



# Illinois Department of Transportation

## Memorandum

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To: All Regional Engineers  
From: Omer M. Osman, P.E. *Omer M. Osman 7/25/14*  
Subject: Special Provision for Friction Aggregate  
Date: July 25, 2014

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This special provision was developed by the Bureau of Materials and Physical Research to address the possible shortage of traditional high-friction aggregate by allowing more dolomite to be blended with higher friction aggregates; sandstone, steel slag and air-cooled blast furnace slag. Some alternate friction aggregate sources have been redefined including quartzite, rhyolite, granite and diabase.

It has been revised to clarify that percent measurements are "by volume" which is existing language in the Standard Specifications which was inadvertently omitted from this special provision. It has also been revised to remove mixture types IL-25.0, IL-12.5, and "All Other" which are no longer being specified by the Department.

This special provision should be inserted into HMA contracts.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the November 7, 2014 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory July 25, 2014.

80265m

## FRICITION AGGREGATE (BDE)

Effective: January 1, 2011

Revised: November 1, 2014

Revise Article 1004.01(a)(4) of the Standard Specifications to read:

“(4) Crushed Stone. Crushed stone shall be the angular fragments resulting from crushing undisturbed, consolidated deposits of rock by mechanical means. Crushed stone shall be divided into the following, when specified.

- a. Carbonate Crushed Stone. Carbonate crushed stone shall be either dolomite or limestone. Dolomite shall contain 11.0 percent or more magnesium oxide (MgO). Limestone shall contain less than 11.0 percent magnesium oxide (MgO).
- b. Crystalline Crushed Stone. Crystalline crushed stone shall be either metamorphic or igneous stone, including but is not limited to, quartzite, granite, rhyolite and diabase.”

Revise Article 1004.03(a) of the Standard Specifications to read:

“**1004.03 Coarse Aggregate for Hot-Mix Asphalt (HMA).** The aggregate shall be according to Article 1004.01 and the following.

(a) Description. The coarse aggregate for HMA shall be according to the following table.

| Use     | Mixture       | Aggregates Allowed   |
|---------|---------------|--|
| Class A | Seal or Cover | <u>Allowed Alone or in Combination</u> <sup>5/</sup> :<br>Gravel<br>Crushed Gravel<br>Carbonate Crushed Stone<br>Crystalline Crushed Stone<br>Crushed Sandstone<br>Crushed Slag (ACBF)<br>Crushed Steel Slag<br>Crushed Concrete |

| Use                          | Mixture   | Aggregates Allowed   |                 |                |
|------------------------------|---|--|-----------------|----------------|
| HMA<br>Low ESAL              | Stabilized<br>Subbase or<br>Shoulders   | <u>Allowed Alone or in Combination</u> <sup>5/</sup> :<br>Gravel<br>Crushed Gravel<br>Carbonate Crushed Stone<br>Crystalline Crushed Stone<br>Crushed Sandstone<br>Crushed Slag (ACBF)<br>Crushed Steel Slag <sup>1/</sup><br>Crushed Concrete   |                 |                |
| HMA<br>High ESAL<br>Low ESAL | Binder<br>IL-19.0<br>or IL-19.0L<br><br>SMA Binder  | <u>Allowed Alone or in Combination</u> <sup>5/</sup> :<br>Crushed Gravel<br>Carbonate Crushed Stone <sup>2/</sup><br>Crystalline Crushed Stone<br>Crushed Sandstone<br>Crushed Slag (ACBF)<br>Crushed Concrete <sup>3/</sup>   |                 |                |
| HMA<br>High ESAL<br>Low ESAL | C Surface and<br>Leveling Binder<br>IL-9.5 or IL-9.5L<br><br>SMA<br>Ndesign 50<br>Surface | <u>Allowed Alone or in Combination</u> <sup>5/</sup> :<br>Crushed Gravel<br>Carbonate Crushed Stone <sup>2/</sup><br>Crystalline Crushed Stone<br>Crushed Sandstone<br>Crushed Slag (ACBF)<br>Crushed Steel Slag <sup>4/</sup><br>Crushed Concrete <sup>3/</sup>                           |                 |                |
| HMA<br>High ESAL             | D Surface and<br>Leveling Binder<br>IL-9.5<br><br>SMA<br>Ndesign 50<br>Surface            | <u>Allowed Alone or in Combination</u> <sup>5/</sup> :<br>Crushed Gravel<br>Carbonate Crushed Stone (other than<br>Limestone) <sup>2/</sup><br>Crystalline Crushed Stone<br>Crushed Sandstone<br>Crushed Slag (ACBF)<br>Crushed Steel Slag <sup>4/</sup><br>Crushed Concrete <sup>3/</sup> |                 |                |
|                              |   | <u>Other Combinations Allowed:</u>   |                 |                |
|                              |   | <table border="1"> <tr> <td><i>Up to...</i></td> <td><i>With...</i></td> </tr> <tr> <td>25% Limestone</td> <td>Dolomite</td> </tr> </table>  | <i>Up to...</i> | <i>With...</i> |
| <i>Up to...</i>              | <i>With...</i>  |  |                 |                |
| 25% Limestone                | Dolomite  |  |                 |                |

