

SECTION 02500 - PAVING & SURFACING

PART I GENERAL

1.01 DESCRIPTION

- A. Extent of paving and surfacing is shown on the drawings and includes but is not limited to:
1. Asphalt paving.
  2. Heavy duty paving at all truck traffic areas.
  3. Pavement markings.
  4. Wheel stops.
  5. Signs and posts for handicapped parking required by ADA.

1.02 QUALITY ASSURANCE

- A. Comply with and perform all paving work in accordance with the Standard Specifications for Road Construction (latest edition) of the Department of Transportation (Highway) of the State in which the store is located and the Asphalt Institute "Specifications for Paving and Industrial Applications (SS-2), information series documents IS 91 and IS 87.
- B. Design Requirements: (Based on 20-year pavement life)  
Daily Traffic: 1200 passenger vehicles, 10 single unit trucks, 2 multi-unit trucks
- C. Pavement to be designed and sealed by a professional engineer, using design requirements above and soil sub grade modulus recommended by soil consultant.
- D. Provide compaction tests of soil subgrade at not less than 1 test per each 2,500 sq.-ft. around the building.
- E. Asphalt cement materials shall conform to ASTM D-3515.
- F. Obtain materials from same source throughout project.
- G. At Walgreens discretion "suspect" installation will be tested, at Walgreens expense, for conformance to State D.O.T. Specifications by:
1. Using proper rolling equipment for: Breakdown, compaction and finishing.
  2. Coring, extraction and gradation for compliance with approved job mix formula.
  3. Density testing to verify conformance to State Department of Transportation standards.
- Non complying installations will be replaced at the landlords/contractors expense.
- H. Pavement designs which differ from these indicated in this section must be accompanied with a letter from the design engineer certifying to Walgreens that the proposed design complies with the standards and specifications, of the Department of Transportation.
- I. Install pavement in the presence of the Quality Control Testing Consultant.

1.03 JOB CONDITIONS

- A. Establish grades, lines and elevations to drain water away from buildings, prohibit ponding and accommodate adjoining work and property.

- B. Subgrade Conditions: Provide subgrade improvements as required to correct adverse conditions caused by permeability, frost potential and unstable soils.

1.04 GUARANTEE

- A. Contractor shall guarantee in writing, the materials and workmanship in accordance with Section 01010, for a period of two (2) years, beginning on the date of substantial completion or Walgreens possession, which ever comes later. This provision also applies to concrete pavements.

1.05 SUBMITTALS

- A. Submit the following to the Architect of Record, Quality Control Testing Consultant, and Walgreens Project Architect
  1. Pavement design analysis prepared by a licensed Professional Engineer using the design requirements above and the sub-grade modulus recommended within the geographical report.
  2. Laboratory reports of compaction tests and proof rolling of soil sub-grade.
  3. Pavement Surface Smoothness tests.
  4. Approved pavement design mix.

PART II PRODUCTS

2.01 MATERIALS

- A. Asphalt Aggregate Mix: Plant-mixed, medium volume, hot laid asphalt-aggregate mixture AC 10 or AC 20 complying with ASTM D 3515 and as recommended by local paving authorities to suit project conditions and as follows:

<u>ASPHALT GRADE</u>	<u>TEMPERATURE CONDITION</u>
Use AC 10 for:	Cold, mean annual air temperature $\leq 7$ degree C (45 degree F)
Use AC 10 or AC 20 for:	Warm, mean annual air temperature between 7 degree C (45 degree F) and 24 degree C (75 degree F)
Use AC 20 for:	Hot, mean annual air temperature $\geq 24$ degree C (75 degree F)

- B. Plant Mixed Asphalt Base/Binder Course: Provide one course laid to a compacted thickness of 2 inches min. This is a minimum thickness. See Geotechnical Report for pavement design specification.
- C. Plant Mixed Asphalt Surface Course: Provide one course laid to a compacted thickness of 1-1/2 inches min. This is a minimum thickness. See Geotechnical Report for pavement design specification.
- D. Prime Coat: Cut back asphalt type; AASHTO M82, MC-30, MC-70 or MC-250. Apply material over compacted subgrade to penetrate and seal. Slow cure (SC) or rapid cure (RC) liquid asphalt may be used depending on weather/climate conditions. Cure as necessary.
- E. Tack Coat: Emulsified asphalt AASHTO M 140 or M 208: SS-1, SS-1h, CSS-1, CSS-1h, diluted with one part water to one part emulsified asphalt. Apply to contact surfaces of previously constructed asphalt.

