

PROJECT SPECIAL PROVISIONS**ROADWAY****ASPHALT PAVEMENTS - SUPERPAVE:**

(6-19-12)

605

SP6 R01

Revise the *2012 Standard Specifications* as follows:

Page 6-3, Article 605-7 APPLICATION RATES AND TEMPERATURES, replace this article, including Table 601-1, with the following:

Apply tack coat uniformly across the existing surface at target application rates shown in Table 605-1.

**TABLE 605-1
APPLICATION RATES FOR TACK COAT**

Existing Surface	Target Rate (gal/sy)
	Emulsified Asphalt
New Asphalt	0.04 ± 0.01
Oxidized or Milled Asphalt	0.06 ± 0.01
Concrete	0.08 ± 0.01

Apply tack coat at a temperature within the ranges shown in Table 605-2. Tack coat shall not be overheated during storage, transport or at application.

**TABLE 605-2
APPLICATION TEMPERATURE FOR TACK COAT**

Asphalt Material	Temperature Range
Asphalt Binder, Grade PG 64-22	350 - 400°F
Emulsified Asphalt, Grade RS-1H	130 - 160°F
Emulsified Asphalt, Grade CRS-1	130 - 160°F
Emulsified Asphalt, Grade CRS-1H	130 - 160°F
Emulsified Asphalt, Grade HFMS-1	130 - 160°F
Emulsified Asphalt, Grade CRS-2	130 - 160°F

Page 6-18, Article 610-1 DESCRIPTION, lines 40-41, delete the last sentence of the last paragraph.

Page 6-19, Subarticle 610-3(A) Mix Design-General, line 5, add the following as the first paragraph:

Warm mix asphalt (WMA) is allowed for use at the Contractor's option in accordance with the NCDOT Approved Products List for WMA Technologies available at:

<http://www.ncdot.org/doh/operations/materials/pdf/wma.pdf>

ASPHALT BINDER CONTENT OF ASPHALT PLANT MIXES:

(11-21-00) (Rev. 7-17-12)

609

SP6 R15

The approximate asphalt binder content of the asphalt concrete plant mixtures used on this project will be as follows:

Asphalt Concrete Base Course	Type B 25.0__	4.4%
Asphalt Concrete Intermediate Course	Type I 19.0__	4.8%
Asphalt Concrete Surface Course	Type S 4.75A	6.8%
Asphalt Concrete Surface Course	Type SA-1	6.8%
Asphalt Concrete Surface Course	Type SF 9.5A	6.7%
Asphalt Concrete Surface Course	Type S 9.5__	6.0%
Asphalt Concrete Surface Course	Type S 12.5__	5.6%

The actual asphalt binder content will be established during construction by the Engineer within the limits established in the *2012 Standard Specifications*.

PRICE ADJUSTMENT - ASPHALT BINDER FOR PLANT MIX:

(11-21-00)

620

SP6 R25

Price adjustments for asphalt binder for plant mix will be made in accordance with Section 620 of the *2012 Standard Specifications*.

The base price index for asphalt binder for plant mix is **\$551.56** per ton.

This base price index represents an average of F.O.B. selling prices of asphalt binder at supplier's terminals on **January 1, 2013**.

FINAL SURFACE TESTING NOT REQUIRED:

(5-18-04) (Rev. 5-15-12)

610

SP6 R45

Final surface testing is not required on this project.

NOTE TO CONTRACTOR:

(11-07-06)

The Contractor's attention is directed to the following:

Contractor shall use rubber-tired rollers on all maps to be resurfaced.

RESURFACING EXISTING BRIDGES:

(7-1-95) (Rev. 8-21-12)

SP6 R61AR

The Contractor's attention is directed to the fact that he will be required to resurface the bridges on this project if directed by the Engineer.

Place the surface so as to follow a grade line set by the Engineer with the minimum thickness as shown on the sketch herein or as directed by the Engineer. State Forces will make all necessary repairs to the bridge floors prior to the time that the Contractor places the proposed surfacing.

Give the Engineer at least 15 days notice prior to the expected time to begin operations so that State Forces will have sufficient time to complete their work.

At all bridges that are not to be resurfaced, taper out the proposed resurfacing layer adjacent to the bridges to insure a proper tie-in with the bridge surface.

