



48 (D) **Soil and Mulch Tackifier.** Tackifier used with mulch shall be  
49 hydrocolloidal, organic, or anionic polyacrylamide.

50

51 (1) **Hydrocolloidal Tackifier.** Hydrocolloidal tackifier shall be  
52 formulated for use with hydraulically planted grass seed or stolons,  
53 alone or in combination with fertilizer, wood fiber mulch, and other  
54 additives acceptable to Engineer. Tackifier shall consist of at least  
55 three different but complementary hydrocolloids, two of which shall be  
56 Glactomannan and Plantago Ovata. Latter component shall have  
57 muciloid content of at least 85 percent.

58

59 Tackifier shall be applied at rate of 80 pounds per acre, shall be  
60 pH stable with fertilizer, and shall hydrate and disperse in mixing tank  
61 with water and other materials to form homogeneous slurry. Tackifier  
62 shall leave loose, chain-like stabilizing film on surface of soil, allow  
63 moisture to percolate into soil during seed germination and seedling  
64 growth, and break itself down through microbial action. Tackifier shall  
65 not inhibit plant germination or growth.

66

67 (2) **Organic Tackifier.** Organic tackifier shall be starch-based  
68 tackifier formulated for use with conventional mulches. Active  
69 ingredient in tackifier shall be 100 percent derived from plant starch.

70

71 Dry powder tackifier shall be blended with insolubilizer. After  
72 blending and mixing with water, tackifier shall swell, become sticky,  
73 and be suitable for use during heavy rain. Tackifier shall be applied at  
74 rate of 80 pounds per acre. Emulsion shall cure on surface of soil and  
75 become insoluble. Tackifier shall not inhibit plant germination or  
76 growth.

77

78 (3) **Anionic Polyacrylamide Tackifier.** Anionic Polyacrylamide  
79 tackifier shall be specifically formulated for hydroseeding and  
80 erosion/sediment control. Anionic Polyacrylamide tackifier shall  
81 consist of 90 percent or greater sodium acrylate/acrylamide copolymer.  
82 Anionic Polyacrylamide tackifier must be anionic with a charge density  
83 of 8 to 35 percent by weight and have a molecular weight of 6 to 24  
84 Mg/mole. Mixture must be non-combustible.

85

86 Must be accompanied by MSDS and toxicity information from  
87 manufacturer that the Anionic Polyacrylamide tackifier and any  
88 required additives are non-toxic to aquatic biota. Cationic  
89 Polyacrylamide is strictly not allowed.

90

91 Anionic Polyacrylamide tackifier shall be applied at rate of 3 to  
92 5 pounds per acre. Anionic Polyacrylamide tackifier shall be mixed in  
93 accordance with all Occupational Safety and Health Administration  
94 (OSHA) MSDS requirements and the manufacturer's

95 recommendations for the specified use conforming to all Federal,  
96 State and local laws, ordinances, rules and regulations.

97

98 **641.03 Construction.**

99

100 **(A) Seeding.** Apply seeded mulch within two days after completion of  
101 slopes or portion of slope when exposed face attains height of 15 feet. Notify  
102 Engineer not less than 24 hours ahead of hydro-mulch seeding operation. Do  
103 not hydro-mulch until the Engineer inspects and accepts areas for planting.

104

105

106 Engineer will inspect slopes to ensure that surface and subsurface  
107 water are properly collected and disposed of and areas to be planted are  
108 protected from erosion. Upon Engineer's acceptance for planting, begin  
109 hydro-mulch seeding of slopes. Acceptance for planting does not relieve  
110 Contractor of responsibility for repair of slope damage until grassed areas are  
111 acceptable to Engineer in accordance with Subsection 641.03 (D) -  
112 Acceptance.

112

113

114 Place seeded mulch evenly and completely over ground in one  
115 application at minimum rate of 1,500 pounds of mulch per acre. Use  
116 Engineer-accepted hydro-mulch seeder with built-in agitation system and  
117 operating capacity sufficient for uniform mixing until slurry is pumped out of  
118 tank. Equip seeder with distribution and discharge lines large enough to  
119 prevent stoppage, and hydraulic discharge spray nozzles that provide  
120 uniform distribution of slurry.

