

SECTION 32 12 33
PAVING AND SURFACING
Construction Specification

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes (but is not necessarily limited to):
 - 1. Asphalt Concrete Paving.
 - 2. Concrete Paving.
 - 3. Liquid Asphalt and Asphalt Emulsion.
 - 4. Aggregate Base.
- B. Related work furnished under other sections but conforming to the provisions of this section:
 - 1. Subgrade preparation.
 - 2. Aggregate Base installation.
- C. Related Sections:
 - 1. Section 31 00 00 – Earthwork and Grading
 - 2. Section 32 00 00 - Demolition
 - 3. Section 31 17 23 - Pavement Marking.
- D. San Mateo County Community College District is strongly committed to promoting sustainability throughout their campus projects. Section 01 81 13 Sustainability of the Design Standard provides guidelines and recommendations for implementing sustainability strategies. Where relevant, specific sustainability criteria is noted in this section; however, each project team should review and cross reference that front section while developing the specific project and its documentation. Each discipline shall confirm that specific performance and manufacturer information provided in the specification section is in alignment with code requirements, LEED criteria, and any other goals for sustainability.

1.2 REFERENCES

- A. American Society for Testing and Materials (ASTM):
 - 1. A615: Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
 - 2. C150: Portland Cement.
 - 3. D1557: Moisture Unit Weight Relations of Soils and Aggregate Mixtures Using a 10 lb. (4.5 kg) Rammer and 18 in. (457 mm) Drop.
 - 4. D1682: Breaking Loads and Elongation of Textile Fabrics.
- B. California Code of Regulations (CCR): Title 24, Chapter 2-71, Site development Requirements for Handicapped Accessibility.
- C. California Department of Transportation (C.D.T.):

1. Standard Specifications:
 - a. Section 26 Aggregate Bases.
 - b. Section 37 Bituminous Seals.
 - c. Section 39 Asphalt Concrete.
 - d. Section 51 Concrete Structures.
 - e. Section 52 Reinforcement.
 - f. Section 73 Concrete Curbs and Sidewalks.
 - g. Section 90 Portland Cement Concrete.
 - h. Section 92 Asphalts.
 - i. Section 93 Liquid Asphalts.
 - j. Section 94 Asphaltic Emulsions.
 2. Traffic Manual.
 3. Highway Design.
- D. Institute of Transportation Engineers: Transportation and Traffic Engineering Handbook.

1.3 SUBMITTALS

- A. Requirements: Refer to Section Submittal Procedures.
- B. Asphalt Concrete Paving:
 1. Provide two copies of material certificates signed by the material producer and the Contractor, certifying that each material item complies with or exceeds specified requirements.
 2. The Contractor shall furnish a certified weight or load slip for each load of material used in the construction of the asphalt concrete pavement.
- C. Concrete Paving: The Contractor shall furnish mill test reports on the cement, reinforcement bars, and aggregates, showing compliance with the respective specifications. The Testing Engineer may make concrete test cylinders and slump tests as deemed necessary to determine compliance with the Specifications.
- D. Liquid Asphalt.
- E. Pavement Reinforcement Fabric.
- F. Tack Coat.
- G. Pavement Reinforcement Mesh.
- H. Structural Geotextile Fabric.

1.4 PROJECT CONDITIONS

- A. Liquid Asphalt and Asphalt Emulsion:

1. Prime coat, seal coat, and paint binder shall be applied only when the ambient temperature is above 50° Fahrenheit and when temperature has not been below 35° Fahrenheit for 12 hours immediately prior to application.
 2. Prime coat, fog coat, seal coat, and paint binder shall not be applied when base or surfaces are wet or contain excess moisture.
- B. Asphalt Concrete Paving: Asphalt concrete surfaces shall be constructed only when ambient temperature is above 50° Fahrenheit and when base is dry.

1.5 GENERAL DESIGN CRITERIA

- A. Services Areas: Approach ramps, driveways, and paved work areas in excess of 4 percent slope shall be provided with a rough texture for non-skid surface.
- B. Walks and Paths: Concrete exterior slabs (walks, terraces, etc.) shall have a pitch of at least 2 percent.
- C. Pavement Markings: All traffic control striping and pavement markings shall conform to the standards illustrated in the C.D.T. Standard Plans Book (current edition), General Road Work Section.

PART 2 PRODUCTS

2.1 PAVING MATERIALS

- A. Aggregate Base: Aggregate base shall conform to Caltrans Class 2 (R value 78 min) aggregate base, 3/4" maximum size, as specified in Section 26 of the C.D.T. Standard Specifications.
- B. Asphalt Concrete Paving:
 1. Paving asphalt to be all purpose, aged residue, steam refined, PG 64-10 grade, in accordance with Section 92 of the Caltrans Standard Specifications.
 2. Mineral aggregate shall be Type B mineral aggregate as specified in Section 39 of the C.D.T. Standard Specifications.
 3. Maximum aggregate size shall be as follows:

A.C. Thickness	Max. Ag.
a. ¾" - 1½"	1/2"
b. 2 & 2½"	1/2"
c. 3" & 4"	¾"
 4. Liquid asphalt for prime coat shall be Grade SC-70 in conformance with Section 93 of the C.D.T. Standard Specifications.
 5. Asphaltic emulsion for paint binder, fog coat, and seal coat shall be emulsified asphalt, Type SS-1h, conforming to Section 94 of the C.D.T. Standard Specifications.
 6. A.C. dikes shall be per Caltrans Standard A87, type B.
- C. Portland Cement Concrete:

