SECTION 02515

SCRUB SEAL TREATMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Constructing a surface treatment consisting of 1 or more applications of a single layer of asphalt emulsion that is scrubbed with a broom and covered with a single layer of aggregate.

1.02 MEASUREMENT AND PAYMENT

A. Measurement and Payment for SCRUB SEAL TREATMENT is on a square yard (SY) basis unless noted otherwise and is considered to be full compensation for furnishing all labor, materials (including asphalt emulsion and aggregate), equipment, tools, and incidentals used for surface preparation (including brooming, cleaning with high pressure air, and vacuuming), placement of materials, rolling, and cleanup.

1.03 SUBMITTALS

A. Submittals shall conform to requirements of all sections and provisions of these specifications.

B. Prior to and during production, when requested by the Engineer, the Contractor shall provide material samples to the Engineer for testing to verify the quality of the materials and to ensure conformance with specifications.

C. The Contractor shall meet with the Engineer or the Engineer's designated representative on a daily basis and supply a signed daily report indicating the date and identifying for each road segment:

1. The square yardage of scrub seal treatment applied.

PART 2 PRODUCTS

2.01 MATERIALS

A. Furnish materials of the type and grade shown on the plans in accordance with the following:

1. Polymer-modified emulsion that meets the requirements of TxDOT Item 300, "Asphalts, Oils, and Emulsions," Table 10, CMS-2P or approved equivalent.

2. Aggregates in accordance with TxDOT Item 302, "Aggregates for Surface Treatments." Furnish aggregate of the type and grade shown on the plans and listed in Table 1. Ensure the aggregate gradation meets the requirements int Table 2 for the specified grade when tested in accordance with Tex-200-F, Part I. Furnish aggregates that meet the quality requirements shown in Table 3, unless otherwise shown on the plans.

For final surfaces, unless otherwise shown on the plans, furnish aggregate with a surface aggregate classification of "B" or better. Provide aggregates from approved sources listed in the Department's Bituminous Rated Source Quality Catalog (BRSQC). Use materials not listed or not meeting the requirements of the BRSQC only when tested by the Engineer and approved before use. Allow 30 calendar days for testing of material from such sources.

2.02 EQUIPMENT

A. Distributor: Furnish a distributor capable of uniformly applying the emulsion at the specified rate or as directed.

B. Calibration: Provide volumetric calibration and calibration documentation performed within the last 5 years, certified by the City of Galveston or an approved testing agency. The City Engineer may verify calibration accuracy.

C. Computerized Distributor: The City Engineer may allow use of computerized distributor rate display to verify emulsion application by weight. Verify accuracy as required.

D. Aggregate Spreader: Use a continuous-feed, self-propelled spreader for uniform aggregate application at the specified rate or as directed.

E. Rollers: Unless otherwise shown on the plans, furnish light pneumatic tire rollers complying with City of Galveston Standard Specification Section 210, "Rolling."

F. Scrub Broom: Provide a scrub broom assembly similar to Exhibits A or B, approved by the City Engineer, with the following characteristics:

1. Rigid frame construction,
2. Attached to and pulled by the distributor,
3. Weighted so it does not squeegee the emulsion off the surface,
4. Leading and trailing broom heads angled 10 to 15 degrees from the centerline,
5. Tiff bristles at least 5-inches long,
6. Adjustable broom width via hinged wings or similar mechanism

Include means to raise the broom from the surface and tow it in raised position between passes.

G. Power Broom: Provide a rotary, self-propelled broom for initial and final sweeping.

H. Emulsion Storage and Handling: When storage tanks are authorized, provide a thermometer for continuous temperature monitoring. Maintain equipment cleanliness and prevent emulsion contamination.

I. Aggregate Haul Trucks: Use uniform capacity trucks calibrated for volume measurement in cubic yards. Mark calibrated levels clearly. Truck size restrictions may apply per plans.

J. Digital Measuring Instrument: Furnish a vehicle with a calibrated digital measuring device accurate to ±6 ft per mile.

PART 3 EXECUTION

3.01 CLEANING AND PREPARING SURFACES:

A. Immediately prior to application of scrub seal treatment, clean all cracks and joints with compressed air. Remove existing pavement markers and repair damage. Remove all dirt, dust, and debris from the road surface. Remove vegetation and blade edges as needed shown on plans.

1. Compressed Air: High pressure, 90 psi minimum, dry oil free compressed air shall be used for final cleaning and dust removal from cracks. Both sides of the crack or joint shall be cleaned.

3.02 PLACEMENT OF SCRUB SEAL TREATMENT:

A. General: Perform work during the application season shown on the plans. Rates of emulsion and aggregate are for estimating only; the City Engineer will adjust based on site conditions.

