

# LESSON LEARNED –EROSION AND SEDIMENT CONTROL PART 1-LAWS AND REGULATIONS

Ting Guo, DeIDOT E&S Engineer

Mary Hamilton, DeIDOT E&S Program Manager

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# How Much Does Erosion and Sediment Control for DOT Projects Cost?

Jan 1st, 2003



Ec0301 58a

By Gayle F. Mitchell, Ting Guo, and Nida Igiz

Manmade accelerated soil erosion and the resulting suspension of soil particles in water or air can have detrimental environmental and societal results. Sediment has been identified as the single most common water pollutant, and increased dust is a major contributor to air pollution. Consequently, processes, procedures, practices, and products have been developed, promulgated, studied, and implemented to minimize erosion and resulting sedimentation and dust.

## Summary

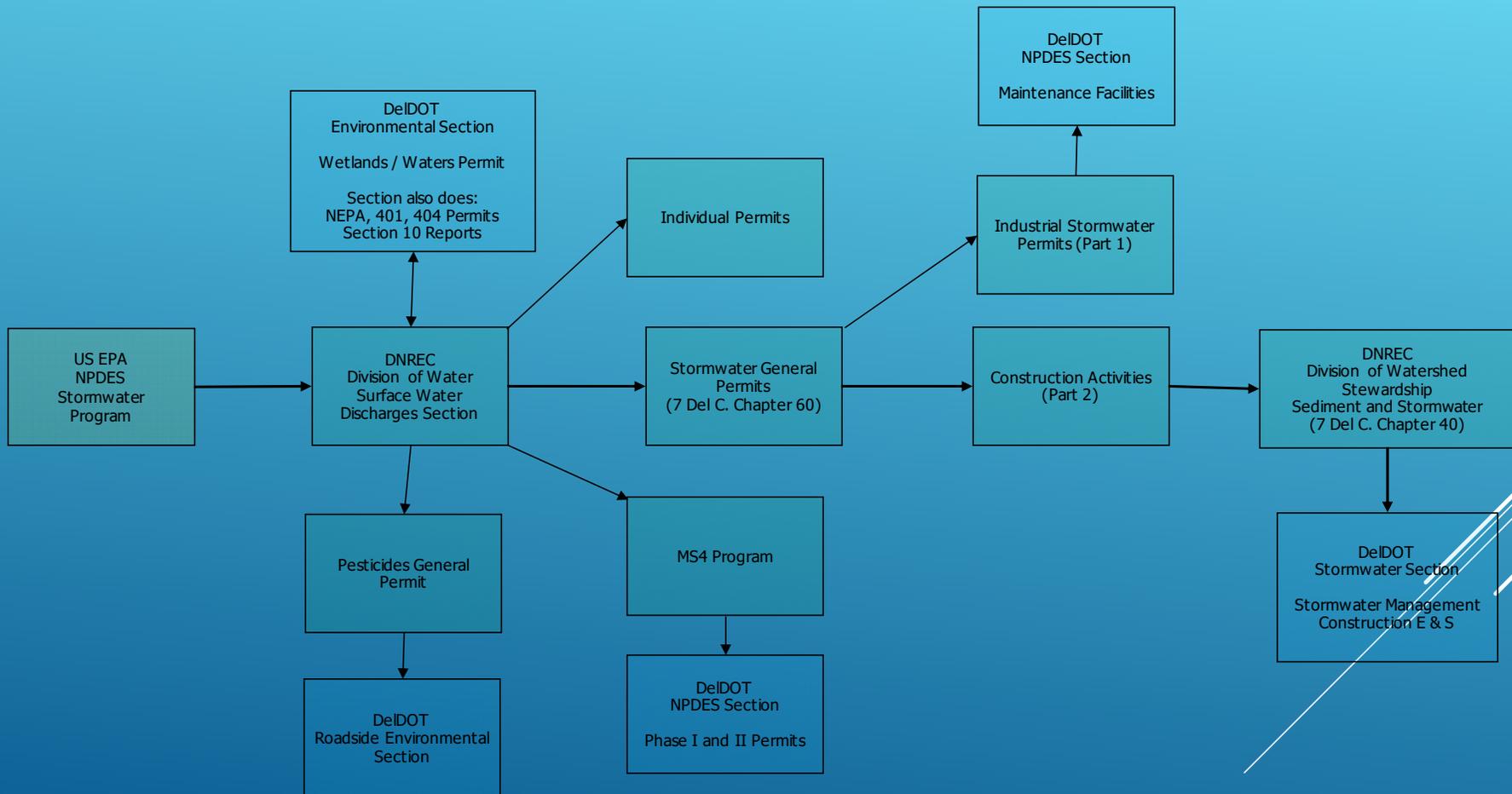
The average of total reported annual ESC expenditures in 2000 on state highway projects for 30 state DOTs was \$9,010,000. The year's total ESC expenditures for the 30 states were approximately \$270 million. Erosion and sediment costs as a function of total highway construction project costs averaged 3%. The majority of states reporting three years of erosion and sediment costs indicate that they are increasing.