PAVING INTERSECTIONS:

(7-1-95) (Rev. 8-21-12)

610

SP6 R67BR

Condition, prime, and surface all unpaved intersections back from the edge of the pavement on the main line of the project a minimum distance of 50 feet. The pavement placed in the intersections shall be of the same material and thickness placed on the mainline of the project.

Resurface all paved intersections back to the ends of the radii, or as directed by the Engineer.

Widen the pavement on curves as directed by the Engineer.

PAVING DRIVEWAYS AND MAILBOX TURNOUTS:

(8-21-12)

610

SP6 R70BR

Condition, prime, and surface all driveway and mailbox turnouts as directed by the Engineer. Place pavement on driveway and mailbox turnouts of the same material as used on the main line and in depths directed by the Engineer. Widen the pavement on curves as directed by the Engineer.

PAVEMENT WIDTH VARIES:

(7-1-95) (Rev. 8-21-12)

610

SP6 R76R

The Contractor's attention is directed to the fact that the existing pavement varies in width and the Contractor will be required to widen the pavement as directed by the Engineer in order to obtain a uniform edge of pavement.

JOINT REPAIR:

Description

The Contractor's attention is directed to the Joint Repair Detail in the plans. Joint repair is required at various locations throughout the project limits as directed by the Engineer. This work shall consist of sawing or milling the joint, removal of existing asphalt and concrete, cleaning the joint, and placing Asphalt Concrete Base Course, Type B25.0B in the cleaned joint. Work shall be done in accordance with the Joint Repair Detail in the plans and the applicable requirements of the *2012 Standard Specifications*.

Method of Measurement

Joint Repair will be based on the actual tonnage required of Asphalt Concrete Base Course, Type B25.0B to fill each joint.

Basis of Payment

Joint Repair will be paid for at the contract unit price per ton for *Joint Repair*.

Payment for joint repair will be made only in areas that have been examined and approved by the Engineer or his designated representative.

The unit price shown in the contract shall be full compensation for all material, labor, tools, equipment, maintenance of traffic, and all other incidentals necessary to complete the work.

Payment will be made under:

Pay Item	Pay Unit
Joint Repair	Ton

FLEXIBLE PAVEMENT RECLAMATION USING PORTLAND CEMENT

(8-15-06)

SPI

Description

Perform this work including but not limited to, reclamation of roadway by pulverizing, treating with portland cement, mixing, and compacting the existing asphalt pavement, base, subbase, and subgrade materials to a specified depth to produce a uniform mixture that meets density requirements.

NOTE: FULL DEPTH RECLAMATION TO BE PERFORMED AT TWELVE (12) INCHES DEPTH. CEMENT TO BE ADDED AT A RATE OF 62 LB. PER SQUARE YARD.

Materials

Item	Section
Portland Cement, Type I, II, IS	1024-1
Water	1024-4

Use asphalt, base, subbase and subgrade material existing in the area, or other materials proportioned by the Engineer, that is free from vegetation, roots, or other objectionable matter, and does not contain asphalt, aggregate or stone larger than 2 inches.

Limitations

Do not perform flexible pavement reclamation when the air temperature is below 40°F in the shade or when conditions indicate that the temperature may fall below 40°F. Do not place or mix materials with frozen subgrade. Protect the base from freezing for a period of 7 days after completion. Perform the work and meet density requirements only during daylight hours of the

day the section was started, except as otherwise provided for in the contract. If the work is interrupted for more than 30 minutes after cement has been added, or if rain causes excessive moisture, reconstruct the entire section and provide the cement required at no cost to the Department. Regulate operations to limit the application of cement to sections small enough so that all of the mixing, compacting, and finishing operations can be completed within the required time limit of 3 hours.

Construction Methods

(A) Equipment

A self-propelled reclaimer with a minimum of 400 hp, capable of fully reclaiming the existing road to a depth of 12 inches and no less than 6.5 feet wide, is required. The reclaimer shall have a metered full-width spray bar system for adding water directly into the milling drum, and a breaker bar for use in conjunction with the milling drum. Details of the asphalt reclaimer shall be submitted to the Engineer for review at least five calendar days before the machine is brought onto the project site.

A cement spreader shall have an adjustable rate of flow and the capability of spreading the required amount of cement in one pass. Correct any leakage of fluids and/or materials promptly. Use equipment and methods for applying cement and water that will not damage the roadway and meets the requirements of Article 107-21.

