Alabama's Erosion and Sediment Control Program

ASCE Winter Conference
Dothan, Alabama
March 7, 2019

Perry L. Oakes, PE (consultant)
Erosion and Sediment Control Program
AL Soil and Water Conservation Committee

It All Began

- **1991: Request by Jefferson County Soil and Water Conservation District to Alabama Soil and Water Conservation Committee for an Erosion and Sediment Control Handbook**

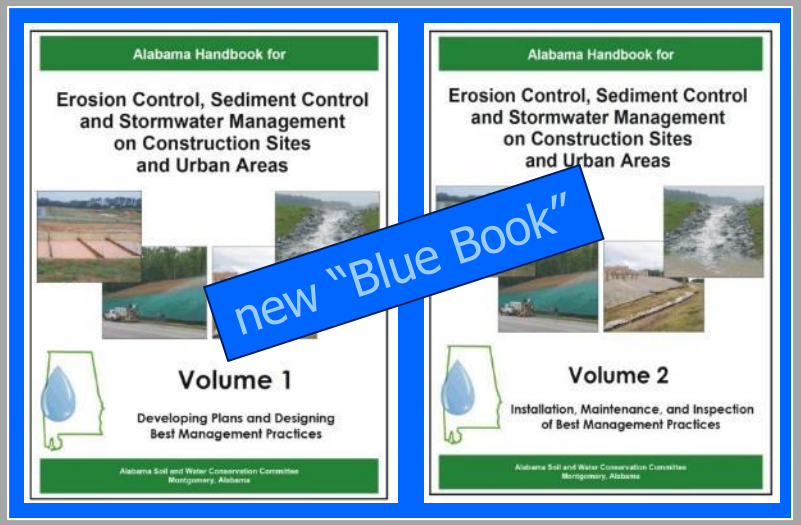
1993

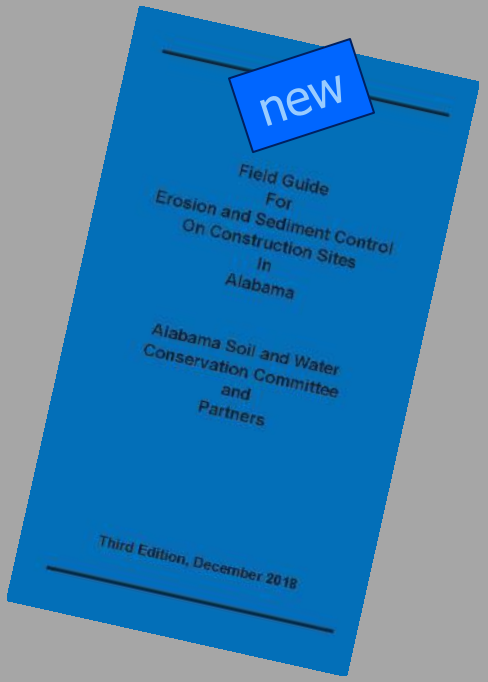
Alabama's Erosion and Sediment Control Partnership

- **AL Soil and Water Conservation Committee**
- AL Associated General Contractors
- AL Association of Conservation Districts
- AL Chapter Soil and Water Conservation Society
- AL Department of Environmental Management
- AL Department of Transportation
- Auburn University
- Alabama Cooperative Extension system
- Home Builders Association of AL
- Natural Resources Conservation Service
- Weeks Bay National Estuarine Research Reserve

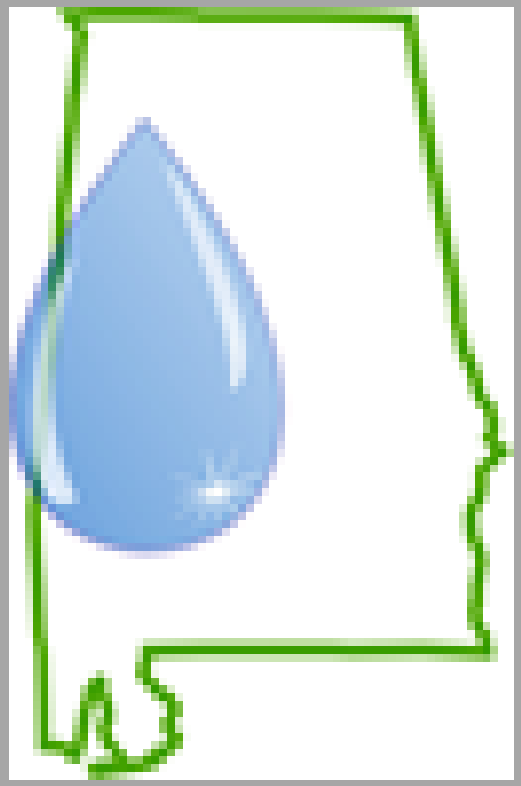
- **Steering Committee**

What does the E&SC Program offer?





