



Revisiting a Classic-IDOT Route 6 Project

A Case History - Chillicothe, Illinois



Figure 1. Curlex HV slopes in 1987.



Figure 2. Steeper Curlex HV slopes 1987

INTRODUCTION

It is true that you can learn from history. In 1987, miles of Curlex® products were installed on a single project to combat various slopes and hasten vegetation establishment. We are going to look back and see what conditions were faced and how they were addressed. In addition, we are going to visit the same sites and see how they look in 2004.

ORIGINAL TASK AT HAND

In the summer of 1987, the Illinois Department of Transportation (IDOT) District 4 was working on a stretch of Route 6 from Chillicothe to Route 40. The large project created endless disturbed slopes with varying length and steepness that needed to be protected and revegetated. Many areas of the project were experiencing severe rainfall-induced erosion on the slopes. The slopes were washing into water ways and clogging outlets, which eventually emptied into the Illinois River. To make matters worse, the erosion potential could lead to destabilization of the Route 6 roadbed above. With this in mind, it was imperative to establish dense vegetation with a structural root system to handle rainfall impact and overland flow.

PROJECT TEAM

A diverse project team was formulated to provide a successful solution to the task at hand. Merle Krause and Cecil Crutchfield were assigned co-project engineers for the huge project. Stewart Hybrids was selected as the landscape contractor. Don Lutyens, Senior Territory Manager with American Excelsior Company, also joined the team to provide expertise involving slope erosion control and revegetation.

THE PLAN

Two different types of slopes were identified upfront by the project team. One slope type consisted of those that would require dense vegetation with a structural root system to protect the roadbed above. The second slope type consisted of all remaining slopes where the revegetation system would not directly influence the stability of the roadbed. Lutyens recommended two products for the separate scenarios. First, Curlex® High Velocity™ (HV) erosion control blanket (ECB) was recommended for all steep slopes that were adjacent to the roadbed. Curlex HV contains 1.62 lb/ft² of Curlex Fibers, which anchor to the subgrade when wetted because of their engineered, curled and barbed properties. A product that would last at least three growing seasons was required because the project team felt it would take that long for the root systems to become established enough to provide stability to roadbed above the slopes. Curlex HV has a functional longevity of a minimum of three years. Secondly, Curlex I ECB was recommended for the remaining slopes because of the product's versatility. Curlex I provides success erosion control and revegetation benefits on slopes up to 2H:1V.



Earth Science Division

EXECUTING THE PLAN

All slopes consisted of loam soils and were seeded with IDOT standard roadside mix, which is comprised mainly of perennial rye, red fescue, and blue grass. 55,000 yd² of Curlex HV were installed on the steep road side slopes (1.5H:1V up to 200 ft long) and ditch bottoms at a rate of 600 yd² per man hour. 145,000 yd² of Curlex I were installed on the slopes along the remaining 3,000 linear feet of the project at a rate of approximately 30,000 yd² per day. The majority of the Curlex I slopes were 2.5H:1V and contained one terrace to break up the 300 ft long slopes.



Figure 3. Curlex HV 1987.



Figure 4. Figure 3 slope in 2004.



Figure 5. Curlex I slope 1987.



Figure 6. Figure 5 slope in 2004.

RESULTS

Full vegetation was established on the 2.5H:1V Curlex I slopes after approximately 25 days. The steeper slopes were fully vegetated after approximately 30-45 days and the structural root system was established before the 1.62 lb/yd² of excelsior had degraded. All slopes were successfully protected along the project, which resulted in the roadbed being preserved and sediment-free runoff around the receiving water ways.

LESSON LEARNED

Road salt spread by snow trucks killed the vegetation on the crest of the slopes after the first winter. Thus, the crest directly adjacent to the road was later over-seeded with a salt tolerant seed mix. The project team learned that road salts can have adverse effects on adjacent vegetation in areas where large quantities of salt are required.

CONCLUSIONS

A look back at this exciting project shows the products did their jobs back in 1987. Curlex I slopes were established within a month and remain unblemished today. Curlex HV blankets did not biodegrade until almost four years after installation, thus the product provided heavy duty slope protection during the critical development phase of a structural root system into the long, steep slopes. The project remains a poster boy for the erosion control industry.

If you would like to receive more information or consult with one of our Customer Care Center Specialists, please call us toll free at (888-352-9582). PDF download specifications available in the Technical Support Library at www.Curlex.com