SECTION 02785

SEAL COATS
(Chip Seal, Cape Seal, Crack Sealing)

PART 1 GENERAL

1.1 RELATED WORK

A. Section 02200: Site Preparation

B. Section 02740: Asphalt Concrete Paving

C. Section 02760: Traffic Striping, Pavement Markers and Pavement Markings

1.2 REFERENCES

Current Caltrans Standard Specifications:

A. Section 37 – Bituminous Seals

B. Section 92 – Asphalts

C. Section 93 – Liquid Asphalts

D. Section 94 – Asphaltic Emulsions

1.3 SUBMITTALS

The Contractor shall furnish material certificates, including mill test reports on the asphalts, emulsions and crack sealers signed by the material producer and the Contractor, showing compliance with the respective specifications.

1.4 PROJECT CONDITIONS

A. Chip seals shall not be applied until sufficient screenings are on hand to immediately cover the asphaltic emulsion.

B. Chip seals shall not be applied when the atmospheric temperature is below 18° C/ 65° F or above 43° C/ 110° F, or when the pavement temperature is below 27° C/ 80° F.
PART 2 PRODUCTS

2.1 CHIP SEAL

A. Liquid asphalt for prime coat, if required, shall be slow cure liquid asphalt, SC-70, conforming to Section 93 of the Caltrans Standard Specifications.

B. Asphaltic emulsion for the first and second coats shall be Grade CRS2 conforming to the requirements of Section 94 of the Caltrans Standard Specifications. Asphaltic emulsion for the third coat shall be SS1h conforming to the requirements of Section 94 of the Caltrans Standard Specifications.

C. Screenings shall conform to the following requirements prior to depositing on the roadbed:

1. Screenings shall consist of broken stone, crushed gravel, or both. At least 90 percent by weight of the screenings shall consist of crushed particles as determined by California Test 205.

2. Screenings shall be clean and free from dirt and other deleterious substances.

3. Screenings for single chip shall be 3/8" x No. 6 (medium-graded in conformance with Section 37-1.02 of the Caltrans Standard Specifications) unless otherwise specified.

4. Screenings for double chip shall be graded in conformance with Section 37-1.02 of the Caltrans Standard Specifications:

   1st application – 12.5mm x 4.75mm (½ in x No.4) (coarse)

   2nd application – 6.33mm x 2.00mm (¼ in x No. 10) (fine)

2.2 CAPE SEAL

Cape seal shall be a single application of chip seal surfaced 1 week later by a slurry seal application.

2.3 CRACK SEALERS

Crack sealers shall be a commercial rubberized asphalt or a liquid asphalt. Acceptable products are Reed & Graham Overkote Crack Filler or approved equal.
2.4 PARKING AREA SEAL COAT

Parking area seal coat shall be a cold applied composition of a refined petroleum asphalt emulsion, fillers and fibers. Asphalt emulsion shall not be of the clay type. Acceptable products are Reed & Graham OverKote Asphalt Pavement Coating or approved equal.

PART 3 EXECUTION

3.1 PREPARATION

Thermoplastic striping, tape, and raised pavement markers shall be removed or protected in conformance with Section 02760, Traffic Striping, Pavement Markers and Pavement Markings.

3.2 PAVEMENT REPAIR

All existing pavement to receive a chip seal, parking lot seal coat, or cape seal shall be repaired as follows prior to commencing resurfacing operations:

A. Cracks less than ½ inch in width shall be cleared of dirt, dust, and other deleterious materials and repaired with asphalt crack sealer or with slurry seal applied in accordance with the manufacturer's recommendations.

B. Cracks or holes larger than ½ inch in width shall be cleared of dirt and other deleterious materials and filled with hot asphalt concrete mix.

C. Areas specified for dig-out shall be excavated to sub-base, or to the depth specified. The sub-base shall be scarified to a depth of 6 inches and compacted to 95 percent density.

