SECTION 32 1216

ASPHALT CONCRETE PAVING AND BASE

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Section, apply to this Section.

1.02 SUMMARY

A. This Section includes, but is not limited to, the following:
   1. Provide, spread and compact aggregate base as shown on the Contract Documents and as specified herein.
   2. Provide, spread and compact asphaltic concrete pavement.
   3. Adjusting to finish grade any and all new or existing, sewer cleanouts, drainage structures, utility vaults/boxes etc., which are included in the limits of work.
   4. Provide and spread seal coat
   5. Provide and spread crack filler.

B. Related Sections includes, but are not limited to the following:
   1. Earthwork - Section 31 2000
   2. Concrete Curb, Gutter and Sidewalk/Walkway - Section 32 1600

1.03 REFERENCES

A. Reference Data:
   1. If the year of the adoption or latest revision is omitted from the designation, it shall mean the specification, manual or test designation in effect the date the Notice to Proceed with the Work is given.

B. City of Rohnert Park Design and Construction Standards, latest edition (City Standards).

C. Caltrans Standard Specifications.

1.04 QUALITY ASSURANCE

A. Testing and inspection of the aggregate base, aggregate subbase and asphaltic concrete shall be done by a testing laboratory retained and paid for by the District. Any areas receiving failing tests shall be reworked by the Contractor to achieve the minimum specified degree of compaction. It shall be the sole responsibility of the Contractor to achieve satisfactory results.

B. Test Methods: Unless otherwise indicated, tests shall be made in conformance with the following standard methods:
   1. Relative compaction shall be determined by Test Method No. California 216 and 231.
   2. City of Kentfield Design and Construction Standards, latest edition (City Standards).
   3. Caltrans Standards and Specifications, latest edition.

1.05 SUBMITTALS

A. Submit asphalt mix design parameters and certificates of compliance.

B. Submit certificate of compliance for aggregate base and aggregate subbase.

C. Submit choice of seal coat and crack filler.

D. Submittals shall conform to the requirements of Section 01 33 00.

PART 2 PRODUCTS

2.01 AGGREGATE BASE

A. Aggregate for aggregate bases shall be clean and free of vegetable matter and other deleterious substances.

B. Aggregate base shall be of such a nature that it can be compacted readily under watering and rolling to form a firm, stable base.

C. Aggregate base shall be Class 2, and the combined aggregate shall conform to the 3/4-inch maximum grading specified in Section 26-1.02A "Class 2 Aggregate Base" of the 2006 Caltrans Specifications.

2.02 ASPHALT CONCRETE

A. The asphalt concrete shall be Type A, 1/2 inch maximum, medium and shall conform to the applicable portions of Section 39 of the Caltrans Standard Specifications.

2.03 SEALCOAT

A. The materials for asphalt sealcoat immediately prior to mixing shall conform to the following requirements:
   1. Asphaltic emulsion shall be SS1h or CSS1h, conforming to the requirements in Section 94 of the California Standard Specification, "Asphaltic Emulsions." Table 1 or 2, with the exception of the penetration on residue from distillation which will conform to a value of 20 to 60, clay stabilized emulsion, with a pH not greater than 7.0, and a solids content not less than 45 percent may be used.
   2. The properties of the SS1h shall be determined in accordance with AASHTO designation T59 "testing emulsified asphalt."
   3. Water shall be potable and of such quality that the water will not separate from the emulsion before the sealcoat is applied.
   4. Mineral aggregate components shall be 100 percent passing the #16 mesh sieve. These components shall be a natural or manufactured consisting of clean, hard, durable, uncoated particles that are clean and free from decomposed materials, organic materials and other deleterious substances. The sieve analysis of the mineral aggregate components shall be determined in accordance with the ASTM test methods C136 or Cal Test 202.

Table 1

The Asphalt Sealcoat materials, as manufactured, undiluted, except as noted, shall conform to the following requirements.

	MIN	MAX	METHOD
Weight (per gallon)	9.0 lbs		ASTM D244
Cone Penetration	340m. m.	700	ASTM D217
% Non-Volatile	50		ASMAA-1*
% Non-Volatile Soluble in Tri-Clorethylene	10	35	ASTM D2042
Wet Track Abrasion		35 gram loss	ASTM D3910
Mineral Aggregate Components	#16 Sieve 100% passing		ASTM C136

Dried Film Color Viscosity	Black 75 KREB		ASTM D562
Accelerate Weathering	No		Fed Spec TI-C-555B
*Weigh 10 grams of homogenous product into a previously tared ointment can. Place in a constant temperature oven at 325 degrees F for 90 minutes. Cool, reweigh and calculate non-volatile components.			

