

1 Amend **Section 415 – COLD PLANING OF EXISTING PAVEMENT** to read as
2 follows:

3
4 **SECTION 415 - COLD PLANING OF EXISTING PAVEMENT**

5
6
7 **415.01 Description.** This section describes removing existing pavement by a
8 cold-planing process and establishing grade controls to provide a basis for a smooth
9 riding surface.

10
11 **415.02 Materials.** None.

12
13 **415.03 Construction.**

14
15 **(A) Equipment.** Cold-planing machines shall be self-propelled, equipped
16 with an automatically controlled and activated cutting drum that is capable of
17 grade reference, maintaining transverse slope control and producing a
18 uniformly textured surface. An Engineer accepted grade 1-piece referencing
19 attachment, not less than 30 feet in length, shall be used. The cold-planing
20 machine shall be capable of accurately removing the pavement surface, in
21 one or more passes, to the required grade or cross-section indicated in the
22 Contract Documents, without tearing or gouging underlying surface that is to
23 remain and without contaminating milled pavement with underlying base
24 course material. The final cut shall result in a neat and uniform milled surface.

25
26 Equip machine with cutting drum capable of producing a uniform
27 surface finish and texture. Enclose the cutting drum in shroud to prevent
28 discharge of loosened material into adjacent work areas. As standard
29 equipment, provide dust suppression system, storage tanks with an adequate
30 water, and high-pressure spray bar with spray nozzles. Provide a machine
31 capable of cutting a crown and a depth by tilting drum axis and it shall be
32 equipped with guidance system that controls transverse slope and longitudinal
33 profile, matches adjacent pavements, and controls depth of cut. A mobile
34 referencing system shall be used. Provide at minimum a 30-foot long 1-piece
35 mobile reference to provide average elevation variations. The entire length
36 shall be used in activating the sensor.

37
38 If referencing from existing pavement, the cold-planing machine shall
39 be controlled by a self-contained grade reference system. The system shall
40 be used at or near the centerline of the roadway. On the adjacent pass with
41 the cold-planing machine, a joint-matching shoe may be used on the newly
42 placed HMA surface. Using the existing newly paved pavement as a
43 reference is discouraged and should not be used unless the profile of the
44 existing pavement meets the smoothness requirements of the Contract
45 Documents and even then, shall be used at the Contractor's own volition.

47 **(B) Cold-Planing Pavement Profile.** Prior to the start of cold-planing
48 (planing) take a pavement surface profile test of all areas where planing is to
49 occur. Use these profiles to create a surface profile that shall be used to
50 install a smooth finish pavement that meets the Contract Document
51 smoothness requirements. The planing profile shall allow the finish HMA
52 pavement's profile in general to:

- 53
- 54 (a) Not change the drainage patterns of the existing roadway.
 - 55
 - 56 (b) Decrease the clearance between overhead objects, e.g.,
57 overpasses, utility lines, and the finish pavement.
 - 58
 - 59 (c) Decrease the effectiveness or make existing safety apparatuses
60 non-compliant.
 - 61
 - 62 (d) Change geometric properties, e.g., sight distance, slopes of the
63 roadway shall not be changed.
 - 64

65 The method used by the Contractor to obtain planing pavement profiles
66 will be left up to the Contractor. The Engineer will use a profile obtained using
67 the Contractor supplied profilograph to determine the profile index, i.e.,
68 smoothness, of the new pavement regardless of what method the Contractor
69 uses to determine the planing pavement profile. Submit all planing pavement
70 profiles for review and acceptance by the Engineer at a minimum of 30 days
71 before planing starts. Inform the Engineer of any existing feature that may
72 need adjustment to obtain a smooth riding surface. Adjustments to the
73 existing feature if made will be paid for by contract change order.

74

75 Planing shall be used to create the initial base that shall improve the
76 existing pavement profile when paving work is properly performed. Set
77 guidance system grade sensor on string line or other grade device to guide the
78 planing machine to the proper cutting profile established by the planing
79 pavement profile.

80

81 **(C) Cold-Milled Surface and Removed Material.** Cold-mill (mill) surface
82 to remove pavement and to eliminate high spots and surface irregularities for
83 a smooth roadway resurfacing. Remove thickness of existing pavement to the
84 average minimum depth indicated in the Contract Documents. In general, the
85 depth, length, width, and shape of the cut shall be as shown in the Contract
86 Documents or as directed by the Engineer. Examine the milled surface and
87 inform the Engineer if:

- 88
- 89 (a) There are any weakened pavement areas not shown in the
90 Contract Documents.
 - 91
 - 92 (b) A thin milled 90 subsurface layer exists.

- 93 (c) Holes are present in the milled surface.
94
95 (d) There are indications of poor bonding of the milled layer to the
96 layer below.
97
98 (e) Base course showing.
99
100 (f) Any condition that may be deleterious to the service life of the
101 new overlay exists.
102

103 The Engineer may direct remedial work in these areas to provide
104 increased pavement life as well as a smoother ride, e.g., increase the depth of
105 the planing or do additional work to the weakened pavement areas. Additional
106 remedial work will be considered extra work unless the Contractor over milled
107 the pavement.
108

109 Furnish, install, and maintain grade and transverse slope references.
110

111 Adjust machine blades to avoid damaging existing items that are to
112 remain, such as underlying pavement structure, monuments, manholes, and
113 pipes. Remove and replace or reconstruct items damaged by planing
114 operations.
115

116 Maintain an appropriate consistent planing speed that shall give a
117 smooth consistent texture for the milled surface. Planing speed shall be
118 adjusted so that the milled surface is not scalloped or individually gouged or
119 both. The travel speed in feet per minute shall not exceed $2/3$ of the cutter
120 drum RPM, e.g., 100 RPM > 66 feet per minute. If the planing machine does
121 not have a drum RPM gage, assume the drum speed is $1/19^{\text{th}}$ of the engine
122 RPM.
123

