SECTION 32 1216 – ASPHALT CONCRETE PAVING

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 specifies the requirements for placing a hot laid, plant mix asphalt surface course upon a flexible base course, all upon a previously prepared subgrade to the lines, grades and elevations as determined from the Drawings and in accordance with these Specifications.

1.3 APPLICABLE PUBLICATIONS

A. Current editions of the following publications form a part of this Specification to the extent indicated by references thereto.

B. Texas Department of Transportation Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges (TxDOT).

1. Item 247 – Flexible Base
2. Item 300 – Asphalts, Oils and Emulsions
3. Item 302 – Aggregates for Surface Treatments

4. Item 310 – Prime Coat
5. Item 320 – Equipment for Asphalt Concrete Pavement
6. Item 340 – Dense Graded Hot Mix Asphalt
7. Item 292 – Asphalt Treatment (Plant Mix)

C. American Society for Testing and Materials Standards (ASTM)

1. ASTM D 698 – Moisture Density Relations of Soil Using 5.5 Pound Rammer and 12 Inch Drop
2. ASTM D 8-02 – Standard Terminology Relating to Materials for Road Pavements

D. Texas Department of Transportation Test Procedures

1. TEX 207-F – Determining Density of Compacted Bituminous Mixtures
2. TEX 227-F – Theoretical Maximum Specific Gravity of Bituminous Mixtures
3. TEX 227-F – Theoretical Maximum Specific Gravity of Bituminous Mixtures

1.4 DEFINITIONS

A. Hot-Mix Asphalt Paving Terminology: Refer to ASTM D 8 for definitions of terms.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product indicated. Include technical data and tested physical and performance properties.

1.6 INFORMATIONAL SUBMITTALS

A. Material Certificates: For each paving material, signed by manufacturers.

1.7 QUALITY ASSURANCE

A. Manufacturer Qualifications:

1. A paving-mix manufacturer registered with and approved by authorities having jurisdiction or, if none exists, a manufacturer registered with the Texas Department of Transportation.

1.8 PROJECT CONDITIONS

A. Environmental Limitations: Do not apply asphalt materials if subgrade is wet or excessively damp or if the following conditions are not met:

1. Prime and Tack Coats: Minimum surface temperature of 60 degrees F.
2. Asphalt Base Course: Minimum surface temperature of 40 degrees F and rising at time of placement.
3. Asphalt Surface Course: Minimum surface temperature of 60 degrees F at time of placement.

PART 2 - PRODUCTS

2.1 ASPHALTIC MATERIALS

A. Asphaltic material shall conform to applicable requirements of TxDOT Item 300.

1. Asphalt cement shall be PG64-22.
2. Prime coat shall be MC-30.
3. Tack coat shall be CSS-1, CSS-1h, RS-1, or CRS-1.

2.2 MINERAL AGGREGATES

A. The coarse aggregate, fine aggregate, and mineral filler shall conform to the requirements of TxDOT Item 340 article 340.2.A.1 Course Aggregate, 340.2.A.3 Fine Aggregate and 340.2.B Mineral Filler.

2.3 BASE MATERIAL

A. Comply with requirements of Section 32 1114 “Flexible Base.”

2.4 SURFACE COURSE AGGREGATE

A. Surface course aggregate material shall be composed of clean, tough and durable particles of gravel, crushed gravel or crushed stone meeting the sieve analysis requirements of TxDOT Item 302 "Type D.”

2.5 EQUIPMENT

A. All equipment necessary to perform the Work of this Section shall conform to requirements of Item 320, TxDOT.

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 FLEXIBLE BASE

A. Comply with requirements of Section 32 1114 “Flexible Base.”

B. Subgrade fill material shall conform to the specifications for select fill as outlined in Section 31 2213 “Site Grading” prepared and placed to the lines and grades shown on the Drawings. This does not preclude using site soils if they can be made to meet these Specifications. Subgrade must be compacted to 95 percent of standard density in accordance with Section 31 2213 “Site Grading” before placing any base material.

C. Where required by these Specifications or shown on the Drawings, the subgrade shall be stabilized and tested prior to placement of flexible base.

D. Material as described in Article 2.3 “Base Material” above shall be spread and shaped to the required thickness and cross section after compaction.

E. The base material shall be compacted as described in TxDOT ITEM 247 Flexible Base per article 247.4.C Compaction using Density Controls.

F. Degree of Finish:

1. Check the surface of the completed pavement longitudinally and transversely for smoothness with a 10 foot straightedge.
2. The surface shall not vary more than 1/4 inch in 16 feet. Correct by loosening, adding or removing material, reshaping and re-compacting in accordance with TxDOT ITEM 247 Flexible Base per article 247.4.C Compaction using Density Controls.

G. Base course shall be allowed to cure until the moisture content is at least two percentage points below optimum before applying the next successive course or prime coat.

3.3 ASPHALT STABILIZED BASE

A. Refer to Section 32 1126 “Asphalt Stabilized Base.”

3.4 ASPHALT SURFACE COURSE

A. Asphalt surface course shall be applied in accordance with Article 340.4, Item 340, TxDOT.

B. Prior to application of the prime coat, the prepared base shall be cleaned of all foreign or objectionable matter with power blowers, power brooms, or hand brooms as required.

C. Apply prime coat to the base at a rate ranging from 0.2 to 0.5 gallons per square yard of surface.

D. Apply prime coat in accordance with Item 310, TXDOT.

1. Provide material specified in the Asphaltic Materials Article above.
2. Application Temperature: 100 degrees F.

E. A tack coat of 0.05 to 0.15 gallons per square yard of surface shall be applied on each layer of the surface course and allowed to cure before placing the succeeding course.

F. Compacting and finishing shall be accomplished as follows:

1. The mix shall be compacted immediately after placing.
2. Initial rolling with a steel-wheeled tandem roller, steel three-wheeled roller, or a pneumatic-tired roller shall follow the paver as close as possible.
3. Intermediate rolling with a pneumatic-tired roller shall follow the paver as close as possible.
4. Final rolling shall eliminate marks from previous rolling.
5. In areas too small for the roller, a vibrating plate compactor or a hand tamper shall be used to achieve thorough compaction.
6. Compaction with Air Void Control shall meet requirements stated in TxDOT Item 340.4.H
7. Determine target density by taking the average density of five laboratory-prepared specimens collected at random from trucks delivering the mixture to the job site. A bulk sample must be taken at least every 300 tons or at a minimum of one sample per day.
8. Test samples in accordance with TEX 207-F, TEX 222-F and TEX 227-F and report test results to the Engineer the same day the tests are made.
9. Check the surface of the completed pavement longitudinally and transversely for smoothness with a 10 foot straightedge.
10. The surface shall not vary more than 1/8 inch in 10 feet.

END OF SECTION 32 1216