Payment will be made under:

Item No.	Pay Item	Pay Unit
30810XX	Cement Stabilized Aggregate Base Course (*(thickness)*" Uniform)	Square Yard
3082000	Portland Cement for Cement Stabilized Aggregate Base Course	Ton

SECTION 309

HOT MIX SAND ASPHALT BASE COURSE

309.01 Description. This work shall consist of the construction of a Hot Mix Sand Asphalt Base Course composed of fine aggregate and asphalt binder, properly mixed in a hot mix asphalt approved plant and constructed on a prepared subgrade, base course or other surface, and applying a tack coat when specified, all in accordance with these specifications and conforming to the lines, grades, dimensions, compacted thickness and typical cross-sections shown on the plans or as otherwise specified.

MATERIALS

309.02 Asphalt Binder. The asphalt binder shall meet the requirements of Subsection **401.02**. The performance grade shall be PG64-22 unless otherwise specified.

309.03 Aggregate. The aggregate material shall be composed of local sand or local sand containing crushed shell, blends of sand and stone, slag or limestone screenings or other approved materials.

A. Sand. Sand shall consist of hard, sharp, angular grains of quartz or other durable rock, free from excessive quantities of clay or other deleterious substances and shall contain not more than 10% total material passing the No. 200 sieve with a maximum of 6% clay, except as provided below. Material passing the No. 200 sieve will be determined by SC-T-5. The percent clay will be determined by SC-T-34. Clay contained in the sand must be uniformly dispersed throughout the sand and the sand must be free of clay balls. Sand shall be so excavated, blended and stockpiled that a uniform product will be obtained. When sands are blended, one of the sands may contain minus No. 200 material slightly in excess of 10%; however, the composite blend shall not exceed 10% total material passing the No. 200 sieve as stated above.

B. Screenings. Screening shall consist of hard, sharp, angular grains of durable materials produced from stone, slag or gravel meeting the quality requirements of coarse aggregate as specified in Subsection **401.03D**. When 15% or less screenings are used in a mix, the screenings shall not contain more than 35% passing the No. 200 sieve as determined by SC-T-5. When more than 15% screenings are used in a mix, the screenings shall contain not more than 15% passing the No. 200 sieve as determined by SC-T-5. Screenings containing an excessive amount of flaky, micaceous or other injurious particles shall not be used. Regular screenings shall not have a sand equivalent less than 40. Limestone screenings and fines contained in a crusher-run material produced from limestone material shall have a sand equivalent not less than 28.

In order to determine compliance with the material requirements, the Engineer may sample the aggregate at any point before its introduction into the dryer. The aggregate shall be obtained from pits or sources furnished by the Contractor and the aggregate shall all pass a 1/2 inch sieve with a minimum of 90% of the material passing the No. 4 sieve.

At least thirty (30) days before the beginning of any base course work, the Contractor shall obtain samples (using good sampling methods) of the aggregate to be used in the construction of the base course. The local material will be submitted to the Research and Materials Laboratory at Columbia. Laboratory analysis and tests will be made to determine the suitability of the aggregate and the percentage of asphalt binder to be used.

Excavation from pits shall be so conducted that a homogeneous material of uniform appearance will be produced. When more than one material is used, the materials shall be kept separate until blended from gates at the cold elevator feeders.

309.04 Composition of Mixture. The constituents of the base course shall be combined in such proportions that, after mixing, the resultant mixture will be homogeneous and all particles coated with asphalt binder. Hydrated lime shall be required in all base courses as an anti-stripping additive.

The Contractor shall apply the quantity of asphalt binder to the dry aggregate necessary to provide a completed mixture, compacted in place, meeting the requirements specified below:

	Type 1	**Type 2**
Asphalt Binder, % of Total Mixture	3.8-5.2	3.8-5.2
Minimum Marshall Stability, lbs.	300	500

The exact percentage of asphalt binder to be contained in the mixture will be set between the above limits after labora-

tory tests have been made. The above composition limits are not master ranges of tolerance for asphalt binder content. Permitted tolerances for asphalt binder content are outlined in the document entitled *Control and Acceptance of Hot Mix Asphalt Mixtures*. This document may be obtained from the Engineer.

The Engineer may direct that the quantity of asphalt material be increased or decreased from the limits specified above in order to secure a more stable mixture.

EQUIPMENT

309.05 Equipment. The requirements provided in Section **401** shall apply to Hot Mix Sand Asphalt Base Course.

CONSTRUCTION REQUIREMENTS

309.06 General. The requirements provided in Section **401** shall apply to Hot Mix Sand Asphalt Base Course except as modified herein.

The material shall be permitted to be placed in one hot bin.

The compaction of the Hot Mix Sand Asphalt Base Course shall be accomplished by any combination of approved rollers while the mixture is still at a temperature that will result in maximum density. Under normal conditions, the initial rolling shall be done with the tandem roller or a vibratory roller, provided the vibratory mechanism is disengaged.

309.07 Preparation of Subgrade. Before the placing of the Hot Mix Sand Asphalt Base Course, the subgrade shall be prepared in accordance with the requirements as specified in Section **208**.