Future plans are to update the data and encourage all states to participate. Data for the benefit side need to be developed and cost/benefit ratios estimated. In addition, plans are to extend the study to other sectors.

**Gayle F. Mitchell, Ph.D., P.E.**, is a professor in the Civil Engineering Department at Ohio University in Athens, OH.

**Ting Guo and Nida Igiz** are graduate students at Ohio University.

# DNREC – DeIDOT Environmental Associations





## Why are we doing this?

- Land disturbance over 5,000 sq ft needs an approved Sediment and Stormwater Management Plan (SSMP).
- Project disturbance over 1 acre needs to file a NOI (NPDES Construction General Permit), and close out the project by filing a NOT.

# Delaware Law

TITLE 7

Conservation

Agricultural and Soil Conservation; Drainage and Reclamation of Lowlands

CHAPTER 40. Erosion and Sediment Control

CHAPTER 60. Environmental Control

## Delaware Sediment and Stormwater Regulations (DSSR)

DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

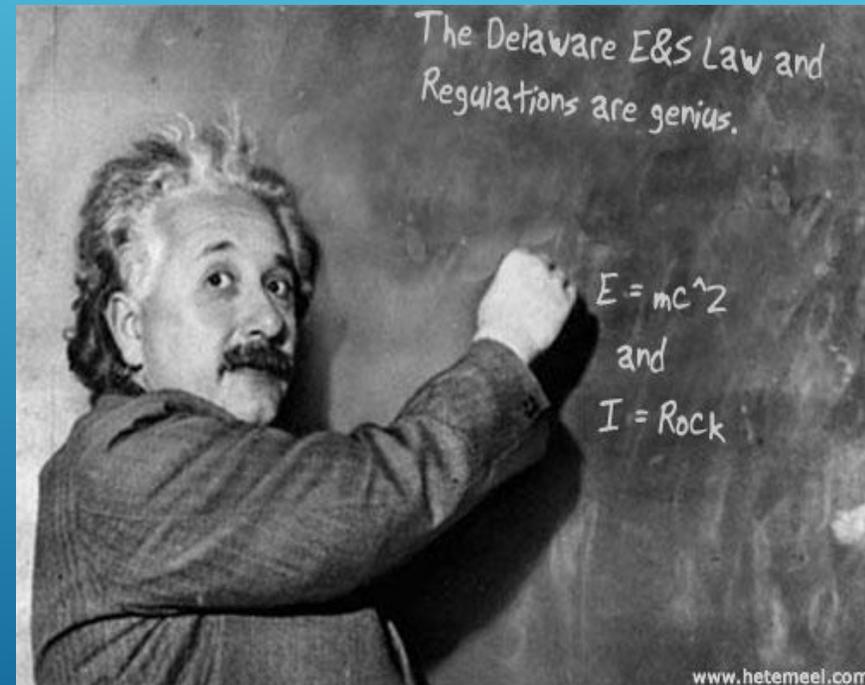
Division of Watershed Stewardship

Statutory Authority: 7 Delaware Code, Chapter 40 (7 Del.C. Ch.40)