Use a motor grader equipped with a cross slope indicator, and capabilities to perform aeration, mixing, spreading and final shaping.

Use a water truck capable of nursing water into the reclaimer, capable of adjusting moisture content and for wetting the curing reclaimed sections.

Use self-propelled compaction equipment consisting of vibratory sheeps-foot, vibratory smooth-drum, and pneumatic tire rollers.

(B) Length of Roadway Allowed to be Processed

Except by written permission of the Engineer, the length of roadway pulverized shall not exceed the length that can be completely pulverized, mixed, graded, compacted, pass density, cured and protected against damage by normal anticipated traffic in the same working day.

(C) Initial Pulverizing and Mixing

The pulverizing and mixing shall breakup the existing roadway to the specified depth to the extent that 100% weight passes a 2-inch sieve and no less than 50% passes a No. 4 sieve. The moisture content shall be maintained at a point that is at or below the optimum moisture content shown on the plans unless approved otherwise by the Engineer.

(D) Spreading and Mixing

Apply the required quantity of cement, as established by the Engineer, in a uniform spread on the pulverized roadway and immediately blend water and cement until uniformly distributed throughout the base mixture. Apply cement on days when wind will not interfere with spreading. Multiple mixing passes may be necessary to obtain thorough blending. Have the moisture content at or below the optimum moisture at the time of application of cement.

At the time of final mixing and during compaction, maintain the moisture content within a range of optimum to optimum plus 1.5% as determined. Ensure that the moisture content in the mix does not exceed the quantity that will cause the base course to become unstable during compaction or finishing operations.

(E) Compaction

Begin compaction immediately after cement and water has been incorporated into the base. During compaction, maintain the moisture content of the material within a range of optimum to optimum plus 1.5%. Initial shaping may be required to obtain uniform compaction and required grade and cross-section. Initial compaction of the base should be performed with an approved self-propelled, vibratory sheep's-foot roller, to be followed by a vibratory smooth-drum roller and a pneumatic-tired roller. Compact to a density equal to at least 97% of the maximum density obtained by compaction of a material sample in accordance with AASHTO T-99, Method D.

After uniformly compacting the mixture, grade to required shape and cross-slope. Deficient areas needing additional material shall be scarified before the addition of material, compacted to density requirements, and graded to required shape and cross-slope. Copies of the testing procedures are available upon request from the Materials and Tests Unit. The Engineer may at his option, utilize nuclear methods, as described in the current *NCDOT Nuclear Gauge Operators Manual*, to determine the density of the base in conjunction with the methods required above. Copies of this manual are available upon request from the Materials and Tests Unit.

Complete final compaction, including that necessary due to correction of high or low areas, within 3 hours after water has been added to the mixture. When rain causes excessive moisture, or the 3-hour time limit is exceeded, reconstruct the entire section. When such reconstruction is necessary, perform the work of reconstruction, and provide the cement required, at no cost to the Department. The amount of cement to be used in reconstruction is 50% of the original rate. The finished surface shall be kept moist until either the curing seal, another surface treatment, or the next pavement course is applied.

(F) Construction Joints

At the end of each day's construction, form a straight transverse construction joint by cutting back into the completed work to form a vertical face unless the road is to be opened to traffic. Build the base for large, wide areas in a series of parallel lines of convenient length and width meeting the approval of the Engineer. Form straight longitudinal joints at the edge of each day's construction by cutting back into the completed work to form a vertical face free of loose or shattered materials.

(G) Tolerances

After final shaping and compacting of the base, the Engineer will check the surface of the base for conformance to the grade and typical section and determine the base thickness. Construct the thickness of the base so that it is within a tolerance of plus or minus ½ inch of the base thickness required by the plans. Construct the base so that the maximum differential between the established grade and the base within any 50-foot section is ½ inch.

(H) Traffic

Completed sections of the base may be opened when necessary to lightweight local traffic, provided the base has hardened sufficiently to prevent marring or distorting of the surface, and provided the curing is not impaired. Do not operate construction equipment on the base except as necessary to discharge into the spreader during paving operations.

(I) Maintenance

Maintain the base in an acceptable condition until final acceptance of the project. Include immediate repair of any defects or damage that may occur in any maintenance operation. Perform this maintenance at no cost to the Department and repeat as often as may be necessary to keep the base in an acceptable condition. Perform repairs to the base by replacing the base for its full depth.

