

thickness plus 1/2 inch (13 mm). In determining the average job thickness, not more than 1/2 inch (13 mm) in excess of the Plan thickness will be considered. The average job thickness shall be the average of the job measurements determined as specified above, but shall be within 1/4 inch (6 mm) of the typical section thickness shown on the Plans. In the event you construct the base in excess of the required width and thickness, including tolerances, the additional material and labor required for the additional thickness will be at your expense.

SECTION 303 AGGREGATE BASE

303.01. DESCRIPTION.

This work shall consist of furnishing and placing one or more courses of aggregates and any specified additives on a prepared subgrade or subbase in accordance with these Specifications and in reasonably close conformity with the lines, grades, thicknesses, and typical cross sections shown on the Plans or established by the Engineer. Aggregate base may be mixed off the roadbed and may be blended by plant mixing or other approved methods. Aggregate base may be mixed on the roadbed with approved methods that will produce a uniformly blended material.

NOTE: Aggregate base shall not be mixed on any completed base or surface course.

303.02. MATERIALS.

Materials shall conform to the requirements specified in the following Subsection of Section 700 - Materials, for the type gradation specified.

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The gradation may be Type A, Type B, or Type C, unless otherwise specified on the Plans or in the Proposal, except as follows:

For base courses over 6 inches (150 mm) in specified thickness, the top 3 inches (75 mm) shall be Type A or Type C.

For base courses in which the specified thickness is 6 inches (150mm) or less, the total thickness shall be Type A or Type C.

After work starts, the same gradation type and source as specified or selected shall be used throughout the project unless otherwise permitted in writing by the Engineer.

303.04. CONSTRUCTION METHODS

- (a) **Preparation of Subgrade.** Prior to placing any new base material or subbase and base course material on the roadbed, complete the subgrade according to the requirements of method B of Section 310, Subgrade, of these Specifications, or according to the method specified on the Plans or in the Proposal.

If there is an existing aggregate course in place, prepare it in accordance with the requirements of the method of Section 311, Processing Existing Base and Surface, of these Specifications or as indicated on the Plans and in the Proposal.

(b) **Mixing Aggregate Base.**

(1) **Offsite Mixing.** When the mixing or blending of materials for aggregate base is done at an approved location off the roadbed, use one of the following procedures.

1.1 *Stationary Plant - Mixing Method.* Mix the aggregate and water in an approved central mixing plant of the pugmill type, rotary drum type, or in a continuous type of mixer. Add water during the mixing operation in the amount necessary to provide the proper moisture content for satisfactory compaction.

If a pugmill type or rotary drum type of mixer is used, proportion the materials by batch weights; if a continuous type of mixer is used, proportion the materials by either volume or weight.

If you elect to proportion the materials by volumetric methods and perform the mixing in a continuous type mixer, make sure the completed mixture is uniform in character and of the same consistency with respect to aggregates and water as that obtained by weight proportioning and batch mixing.

If a continuous type mixer is used, draw the correct proportions of each aggregate size to be introduced into the mixer from storage by an approved type of continuous feeder through adjustable calibrated gates; this feeder shall supply the correct amount of coarse aggregate and fine aggregate required to meet the specified gradation, and it shall allow the proportion of each aggregate size to be separately adjusted. Store sufficient materials to supply the mixer when it is in operation at full capacity.

NOTE: The weight of charge in a batch mixer or the rate of feed to a continuous type mixer shall not exceed that which will permit complete mixing of the material, and mixing of materials shall be continued until a uniform mixture is obtained.

1.2 *Travel Plant-Mixing Method.* Perform this method of producing aggregate base at an approved location off the roadbed. Clean the area selected to do this work of vegetation or other deleterious substance, overlaying it with a minimum of 3 inches (75 mm) of base material and compacting it to provide a satisfactory working table for mixing operations.

When the aggregates required to produce the specified mixture are to be combined and blended on the working area, deliver and place the weighed material in measured windrows, each in the proper proportions before blending. In the event a machine for mixing requires a blanket of material, spread the windrow to a reasonably uniform depth and width which the machine is capable of handling. Apply the water by means of controls which will supply a uniform rate of water in the proper amount for satisfactory compaction. Avoid application of excess water, during both mixing and compaction, so that undue softening of the subgrade will not develop.

The device by which the mixing machine picks up the material shall be subject to control, and it shall be so controlled and operated on each pass of the mixer as to pick up the material to be treated without cutting into the working area.

Mixing may be accomplished in one or more passes of the mixer through the material, but in any event shall be continued until the aggregate and water are evenly distributed through the mass and a uniform mixture meeting Specification requirements is obtained.