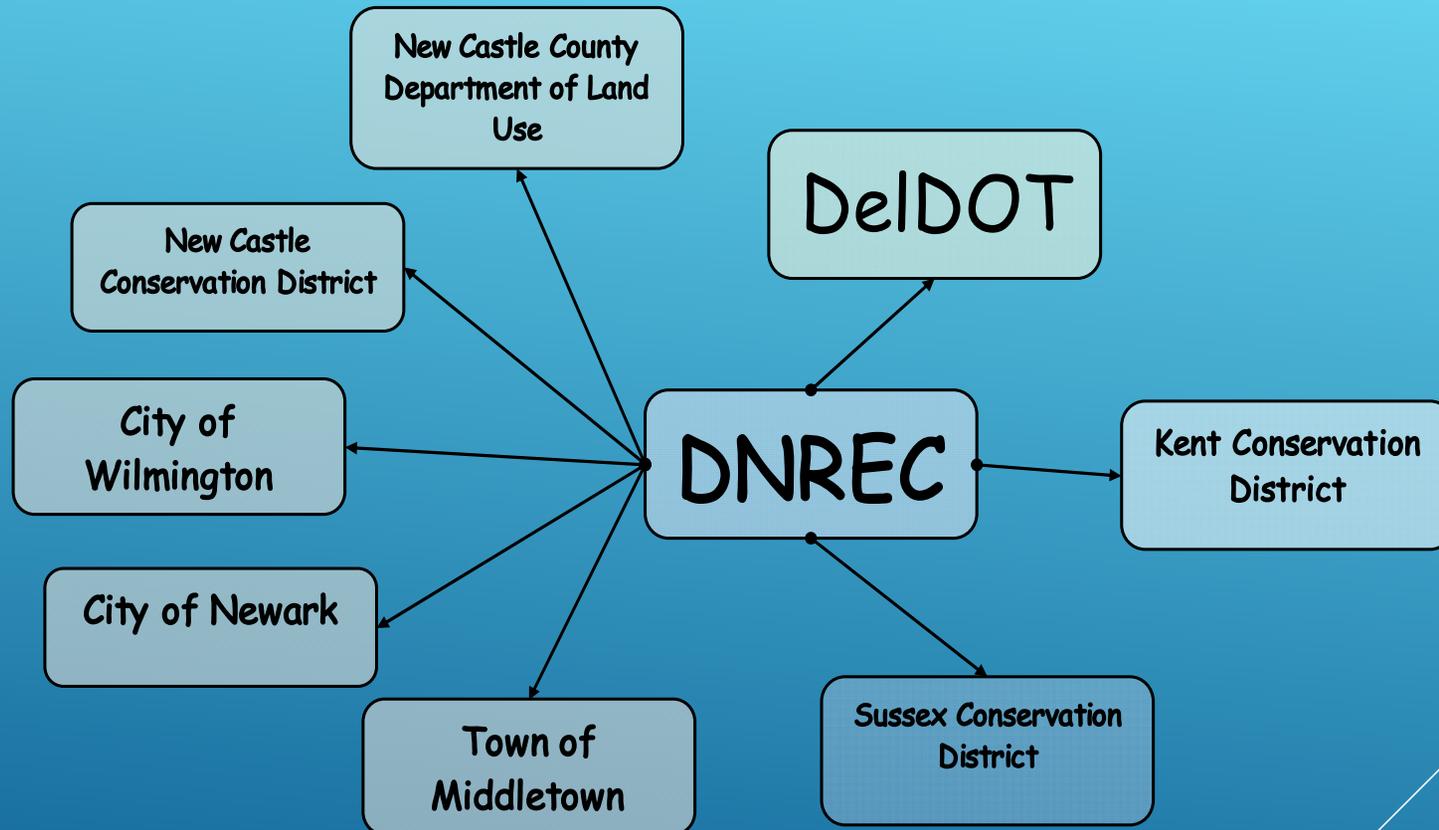
7 DE Admin. Code 5101 Sediment and Stormwater Regulations