Measurement and Payment

Flexible Pavement Reclamation will be measured and paid as square yards complete-in-place. The length will be measured along the surface of the pavement. The width shall be the width specified on the plans or in writing by the Engineer. Such price shall include furnishing all materials, equipment, tools, labor, and incidentals necessary to complete the work.

Payment will be made under:

Pay Item	Pay Unit
Flexible Pavement Reclamation (12 ")	Square Yard

ADJUSTMENT OF MANHOLES, METER BOXES, AND VALVE BOXES:

(7-1-95) (Rev. 8-21-12)

858

SP8 R97R

The Contractor's attention is directed to Article 858-3 of the *2012 Standard Specifications*. Cast iron or steel fittings will not be permitted for the adjustment of manholes, meter boxes, and valve boxes on this project.

ADJUSTMENT OF VALVE BOXES, MANHOLES, AND METER BOXES:

(11-07-06)

RR 103

Valve boxes, manholes, and meter boxes shall be adjusted in accordance with Section 858 of the Standard Specifications. This item consists of raising or lowering existing manholes and valve boxes to match the finished surface grade.

Adjustment to manholes, meter boxes, and valve boxes on this project shall be made by the use of an approved **Rapid Set Grout, Mortar, or Concrete** that will take full set and become load bearing within sixty minutes of placement. A list of approved materials will be furnished to the Contractor by the Resident Engineer.

The Contractor shall replace worn manhole rings and covers, worn meter box frames and covers, and worn valve box frames and covers, as directed by the Engineer, with a new ring/frame and cover assembly. These assemblies will be furnished at no cost to the Contractor by the Department or utility owner.

The Contractor shall construct a temporary ramp of bituminous plant mix around all structures that have been adjusted, unless otherwise directed by the Engineer.

Basis of payment will be under Adjustment of Manholes or Adjustment to Valve Boxes, per each.

MATERIALS:

(2-21-12) (Rev. 12-18-12)

1000, 1005, 1080, 1081, 1092

SP10 R01

Revise the 2012 Standard Specifications as follows:

Page 10-1, Article 1000-1, DESCRIPTION, line 14, add the following:

Use materials which do not produce a mottled appearance through rusting or other staining of the finished concrete surface.

Page 10-5, Table 1000-1, REQUIREMENTS FOR CONCRETE, replace with the following:

TABLE 1000-1 REQUIREMENTS FOR CONCRETE											
Class of Concrete	Min. Comp. Strength at 28 days	Maximum Water-Cement Ratio				Consistency Max. Slump		Cement Content			
		Air-Entrained Concrete		Non Air- Entrained Concrete		Vibrated	Non- Vibrated	Vibrated		Non- Vibrated	
		Rounded Aggregate	Angular Aggre- gate	Rounded Aggregate	Angular Aggre- gate			Min.	Max.	Min.	Max.
Units	psi					inch	inch	lb/cy	lb/cy	lb/cy	lb/cy
AA	4,500	0.381	0.426	-	-	3.5	-	639	715	-	-
AA Slip Form	4,500	0.381	0.426	-	-	1.5	-	639	715	-	-
Drilled Pier	4,500	-	-	0.450	0.450	-	5-7 dry 7-9 wet	-	-	640	800
A	3,000	0.488	0.532	0.550	0.594	3.5	4	564	-	602	-
B	2,500	0.488	0.567	0.559	0.630	2.5	4	508	-	545	-
B Slip Formed	2,500	0.488	0.567	-	-	1.5	-	508	-	-	-
Sand Light- weight	4,500	-	0.420	-	-	4	-	715	-	-	-
Latex Modified	3,000 7 day	0.400	0.400	-	-	6	-	658	-	-	-
Flowable Fill excavatable	150 max. at 56 days	as needed	as needed	as needed	as needed	-	Flow- able	-	-	40	100
Flowable Fill non-excavatable	125	as needed	as needed	as needed	as needed	-	Flow- able	-	-	100	as needed
Pavement	4,500 design, field 650 flexural, design only	0.559	0.559	-	-	1.5 slip form 3.0 hand place	-	526	-	-	-
Precast	See Table 1077-1	as needed	as needed	-	-	6	as needed	as needed	as needed	as needed	as needed
Prestress	per contract	See Table 1078-1	See Table 1078-1	-	-	8	-	564	as needed	-	-