B. Temporary Aggregate Stockpiles: Obtain approval from the City Engineer for stockpile locations on the right of way prior to delivery. Stockpiles must not obstruct traffic or drainage or interfere with property access. Locate stockpiles at least 30 ft from the roadway where possible. Provide signs and barricades as shown on the plans.

C. Aggregate Furnished by the City: If aggregate is furnished by the City, stockpile locations will be shown on the plans.

D. Adverse Weather: Do not place surface treatments when weather conditions are unsuitable, as determined by the City Engineer. Follow temperature requirements below.

1. Temperature Limitations: Apply scrub seal only when air temperature is above 50°F and rising; do not apply if air temperature is 60°F and falling. Surface temperature must be above 60°F.

2. Cool Weather Night Air Temperature: The City Engineer may review weather forecasts to assess suitability of nighttime temperatures for placement to prevent aggregate loss.

3. Cold Weather Applications: Applications outside normal temperature limits require approval of emulsion grade and temperature conditions.

E. Surface Preparation: Remove existing pavement markers and repair damage. Remove dirt, dust, and debris. Clean cracks with compressed air. Remove vegetation and blade edges as shown on plans.

F. Rock Land and Shot:

1. "Rock land": area covered by one truckload of aggregate at specified rate.

2. "Shot": area covered by one distributor load of emulsion.

Calculate the lengths of both rock land and shot. Adjust shot length to be an even multiple of the rock land. Verify that the distributor has enough emulsion to complete the entire shot length. Mark shot length before applying emulsion. When directed, mark length of each rock land to verify the aggregate rate.

G. Emulsion Placement:

1. General: Adjust the shot width so operations do not encroach on traffic or interfere with the traffic control plan, as directed. Use paper or other approved material at the beginning and end of each shot to construct a straight transverse joint and to prevent overlapping of the emulsion. Unless otherwise approved, match longitudinal joints with the lane lines. The Engineer may require a string line if necessary to keep joints straight with no overlapping. Use sufficient pressure to flare the nozzles fully. Select an application temperature, as approved, in accordance with Item 300. Uniformly apply the emulsion at the rate directed, within 15°F of the approved temperature, and not above the maximum allowable temperature.

2. Scrubbing: Mechanically scrub the freshly applied emulsion by dragging the scrub broom behind the distributor, so that the emulsion is evenly spread over the road surface and fills existing surface cracks.

3. Limitations:

a. traffic control methods and devices are in place as shown on the plans or as directed,

b. the loaded aggregate spreader is in position and ready to begin,

c. haul trucks are loaded with enough aggregate to cover the shot area, and

d. haul trucks are in place behind the spreader box.

4. Non-Uniform Application: Stop application if it is not uniform due to streaking, ridging, puddling, flowing off the roadway surface, or not filling the cracks. Verify equipment condition, operating procedures, application temperature, and material properties. Determine and correct the cause of non-uniform application. If the cause is high or low emulsion viscosity, replace emulsion with material that corrects the problem.

5. Test Strips: The Engineer may stop application and require construction of test strips at the Contractor's expense if any of the following occurs:

a. non-uniformity of application continues after corrective action;

b. on 3 consecutive shots, application rate differs by more than 0.03 gal. per square yard from the rate directed; or

c. any shot differs by more than 0.05 gal. per square yard from the rate directed.

The Engineer will approve the test strip location. The Engineer may require additional test strips until surface treatment application meets specification requirements.

H. Aggregate Placement: Apply aggregate uniformly at the directed rate immediately after emulsion application.

I. Rolling: Start rolling operation on each shot as soon as aggregate applied. Use sufficient rollers to cover the entire mat width in 1 pass, i.e., 1 direction. Roll in a staggered pattern. Unless otherwise shown on the plans, make a minimum of 3 passes. If rollers are unable to keep up with the spreader box, stop application until rollers have caught up, or furnish additional rollers. Keep roller tires asphalt-free.

J. Patching: Before rolling, repair spots where coverage is incomplete. Repair can be made by hand spotting or other approved method. When necessary, apply additional emulsion to embed aggregate.

K. Finishing Broom: After rolling, sweep as soon as aggregate has sufficiently bonded to remove excess.

3.03 OPENING TO TRAFFIC

A. Sealant and mastic materials shall not be exposed to traffic until fully cured.

B. Sweep to remove excess aggregate once bonding is sufficient.

3.04 UNACCEPTABLE WORK

A. The Contractor, at no additional cost to the contracting Agency, shall correct unacceptable work.

B. Unacceptable work shall include, but not be limited to, unsealed or unfilled cracks, material wastage on the sides of the roadway, incomplete surface coverage, and excess quantities of material on the roadway that adversely affects driving.

C. The Contractor shall not progress to a new area until the unacceptable work is corrected to the satisfaction of the Engineer. Correction of unacceptable work shall be accomplished within five working days after notification from the Engineer of the unacceptable work.

END OF SECTION