2.02 MISCELLANEOUS PRODUCTS

- A. Pavement Marking Paint: FS-TT-P-1952, (Waterborne) Type II (adverse conditions), color; highway yellow or as required by local codes. Apply to 10.3 mil wet film thickness, 6.0 mil dry film thickness.
- B. Wheel Stops: Precast of 3,500 psi air-entrained concrete, approximately 6" high 9" wide, and 7'-0" long, with chamfered comers and drainage slots on underside. Secure with galvanized dowells.
- C. Delineation Post: FlexStake model SM-703-Y-W-W, 36" high, yellow, by FlexStake (800) 348-9839, 2150 Andrea Lane, Ft. Meyers, FL 33912.
- D. Security Bollard Cover: Polyethylene thermoplastic bumper post sleeve by Ideal Shield® (313-842-7290) or equal, color: as shown on the drawings.
- E. Stormwater Management Grates/Catch Basin Covers: Provide cast iron units with bicycle safe grates that will not allow bicycle tires to drop down into opening.
- F. Bicycle Racks: Provide undulating tubular steel by the following manufacturers or equal as approved by Walgreens Project Architect:
  - “Ribbon Rack” # RB 07 by AAA Ribbon® Rack Co.
  - “CycLoop” #2170-7 by Columbia Cascade
  - “Thunderbolt” #TB-7 by Creative Pipe, Inc.
  - “Heavy Duty Winder” #HW 238-7 by Madrax

Finish: Hot-dipped galvanized,  
Mounting: Permanent in ground mount.  
Capacity: 7 bicycles

2.03 BITUMINOUS CONCRETE

- A. Supply job-mix formulas, mix tolerances and control measures used.
- B. Type of Mixes
  - 1. The roadway base course shall be Class 1.
  - 2. The roadway surface course shall be Class 2.
  - 3. The curbing shall be Class 2.

2.04 ASPHALT MATERIALS

- A. Asphalt binder shall follow AASHTO MP 1 requirements.
- B. The tack coat shall follow AASHTO M 140 for emulsified asphalt or AASHTO M 208 for cationic emulsified asphalt. The tack coat shall be a suitable grade and consistency for the site and application.

2.05 SUPPLEMENTARY MATERIALS

- A. Follow ASTM D 3405 or AASHTO 301 for hot application joint sealer, single component, polymer-modified bituminous sealant.
- B. Pavement marking paint use Waterborne FS-TT-P-1952 Type II. Color shall be as required by local codes or yellow.

## PART III- EXECUTION

### 3.01 EXAMINATION

- A. Compact sil subgrade to 95% of standard proctor density. Proof roll and repair all unstable areas of the prepared subgrade..
- B. Compact subbase to 95% of standard proctor density. Proof roll and repair all unstable areas of the prepared subbase..
- C. Install pavement markings with mechanical equipment after pavement has been properly cured. Apply to 10.3 mil wet film thickness, 6.0 mil dry film thickness.
- D. Secure wheel stops to pavement with galvanized steel dowels.

### 3.02 PATCHING

- A. All cuts shall be vertical. All excavated material shall be removed. For bituminous concrete paving saw cut perimeter of patch and excavate the existing pavement section to sound base. Excavate rectangular or trapezoidal patches, extend excavate 12 inches into the adjacent pavement, unless shown otherwise on the drawings. The existing aggregate base shall be re-compacted to form the new subgrade.
- B. The tack coat shall be applied uniformly to the vertical surfaces next to the new bituminous concrete paving at a rate of 0.05 to 0.15 gallons per square yard.
- C. After the area has been filled with bituminous concrete base, while it is still hot compact the area flush with the adjacent surface.

### 3.03 SURFACE PREPARATION

- A. Immediately prior to asphalt placement remove loose materials from the substrate surfaces and make sure that the subgrade is ready for paving. Making sure not to dislodge or disturb aggregate embedded in the compacted surface of the base course, sweep loose granular particles from the surface of the inbound aggregate base course. Compact subgrade to 95% of standard proctor density. Proof roll and repair unstable areas of the prepared subbase.

### 3.04 BITUMINOUS CONCRETE PLACEMENT

- A. For areas that are inaccessible to equipment place the bituminous concrete by hand, such that segregation of the mix does not occur. On prepared surface place bituminous concrete spreading it uniformly and striking it off. The thickness of each course is measured after it is compacted.
  - 1. The bituminous concrete base shall be placed in the number of lifts with the corresponding thickness shown on the drawings.
  - 2. The mixture shall be spread at a minimum temperature of 250° f.
  - 3. For crowned sections begin applying the mix along the centerline of the crown and on the high side for slopes.
  - 4. For a smooth, continuous surface free of pulls and tears regulate the paver machine speed.