| Use              | Mixture   | Aggregates Allowed   |  |
|------------------|---|--|--|
|                  |   | 50% Limestone  | Any Mixture D aggregate other than Dolomite  |
|                  |   | 75% Limestone  | Crushed Slag (ACBF) or Crushed Sandstone   |
| HMA<br>High ESAL | E Surface<br>IL-9.5<br><br>SMA<br>Ndesign 80<br>Surface | <u>Allowed Alone or in Combination</u> <sup>5/</sup> :   |  |
|                  |   | Crushed Gravel<br>Crystalline Crushed Stone<br>Crushed Sandstone<br>Crushed Slag (ACBF)<br>Crushed Steel Slag<br>Crushed Concrete <sup>3/</sup><br><br>No Limestone. |  |
|                  |   | <u>Other Combinations Allowed:</u>   |  |
|                  |   | <i>Up to...</i>  | <i>With...</i>   |
|                  |   | 50% Dolomite <sup>2/</sup>   | Any Mixture E aggregate  |
|                  |   | 75% Dolomite <sup>2/</sup>   | Crushed Sandstone, Crushed Slag (ACBF), Crushed Steel Slag, or Crystalline Crushed Stone |
|                  | 75% Crushed Gravel or Crushed Concrete <sup>3/</sup>    | Crushed Sandstone, Crystalline Crushed Stone, Crushed Slag (ACBF), or Crushed Steel Slag   |  |
| HMA<br>High ESAL | F Surface<br>IL-9.5<br><br>SMA<br>Ndesign 80<br>Surface | <u>Allowed Alone or in Combination</u> <sup>5/</sup> :   |  |
|                  |   | Crystalline Crushed Stone<br>Crushed Sandstone<br>Crushed Slag (ACBF)<br>Crushed Steel Slag<br>No Limestone.   |  |
|                  |   | <u>Other Combinations Allowed:</u>   |  |

| Use | Mixture | Aggregates Allowed   |  |
|-----|---------|--|--|
|     |         | <i>Up to...</i>  | <i>With...</i>   |
|     |         | 50% Crushed Gravel, Crushed Concrete <sup>3/</sup> , or Dolomite <sup>2/</sup> | Crushed Sandstone, Crushed Slag (ACBF), Crushed Steel Slag, or Crystalline Crushed Stone |

- 1/ Crushed steel slag allowed in shoulder surface only.
- 2/ Carbonate crushed stone shall not be used in SMA Ndesign 80. In SMA Ndesign 50, carbonate crushed stone shall not be blended with any of the other aggregates allowed alone in Ndesign 50 SMA binder or Ndesign 50 SMA surface.
- 3/ Crushed concrete will not be permitted in SMA mixes.
- 4/ Crushed steel slag shall not be used as leveling binder.
- 5/ When combinations of aggregates are used, the blend percent measurements shall be by volume.”