

- Place the metering and blending devices in an approved location.

**301.5. Measurement and Payment.** The work performed, materials furnished, equipment, labor, tools, and incidentals will not be measured or paid for directly, but is subsidiary or is included in payment quantity for pertinent Items.

**ITEM 302**

**AGGREGATES FOR SURFACE TREATMENTS**

**302.1. Description.** Furnish aggregate for surface treatments in conformance to the type, grade, and surface aggregate classification (SAC) shown on the plans.

**302.2. Materials.** Furnish uncontaminated materials of uniform quality throughout that meet the requirements of the plans and specifications. Notify the Engineer of all proposed material sources and of changes to material sources. The Engineer will designate the sampling location.

- A. Aggregate.** Stockpile aggregates for each source and type separately. Do not add materials to approved stockpiles without the approval of the Engineer.

Furnish aggregate of the type shown on the plans and listed in Table 1. Use Tex-100-E material definitions.

**Table 1  
Aggregate Types**

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| Type | Material   |
|------|--|
| A    | Gravel, crushed slag, crushed stone, or limestone rock asphalt (LRA) |
| B    | Crushed gravel, crushed slag, crushed stone, or LRA                  |
| C    | Gravel, crushed slag, or crushed stone                               |
| D    | Crushed gravel, crushed slag, or crushed stone                       |
| E    | Aggregate as shown on plans  |
| L    | Lightweight Aggregate  |
| PA   | Precoated gravel, crushed slag, crushed stone, or LRA                |
| PB   | Precoated crushed gravel, crushed slag, crushed stone, or LRA        |
| PC   | Precoated gravel, crushed slag, or crushed stone                     |
| PD   | Precoated crushed gravel, crushed slag, crushed stone                |
| PE   | Precoated aggregate as shown on the plans                            |
| PL   | Precoated lightweight aggregate                                      |

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302.2 to 302.2

When tested in accordance with Tex-200-F, Part I, the aggregate gradation must meet the requirements in Table 2 for the specified grade.

Furnish aggregates that meet the quality requirements shown in Table 3, unless otherwise shown on the plans. Provide aggregates from sources listed in the Department's *Bituminous Rated Source Quality Catalog* (BRSQC). If a source is not listed in the catalog or its listed ratings do not meet requirements of the plans, material from that source may be used only when tested by the Engineer and approved before use. Allow 30 calendar days for testing of material from such sources.

Provide aggregates for final surfaces that meet the SAC shown on the plans. Do not blend to meet the SAC. Unless otherwise shown, the SAC requirement will apply only to the aggregate used on the travel lanes. The BRSQC lists the SAC for sources on the Aggregate Quality Monitoring Program (AQMP).

**Table 2**  
**Aggregate Gradation Requirements (Cumulative % Retained<sup>1</sup>)**

| Sieve | Grade  |        |                 |                 |             |                 |        |                 |        |
|-------|--------|--------|-----------------|-----------------|-------------|-----------------|--------|-----------------|--------|
|       | 1      | 2      | 3S <sup>2</sup> | 3               |             | 4S <sup>2</sup> | 4      | 5S <sup>2</sup> | 5      |
|       |        |        |                 | Non-lightweight | Lightweight |                 |        |                 |        |
| 1"    | —      | —      | —               | —               | —           | —               | —      | —               | —      |
| 7/8"  | 0-2    | 0      | —               | —               | —           | —               | —      | —               | —      |
| 3/4"  | 20-35  | 0-2    | 0               | 0               | 0           | —               | —      | —               | —      |
| 5/8"  | 85-100 | 20-40  | 0-5             | 0-2             | 0-2         | 0               | 0      | —               | —      |
| 1/2"  | —      | 80-100 | 55-85           | 20-40           | 10-25       | 0-5             | 0-5    | 0               | 0      |
| 3/8"  | 95-100 | 95-100 | 95-100          | 80-100          | 60-80       | 60-85           | 20-40  | 0-5             | 0-5    |
| 1/4"  | —      | —      | —               | 95-100          | 95-100      | —               | —      | 65-85           | —      |
| #4    | —      | —      | —               | —               | —           | 95-100          | 95-100 | 95-100          | 50-80  |
| #8    | 99-100 | 99-100 | 99-100          | 99-100          | 98-100      | 98-100          | 98-100 | 98-100          | 98-100 |