121

122 In areas that are inaccessible to hydro-mulch seeder, plant by hand  
123 methods acceptable to Engineer.

124

125 When hydro-mulch seeding is done in conjunction with erosion control  
126 matting, install erosion control matting to completion and follow with hydro-  
127 mulching within 24 hours.

128

129 Water immediately after planting to moisten soil and mulch. Continue  
130 watering as necessary to ensure proper germination and growth. Water in a  
131 way that will prevent erosion, using equipment that will not damage planted  
132 areas. Replace watering equipment that causes erosion or runoff.

133

134 If there is slope erosion or movement of silt, remove displaced  
135 material immediately. Restore areas that are eroded to depth greater than  
136 two inches of original grade or width greater than three inches.

137

138 **(B) Planting Period.** Begin planting period immediately after seeding  
139 area is accepted by Engineer. If area has mixture of trees, shrubs, and  
140 grass, do not start planting period until all trees, shrubs, and grass have been  
141 planted. If only grass is planted, during planting period provide 95 percent

**641.03**

142 coverage with 5-inch tall healthy grass within 90 days. Reseed areas after 30  
143 days that do not show satisfactory growth in accordance with Subsection  
144 641.03(A) - Seeding until Engineer determines there is satisfactory growth.  
145

146 **(C) Plant Establishment.** Plant establishment period is nine months after  
147 completion date of planting period acceptable to Engineer. During plant  
148 establishment period, water, fertilize, weed, and mow grass when grass  
149 reaches average height of three inches. Replace grass Engineer considers  
150 unsuitable or sick. Remove and dispose of trash and debris. Provide insect  
151 and disease protection and control.  
152

153 In addition to fertilizer that is applied during initial hydro-mulch  
154 seeding, fertilize plantings at least four times during plant establishment  
155 period. Fertilize at rate of not less than 300 pounds per acre per application.  
156 Interval between fertilizations shall not be closer than 2-1/2 months. Notify  
157 Engineer 24 hours before applying fertilizer.  
158

159 Engineer will credit Contractor with plant establishment days when  
160 work is done in accordance with contract documents and when Engineer  
161 determines that no work is required, regardless of whether Contractor  
162 actually performs plant establishment work. Engineer will not credit  
163 Contractor with plant establishment days when Engineer determines that  
164 work is necessary but Contractor fails to adequately perform plant  
165 establishment work.  
166

167 **(D) Acceptance.** Engineer will base acceptance of planted areas on 98  
168 percent coverage with healthy, well-established grass, at least three inches  
169 tall, at end of plant establishment period. No 100 square foot area shall show  
170 more than two square feet of bare earth. Mow grass before requesting  
171 acceptance.  
172

173 **641.04 Measurement.** Hydro-mulch seeding will be paid on a lump sum basis.  
174 Measurement for payment will not apply.  
175

176 **641.05 Payment.** Engineer will pay for the accepted hydro-mulch seeding on a  
177 contract lump sum basis. Payment will be full compensation for work prescribed in  
178 this section and contract documents.  
179

180 Engineer will pay for the following pay item when included in proposal  
181 schedule:  
182

<b>Pay Item</b>	<b>Pay Unit</b>
184 Hydro-mulch Seeding	Lump Sum

186  
187 The Engineer will allow partial payment of hydro-mulch seeding as follows:  
188

189           **(1)**    30 percent of the contract unit price upon completion of hydro-mulch  
190 seeding.

191  
192           **(2)**    15 percent of the contract unit price in three equal monthly payments  
193 for satisfactory performance during the planting period.

194  
195           **(3)**    48 percent of the contract unit price in eight equal monthly payments  
196 for satisfactory performance during the plant establishment period.

197  
198           **(4)**    7 percent of the contract price upon final acceptance at the end of  
199 the plant establishment period.

200  
201  
202

**END OF SECTION 641**