

tract unit price per cubic yard. This price shall include furnishing component and curing materials and hauling, placing, and curing the cement stabilized material.

When bulk cement is used, scales capable of weighing loaded cement transports or lesser loads shall be provided at locations approved by the Engineer. Weighing shall be performed in accordance with the requirements of Section 109.01 except that transporting vehicles shall be tared prior to each load.

When manipulation is a pay item and the Contractor elects to centrally mix the materials, the quantity of manipulation shown on the plans will be paid for. Manipulation shall include only the mixing operation.

Asphalt and cover material for curing will not be measured for separate payment.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Hydraulic cement	Ton
Aggregate material (No.)	Cubic yard or ton
Aggregate base material (Type and no.)	Cubic yard or ton
Cement-stabilized select borrow (Min. CBR)	Cubic yard
Manipulation (Depth)	Square yard
Cement-stabilized aggregate material (No.)	Cubic yard or ton
Cement-stabilized aggregate base material (Type and no.)	Cubic yard or ton

SECTION 308—SUBBASE COURSE

308.01—Description.

This work shall consist of furnishing and placing one or more courses of mineral aggregate on a prepared subgrade in accordance with the requirements of these specifications and in reasonably close conformity with the lines, grades, typical sections, and cross sections shown on the plans or as established by the Engineer.

308.02—Materials.

Material shall conform to the requirements of Section 208 except where other types of aggregate material are specified in the Contract, in which case the applicable specifications governing the material shall apply. When material is obtained from local sources, the sources shall conform to the requirements of Section 106.03.

308.03—Procedures.

Prior to placement of the subbase course, the subgrade shall be constructed in accordance with the requirements of the applicable provisions of Sections 304 and 305.

Subbase material shall be mixed in an approved central mixing plant of the pugmill or other mechanical type in accordance with the requirements of Section 208. The mixed material shall be placed on the subgrade by means of an approved aggregate spreader, except that the use of such spreader will not be required where the material is being applied solely for the temporary maintenance of traffic or where the width of the course shown on the plans is transitional and impracticable to place with a spreader box.

Where the required thickness is more than 6 inches, the material shall be spread and compacted in two or more layers of approximately equal thickness. The compacted thickness of any one layer shall be not more than 6 inches. When vibrating or other approved types of special compacting equipment are used, the compacted depth of a single layer of subbase course may be increased to 10 inches upon the approval of the Engineer.

Each layer of subbase course shall be compacted at optimum moisture, within ± 20 percent of optimum. The density of each layer of subbase aggregate material, when compared to the theoretical maximum density as determined in accordance with the requirements of VTM-1, shall conform to the following:

% Material Retained on No. 4 Sieve	Min. % Density
0–50	100
51–60	95
61–70	90

Percentages will be reported to the nearest whole number.

Not more than one sample in every five shall have a density less than that specified, and the density of such a sample shall be not more than 2 percent below that specified.

If the surface of the subbase becomes uneven or distorted and sets up in that condition, it shall be scarified, reshaped, and recompact. If the subbase when compacted and shaped shows a deficiency in thickness or if depressions occur in the surface, the Contractor shall scarify such sections at his own expense before additional material is added.

Field density determinations will be performed with a nuclear field density device using the density control strip as specified in Section 304 and VTM-10 or in accordance with the requirements of AASHTO T191, T205, or T214. The method of density determination will be as directed by the Engineer.

308.04—Tolerances.

The thickness of the subbase course will be determined by the depth measurement of holes dug in the subbase in accordance with the requirements of VTM-38B.

Acceptance of the subbase course for the physical property of depth will be based on the mean result of tests performed on samples taken from each lot of material placed. A *lot* of material is defined as the quantity being tested for acceptance except that the maximum lot size will be 2 miles of paver application width.

A lot will be considered acceptable for depth if the mean result of the tests is within the following tolerance of the plan depth for the number of tests taken except that each individual test shall be within ± 1.00 inch of the plan depth: mean of two tests, ± 0.75 inch; mean of three tests, ± 0.60 inch; and mean of four tests, ± 0.50 inch.

If an individual depth test exceeds the ± 1.00 inch tolerance, that portion of the lot represented by the test will be excluded from the lot. If the individual test result indicates that the depth of material represented by the test exceeds 1.00 inch, the Contractor will not be paid for that material in excess of the tolerance throughout the length and width represented by the test. If the individual test result indicates that the depth of the material represented by the test is deficient by more than 1.00 inch, correction of the subbase course represented by the test shall be made as specified herein.

If the mean depth of a lot of material is in excess of the allowable tolerance, the Contractor will not be paid for that material in excess of the tolerance throughout the length and width represented by the test.

If the mean depth of a lot of material is deficient by more than the allowable tolerance, correction will not normally be required and the Contractor will be paid for the quantity of material that has been placed in the lot.

For excessive depth subbase courses, when tonnage measurement is used, the rate of deduction from the tonnage allowed for payment as subbase material will be calculated at a weight of 110 pounds per square yard per inch of depth in excess of the tolerance. Areas that are deficient in depth by more than 1.00 inch and areas that do not provide a smooth uniform surface shall be scarified, material added or removed, reshaped, and recompact to the specified density so as to conform with the depth tolerance and provide a smooth, uniform surface.

308.05—Measurement and Payment.

Subbase course will be measured in cubic yards or tons as specified and will be paid for at the contract unit price per cubic yard or ton. When the cubic yard unit is specified, the quantity will be determined by compacted measurements on the road unless otherwise specified. When the ton unit is specified, the quantity shall be determined in accordance with the requirements of Section 109.01.

This price shall include furnishing, hauling, placing, manipulating, and compacting subbase course; clearing and grubbing local pits; material royalties; and access roads.

Moisture, in excess of optimum +2 percentage points, will be deducted from the net weight of both truck and rail shipments.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Aggregate material (No.)	Cubic yard or ton
Aggregate base material (Type and no.)	Cubic yard or ton

SECTION 309—AGGREGATE BASE COURSE

309.01—Description.

This work shall consist of furnishing and placing one or more courses of aggregates and additives, if required, on a prepared surface in accordance with the requirements of these specifications and in reasonably close conformity with the lines, grades, and typical sections and cross sections shown on the plans or as established by the Engineer.

309.02—Materials.

- (a) **Aggregate material** shall conform to the requirements of Section 208 except where other types of aggregate material are specified, in which case the applicable specifications governing the material shall apply.
- (b) **Calcium chloride and sodium chloride** shall conform to the requirements of Section 239.

309.03—Equipment.

Equipment used for the construction of aggregate base course shall be approved prior to performance of such work. Any machine, combination of machines, or equipment that will handle the material without undue segregation and produce the completed base in accordance with the requirements of these specifications for spreading, moistening, mixing, and compacting will be acceptable.

309.04—Procedures.

The surface or course upon which the base course is to be placed shall be prepared in accordance with the requirements of the applicable provisions of Sections 304 and 305.

Base course material shall be mixed in an approved central mixing plant of the pug-mill type. The mixed material shall be placed by means of an approved aggregate spreader.