1. Concrete shall be Class A concrete conforming to Section 90 of the C.D.T. Standard Specifications.
 2. Cement shall be Type II cement conforming to ASTM C150 as modified by Section 90 of the C.D.T. Standard Specifications.
 3. Aggregate shall be 3/4-inch maximum size conforming to Section 90 of the C.D.T. Standard Specifications.
 4. Water shall be potable and free of organic matter and injurious amounts of oil, acid, alkali, or other deleterious substances.
 5. Reinforcing bars shall be deformed and shall conform to ASTM A615.
 6. Filled joints, unless noted otherwise on the Drawings, shall be 1/4-inch thick, the full depth of the concrete section and conforming to Section 51 of the C.D.T. Standard Specifications.
 7. Joint filler shall conform to Section 51 of the C.D.T. Standard Specifications for pre-molded expansion joint filler and expanded polystyrene joint filler.
 8. No admixtures will be allowed without prior approval of the Project Manager.
- D. Pervious Pavement:
1. The District has not adopted a specification for Pervious Pavement as of yet. The District shall review and approve submittals for Pervious Pavement.
- E. Pavement Reinforcement Fabric: Pavement reinforcement fabric shall meet Caltrans Section 88-1.02, BP Petromat or approved equivalent.
- F. Crack Sealant:
1. Crack sealant shall be rubberized hot-pour type and shall meet ASTM D 3405, Husky 1611 or approved equivalent.
 2. Blotting Agent shall be one of: Screened sand, cement, or fly ash.
- G. Tack coat: Tack coat shall meet Caltrans Section 39-4.02.
- H. Pavement reinforcement mesh: Pavement reinforcement mesh for use in Type 2 Overlay shall be Glasgrid Model 8501 or approved equivalent.
- I. Structural geotextile fabric: Structural geotextile fabric shall be Mirafi 500X or approved equivalent.

PART 3 EXECUTION

3.1 PREPARATION

- A. Subgrade and Aggregate Base:
1. Prepare a subgrade and over excavation paragraph reference 3.4 of Section 31 00 00-EARTHWORK AND GRADING.
 2. Aggregate base shall be compacted to 95 percent ASTM D1557. Sections 26-1.04B and 26-1.05 of the C.D.T. Standard Specifications shall apply.

3. Soil sterilant shall be applied to prepared subgrade or after installation of rock or aggregate base uniformly at the rate recommended by the manufacturer.

B. Crack Sealing:

1. Before sealing, cracks shall be cleared of dirt, dust, and all other deleterious materials to a depth of 1/4-inch to 1/2-inch.
2. Cracks 1/8-inch in width and greater shall be sealed.
3. Application of crack sealer shall be in accordance with the manufacturer's recommendations unless otherwise directed.

3.2 ASPHALT CONCRETE PAVING

A. General:

1. Asphalt concrete shall be proportioned, mixed, placed, spread, and compacted in conformance with Section 39 of the C.D.T. Standard Specifications.
2. Before placing asphalt concrete on untreated base, a liquid asphalt prime coat shall be applied to the base course in conformance with Section 39 of the C.D.T. Standard Specifications. Prime coat shall be applied at the rate of 0.25 gallons per square yard.
3. Before placing asphalt concrete, an asphalt emulsion tack coat shall be applied to all vertical surfaces of existing pavement, curbs, gutters, construction joints, and all existing pavement to be surfaced, in conformance with Section 39 of the C.D.T. Standard Specifications.
4. Spreading and compacting asphalt concrete shall be performed in accordance with Section 39 of the C.D.T. Standard Specifications.
5. Fog seal shall be applied to all finished surfaces of asphalt concrete pavement at a rate of 0.05 gallons per square yard, in accordance with Section 37 of the C.D.T. Standard Specifications.
6. After fog seal has been applied, ample time shall be allowed for drying before traffic is allowed on the pavement or paint striping is applied.

3.3 CONCRETE CONSTRUCTION

A. General:

1. All concrete shall be mixed in accordance with applicable provisions of Section 90 of the C.D.T. Standards Specifications.
2. Construction of concrete substructures shall conform to applicable provisions of Section 51 of the C.D.T. Standard Specifications. Unless noted otherwise in the Specifications, all exposed surfaces of structure shall have Class 1 surface finish or finished to match existing adjacent paving.
3. No pigment shall be used in curing compounds for construction of concrete curbs, gutters, and structures.
4. All work shall be subject to field inspection. No concrete shall be placed until the Project Manager has approved the forms and reinforcement.

5. Expansion joints on curbs and gutters shall be placed 20 feet on centers, adjacent to structures, and at all returns, and shall be filled with joint filler. Control joints shall be formed 10 feet on centers. The score shall 1-inch deep minimum.
6. Concrete shall not be dropped freely where reinforcing bars will cause segregation, nor shall it be dropped freely more than 6 feet. Spouts, elephant trunks, or other approved means shall be used to prevent segregation.

3.4 FIELD QUALITY CONTROL

A. Asphalt Concrete Paving:

1. The specified thickness of the finished pavement shall be the minimum acceptable.
2. Conforms shall form a smooth, pond-free transition between existing and new pavement.
3. Depressions in paving between high spots are not to exceed 1/8-inch when measured below a 10 feet long straight edged placed anywhere on surface in any direction.
4. The finished asphalt pavement shall have positive drainage without ponding.

3.5 CLEANUP

A. General:

1. Surplus material remaining upon completion of paving operations shall become the property of the Contractor, to be removed from the work site and disposed of in a lawful manner.
2. Surfaces shall be left in a clean, neat, and workmanlike condition, and all construction waste, rubbish, and debris shall be removed from the work site and disposed of in a lawful manner.

END OF SECTION