

## **SECTION 02310**

### **AGGREGATE BASE COURSES**

#### **PART 1 - GENERAL**

##### **1.01 DESCRIPTION**

- A. Section includes specifications for aggregate base courses.

##### **1.02 REFERENCE STANDARDS**

- A. American Society for Testing and Materials (ASTM International):
  - 1. D421 Standard Practice for Dry Preparation of Soil Samples for Particle-Size Analysis and Determination of Soil Constants
  - 2. D698 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft<sup>3</sup> (600 kN-m/m<sup>3</sup>))
  - 3. D1556 Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method
- B. State of California, Department of Transportation Standard Specifications (Caltrans):
  - 1. Section 6, Control of Materials
  - 2. Section 26, Aggregate Bases

##### **1.03 DEFINITIONS**

- A. Aggregate Base: Imported material for use in base courses for trackwork, roadway pavement, grade crossings, permanent platforms, sub-ballast, and other locations indicated on the Contract Drawings.
- B. Degree of Compaction: Degree of compaction required is expressed as a percentage of the maximum dry density obtained by the test procedure presented in ASTM D698. The compaction required will be abbreviated hereinafter as a percentage of laboratory maximum density.

##### **1.04 SUBMITTALS**

- A. Submit test reports for field density tests and source quality control tests.

##### **1.05 DELIVERABLES**

- A. Submit copies of waybills and delivery tickets during the progress of the work. Before the final payment is made, submit certified waybills and certified delivery tickets for all aggregates actually used.

## **1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Before stockpiling of material, clear and slope to drain stockpile sites.
- B. Stockpile materials obtained from different sources separately.

## **PART 2 - PRODUCTS**

### **2.01 MATERIALS**

- A. Aggregate Base (except as used as sub-ballast): Aggregate shall conform to Caltrans Standard Specifications, Section 26, Class 2 Aggregate Base, 3/4 inch maximum gradation.
- B. Aggregate Base used as sub-ballast: Aggregate shall conform to Caltrans Standard Specifications, Section 26, Class 2 Aggregate Base, 3/4 inch maximum gradation. In addition, the aggregate shall meet the following additional requirements:
  - 1. Aggregate for sub-ballast shall consist entirely of crushed stone and have at least two fractured faces. No reclaimed asphalt or concrete shall be included in this material.
  - 2. Composition of the aggregate, in percentages by weight, shall conform to the "Operating Range Aggregate Grading Requirements" per Caltrans Standard Specifications Section 26-1.02A.
  - 3. The aggregate shall conform to the "Contract Compliance Quality Requirements" per Caltrans Standard Specifications Section 26-1.02A.

### **2.02 SOURCE QUALITY CONTROL**

- A. Perform sampling and tests of the aggregate base material in accordance with the Test Methods specified in Caltrans Section 6-3 to determine compliance with grading, R-value, Sand Equivalent, and Durability Index. Take samples from material as delivered to the site and prepare samples in accordance with ASTM D421 or applicable Caltrans method.
- B. Aggregate grading or sand equivalent test shall represent no more than 500 cubic yards of base course material or one day's production, whichever is the greater amount.

## **PART 3 - EXECUTION**

### **3.01 EXAMINATION**

- A. Request Engineer's inspection of and obtain Engineer's written acceptance of the prepared subgrade or subbase before proceeding with the placement of aggregate base course.
- B. Confirm that immediately prior to spreading base course, the subgrade or subbase to receive aggregate base course conforms to the compaction and

elevation tolerances indicated for the material involved and is free of standing water and loose or extraneous material. Subgrade shall conform to the requirements of Section 02300, Earthwork.

1. Confirm that underlying material has been excavated to sufficient depth to accept the required base course thickness such that the finished base course with the subsequent surface course will meet the final grade.

### **3.02 PREPARATION**

- A. Prior to installation of base courses, area shall conform to the lines, grades, cross section, and dimensions indicated.
- B. Correct areas of underlying course which exhibit ruts or soft and yielding spots and areas having inadequate compaction as specified in Section 02300, Earthwork. Remove and replace soft and yielding spots and areas having inadequate compact with suitable material. Underlying course may be mechanically stabilized with aggregate prior to placement of the base course. Stabilization may be accomplished by mixing base course material into the underlying course and compacting by approved methods. Properly compacted material will be considered as part of the underlying course and shall meet all requirements for the underlying course in accordance with Section 02300, Earthwork.
- C. Prevent disturbance of finished underlying course by traffic or other operations and maintain it in a satisfactory condition until base course is placed.
- D. Before placing base course, clean underlying course of foreign substances. When the base is constructed in more than one layer, the previously constructed layer shall be cleaned of loose and foreign matter by sweeping with power sweepers or power brooms, except that hand brooms may be used in areas where power cleaning is not practicable.

### **3.03 INSTALLATION**

- A. Prepare, place, and compact base course in accordance with Caltrans Section 26.
- B. Minimum Uniform Compacted Thickness: Minimum compacted thickness shall be 6 inches.
- C. The finish of finished aggregate base course at any point shall not vary more than 1/2 inch above or below the indicated grade.

### **3.04 FIELD QUALITY CONTROL**

- A. Perform field in-place density testing in accordance with ASTM D1556.
- B. Frequency of Field In-Place Density Tests: Perform no less than one test for each 2,000 square feet of base course material, per layer or lift.

**END OF SECTION**