1. Round test results to the nearest whole number.

2. Single-size gradation.

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**Table 3**  
**Aggregate Quality Requirements**

| Property   | Test Method             | Requirement           | Remarks   |
|--|-------------------------|-----------------------|---|
| SAC  | AQMP                    | As shown on the plans |   |
| Deleterious material, %, max                             | Tex-217-F, Part I       | 2.0                   | Not required for lightweight aggregate. For LRA, deleterious material includes iron pyrites       |
| Decantation, %, max                                      | Tex-406-A               | 1.5                   |   |
| Flakiness index, max                                     | Tex-224-F               | 17                    | Unless otherwise shown on the plans   |
| Los Angeles abrasion, %, max                             | Tex-410-A               | 35                    | All aggregates except LRA   |
|  |                         | 40                    | LRA   |
| Magnesium sulfate soundness, 5 Cycle, %, max             | Tex-411-A               | 25                    |   |
| Micro-Deval abrasion, %, max                             | Tex-461-A               | -                     | Not used for acceptance purposes. Used by the Engineer as an indicator for further investigation. |
| Coarse aggregate angularity, 2 crushed faces, %, Min     | Tex-460-A, Part I       | 85                    | Unless otherwise shown on the plans. Only required for crushed gravel                             |
| <b>Additional Requirements for Lightweight Aggregate</b> |                         |                       |   |
| Dry loose unit wt., lb./cu. ft.                          | Tex-404-A               | 35-60                 |   |
| Pressure slaking, %, max                                 | Tex-431-A               | 6.0                   |   |
| Freeze-thaw loss, %, max                                 | Tex-432-A               | 10.0                  |   |
| Water absorption, 24 <sup>hr.</sup> , %, max             | Tex-433-A               | 12.0                  | Unless otherwise shown on plans.  |
| <b>Additional Requirements for Natural LRA</b>           |                         |                       |   |
| Naturally impregnated bitumen content, % by wt.          | Tex-236-F               | 4.0-7.0               |   |
| White rock content, % by wt.                             | Tex-220-F and Tex-236-F | 15-35                 | Applies to aggregate retained on the #4 sieve   |

- B. Precoating.** When precoating is shown on the plans, precoat aggregate uniformly and adequately with asphalt material to the satisfaction of the Engineer. When shown on the plans, specific aggregates may be prohibited from being precoated. Do not precoat LRA aggregate that contains visual surface moisture or excessive quantities of fines. Meet Table 2 and 3 requirements before precoating. Furnish precoated aggregate that spreads uniformly using approved mechanical spreading equipment.

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302.3 to 302.5

The Engineer retains the right to select a target value for the desired percent by weight of residual bitumen coating on the aggregate. Furnish precoated aggregate that is within  $\pm 0.3\%$  of the target value when tested in accordance with Tex-236-F. The Engineer may require trial batches to assist in selecting the target value.

The Engineer retains the right to remove precoat material from aggregate samples in accordance with Tex-210-F and test the aggregate to verify compliance with Table 2 and 3 requirements. Gradation testing may be performed with precoat intact.

1. **Asphalt Material.** Precoat the aggregates with asphalt material that meets the requirements of Item 300, "Asphalts, Oils, and Emulsions." Precoat the LRA with flux oil meeting the requirements of Item 330, "Limestone Rock Asphalt Pavement." Unless a specific precoat material is specified on the plans, use any asphalt material that meets the requirements of Item 300.
2. **Additives.** When shown on the plans, use the type and rate of additive specified. Add in accordance with Item 301, "Asphalt Antistripping Agents." Tex-530-C will be used for verification during production testing, unless otherwise directed.

**302.3. Equipment.** Manufacture precoated aggregate in a mixing plant that produces uniformly coated aggregate.

**302.4. Construction.** Deliver aggregate to the locations shown on the plans. Prevent segregation, mixing of the various materials or sizes, and contamination with foreign materials when aggregates are stockpiled. The Engineer will reject contaminated stockpiles.

Provide adequate initial cooling of precoated aggregate to prevent asphalt or aggregate damage due to excessive heat buildup in stockpiles. When asphalt cement is the precoating material, limit stockpile height to 3 ft. immediately after production. Consolidate stockpiles after adequate cooling, as approved. The Engineer will reject stockpiles showing evidence of damage due to excessive heat buildup.

**302.5. Measurement and Payment.** The work performed, materials furnished, equipment, tools, and incidentals will not be measured or paid for directly but is subsidiary to or is included under "Payment" in other pertinent Items.

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