregate with Type 2B geotextile in accordance with 918.02(c)</i>
II	6 in. coarse aggregate No. 53 in accordance with 301
IIA	8 in. chemical soil modification
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 confining 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(c) shall be placed above and below the layer of No. 5 or No. 8 coarse aggregate.

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.

SECTION 207, BEGIN LINE 104, DELETE AND INSERT AS FOLLOWS:

Proofrolling shall be performed in accordance with 203.26. ~~The proof rolling shall cover the entire subgrade surface. The maximum allowable deflection or rutting in subgrade shall not be greater than 1/2 in.~~

207.05 Method of Measurement

Subgrade treatment will be measured in both cut and fill areas by the square yard per type. Chemicals for *soil* modification *using cement or lime*, excavation, aggregates, *geotextile*, and geogrid materials will not be measured.

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

207.06 Basis of Payment

The accepted quantities of subgrade treatment will be paid for at the contract unit price per square yard per type, complete in place. In areas where shallow utilities are encountered or the Contractor elects to use Type IC for Type IBC *or Type IBL*, payment will be made at the price of Type IBC *or Type IBL*.

The undercutting of rock, where encountered, will be paid for in accordance with 203.28.

Payment will be made under:

Pay Item	Pay Unit Symbol
Subgrade Treatment, Type _____SYS

The cost of subgrade treatments including testing, sampling, aggregates, chemicals for *soil* modification *with cement or lime*, geogrid, geotextile and geocell confining system, coarse aggregate for subgrade Type IC, *Type ID*, Type II, Type IV, Type IVA, Type V, water, and the excavation required, 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.

Where conditions exist below the specified subgrade compaction depth that prevent achieving the specified compaction, payment for correcting such conditions will be made based on the directed method of treatment.