904-M-076 LIGHTWEIGHT AGGREGATE

(Revised 04-16-26)

The Standard Specifications are revised as follows:

SECTION 904, AFTER LINE 438, INSERT AS FOLLOWS:

904.08 Lightweight Aggregate

Lightweight aggregates, LWA, in this specification are for use in geotechnical applications only. LWA shall consist of expanded shale or foamed glass manufactured materials. All lightweight aggregates shall be selected from the Department's QPL of Lightweight Aggregates.

(a) Expanded Shale

Expanded shale shall be the manufactured product resulting from adding shale and clay into a rotary kiln and subjecting them to heat. The material shall meet the following requirements in accordance with AASHTO T 27:

Sieve Sizes	*Percent Passing*
1 1/2 in. (37.5 mm)	*100*
1 in. (25 mm)	*90 - 100*
3/4 in. (19 mm)	*70 - 100*
1/2 in. (12.5 mm)	*30 - 100*
3/8 in. (9.5 mm)	*20 - 95*
No. 4 (4.75 mm)	*0 - 40*
No. 30 (600 µm)	*0 - 5*

Absorption	*Maximum By Weight*
Above Water Table	*25%*
Below Water Table	*34%*

Expanded shale shall have a bulk density ranging from 30 to 65 pcf in accordance with AASHTO T 19.

(b) Foamed Glass Aggregate

Foamed glass aggregate, FGA, shall have a closed cell structure, be made from of a minimum of 98% recycled glass using a dry foaming process, and be non-leaching. The gradation of FGA shall meet the requirements of AASHTO T 27 as shown in the table below:

Sieve Sizes	*Percent Passing*
4 in. (100 mm)	*100*
2 1/2 in. (63 mm)	*85 - 100*
3/8 in. (9.5 mm)	*0 - 15*

The soundness of the FGA shall be tested in accordance with AASHTO T 104 and shall not exceed the values listed:

Soundness	*Loss (%)*

Magnesium Sulfate	*≤ 14*
Sodium Sulfate	*< 7*

FGA shall have a unit weight ranging from 10 to 15 pcf in accordance with AASHTO T 19. FGA compacted in-place shall have a unit weight less than or equal to 25 pcf. Water absorption of the FGA shall be between 30% to 60% by weight after soaking for 28 days.

(c) Electrochemical Properties of Lightweight Aggregates

Both expanded shale aggregates and FGA shall meet the following electrochemical requirements:

Property	*Requirement*	*Method*
Chloride	*< 100 ppm*	*AASHTO T 291*
Organic Content	*< 1%*	*AASHTO T 267*
pH	*5 - 10*	*AASHTO T 289*
Resistivity	*≥ 3,000 ohm-cm*	*AASHTO T 288*
Sulfate	*< 200 ppm*	*AASHTO T 290*