RESEARCH REPORT DOCUMENTATION PAGE

1. Report No.	2. Report Date	3. Contract No.	4. Project No.
ND 2010-03	February 2020	N/A	SU-2-987(029)033

5. Title and Subtitle

Evaluation of ScourStop® Flow Transition Mats For Scour Protection

6. Report Type
Click on link to open report

Work Plan ☐
Construction ☐
Evaluation ☐
Final ☒

7. Project No.

8. Project No.

9. Project No.

10. Project No.

11. Author(s)/Principle Investigator(s)
TJ Murphy

12. Performing Organization Name and Address

NDDOT M+R ☒
NDDOT OTHER* ☐
NDSU ☐
UND ☐
UGPTI ☐
OTHER* ☐
*see supplementary notes

North Dakota DOT
Materials and Research Division
300 Airport Road
Bismarck ND 58504-6005

13. Sponsoring Agency Name and Address

North Dakota DOT
Materials and Research Division
300 Airport Road
Bismarck ND 58504-6005

14. Supplementary Notes

15. Abstract

Purpose and Need

Storm water flow from culverts and pavement in urban and rural settings can accelerate soil scour and erosion in turn impeding proper drainage which then may require maintenance to restore. Rip-rap and TRM "turf reinforcement mat" is currently used as a permanent scour and erosion protection, but rip-rap revetment may erode away and disintegrate over time requiring periodic maintenance. Rip-rap also may pose a safety hazard to children in residential settings and can collect debris and weeds producing an aesthetically unappealing structure. Flow Transition Mats are designed to replace rip-rap revetment as a permanent maintenance free scour and erosion protection system at culverts, pipes, and pavement drainage areas. Mats allow vegetation to become established and protect flow paths from erosion.

Objective

The objective of this experimental project is to evaluate the performance of ScourStop® Flow Transition Mats as a permanent method for energy dissipation to prevent scour downstream from culverts, pipes, or pavement.

Scope

NDDOT plans to incorporate ScourStop® Flow Transition Mats as part of project SU-2-987(029)033. This project is located near Jamestown Business Loop East respectively.

Summary

The four installations of ScourStop® were successfully installed according to the plans and manufacturer's recommendation and are performing as designed with some sod distress. The top soil adjacent to the installations was eroded away during the flood of 2011 prior to installation. This resulted in a low success rate of the permanent seeding around the ScourStop® installations. The picture in photo 18 captures the state of the permanent seeding in August of 2012. The sod appears to be growing with the exception of the two installations at STA 47+90 and STA 53+00. The sod at these two locations is showing signs of distress; due to high amounts of precipitation pooling over the installation. The sod condition has not impacted the performance of these two installations ability to protect against scour.

16. Key Words	17. Distribution Statement	18. No. of Pages
Flow Transition Mat ScourStop Culvert Erosion	No restrictions. This document is available **by clicking this link:** North Dakota Department of Transportation Materials and Research Division: 300 Airport Road Bismarck ND 58504-6005	23 19. File type Pdf