7 Del.C. Ch. 60, Environmental Control

7 DE Admin. Code 7201, Regulations Governing the Control of Water Pollution



# Delegated Agencies Under DNREC



# DeIDOT as a Delegated Agency

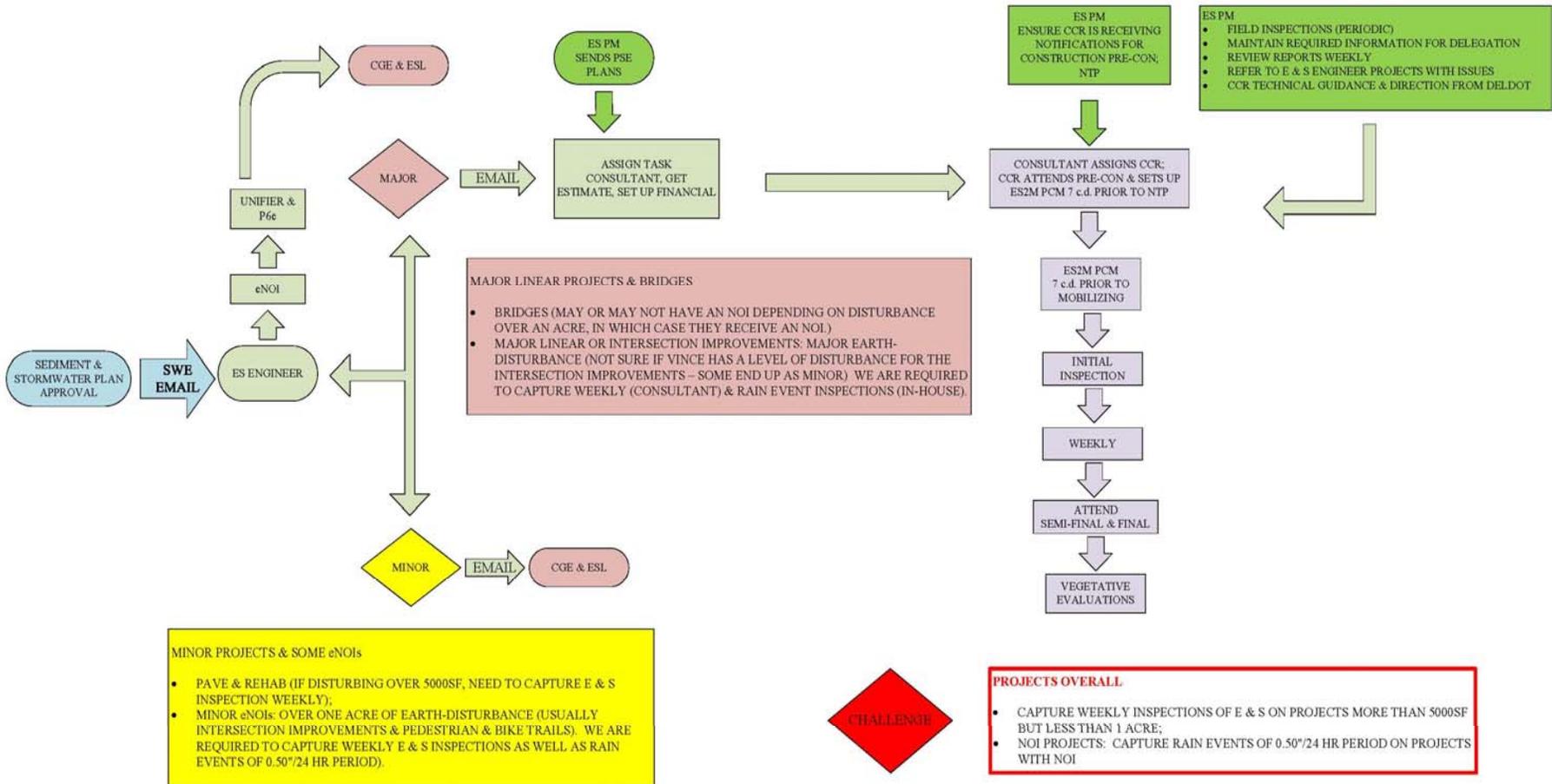
- The above agencies have delegation of Sediment and Stormwater Program elements consisting of plan review/approval, **construction inspection**, and maintenance inspection for their geographic boundaries. Re-delegation occurs every 5 years.
- DeIDOT is one of the Delegated Agencies by DNREC
- Major project (as determined by the Stormwater Engineer) needs CCR (Certified Construction Reviewer, Gold Card Holder) assigned. Minor project use a DeIDOT self review form.
- Blue Card holder (DNREC's contractor training program) is needed for all projects that has an approved Sediment and Stormwater Management Plan (SSMP).
- Subject to DNREC's Re-delegation Review and EPA's Audit (unannounced visit)

# DNREC VS. DELDOT

- ▶ DNREC (and other delegated agencies) geared mostly towards development work
- ▶ DeIDOT is the owner of the project



### BASIC ES2M PROCESS



# APPROVED SEDIMENT AND STORMWATER MANAGEMENT PLAN (SSMP)

- It is very important to keep a current SSMP on site.
- The first thing regulatory agent will ask is a current SSMP and a copy of NOI (if applicable).
- ESLs are great resources for redlines and revisions.



