902 FINE AGGREGATE.
(REV 8-23-01) (FA 1-10-02) (7-02)

SECTION 902 (Pages 804-807) is deleted and the following substituted:

SECTION 902
FINE AGGREGATE

902-1 General.

902-1.1 Composition: Fine aggregate shall consist of natural silica sand, screenings, local materials, or subject to approval, other inert materials with similar characteristics, or combination thereof, having hard, strong, durable particles, conforming to the specific requirements of this Section.

Approval of mineral aggregate sources shall be in accordance with 6-3.3.

902-1.2 Deleterious Substances: All fine aggregate shall be reasonably free of lumps of clay, soft or flaky particles, salt, alkali, organic matter, loam or other extraneous substances. The weight of deleterious substances shall not exceed the following percentages:

Shale 1.0
Coal and lignite 1.0
Cinders and clinkers 0.5
Clay Lumps 1.0

902-2 Silica Sand.

902-2.1 Composition: Silica sand shall be composed only of naturally occurring hard, strong, durable, uncoated grains of quartz, reasonably graded from coarse to fine, meeting the following requirements, in percent total weight.

Sieve Opening Size	Percent Retained	Percent Passing
No. 4 [4.75 mm]	0 to 5	95 to 100
No. 8 [2.36 mm]	0 to 15	85 to 100
No. 16 [1.18 mm]	3 to 35	65 to 97
No. 30 [600 µm]	30 to 75	25 to 70
No. 50 [300 µm]	65 to 95	5 to 35
No. 100 [150 µm]	93 to 100	0 to 7
No. 200 [75 µm]	minimum 96	maximum 4

Silica sand from any one source, having a variation in Fineness Modulus greater than 0.20 either way from the Fineness Modulus of target gradations established by the producer, may be rejected.

902-2.2 Organic Impurities: Silica sand shall be subject to the colorimetric test for organic impurities. If the color produced is darker than the standard solution, the aggregate shall be rejected unless it can be shown by appropriate tests that the impurities causing the color are not of a type that would be detrimental to Portland Cement Concrete. Such tests shall be in accordance with AASHTO T21 and AASHTO T71. When tested for the effect of organic impurities on strength of mortar, the strength ratio at seven and 28 days, calculated in accordance with Section 11 of AASHTO T71, shall not be less than 95%.

902-3 Sands for Miscellaneous Uses.

902-3.1 Anchor Bolts and Pipe Joints: Sand for setting anchor bolts, pipe joints or other similar uses shall meet the quality requirements of 902-2 except that gradation requirements are waived.

902-3.2 Brick Masonry: Sand for brick masonry shall meet the quality requirements of 902-2 except for gradation requirements. All the materials shall pass the No. 8 [2.36 mm] sieve, and be uniformly graded from coarse to fine.

902-3.3 Sand-Cement Riprap: Sand for sand-cement riprap shall meet the quality requirements of 902-2 except for gradation requirements. The material shall meet the following gradation limits:

Sieve Size	Percent Passing
No. 4 [4.75 mm]	minimum 97%
No. 100 [150 μm]	maximum 20%
No. 200 [75 μm]	maximum 5%

902-4 Filter Material for Underdrains.

Silica sand for use as filter material for Types I through IV Underdrains shall meet the requirements of 902-2 except that the requirements of 902-1.2 and 902-2.2 shall not apply. The aggregate shall be reasonably free of organic matter and other deleterious materials. The gradation requirements of 902-2.1 shall apply except no more than 2% shall pass the No. 200 [75 μm] sieve.

Filter material for Type V Underdrain shall meet the above requirements except that there shall be no more than 1% of silt, clay and organic matter, that the aggregate shall have a Uniformity Coefficient of 1.5 or greater, and that 10% diameter shall be No. 70 to 35 sieve [212 to 500 μm]. The Uniformity Coefficient shall be determined by the ratio D60 divided by D10, where D60 and D10 refer to the particle diameter corresponding to 60 and 10% of the material which is finer by dry weight.

902-5 Screenings.

902-5.1 Composition: Screenings shall be composed of hard, durable particles, either naturally occurring, such as gravel screenings, or resulting from the crushing or processing of the parent rock, to include natural rock, slags, expanded clays or shales (lightweight aggregates), or other approved inert materials with similar characteristics.

Aggregates classified as screening shall conform to the following gradation requirements:

Sieve Size	Percent Passing
3/8 in. [9.5 mm]	100%
No. 4 [4.75 mm]	75 to 100%

902-5.2 Specific Requirements:

902-5.2.1 Screenings from Department Approved Sources of Coarse Aggregate: Processed screenings from fully Approved Sources of Coarse Aggregate are subject to gradation. Should Coarse Aggregate Source Approval status change, or unsatisfactory in-service history develop, additional control requirements may be implemented.

Screenings for use in hot bituminous mixture may consist of screenings from the processing of reclaimed portland cement concrete pavement to produce coarse aggregate.

902-5.2.2 Screenings from Other Sources: Screenings, from sources other than Department Approved Sources of Coarse Aggregate, must meet the following additional general requirements:

Modified Los Angeles Abrasion .....95% statistical probability of meeting maximum loss of 23%.

Specific Gravity*
Absorption*
Soundness*
Sulfur*
Phosphate*
Extraneous Substances*

*Specific specification requirements based on material usage found in appropriate Bituminous or Portland Cement Sections.

Based on specific material characteristics, processing techniques and in-service history on Department projects, specific source requirements may be assigned.

902-5.2.3 Screenings For Use in Portland Cement Concrete: Screenings produced from either the Miami Oolite, Miami Ft. Thompson, or Loxahatchee Ft. Thompson Formations may be substituted for silica sand for use in concretes, except for concrete pavements, approach slabs, bridge decks and precast superstructure segments. (However, screenings will be permitted in the concrete when the bridge deck or approach slab is to be covered with an asphaltic concrete surface course.)

These screenings must meet the gradation requirements of AASHTO M 6, Section 6.1, as well as the maximum percent passing the No. 200 [75 μm] sieve, Fineness Modulus, and Organic requirements of 902-2 Silica Sand. In addition, the saturated, surface dry specific gravity shall be at least 2.48.

902-6 Local Materials.

Local materials shall be composed of hard, strong, durable particles, either naturally occurring, such as natural sands, or resulting from the crushing or processing of parent rock, to include natural sand and rock, slags, expanded clays or shales (lightweight aggregate), or other approved inert materials with similar characteristics.

Aggregates classified as local material shall conform to the following gradation requirements:

Sieve Size	Percent Passing
3/8 in. [9.5 mm]	100%
No. 10 [2.00 mm]	85 to 100%
No. 200 [75 μm]	maximum 15%

In addition to meeting the requirements of 902-1.2, the material shall not contain excessive quantities of other deleterious substances, such as roots, cans, debris, etc. If clay size material is present, it shall not exceed 7%, as determined by AASHTO T88, and it shall be of a type which will not produce clay balls when used. The aggregate must be suitable for designated use, as determined by laboratory tests. If the deposit consists of stratified layers of varying characteristics and gradation, the producer shall employ such means as necessary to secure a uniform material.

Local materials will not be required to be produced under the requirements of 6-3.3, provided they can meet the above requirements.

902-7 Exceptions, Additions and Restrictions.

Other specification modifications, based on material usage may be found in the appropriate Sections of the specifications.