SECTION 32 1126 – ASPHALT STABILIZED BASE

Maintain Section format, including the UH master spec designation and version date in bold in the center columns of the header and footer. Complete the header and footer with Project information

Edit and finalize this Section, where prompted by Editor's notes, to suit Project specific requirements. Make selections for the Project at text identified in bold.

This Section uses the term "Engineer." Change this term to match that used to identify the design professional as defined in the General and Supplementary Conditions.

Verify that Section titles referenced in this Section are correct for this Project's Specifications; Section titles may have changed.

Delete hidden text after this Section has been edited for the Project.

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. The Contractor's attention is specifically directed, but not limited, to the following documents for additional requirements:

1. The current version of the *Uniform General Conditions for Construction Contracts*, State of Texas, available on the web site of the Texas Facilities Commission.
2. The University of Houston's *Supplemental General Conditions and Special Conditions for Construction*.

1.2 SUMMARY

A. This Section includes a base course composed of a compacted mixture of a mineral aggregate and asphaltic material. The mixture when designed and tested in accordance with these Specifications shall meet the following requirements:

1. Laboratory Density (THD BULLETIN C-14).

a. Minimum 92 percent
b. Optimum 96 percent
c. Maximum 99 percent

2. Stability (THD BULLETIN C-14):

a. Shall not be less than 30 percent. The base course shall be constructed on previously completed and approved sub-grade or sub-base, as herein provided, and in accordance with the details shown on the Drawings.

1.3 INFORMATIONAL SUBMITTALS

A. Submit copies of mix design and aggregate properties from the supplier.

1.4 MEASUREMENT AND PAYMENT

A. Asphalt concrete base shall be measured by the square yard for the thickness indicated on the Drawings.

B. Tack coat will not be measured as a separate item. Include the cost of tack coat in the price bid for asphalt stabilized base.

C. Prime coat will not be measured as a separate item. Include the cost of prime coat in the price bid for asphaltic concrete base.

D. Payment for asphalt stabilized base will be made at the unit price indicated in Section 01 2200 "Unit Prices."

PART 2 - PRODUCTS

2.1 MATERIALS

A. The mineral aggregate shall be composed of a coarse aggregate and a fine aggregate. Approval of both material and source must be obtained from the Engineer prior to delivery. Sources of material specified on the Drawings as being available for use will not require prior approval. The mineral aggregate shall contain no more than two percent by weight of organic matter, clays, loam or pebbles coated therewith, as determined by Test Method Tex-217-F. Mineral aggregates from each source shall meet the quality tests specified herein.

1. Coarse Aggregates: Coarse aggregates shall be that part of the aggregate retained on a No. 10 sieve; shall consist of clean, tough, durable fragments of stone, crushed gravel, iron ore, slag, or combinations thereof; and shall be of uniform quality throughout. Coarse aggregate shall be tested in accordance with Test Method Tex-406-A for decantation. Material removal shall not be more than 3 percent by weight. The coarse aggregate, when subjected to the Los Angeles Abrasion Test (Test Method Tex-410-A), shall have an abrasion not exceeding 45.
2. Fine Aggregate: Fine aggregate shall be that part of the aggregate passing the No. 10 sieve and shall consist of sand or screening or a combination of sand and screening. The plasticity index of that part of the fine aggregate passing the No. 40 sieve shall be no more than 6 when tested by Test Method Tex-106-E. Sand shall be composed of durable stone particles free from injurious foreign matter. Screening shall be material produced during production of the coarse aggregate.
3. Asphaltic Material Mixture: Asphalt for the mixture shall meet the requirements of Section 32 1216 "Asphalt Concrete Paving." Contractor shall notify the Engineer of the

sources of asphalt material prior to production of the asphaltic mixture and prior to any change desired during the course of the Project.

4. Tack Coat: The asphaltic material for tack coat shall meet the requirements of Section 32 1216 “Asphalt Concrete Paving.”

2.2 MIXTURES

A. The mixtures shall consist of a uniform mixture of coarse aggregate, fine aggregate, and asphaltic material. The grading of each constituent of the mineral aggregate shall be such as to produce, when properly proportioned, a mixture that will conform to the limitations for master grading.