# DELAWARE CONSTRUCTION GENERAL PERMIT

- Applies to any disturbances > 1 acre (NOI / NOT)
- Focus on Pollution Prevention



# DELDOT SPECIFICATIONS & STANDARD CONSTRUCTION DETAILS

- Specifications – DIVISION 900 – EROSION, SEDIMENT AND STORMWATER MEASURES
  - 901 – EROSION, SEDIMENT, AND STORMWATER MANAGEMENT SECTION
  - 902 – PUMPING OPERATIONS SECTION
  - 903 – POLLUTION PREVENTION SECTION
  - 904 – RESERVED SECTION
  - 905 – SEDIMENT TRAPPING DEVICES SECTION
  - 906 – DEWATERING PRACTICES SECTION
  - 907 – WATER CONTROL PRACTICES SECTION
  - 908 – SOIL STABILIZATION PRACTICES SECTION
  - 909 – WATERWAY CONSTRUCTION PRACTICES SECTION
  - 910 – STORMWATER MANAGEMENT FACILITIES SECTION
  - 911 – PLANTINGS
- Construction Details – Section IV – Erosion (E-1 through E-21)

# BEFORE WEEKLY INSPECTION STARTS:

- ES2M Pre-Construction Meeting
    - Set up weekly inspection schedule
    - Any E&S concerns
    - Notification for BMP construction
  - Initial Inspections
    - Required by DSSR
    - Perimeter Control (LOC)
    - E&S Control (Stream Diversion if applicable)
    - Prior to any earth disturbance
    - Pollution prevention elements
- 

# CONSTRUCTION SITE INSPECTION FOR E&S

- 3<sup>rd</sup> Party E&S Inspectors (Consultants, weekly)/Regulatory Inspections (E&S program, unannounced)
  - Rating Form  
Similar to Maryland's  
Different sections carry a weighted percentage
  - Non-Rating Form  
Based on Rating Form and DNREC's form ("U" or "S")  
Even one "U" will result "Non-Compliance"
- Facility Construction Checklist (Permanent BMPs)
- Self-Inspection Form (DeIDOT Construction Inspector non-CCR weekly/rain event inspections)
- Vegetative Evaluation (April and October)
- SWPPPTrack (CCR forms, Self-Inspection forms, VE, BMP checklists and other forms)
- New Specifications and Details

ES2M INSPECTION REPORT

TO: Mike Delp DATE: 3/6/2020 CONTRACT NO.: T201701301  
A-Del Construction CONTRACT NAME: Milton Rail to Trail Phase II  
 FROM: JENIFER JOSEPH CONTRACTOR: A-Del Construction  
CEI PRESENT DURING: Harold Horan (A-Del)  
 INSPECITON: Dale Cook (Century Eng)  
 TIME IN: 8:00 AM TIME OUT: 9:00 AM DATE OF LAST INSPECTION: 2/28/2020 PLAN EXPIRATION: 9/20/2024  
 STATUS:  ACTIVE  REASON FOR INSPECTION:  WEEKLY  NOI# 6057

GENERAL CONDITIONS	
GENERAL SITE COMPLIANCE	<b>NON-COMPLIANT</b>
<i>(Non-Compliant - See Written Deficiencies.)</i>	

CURRENT WEATHER CONDITIONS	
TEMPERATURE	43
CONDITION	RAIN
HUMIDITY	94%
WIND	NNW 9

IMPLEMENTATION & MAINTENANCE OF EROSION & SEDIMENT CONTROL DEVICES and PLAN			
STATUS KEY	S Satisfactory	U Unsatisfactory	Leave blank if N/A

CCR RATING/NON-RATING FORMS

AECOM  
4051 Ogletown Rd., Suite 300  
Newark DE 19713

ES2M Inspection Rating Form

TO: Ben Brindley DATE: 3/5/2020 CONTRACT NO.: T200809001  
Greggo & Ferrara CONTRACT NAME: I-95 N213 Carr Road & SR 3 Marsh Road  
 FROM: Rob Roop CONTRACTOR: Greggo & Ferrara  
 Present During Inspection: Ben Brindley (G&F-ESCS)  
 TIME IN: 9:30 TIME OUT: 11:30 DATE OF LAST INSPECTION: 2/27/2020 PLAN EXPIRATION: 2/15/2021

