**SNOWPLOWABLE DELINEATION:**

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| (10-15-24) | 1253 | SP12 R53 |

**Description**

Furnish, install and maintain snowplowable delineation.

There are five snowplowable delineation alternate options approved for use in North Carolina. They include the following markers and markings options:

1. Polycarbonate H-shaped Markers
2. Inlaid Raised Pavement Markers
3. 10' Rumble Skips
4. Inlaid Cradle Markers
5. 10' Inlaid Pavement Markings

Only one type of snowplowable delineation will be allowed on a single project.

**Materials**

Refer to Division 10 of the *Standard Specifications*.

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| **Item** | **Section** |
| Epoxy  Pavement Markings  Snowplowable Pavement Markers | 1081  1087  1086-3 |

Any snowplowable pavement delineation shall conform to the applicable requirements of Sections 1086, 1087, and 1081 of the *Standards and Specifications.* Use snowplowable delineation markers and markings listed on the NCDOT APL. Any treatment that requires pavement cutting or milling shall be installed within 7 calendar days of the pavement cutting or milling operation.

**Construction Methods**

**(A)** **General**

For any snowplowable delineation, prior to installation, by brushing, blow cleaning, vacuuming or other suitable means, ensure that all materials and the pavement surface are free of dirt, grease, dust, oil, moisture, mud, grass, or any other material that would prevent adhesion to the pavement by brushing blow cleaning, or vacuuming. If required, apply a primer per manufactures recommendations to pavement surfaces before applying pavement marking material.

Install snowplowable delineation per manufacturers specifications every 80 feet. Make sure pavement markers are oriented to traffic correctly and pavement markings are applied in a uniform thickness. Do not apply markings over longitudinal joints. Protect the pavement markings until they are tack free. Apply applicable Sections 1205 and 1250 of the *Standards Specifications*.

If damage occurs during installation the effected treatments shall be corrected or replaced. This work shall be considered incidental to the installation of the marking or marker.

**(B)** **Polycarbonate H-shaped Markers and Inlaid Cradle Markers**

Bond marker housings to the pavement with epoxy adhesive. Mechanically mix and dispense epoxy adhesives as required by the manufacturer’s specifications. Place the markers immediately after the adhesive has been mixed and dispensed.

Install polycarbonate H-shaped markers and inlaid cradle markers castings into slots sawcut into the pavement. Make slots in the pavement to exactly duplicate the shape of the casting of the polycarbonate H-shaped markers and inlaid cradle markers.

If saw cutting, milling, or grooving operations are used, promptly remove all resulting debris from the pavement surface. Install the marker housings within 7 calendar days after saw cutting , milling, or grooving the pavement. Remove and dispose of loose material from the slots by brushing, blow cleaning or vacuuming. Dry the slots before applying the epoxy adhesive. Install polycarbonate H-shaped markers and inlaid cradle markers according to the manufacturer’s recommendations.

Protect the polycarbonate H-shaped markers or inlaid cradle markers until the epoxy has initially cured and is track free.

Construct inlaid cradle markers in accordance with the details in the plans and as directed by the Engineer.

**(C)** **Reflector Replacement**

The following requirements only apply to polycarbonate H-shaped markers and inlaid cradle markers.

In the event that a reflector is damaged, replace the damaged reflector by using adhesives and methods recommended by the manufacturer of the markers and approved by the Engineer. This work is considered incidental if damage occurs during the initial installation of the marker housings and maintenance of initial polycarbonate H-shaped markers or inlaid cradle markers specified in this section.

If during reflector replacement it is discovered that the housing is missing or broken this will be paid as *Polycarbonate H-shaped Markers* or *Inlaid Cradle Markers*. Missing housings shall be replaced. Broken housings shall be removed and replaced. In both cases the slot for the housings shall be properly prepared prior to installing the new housing; patch the existing marker slots as directed by the Engineer and install the new marker approximately one foot before or after the patch. Removal of broken housings and preparation of slots will be considered incidental to the work of replacing housings.

**(D) Inlaid Raised Pavement Markers**

Cut groove in accordance with the details in the plans and as directed by the Engineer.

Use adhesive recommended by the manufacturer to install markers into the groove in accordance with Section 1251. The raised pavement markers are incidental to inlaid raised pavement markers.

**(E) 10' Rumble Skips**

Construct 10' rumble skips on asphalt concrete in accordance with Section 665 for all centerline and shoulder rumble skips, details in the plans and as directed by the Engineer. Construct 10' rumble skips on Portland cement concrete in accordance with Section 730 for all centerline and shoulder rumble skips, details in the plans and as directed by the Engineer. The milled rumble strips are incidental to the rumble skips. Using polyurea or extruded 90 mil thermoplastic construct pavement markings in accordance with Section 1205.

**(F) 10' Inlaid Pavement Markings**

The groove in which the marking is to be placed shall be one inch wider than the marking to be placed and 10 mils deeper than the thickness of the marking.

When using this method, use enhanced reflective media. The following retroreflectivity values shall be met.

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| **MINIMUM INITIAL REFLECTOMETER READINGS** | | |
| **Item** | **Color** | **Reflectivity** |
| Enhanced Reflectivity Media | White | 450 mcd/lux/m2 |
| Yellow | 350 mcd/lux/m2 |

Using polyurea, extruded 90 mil thermoplastic or cold applied plastic construct pavement markings in accordance with Section 1205.

**Maintenance**

Maintain all installed snowplowable delineation before acceptance by the Engineer.

**Measurement and Payment**

*Polycarbonate H-shaped Markers* will be measured and paid as the actual number of polycarbonate H-shaped markers satisfactorily placed and accepted by the Engineer.

*Inlaid Raised Pavement Markers* will be measured and paid as the actual number of inlaid raised pavement markers satisfactorily placed and accepted by the Engineer.

*10' Rumble Skips* will be measured and paid as the actual number of rumble skips satisfactorily placed and accepted by the Engineer.

*Inlaid Cradle Markers* will be measured and paid as the actual number of pavement markers satisfactorily placed and accepted by the Engineer.

*10' Inlaid Pavement Markings* will be measured and paid as the actual number of 10' inlaid pavement markings satisfactorily placed and accepted by the Engineer.

*Replace Snowplowable Pavement Marker Reflector* will be measured and paid in accordance with Article 1253-5.

Payment will be made under:

**Pay Item Pay Unit**

Polycarbonate H-shaped Markers Each

Inlaid Raised Pavement Markers Each

10' Rumble Skips Each

Inlaid Cradle Markers Each

10' Inlaid Pavement Markings Each