124 For roadways open to traffic, cold plane each day across full width of
125 traffic lanes to avoid longitudinal pavement drop-off between lanes. Make
126 every effort to avoid longitudinal drop offs between lanes. If this cannot be
127 avoided at the end of the day's production, or in areas opened to public traffic,
128 construct tapered transitions for all longitudinal and transverse pavement
129 drop-offs before opening area to public traffic. Use the same quality of HMA
130 for temporary tapers that is used for the HMA overlay or pavement. Use
131 maximum slopes of 8:1 for longitudinal and 48:1 for transverse tapered
132 transitions. When cross streets are encountered use a 48:1 taper; minimize
133 the transition piece from being in the lane perpendicular to the cross-street.
134 Use 48:1 slope for transition pieces for utility features found in milled areas.
135 The difference in elevation between adjacent existing pavement and milled
136 areas shall not exceed 3 inches. Compact transition in such a manner that the
137 transition shall provide a smooth riding transition and shall not change its
138 shape for the duration of its use. The transition shall be uniform in shape and

139 the toe of the transition shall be a set distance parallel to the unmilled edge of
140 the adjacent pavement, i.e., the toe of the transition shall form a straight line
141 parallel to the milled edge. Remove all transition material in the area to be
142 resurfaced before placing the overlay.

143
144 Provide for drainage of milled surface areas and adjacent pavement.
145 Drainage of the milled areas shall be installed on same work shift as when
146 planing is performed.

147
148 The finished milled surface shall be suitable for public traffic to use
149 safely and not cause damage to its vehicles or to the existing pavement. The
150 completed surface of the milled asphalt concrete pavement shall not vary
151 more than 0.02 foot when measured with a 12-foot straightedge parallel with
152 the centerline. With the straightedge at right angles to the centerline, the
153 transverse slope of the planed surface must not vary more than 0.03 foot.
154 Check the milled surface profile every 24 feet to verify that the planing is
155 compliant. Record drum speed and planing machine speed at every 30
156 minutes. Record results of checks, in a manner acceptable to the Engineer
157 showing at a minimum:

158
159 (a) Location of the profile check showing station and offset from
160 centerline or station and lane location for both profile check and drum
161 speed and planing machine speed.

162
163 (b) Date and time for both profile check and drum speed and
164 planing machine speed.

165
166 (c) When planing machine started planing and stationing, all
167 stopping and restarting times. End of shift planing work station.

168
169 (d) Variances from straightedge, location of the variance on the
170 straight edge.

171
172 (e) Person performing checks and recording the information shall
173 sign and print full name on report.

174
175 (f) Submit reports weekly to the Engineer.

176
177 Re-mill areas that do not conform to Contract Document requirements
178 or perform an Engineer accepted remedial repair if existing subsurface
179 pavement would be too thin to re-mill and still provided the needed structural
180 support to the pavement section.

181

182 The Engineer may reduce the number of profile and planing machine
183 speed checks if the reports show a consistent pattern of best practices and
184 performance. The Engineer reserves the right to reinstate the former level of
185 checks at any time should the quality of the work start to degrade.
186

187 Clean and sweep surface of milled pavement in accordance with
188 Section 310 - Brooming Off, with the additional requirement that all loose
189 material shall be picked up within the roadway surface including gutters,
190 before opening milled area to public traffic. Repeat the cleaning and sweeping
191 of the milled pavement to the same requirements used on the first day for
192 each day the milled area is opened to public traffic including Saturday, Sunday
193 and holidays.
194

195 Install all temporary traffic pavement markings before opening to public
196 traffic and maintain them until overlay is placed. Pavement markings shall be
197 of the same size, e.g., width and length as required in the Standard Plans.
198 For example, no Arrows made with a single 4-inch tape will be allowed, the
199 width of arrow shall be as show in TE-29.
200

201 Dispose of milled and removed transition materials in accordance with
202 Subsection 201.03(F) - Removal and Disposal of Material.
203

204 Minimize dust escaping from cold-planing operation and contain or
205 remove runoff water used for dust control in accordance with Section 209 –
206 Temporary Water Pollution, Dust and Erosion Control.
207

208 The milled surface shall not be exposed to public traffic for more than
209 three days prior to placement of resurfacing material. Place a leveling course
210 over the entire milled area before the end of the third day if the permanent
211 overlay cannot be placed. The leveling course shall be removed before the
212 installation of the overlay. The leveling course, its installation and removal and
213 any additional HMA needed due to increased depth shall be at the
214 Contractor's expense. Failure to install an acceptable leveling course will
215 result in the assessment of rental fees for unauthorized lane closure charges
216 for the areas that are non-compliant, e.g., milled areas open longer than three
217 days, until they have received an acceptable leveling course layer or the
218 permanent overlay. Lane rental fee charges shall start at the end of the third
219 day's normal working hours as defined in the Contract Documents, i.e., the
220 third day's normal end of non-overtime shift. There will be no maximum
221 amount of lane rental assessed by the Engineer for this situation. The
222 Engineer will unilaterally calculate the amount of rental fees to be assessed.
223 The Engineer reserves the right to suspend the Contractor's work and
224 continue to charge lane rental when the Engineer determines that the
225 Contractor's work is adversely impacting the public.

226 **415.04 Measurement.** The Engineer will not measure cold planing and planing
227 pavement profile for payment.

228

229 **415.05 Payment.** The Engineer will not pay for cold planing and planing pavement
230 profile items separately. The Engineer will consider the cost for cold planing and
231 planing pavement profile in the contract price of the various contract items in Section
232 401-Hot Mix Asphalt Pavement.

233

234

235

END OF SECTION 415