

EVALUATION REPORT

FIBER-REINFORCED POLYMER (FRP) PULTRUDED DECKING MATERIAL AND HELICAL ANCHORING SYSTEM FOR USE IN SNOW FENCE APPLICATIONS

Location: Livingston, Montana. Interstate 90, MP-332, Park County

Project No.: IM90-7(63)331

FHWA No.: MT 00-01

Description: Second semi-annual evaluation of two test sections of snow fencing using two proprietary materials; EZ-Deck FRP and A. B. Chance Helical Anchoring System.

Evaluation Date: October 6, 2000

Participants: Craig Abernathy-Research Specialist, Brooke Page-Research Specialist

Objective

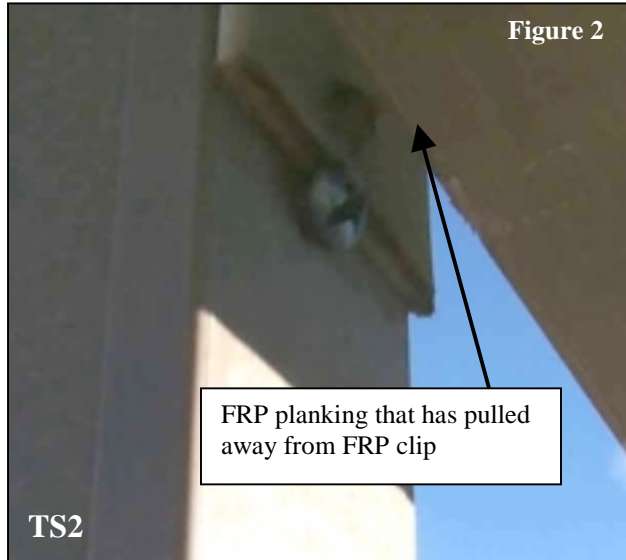
The purpose of this study is to evaluate the feasibility of using a fiber-reinforced polymer (FRP) material in the construction of snow fences. FRP is a process where continuous glass-fiber strands are pulled through a thermosetting polyester resin to form a composite. The main purpose of testing the FRP product is to determine its structural integrity based on MDT's current snow fence design specifications (TS1), especially with the harsh climate these structures are subjected to in the state of Montana. In addition, to compare this material in determining its design function as a possible alternative for MDT current specifications for the construction of snow fences (TS1 vs. TS2). The final purpose was to test the Helical Anchoring System as a reliable ground attachment for snow fences (used in TS2). Inspections are held in early spring and late fall to document the environmental effects of seasonal extremes of the FRP material as well as stability of design. Figure 1 shows section TS1 & TS2.



Evaluation

The evaluation consisted of a visual inspection of the FRP material and the structural supports. Special attention was given to the attachments of the FRP (setting screws, FRP clips) and the Helical Anchors used to secure the TS2 section to the ground. The section TS2 front FRP planking had expanded or pulled away from the FRP clip attachment (see Figure 2). This occurrence is just on one clip attachment and was not noticed on any

other areas of the test sections during this inspection. At this time, all other connections used to attach the FRP planking to the frames are intact with no evidence of loose screws or chipping of the FRP rail attachments. All bolts used to secure the frame to the helical anchors were tight with no visual evidence of sawing action. There has been no apparent shifting of the overall frame assembly since the Spring 2000 evaluation. Visual appearance of all the FRP material shows no signs of sun or wind degradation.



The broken bolt on the right rear sill attachment on TS1, documented in the spring 2000 inspection, shows no sign of additional movement or frame deterioration (Figure 3).

It was noticed on Section TS1 (figure 4), that the rebar used to secure the center sill bracing is abrading the FRP material. This will be watched closely for additional deterioration in later inspections.

It is consensus of the inspection team that the materials used in this project is performing well. The next scheduled evaluation will be conducted in May 2001.