Page 10-23, Table 1005-1, AGGREGATE GRADATION-COARSE AGGREGATE, replace with the following:

**TABLE 1005-1
AGGREGATE GRADATION - COARSE AGGREGATE**

Std. Size #	Percentage of Total by Weight Passing													Remarks
	2"	1 1/2"	1"	3/4"	1/2"	3/8"	#4	#8	#10	#16	#40	#200		
4	100	90-100	20-55	0-15	-	0-5	-	-	-	-	-	A	Asphalt Plant Mix	
467M	100	95-100	-	35-70	-	0-30	0-5	-	-	-	-	A	Asphalt Plant Mix	
5	-	100	100	20-55	0-10	0-5	-	-	-	-	-	A	AST, Sediment Control Stone	
57	-	100	95-100	-	25-60	-	0-10	0-5	-	-	-	A	AST, Str. Concrete, Shoulder Drain, Sediment Control Stone	
57M	-	100	95-100	-	25-45	-	0-10	0-5	-	-	-	A	AST, Concrete Pavement	
6M	-	-	100	90-100	20-55	0-20	0-8	-	-	-	-	A	AST	
67	-	-	100	90-100	-	20-55	0-10	0-5	-	-	-	A	AST, Str. Concrete, Asphalt Plant Mix	
78M	-	-	-	100	98-100	75-100	20-45	0-15	-	-	-	A	Asphalt Plant Mix, AST, Str. Conc, Weep Hole Drains	
14M	-	-	-	-	-	100	35-70	5-20	-	0-8	-	A	Asphalt Plant Mix, AST, Weep Hole Drains, Str. Concrete	
9	-	-	-	-	-	100	85-100	10-40	-	0-10	-	A	AST	
ABC	-	100	75-97	-	55-80	-	35-55	-	25-45	-	14-30	4-12 ^B	Aggregate Base Course, Aggregate Stabilization	
ABC (M)	-	100	75-100	-	45-79	-	20-40	-	0-25	-	-	0-12 ^B	Maintenance Stabilization	
Light-weight C	-	-	-	-	100	80-100	5-40	0-20	-	0-10	-	0-2.5	AST	

A. See Subarticle 1005-4(A).
 B. See Subarticle 1005-4(B).
 C. For Lightweight Aggregate used in Structural Concrete, see Subarticle 1014-2(E)(6).

Page 10-126, Table 1078-1, REQUIREMENTS FOR CONCRETE, replace with the following:

**TABLE 1078-1
REQUIREMENTS FOR CONCRETE**

Property	28 Day Design Compressive Strength 6,000 psi or less	28 Day Design Compressive Strength greater than 6,000 psi
Maximum Water/Cementitious Material Ratio	0.45	0.40
Maximum Slump without HRWR	3.5"	3.5"
Maximum Slump with HRWR	8"	8"
Air Content (upon discharge into forms)	5 + 2%	5 + 2%

Page 10-151, Article 1080-4 Inspection and Sampling, lines 18-22, replace (B), (C) and (D) with the following:

- (B) At least 3 panels prepared as specified in 5.5.10 of AASHTO M 300, Bullet Hole Immersion Test.
- (C) At least 3 panels of 4"x6"x1/4" for the Elcometer Adhesion Pull Off Test, ASTM D4541.
- (D) A certified test report from an approved independent testing laboratory for the Salt Fog Resistance Test, Cyclic Weathering Resistance Test, and Bullet Hole Immersion Test as specified in AASHTO M 300.
- (E) A certified test report from an approved independent testing laboratory that the product has been tested for slip coefficient and meets AASHTO M253, Class B.

Page 10-162, Subarticle 1081-1(A) Classifications, lines 4-7, delete the second and third sentences of the description for Type 3A.

Page 10-162, Subarticle 1081-1(B) Requirements, lines 26-30, replace the second paragraph with the following:

For epoxy resin systems used for embedding dowel bars, threaded rods, rebar, anchor bolts and other fixtures in hardened concrete, the manufacturer shall submit test results showing that the bonding system will obtain 125% of the specified required yield strength of the fixture. Furnish certification that, for the particular bolt grade, diameter and embedment depth required, the anchor system will not fail by adhesive failure and that there is no movement of the anchor bolt. For certification and anchorage, use 3,000 psi as the minimum Portland cement concrete compressive strength used in this test. Use adhesives that meet Section 1081.

