



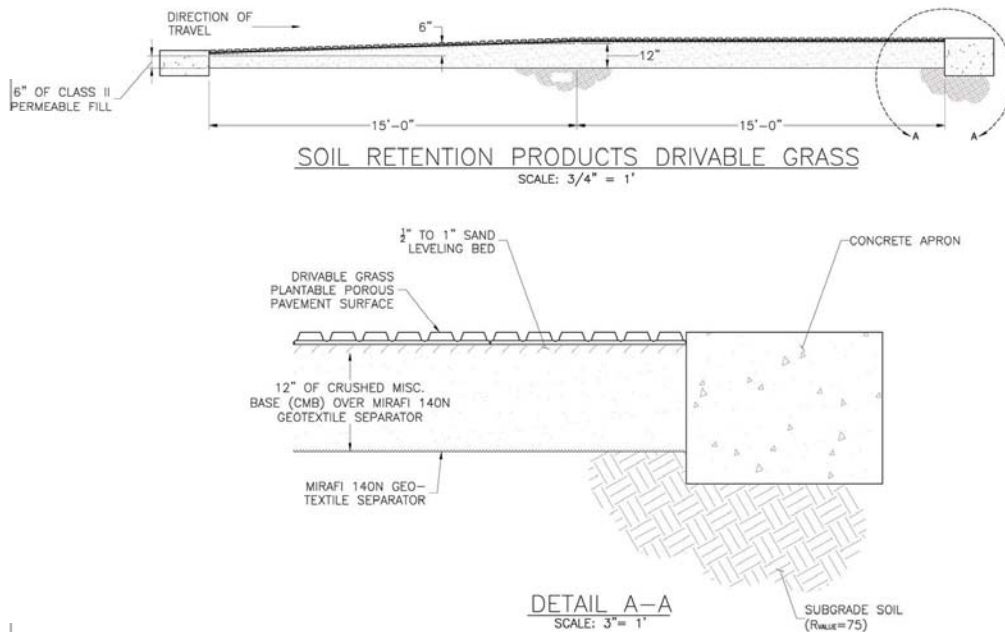
SOIL RETENTION PRODUCTS INC.

Soil Retention Tech Note - Drivable Grass® Load Capacity

PURPOSE - The purpose of the proposed test was to assess the load carrying performance of Drivable Grass® when subjected to repeated loadings from heavily loaded vehicles.

SITE and SUBGRADE SOILS - The test site consists of a 20 ft wide by 30 ft long section of Drivable Grass® situated near the southern end of the Soil Retention Products manufacturing property at 1765 Watson Road in Romoland, CA. The sub-grade soils at the site generally consist of silty sand native to the local area. An R-value test performed by geotechnical consultant Goffman McCormick & Urban, Inc. indicates that the native soils exhibit an R-value of 75 at an exudation pressure of 300 psi.

TEST SECTION PREPARATION - The test site was constructed on October 1, 2004. Prior to grading the site for the test section, the area was proof-rolled with a loaded water truck. Construction of the test section was conducted by Soil Retention crews and was done under the direction of Dean Sandri, PE. The “pavement section” consisted of the Drivable Grass® (1.5 inch thickness) “wearing surface” underlain by a one-half to one inch thickness of sand leveling bed and a variable thickness of crushed miscellaneous base (CMB); all of which was placed directly on top of the existing sub-grade soils (See Figure 1). A geotextile separator (Mirafi 140N) was placed between the subgrade and aggregate base to ensure that mixing of the two would be minimized. A rigid concrete apron was provided at each end of the test section to transition vehicular traffic on and off of the pavement. A cross section of the test section is provided below with photos of the test section provided in Appendix 1.



TEST SECTION LOADING - Subsequent to completing construction of the test section, all loaded aggregate delivery vehicles accessing the Soil Retention manufacturing plant were directed to drive over the test section. About 160 vehicles with tire pressures ranging from 85 to 120 psi pass over the test section per month. Total vehicle weights varied but were generally at about 80,000 lbs each. Photos 6, 7, and 8 show the vehicles which traversed the test section. Typical axle loadings for the loaded vehicles are noted below.

At the time of this writing (March 15, 2005) about 800 applications (more than 4,000 axle passes) have been experienced.

TEST SECTION PERFORMANCE - The performance of the test section has been excellent. Examination of the Drivable Grass[®] mats indicates that the product has performed well with no structural damage the concrete “muffins” which compose the mat. Photographs included herein show the product under full load application.

CONCLUSIONS - It has been demonstrated that Drivable Grass[®] installed on a properly prepared subgrade is capable of carry the full weight of construction traffic and vehicle loadings which might be expected in emergency vehicle access lanes without any visible deterioration to the product.



Photo 1 – Placing CMB over geotextile



Photo 2 – Leveling of sand bed over compacted base



Photo 3 – Installation of Drivable Grass[®]



Photo 4 – Typical loaded vehicle pass