Retained on 1-1/2 inch sieve ..... 0 to 3 percent

Retained on no. 10 sieve ..... 50 to 65 percent

Soil contents as follows:

Liquid limit shall not exceed 35

Plasticity Index shall not exceed 12

The asphaltic material shall form from 3.5 to 7 percent of the mixture by weight.

B. The Engineer shall designate the grading of the aggregate and asphalt content to be used in the mixture. The mixture shall be in accordance with TxDOT Specification 340 Type A - Coarse Base or Type B - Fine Base, as designated on the Drawings. The mixture produced shall not vary from the designated grading for any sieve size plus or minus 4 percent by weight, and the asphaltic material shall not vary in content by more than 0.5 percent by weight.

C. Samples of the mixture when tested by the THD Extraction Test, Tex-210-F, shall not vary from the grading proportions of the aggregate and the asphalt content designated by the Engineer by more than the respective tolerances specified above and shall be within the limits specified for master grading.

PART 3 - EXECUTION

3.1 EROSION PROTECTION

A. Provide at all times adequate protection to newly graded areas to prevent soil erosion as specified in Section 31 2513 “Erosion and Sedimentation Control.”

B. Soil erosion that occurs prior to acceptance of the Work shall be repaired at no expense to the Owner.

3.2 GENERAL

A. The paving machine shall be equipped with an approved automatic dual longitudinal screed control system and an automatic transverse screed control system. The longitudinal controls shall be capable of operating from any longitudinal grade reference including a string line, ski, mobile string line or matching shoe. Unless indicated otherwise on the Drawings, the Contractor may use any one of these grade references. The selected grade reference equipment shall be maintained in good operating condition by personnel trained in the use of the specific type of equipment.

B. The mixture shall not be placed when the air temperature is below 50 degrees F and is falling, but it may be placed when the air temperature is above 40 degrees F and is rising. The air temperature shall be taken in the shade away from artificial heat. It is further provided that the prime coat, tack coat or asphaltic mixture shall be placed only when the humidity, general weather conditions and the moisture and temperature of the base, in the opinion of the Engineer, are suitable.

C. Before the asphaltic mixture is laid, the surfaces identified in the Drawings, upon which the tack coat is to be placed, shall be cleaned thoroughly. The surface shall be given a uniform application of tack coat. This tack coat shall be applied with an approved sprayer at a rate not to exceed 0.05 gallon per square yard of surface. All contact surfaces of curbs and structures and all joints shall be painted with a thin uniform coat of the asphaltic material used for the tack coat.

D. The mixture, prepared as specified above, shall be hauled to the Project site in tight vehicles previously cleaned of all foreign material. The dispatching of the vehicles shall be arranged so that all material delivered shall be placed, and all rolling shall be completed, during daylight hours. In cool weather or for long hauls, canvas covers and insulating for the truck bodies may be required. The inside of the truck body may be given a light coating of oil, if necessary, to prevent mixture from adhering to the body.

E. Generally, the mixtures shall be dumped and spread on the approved prepared surface with the specified spreading and finishing machine in such manner that when properly compacted, the finished pavement shall be smooth and of uniform density and shall conform with the typical sections shown on the Drawings and to the lines and grades as established by the Engineer. During the application of asphaltic material, care shall be taken to prevent splattering of adjacent pavement, curb and gutter, and structures.

F. The mixture shall be spread and compacted in layers as specified on the Drawings.

G. When the mixture is placed in a narrow strip along the edge of an existing pavement, or used to level up small areas of an existing pavement, or placed in small irregular areas where the use of a finishing machine is not practical, the finishing machine may be eliminated when authorized by the Engineer, provided a satisfactory surface can be obtained by other approved methods.

H. Compress the pavement thoroughly and uniformly with the specified rollers.

I. Rolling with the three wheel and tandem rollers shall start longitudinally at the sides and proceed toward the center of the pavement, overlapping on successive trips by at least half the width of the rear wheels. Alternate trips of the roller shall be slightly different in length. On super-elevated curves, rolling shall begin at the low side and progress toward the high side. Perform rolling until no further compression can be obtained and all roller marks are eliminated. Additional rollers shall be provided if needed. The motion of the roller shall be slow enough at all times to avoid displacement of the mixture. If any displacement occurs, it shall be corrected at once by the use of rakes and of fresh mixture where required. The roller shall not be allowed to stand on pavement that has not been fully compacted. To prevent adhesion of the surface mixture to the roller, the wheels shall be kept thoroughly moistened with water, but an excess of water will not be permitted. All rollers must be in good mechanical condition. Necessary precautions shall be taken to prevent the dropping of gasoline, oil, grease or other foreign matter on the pavement, either when the rollers are in operation or when standing.