2.04 CRACK FILLER

A. The crack filler material shall hot-applied meeting the following specification when heated in accordance with ASTM D5078 to the maximum heating temperature.

Table 1	
TEST	**RECOMMENDED SPECIFICATION**
Cone Penetration (ASTM D5329)	20-40
Resilience (ASTM D5329)	30% min.
Softening Point (ASTM D36)	210°F (99°) min.
Ductility, 77F (25C) (ASTM D113)	30 cm min.
Flexibility (ASTM D3111 Modified)	Pass at 30°F (-1°C)
Flow 140°F (60°C) (ASTM D5329)	3 mm max.
Brookfield Viscosity, 400°F (205°C) (ASTM D2669)	100 Poise max.
Asphalt Compatibility (ASTM D5329)	Pass
Bitumen content (ASTM D4)	60% min.
Tensile Adhesion, 1" (ASTM D5329)	400% min.
Maximum Heating Temperature	400°F (204°C)
Minimum Application Temperature	380°F (193°C)

PART 3 EXECUTION

3.01 SUBGRADE PREPARATION FOR BASE MATERIAL

A. Subgrade preparation shall conform with the requirements in Section 31 20 00 - Earthwork, and shall not vary more than 0.05 foot above, or 0.05 foot below the grade established by the plans.

B. Prepared subgrade shall be inspected by the independent testing laboratory retained by the District prior to the placement of any aggregate base.

C. As per Section 31 2000 - Earthwork.

3.02 SPREADING

A. Aggregate base and aggregate subbase shall be delivered to the roadbed as uniform mixtures and shall be graded in layers or windrows. Segregation shall be avoided and the base/subbase

shall be free from pockets of coarse or fine material.

B. The aggregate base and aggregate subbase, after spreading as above specified, shall be shaped to such thickness that after watering and compacting the completed base will conform to the required grade and cross section, within the tolerances specified in Section 26-1.05 "Compacting" of the Caltrans Specifications.

C. The base/subbase shall be spread, watered and compacted in layers not to exceed 6 inches in compacted thickness to achieve the specified thickness.

3.03 COMPACTION AND TOLERANCE

A. The relative compaction of the base shall not be less than 95 percent.

B. The finished surface of the aggregate base and aggregate subbase shall not vary more than 0.05 foot from the design grades.

C. Aggregate base and aggregate subbase which fails to meet the specified tolerances shall be reshaped, dewatered and recompacted at the Contractor's expense.

3.04 SUBGRADE PREPARATION FOR ASPHALT CONCRETE

A. All construction beneath the subgrade shall be completed, including pipeline testing, prior to asphalt concrete placement.

B. Subgrade shall not vary more than 0.05 foot above or below design grade.

C. Any soft spots in the subgrade shall be repaired by the Contractor, regardless of cause, prior to paving.

D. Minimum Class 2 aggregate base material under heavily loaded private sidewalks/walkways as shown on the Drawings shall be 4 inches in compacted thickness.

3.05 TACK COAT

A. Apply tack coat of RS-1 or CRS1 Emulsion to vertical surfaces of existing surfacing that will come into contact with asphalt concrete.

3.06 SPREADING AND COMPACTING ASPHALT CONCRETE

A. Shall be in accordance with Section 39 of the Caltrans Standard Specifications.

3.07 CRACK FILLER

A. Prior to application of crack filler and seal coat, all crack (1/8" to ½") should be cleaned.

B. A variety of equipment including routers, high powered compressed air and/or power brushes can be used to clean cracks.

C. Care should be taken to ensure that bonding surfaces are free from oil, dirt, dust, organic material, moisture and any other contaminants that would inhibit good bonding of the crack filler to the asphalt.

D. All weeds should be removed and cracks sterilized to prevent week growth through the crack filler.

E. Apply crack filler shall be applied at 10 pounds per gallon at 60 degrees Fahrenheit per manufacturer's recommendations.

3.08 SEAL COAT

A. The surface to receive Asphalt Sealcoat must be free of all foreign material and dry immediately prior to sealcoat application. Cleaning may be by air blowing, vacuum, mechanical sweeper, washing, or other techniques as approved by the Engineer. If washing the existing surface is used, the surface shall not have any standing water prior to application of the sealcoat. Salt, cleaning agents, fertilizers, hard water deposits and other such chemicals will promote lack of bonding of the sealcoat to the existing surface any may require extraordinary cleaning measures.