List the properties of the adhesive on the container and include density, minimum and maximum temperature application, setting time, shelf life, pot life, shear strength and compressive strength.

Page 10-169, Subarticle 1081-3(G) Anchor Bolt Adhesives, delete this subarticle.

Page 10-204, Subarticle 1092-2(A) Performance and Test Requirements, replace Table 1092-3 Minimum Coefficient of Retroreflection for NC Grade A with the following:

Observation Angle, degrees	Entrance Angle, degrees	White	Yellow	Green	Red	Blue	Fluorescent Yellow Green	Fluorescent Yellow
0.2	-4.0	525	395	52	95	30	420	315
0.2	30.0	215	162	22	43	10	170	130
0.5	-4.0	310	230	31	56	18	245	185
0.5	30.0	135	100	14	27	6	110	81
1.0	-4.0	120	60	8	16	3.6	64	48
1.0	30.0	45	34	4.5	9	2	36	27

TEMPORARY TRAFFIC CONTROL DEVICES:

(1-17-12)

1105

SP11 R05

Revise the 2012 *Standard Specifications* as follows:

Page 11-5, Article 1105-6 Measurement and Payment, add the following paragraph after line 24:

Partial payments will be made on each payment estimate based on the following: 50% of the contract lump sum price bid will be paid on the first monthly estimate and the remaining 50% of the contract lump sum price bid will be paid on each subsequent estimate based on the percent of the project completed.

TRUCK MOUNTED CHANGEABLE MESSAGE SIGNS:

(8-21-12)

1101.02

SP11 R10

Revise the 2012 *Roadway Standard Drawings* as follows:

Drawing No. 1101.02, Sheet 12, TEMPORARY LANE CLOSURES, replace General Note #11 with the following:

11- TRUCK MOUNTED CHANGEABLE MESSAGE SIGNS (TMCMS) USED ON SHADOW VEHICLES FOR "IN LANE" ACTIVITIES SHALL BE A MINIMUM OF 43" X 73". THE DISPLAY PANEL SHALL HAVE FULL MATRIX CAPABILITY WITH THE CAPABILITY TO PROVIDE 2 MESSAGE LINES WITH 7 CHARACTERS PER LINE WITH A MINIMUM CHARACTER HEIGHT OF 18". FOR ADDITIONAL MESSAGING, CONTACT THE WORK ZONE TRAFFIC CONTROL SECTION.

12- TMCMS USED FOR ADVANCED WARNING ON VEHICLES LOCATED ON THE SHOULDER MAY BE SMALLER THAN 43" X 73". THE DISPLAY PANEL SHALL HAVE THE CAPABILITY TO PROVIDE 2 MESSAGE LINES WITH 7 CHARACTERS PER LINE WITH A MINIMUM CHARACTER HEIGHT OF 18". FOR ADDITIONAL MESSAGING, CONTACT THE WORK ZONE TRAFFIC CONTROL SECTION.

Drawing No. 1101.02, Sheet 13, TEMPORARY LANE CLOSURES, replace General Note #12 with the following:

12- TRUCK MOUNTED CHANGEABLE MESSAGE SIGNS (TMCMS) USED ON SHADOW VEHICLES FOR "IN LANE" ACTIVITIES SHALL BE A MINIMUM OF 43" X 73". THE DISPLAY PANEL SHALL HAVE FULL MATRIX CAPABILITY WITH THE CAPABILITY TO PROVIDE 2 MESSAGE LINES WITH 7 CHARACTERS PER LINE WITH A MINIMUM CHARACTER HEIGHT OF 18". FOR ADDITIONAL MESSAGING, CONTACT THE WORK ZONE TRAFFIC CONTROL SECTION.

13- TMCMS USED FOR ADVANCED WARNING ON VEHICLES LOCATED ON THE SHOULDER MAY BE SMALLER THAN 43" X 73". THE DISPLAY PANEL SHALL HAVE THE CAPABILITY TO PROVIDE 2 MESSAGE LINES WITH 7 CHARACTERS PER LINE WITH A MINIMUM CHARACTER HEIGHT OF 18". FOR ADDITIONAL MESSAGING, CONTACT THE WORK ZONE TRAFFIC CONTROL SECTION.