STATUS: ACTIVE  INACTIVE  COMPLETE  INITIAL  NOI# \_\_\_\_\_  
 REASON FOR INSPECTION:  WEEKLY  FOLLOW UP  REDUCED FREQUENCY  REGULATORY

SITE RATING

Section	Number of Points Awarded (X)	Number of Points Available (Y)	Percent Awarded for Section (X/Y) x 100
1	26	26	<del>100.00</del> A
Section 1 x 20%			20.00
2	28	28	100.00
3	25	28	89.29
Weighted Average Percentage (2 + 3)/2 x 50% divided by number of sections rated			47.32
4	23	38	<del>60.53</del> B
Section 4 x 20%			12.11
5	0	10	<del>0.00</del> C
Section 5 x 10%			0.00
Total Rating Percentage (Add Box A, B and C)			TOTAL 79.43

RATING:  100 - 90  89.99 - 80  79.99 - 70  69.99 - 60  59.99 - 0  
 ≤ 69.99% is non-compliant. SELECT ONE & Highlight

CC:	
AE	KATIE SCHWANDER
CE	CHRIS COSTELLO

CCR: [Signature] 03-05-2020 CCR No.: 2017/10/26 065  
 Rob Roop

**NPDES-SITE INSPECTION SHEET**

.80 inches on 2/11/20

Regular, timely inspections are critical – conduct inspections weekly and after every rainfall event of 1/8 inch or more.

**Inspection data**

Site location: T20170130 Miller Rd Trail  
 Routine inspection for week ending: 2/9 - 2/15/2020  
 Pre-rain | during | post rain inspection and time elapsed since rain: 8 hours  
 Date: 2/12/2020 Time: 7AM  
 Inspected by (name and title):  
 Signature: Matthew Schneider, Inspector

	OK?	problem identified   action taken
1. Erosion control practices in place and functioning? (mulch, seeding, blankets)	<input checked="" type="checkbox"/>	S - AS PER SSMP
2. Sediment traps, barriers and basins clean and functioning properly?	<input checked="" type="checkbox"/>	S
3. Sediment controls in place at site perimeter and storm drain inlets?	<input checked="" type="checkbox"/>	S
4. Discharge points free of any noticeable pollutant discharges?	<input checked="" type="checkbox"/>	S
5. Sediment, mud and debris being cleaned from public roads? Is there a stable, rocked entrance to the site? Are there adequate provisions to prevent mud tracking off site?	<input checked="" type="checkbox"/>	S

# DELDOT E&S SITE INSPECTION FORM EXAMPLE

## DELDOT E&S SITE INSPECTION FORM

**REGULAR, TIMELY INSPECTIONS ARE CRITICAL – CONDUCT INSPECTIONS WEEKLY & WITHIN 24 HOURS OF A RAIN EVENT GREATER THAN OR EQUAL TO 0.50" IN A 24 HOUR PERIOD**

CONTRACT NO: T209901206 PROJECT NAME: Billys December Test Project  
 DATE: 03/06/2020 TIME IN: 12:00 TIME OUT: 14:00 NOI: \_\_\_\_\_  
 INSPECTOR NAME: Mary Hamilton BLUE/GOLD#: 2019/11/08-020

**Sediment & Stormwater Management Plan (SSMP)**

1. Is the Sediment & Stormwater Mgt Plan (SSMP) current? U - Redline/Revision Required

**Erosion & Sediment Controls**

- 2. Are erosion control practices in place and function? (mulching, soil stabilizers, seeding, blankets) U - Repair, Replace, or Modify
- 3. All sediment control devices installed as per SSMP? (CSIC, DISC, CFLs) U - Not Installed Per SSMP
- 4. Are sediment traps and basins functionality properly? (stabilized, capacity <= 50%, outlets installed) S - As Per SSMP
- 5. Are outfall discharge points free of any sediment? S - As Per SSMP

# DELDOT PERMANENT SWM FACILITIES

- BMP Checklist
- Permanent BMP List (M&O)
- Most Common BMP's Used
  - Infiltration Basin and Trench
  - Bioswales and Vegetated Channels
- Lesser BMP's Used
  - Bioretention
  - Underground Infiltration



# CONFUSING, BUT NEED TO BE AWARE

\* EPA FINES