- B. The minimum width of paving strips shall be ten feet, unless it is not practical due to site constraints. After the first strip, additional strips shall be placed overlapping the previous strip. The asphalt base course shall be completed prior to the placement of the asphalt surface.
- C. Fill any depressions with hot-mix asphalt to prevent segregation of mix and hand tool the surface smooth. Remove excess material to prevent high spots from forming. Fix any surface irregularities in the paving course behind the paver directly.

### 3.05 JOINTS

- A. Ensure a continuous bond between adjoining paving sections. Joints shall be free of depressions and of the same texture and smoothness as the rest of the bituminous concrete course.
  - 1. Prior to applying the tack coat to joints shall be cleaned.
  - 2. Longitudinal joints shall be offset a minimum of six inches in successive courses.
  - 3. Traverse joints shall be offset a minimum of 24 inches in successive courses.
  - 4. Follow AI MS-22 "Construction of Hot Mix Asphalt Pavements" for the construction of transverse joints.
  - 5. Joints shall be compacted as soon as the joint will bear the weight of the roller compactor without excessive displacement.
  - 6. Joints shall be compacted to within two percent of the specified course density.

### 3.06 COMPACTION

- A. Compaction shall begin as soon as the bituminous concrete paving with bear weight without excessive displacement. For areas that cannot be rolled due to site constraints compact with hand tampers, or vibratory-plate compactors. Compaction must be completed before the mix temperature cools to 185° F.
- B. Examine immediately the surface after breakdown rolling to check for crown, grade and smoothness for rolling joints and outside edges. Follow operational requirements for correct laydown and rolling operations.
- C. Immediately after the breakdown rolling continue intermediate rolling while the bituminous concrete is still hot enough to compact and continue until the specified density has been uniformly reached.
  - 1. Follow AASHTO T 245 for an average density of 96% of the reference laboratory test. The minimum shall be 94% and shall not exceed 100%.
  - 2. Follow ASTM D 2041 for theoretical density. The average shall be 92%, with the minimum 90% and the maximum 96%.

- D. A finish roller shall roll over the paved surfaces while the asphalt mix is still warm to remove any roller marks.
- E. Trim edges while the pavement is still hot. The edges shall be trimmed to proper alignment according to the drawings.
- F. Remove and replace any areas that are defective or contaminated with foreign materials. Follow above described placement procedures.
- G. Do not allow traffic on the new paved surface until it has cooled and hardened.
- H. Place traffic barricades around the newly paved area to protect it for traffic until it has hardened.

### 3.07 TOLERANCES

- A. The base course shall be installed to a tolerance of  $\pm 3/16$ " when tested with a 10' straight edge. The surface coat shall be installed to plus  $1/4$  inch, no minus allowed.
- B. Each course shall be compacted to produce smooth surfaces to comply with the following tolerances measured by using a 10 foot straight edge applied transversely and longitudinally to paved areas: Base course  $1/4$  inch, surface course  $1/8$  inch, crowned surfaces  $1/4$  inch (tested with right angle to crown).
- C. As directed by the Engineer unacceptable paving shall be removed and replaced.
- D. Ponding water will not be allowed. Cut out and replace areas which pond water. Not allowed at Walgreens.

### 3.08 PAVEMENT MARKING

- A. Verify with the Engineer paint layout and colors prior to pavement marking.
- B. The pavement must age 30 days prior to pavement marking.
- C. Apply paint to a clean surface. Loose materials must be sweep clean.
- D. Paint shall be applied with mechanical equipment to the dimensions indicated on the drawings. The applied paint shall have uniform straight edges. According to manufacturer's recommendations apply a minimum of 7.5 mils. of dry film.

### 3.09 FIELD QUALITY CONTROL

- A. The Owner will hire an independent testing and inspecting agency to perform field test, inspections. The testing agency will determine if the work complies with the requirements. If from the independent testing it is determined that remedial and or replacement work is necessary, the new work will be tested and the Contractors expense.
- B. Following ASTM D 3549 the thickness of the hot-mix asphalt courses will be measured.
- C. Surface Smoothness: Surfaces will not be acceptable if exceeding the following tolerances for smoothness when tested with a 10' straight edge.

1. Wearing Course Surface: 3/16".
  2. Pavement variation from true design elevation: 1/4".
  3. Areas which pond water for longer than 24 hours will be cut out and replaced with hot mixed asphalt.
- D. Where tests indicate noncompliance materials will either be removed or additional bituminous concrete will be added.

### 3.10 DISPOSAL

- A. All waste material shall be disposed of according to EPA regulations except for material to be recycled. Excavated materials shall not be allowed to accumulate on site.

END OF SECTION