D. The top 2 inches of the patch shall be ½ inch maximum size, medium grade asphalt concrete.

E. The maximum thickness of any lift of asphalt concrete in dig-outs shall be 3 inches.

3.3 CHIP SEAL

A. Preparation:

1. Before applying asphaltic emulsion, the existing paved surfaces shall be cleaned by sweeping, or other means necessary to remove all loose particles of paving, dirt, and other extraneous material.
2. Before asphaltic emulsion is to be applied to any areas, all utility covers located in the areas to be surfaced shall be covered or oiled. These covers shall be cleaned as quickly as possible after the application of the screenings and prior to final set.

3. When a chip seal is to be applied to an untreated material, a prime coat of liquid asphalt shall be applied to the material in place at a rate of from 0.20 to 0.33 gallons per square yard.

B. Application:

1. Asphaltic emulsion shall be applied in accordance with Caltrans Standard Specifications Section 94. The first application shall be at the rate of 0.25 gallons per square yard. The second application shall be at the rate of 0.20 gallons per square yard. The third application shall be at the rate of 0.10 gallons per square yard.

2. Immediately following the application of the asphaltic emulsion, it shall be covered with screenings at the rate of 23 to 30 pounds per square yard for the first application and 12 to 20 pounds per square yard for the second application. The screenings shall be spread using a chip spreader machine or a spreader box attached to a truck.

3. A pneumatic-tired type roller shall be used to compact the screenings. Drum-type rollers are not acceptable. A minimum of two complete passes is required: The first pass immediately after the screenings are spread and the second pass within four hours. Traffic will not be allowed on the new surface for at least four hours.

4. Surplus gravel materials derived from the process shall be swept using motorized vacuum equipment prior to opening the area up to the public.

3.4 CAPE SEAL APPLICATION

A. Preparation:

1. Preparation for chip seal shall be as per paragraph 3.03 above.

2. Chip seal for cape seal shall be swept 24 hours after application and as necessary prior to slurry seal application. Chip seal shall be swept immediately prior to slurry seal application.

B. Application:

1. Application for chip seal shall be as per paragraph 3.03 above.

2. Application for slurry seal shall be as per Section 02786 and at least 7 days following application of the standard chip seal, or at least 28 days following
application of asphalt rubber chip seal. Speed of slurry seal application trucks must be slow enough to prevent washboard effect from resulting.

3.5 PARKING AREA SEAL COAT

A. Preparation:

Before application, the pavement surface shall be cleaned by sweeping, flushing or other means necessary to remove all loose particles of paving, all dirt and all other extraneous material. All pavement markings shall be removed before application by sandblasting or grinding. Damaged asphalt and areas saturated by oil or grease shall be removed and replaced. Oil, grease and other pollutants shall be prevented from entering the storm drainage system per Special Conditions for Storm Water Pollution Prevention.

B. Application

1. Mixing and agitating equipment shall be a tank-type power mixer with a round bottom, equipped with a power driven mixer of sufficient capacity to maintain the mineral content in complete suspension.

2. Immediately prior to application of the emulsion, the pavement surface shall be dampened as directed by the Project Manager, or as recommended by the manufacturer.

3. The mixture shall be applied by mechanized material-spreading equipment or other approved method in continuous parallel lines and spread immediately by the use of rubber-faced squeegees.

4. Sealer shall be mixed to a uniform free-flowing consistency. Water shall be added in accordance with the manufacturer’s specifications (not to exceed 15 percent by volume) to obtain a semi-fluid consistency.

5. Two or more applications shall be made under the direction of the Project Manager such that the result is a smooth, uniform surface.

6. If the surface to be sealed is excessively rough (surface voids greater than 3/16 inch between the top of exposed aggregate to the bottom of the void), the Project Manager may direct the Contractor to add clean 30 mesh sand to the mixture of the first coat at the rate of 3 pounds per gallon.

7. Upon completion of the seal, all traffic shall be excluded from the area for not less than 24 hours, or as directed by Project Manager.

3.6 SURFACE STRUCTURES
The Contractor shall be responsible for referencing, covering and protecting surface structures.

END OF SECTION