B. Prior to application of sealcoat, deposits of grease or oil shall be cleaned by scraping, burning, and/or or the use of approved detergents in order to promote adhesion of the sealcoat. After cleaning the areas above, the areas shall be sealed with an oilseal. Oilseal shall be a quick drying latex emulsion with suitable admixtures manufactures specifically for the purpose of isolating the Asphalt Sealcoat from any residual oils, petroleum grease, and gasoline stained pavement. The properties of the Oilseal shall be such as to be compatible with the Asphalt Sealcoat.

C. In areas where the foreign oil or grease has penetrated the asphalt concrete such that cleaning as described above is not effective, the affected areas shall be removed to the depth necessary but not less than 3/4 inch. The removed asphalt concrete shall be replaced with new asphalt concrete conforming to Section 39 of the California Standard Specification.

D. On excessively weathered surfaces or areas such that cleaning operation leave a film of dust, a tack coat of SS1h conforming to Section 94 of the California Standard Specifications shall be applied. The tack coat shall consist of one (1) part SS1h with four (4) parts water or two (2) parts Asphalt Sealcoat with one (1) part water applied at a rate of 0.05 to 0.10 gal/sq. yd. The tack coat must be dry prior to application of the Asphalt Sealcoat.

E. Application of the Asphalt Sealcoat shall be by mechanical means using rubber faced squeegees, brooms, distributor bar/wand, or combinations of these or other techniques approved by the Manufacturer and by the Engineer.

F. The Asphalt Sealcoat being applied shall be uniform and freeflowing, free of lumps and other inconsistencies. Potable water may be added as necessary as per manufacturer's recommendation, for consistency and spreadability but shall not exceed 15% by volume or as directed by Engineer. If, after the addition of the maximum allowable water volume the sealcoat is unsuitable, the materials shall be rejected and removed from the site.

G. **Asphalt Sealcoats shall consist of two application coats of material.** The sealcoat must be thoroughly dry prior to application of the second or subsequent coats.

H. Application of Asphalt Sealcoat in ambient temperatures in excess of 80 degrees Fahrenheit shall require pretreatment of the asphalt concrete surface with a water mist. The water must not be standing but the surface should be damp prior to sealcoat application. This treatment is also recommended for application on porous surfaces where the water within the sealcoat may be absorbed too quickly by the existing pavement surface.

I. Asphalt Sealcoat shall be applied uniformly over the prescribed area in continuous parallel lines in a manner so that no ridges or uncoated areas shall exist. Application rates will vary depending on the texture of the existing asphalt surfaces requiring more sealcoat than smooth surfaces. The following application rate is a guideline only:

Smooth Dense Surface 20-30 gallons/1000 sf

Asphalt Sealcoat shall not be applied when the ambient temperature is less than 55 degrees and the surface temperature is less than 60 degrees F. Sealcoat shall not be applied within 24 hours prior to forecasted rain, freezing temperatures, during rain, or when the surface contains standing water.

J. Traffic shall not be allowed on the Asphalt Sealcoat until the sealcoat is thoroughly cured, which in warm weather conditions is approximately 24 hours. Minor scuffing or power steering marks may occur on a newly applied surface in warm weather. Irrigation watering shall be kept off for at least 24 hours prior to and after the application of Asphalt Sealcoat.

K. Striping for parking and traffic flow should be done only after the sealcoat has thoroughly dried. For best results, a high quality Traffic Line paint is recommended.

3.09 STRUCTURE ADJUSTMENT

A. The Contractor shall mark the location of all structures to be adjusted to grade and shall be responsible for their location after paving operations are completed.

B. After surfacing or resurfacing is completed, the Contractor shall construct or reconstruct the structures to grade as shown on the plans.

3.10 FLOW TEST

A. Finished pavement areas shall be flow tested in the presence of the Inspector of record to confirm that positive gradients that facilitate proper and complete surface drainage, have been achieved in all paved areas.

B. Any areas that fail the flow test, defined as any area where depth of ponding water exceeds 1/8 inch or where the surface of a ponding area exceeds 10 square feet, shall be repaved to achieve positive drainage.

3.11 CLEAN UP

A. Remove all debris and stains resulting from the work of this section.

END OF SECTION