309.08 Tolerance in Base Course Thickness. Where the plans require a uniform thickness of the Hot Mix Sand Asphalt

Base Course and the contract provides for payment on a square yard basis, the thickness of the base course will be determined from measurements taken of the completed base course at intervals not exceeding 500 feet for two lane roads. Where the base course is deficient by more than 1/2 inch, the Contractor shall correct such areas. Where the measured thickness exceeds the specified thickness by more than 1/2 inch, this thickness shall be considered as the specified thickness plus 1/2 inch. The average thickness shall be the average of the depth measurements determined as specified above. When the average thickness is more than 1/4 inch below plan thickness, an adjusted unit price shall be used in payment, which price shall bear the same ratio to the contract unit price as the average thickness of the base course bears to the thickness specified. When the contract includes more than one road, each road shall be considered separately.

No additional payment over the contract unit price will be made for any base course where the average thickness, determined as herein provided, exceeds the specified thickness.

309.09 Application of Tack Coat. When multiple lifts of Sand Asphalt Base Course are required, a tack coat shall be applied conforming to the requirements of Subsection **401.28**. No direct payment will be made for the necessary tack coat.

309.10 Method of Measurement.

A. Hot Mix Sand Asphalt Base Course. Hot Mix Sand Asphalt Base Course will be measured by the pay unit called for in the contract.

When paid for by the square yard, the quantity of Hot Mix Sand Asphalt Base Course shall be the number of square yards of base course completed, accepted, and measured in place. Material placed outside the area designated shall be disregarded in computing the number of square yards.

Base course of variable thickness used to make proper connections with existing pavements or thickness of mixture for which there is no unit price shall be converted to square yards of equivalent areas of mixtures for which there is a contract unit price. The conversion shall be based on the base course that has a thickness nearest to that of the base course in question.

When paid for by the ton, Hot Mix Sand Asphalt Base Course shall be measured in accordance with Subsection **401.38**.

B. Liquid Asphalt Binder. When the base course is measured and paid for by the ton, Liquid Asphalt Binder shall be measured by the ton in accordance with Subsection **401.38**.

No measurement for payment will be made of the Liquid Asphalt Binder when the base course is paid for on a square yard basis except when the quantity of asphalt binder is increased or decreased from the limits as specified in Subsection **309.04**. The increase or decrease in asphalt binder used shall be the difference in tons between the quantity specified in Subsection **309.04** and the quantity actually in place in the compacted base course in accordance with written instructions of the Engineer.

309.11 Basis of Payment.

A. Hot Mix Sand Asphalt Base Course. Base course measured as provided in Subsection **309.10A**, will be paid for at the contract unit price for Hot Mix Sand Asphalt Base Course of the type specified, which price and payment shall be full compensation for furnishing the material pits, clearing and grubbing material pits, excavating, hauling and furnishing all material excluding the asphalt cement in paving mixture and for all, labor, equipment, tools, maintenance, and incidentals necessary to complete the work as specified.

Base course that is deficient in thickness will be paid for at the reduced unit price as provided in Subsection **309.08**.

B. Liquid Asphalt Binder. Asphalt binder of the grade specified in the contract, measured as provided in Subsection **309.10B**, will be paid for at the contract unit price for Liquid Asphalt Binder PG 64-22, which price shall be full compensation for furnishing, hauling, storing, heating, transporting, and placing in the mixture; and including all, tools, equipment, labor, and incidentals necessary to complete the work as specified.

Payment for the increase or deduction for the decrease in the asphalt binder authorized in writing by the Engineer and determined as provided in Subsection **309.10B**, will be made at the delivered cash price to the Contractor. Payment will not be allowed for asphalt binder used in excess of that authorized in writing by the Engineer.

C. Excavation All work and costs incidental to the preparation of the subgrade shall be included in the contract unit price for Hot Mix Sand Asphalt Base Course, except that where shown on the plans, such work shall be paid for as Unclassified Excavation.

Payment for each item includes all direct and indirect costs or expenses required to complete the work.

Payment will be made under:

Item No.	Pay Item	Pay Unit
30910XX	Hot Mix Sand Asphalt Base Course Type 1 (*(thickness)*" Uniform)	Square Yard
3091100	Hot Mix Sand Asphalt Base Course Type 1	Ton
30920XX	Hot Mix Sand Asphalt Base Course Type 2 (*(thickness)*" Uniform)	Square Yard
3092100	Hot Mix Sand Asphalt Base Course Type 2	Ton
4011004	Liquid Asphalt Binder PG 64-22	Ton

SECTION 310

HOT MIX ASPHALT AGGREGATE BASE COURSE

310.01 Description. This work shall consist of the construction of a Hot Mix Asphalt Aggregate Base Course composed of crushed stone, crushed slag or gravel and asphalt binder mixed in an approved plant and constructed on a prepared subgrade, base course, or other surfaces and applying a tack coat when specified, all in accordance with these specifications and conforming to the lines, grades, dimensions, thickness, and typical cross-sections shown on the plans or as otherwise specified.

MATERIALS

310.02 Asphalt Binder. Asphalt binder shall meet the requirements of Subsection **401.02**. The performance grade shall be PG64-22 unless otherwise specified.

310.03 Aggregates. The aggregate material shall conform