J. The edges of the mixture along curbs, headers and similar structures, and all places not accessible to the roller, or in such positions as will not allow thorough compaction with the roller, shall be thoroughly compacted with lightly oiled tamps.

K. The surface of the pavement, after compaction, shall be smooth and true to established line, grade and cross section, and acceptable to the Engineer. Correct unacceptable finished surface by the addition of mixture, placed and finished at the Contractor's expense.

L. Sections of the newly finished base course shall be cleaned prior to laying the surface course or additional base courses. Construction traffic shall not be allowed on the asphalt stabilized base unless authorized in writing by the Engineer or the Owner's Project Manager.

3.3 EQUIPMENT

A. All equipment used for the production, placement and compaction of the mixture shall be maintained in good repair and operating conditions to the satisfaction of the Engineer. All equipment shall be made available for inspection. If the Engineer expresses concern about the condition of any equipment, it shall not be used until it is repaired to the satisfaction of the Engineer.

B. Mixing Plants: Plants may be of the weigh-batch type, the modified weigh-batch type or drum-mix type equipped with suitable material conveyers, power units, mixing equipment, aggregate proportioning devices, dryers, bins, dust collectors and sensing and recording devices as appropriate for the mixing plant type. The mixing plants shall meet the requirements specified in Section 340.4, 'Equipment' of TxDOT Specification Item No. 340, "Hot Mix Asphaltic Concrete Pavement."

C. Spreading and Finishing Paving Machine: The paving machine shall be self-propelled and equipped with a heated compacting screed capable of producing a finish surface meeting the requirements of the street cross-section indicated on the Drawings and all surface criteria.

Extensions to the screed shall have the same heating and compacting capabilities as the primary unit, except for use on variable depth tapered areas and/or as approved by the Engineer or designated representative. The paving machine shall be equipped with an approved automatic dual longitudinal screed control system and an automatic transverse screed control system. The longitudinal controls shall be capable of operating from any longitudinal grade reference including a string line, ski, mobile string line or matching shoe. Unless indicated otherwise on the Drawings, Contractor may use any one of these grade references. The selected grade reference equipment shall be maintained in good operating condition by personnel trained in the use of the specific type of equipment.

3.4 STOCKPILING, STORAGE, AND MIXTURE TEMPERATURE

A. Prior to stockpiling of aggregates, the area shall be cleaned of trash, weeds and grass and be relatively smooth. Aggregates shall be stockpiled in such a manner as to prevent segregation and mixing of aggregates from one source with another. Suitable equipment of acceptable size shall be furnished by the Contractor to work the stockpiles and prevent segregation of the aggregates. The material shall be placed in layers not exceeding 2 feet in depth and the maximum height of each stockpile shall be 10 feet. Separate grading of aggregate will not be required prior to delivery to the cold aggregate bin.

B. Asphaltic material storage shall be ample to meet the requirements of the asphalt plant. Asphalt shall not be heated to a temperature in excess of 350 degrees F. All equipment used in the storage and handling of asphaltic material shall be kept in a clean condition at all times and shall be operated in such manner that there will be no contamination with foreign matter.

C. The Contractor shall select a target temperature for discharge of the Hot Mix Asphalt mixture (HMA) from the mixer between 250 degrees F (120°C) and 350° degrees F (176°C) that is suitable to weather and Project conditions. The target temperature shall be reported to the testing lab or designated representative daily and recorded in the Daily Progress Report. The HMA mixture temperature shall not vary by more than 25 degrees F (14°C) from the target temperature for discharge from the mixer. HMA mixtures that are discharged from the mixer at a temperature exceeding 360 degrees F (182°C) or a temperature more than 50 degrees F (28°C) below the target temperature shall not be accepted and shall not be placed on the Project.

END OF SECTION 32 1126