In the process of mixing, make adjustments for any tendency of the mixing equipment to shift material in a longitudinal direction.

- (2) **Onsite Mixing.** When the materials required to produce the specified mixture are to be combined and blended on the roadbed, deliver and place the weighed material in measured windrows, each in the proper proportions before blending. Pulverize fine aggregate to be added to the mixture to 100 percent passing the 1 inch (25 mm) sieve and not less than 80 percent passing the No. 4 (4.75 mm) sieve.

The total quantities for blending at one operation shall not be in excess of the amount that can be readily handled and thoroughly and uniformly mixed and blended to these requirements.

During the latter stages of the mixing—and before the final mixing is completed—moisten the mixture as deemed necessary to provide a suitable working condition during the final stages of mixing. Apply the water accurately and uniformly throughout the length of the section being treated so that no excess wet or dry spots exist in the finished blend. Avoid application of excess water, during both mixing and compaction, so that undue softening of the subgrade will not develop.

- (c) **Spreading.** Transport aggregate base materials mixed at locations off the roadbed to the roadbed by means of suitable vehicles and deposit them by means of approved spreading equipment. Place the layers so that when compacted they will be true to the grades or levels required with the least possible surface disturbance. Make such adjustments in placing procedures or equipment to obtain true grades, to minimize segregation and degradation, to reduce or increase moisture content and to assure an acceptable base.

Spread and compact the aggregate base material to the required density in one or more layers, as specified below, and of such width and thickness that, after compacting, the finished base will conform to the required grade and cross section. Spread the aggregate base material for each separate course for the full width of the roadbed before placing the succeeding courses. Stagger longitudinal and transverse joints a minimum of 1 foot (0.3 m) in each succeeding course.

Lay aggregate base material in courses of a minimum of 3 inches (75 mm) compacted thickness, and do not exceed a maximum of 6 inches (150 mm) compacted thickness, except when shoulders are shown on a typical section to be constructed as a separate operation; then they may be constructed in one course providing they do not exceed 8 inches (200 mm) in thickness, and in two approximately equal courses where they exceed 8 inches (200 mm). In either case, the compacted shoulders shall meet specified density requirements.

After the blended and flattened windrow of aggregate base material mixed on the roadbed has been tested and approved by the Engineer, spread it uniformly as specified above over the full length and width of the section to be compacted. Do this spreading in such a manner as to prevent segregation of the mixture.

- (d) **Shaping and Compaction.** Compact each layer until a density of not less than 98 percent of standard density—as determined by AASHTO T-180, method D—has been achieved. Maintain the surface of each layer during the compaction operations so that a uniform texture is produced

and the aggregates remain firmly keyed. Apply water uniformly over the base materials during compaction in the amount necessary for proper consolidation.

Before applying the prime coat, cure or season the aggregate base material sufficiently to permit the prime coat to be properly applied.

- (e) **Tolerances.** Tolerances for surface, width, and thickness shall conform with Section 301.

303.05. METHOD OF MEASUREMENT.

Aggregate base will be measured by the ton or by the cubic yard (metric ton or by the cubic meter), and compacted in place to the specified density. Measurement by the cubic yard (cubic meter) will be based on the actual length multiplied by the theoretical cross section shown on the Plans. All moisture in excess of 5 percent oven-dry weight will be deducted when measured by the ton (metric ton).

303.06. BASIS OF PAYMENT.

Accepted aggregate base, measured as provided above, will be paid for at the contract unit price as follows:

AGGREGATE BASE	CUBIC YARD (CUBIC METER)
AGGREGATE BASE	TON (METRIC TON)

Such payment shall be full compensation for furnishing all materials, equipment, labor, and incidentals to complete the work as specified.

NOTE: Rolling and water as required to obtain a specified density will not be a separate pay item, but the cost shall be included in the price of other bid items.

**SECTION 305
CALICHE BASE**

305.01. DESCRIPTION.

This work shall consist of constructing a base of approved deposits of calcareous and siliceous material constructed on the prepared subgrade in accordance with these Specifications and in reasonably close conformity with the lines, grades, thickness, and typical cross sections shown on the Plans or established by the Engineer.

305.02. MATERIALS.

Materials shall meet the requirements specified in Subsection 704.03.

305.04. CONSTRUCTION METHODS.

- (a) **Preparation of Subgrade.** Prior to placing the new base course material or subbase and base course material on the roadbed, prepare the subgrade according to the requirements of method B of Section 310, Subgrade, of these Specifications or as specified on the Plans.

Break up or pulverize the old base and/or surfacing in place and incorporate it in the top portion of new subgrade in accordance with the requirements of Section 311, Processing Existing Base and Surface of these Specification as indicated on the Plans and in the Proposal.