So where is Clear Water, AL?



Clear Water Alabama

Been to 25 locations and counting:

- Autauga (3)
- Baldwin (4)
- Coffee (2)
- Cullman
- Jefferson (5)
- Lee (2)
- Madison (3)
- Mobile
- Morgan
- Calhoun
- Tuscaloosa (2)

Clear Water Alabama is for:
all those responsible for land disturbance (construction)

Clear Water Alabama 2018

Seminar and Field Day

October 23 – 24, 2019

Doster Center, Prattville

Mark Your Calendar
Earn 9.5 PDHs

Wednesday seminar for

- construction site planners
- design engineers
- inspectors

Thursday field day for everyone in E&SC

- engineers
- site contractors
- homebuilders
- public works staff
- city council members
- commissioners
- SWCD supervisors

Clear Water AL Supporters Over The Years

Industry: Product support

Sunshine Supplies
American Excelsior
Hanes Geo
Pennington Seed Co
Silt Saver, Inc. Erosion Pros, L.L.C.
W. J. Faircloth and Son, Inc.
Applied Polymer Systems, Inc.
Thompson Engineering
Spread Rite Environmental
Twin Oaks Environmental
Southern Pipe and Supply, Inc.
Southeast Environmental Consultants

Clear Water AL Supporters Over The Years

Industry: members, staff, funds

- Associate General Contractors – Alabama
- Home Builders Association of Alabama
- CPESC and EnviroCert International, Inc.
- IECA – Southeast Chapter
- Alabama Power Company

Agencies and Organizations

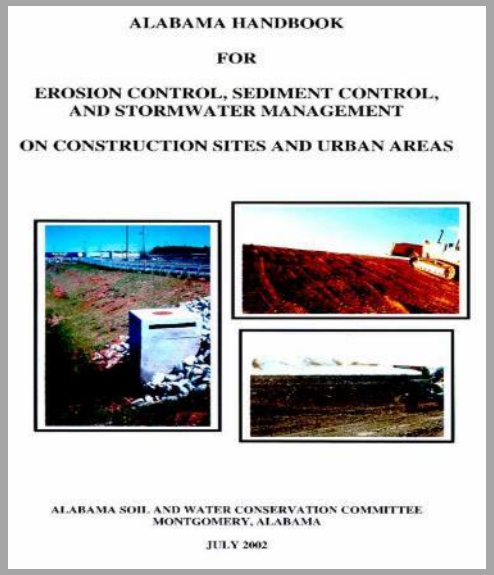
- ADEM and ALDOT
- NRCS
- Soil and Water Conservation Society
- Auburn University and AL Cooperative Ext. System
- Local soil and water conservation districts
- Host cities

Why all the fuss about sediment?

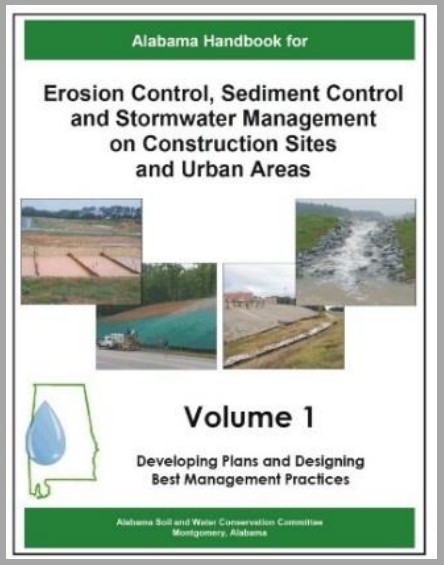
- **It impacts the environment**
- **Harmful to aquatic life**
- **Cost $$$$ to remove**
- **Smothers stream bottoms**
- **Clouds the water**
- **Reduces population of sensitive sport fish**
- **Transports harmful levels of pollutants**

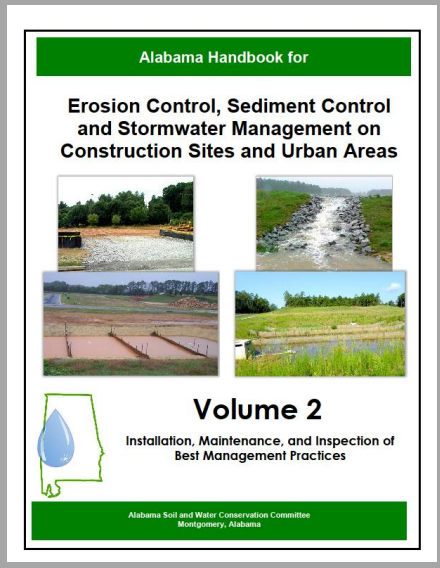
Over 25,000 distributed thus far.

1993



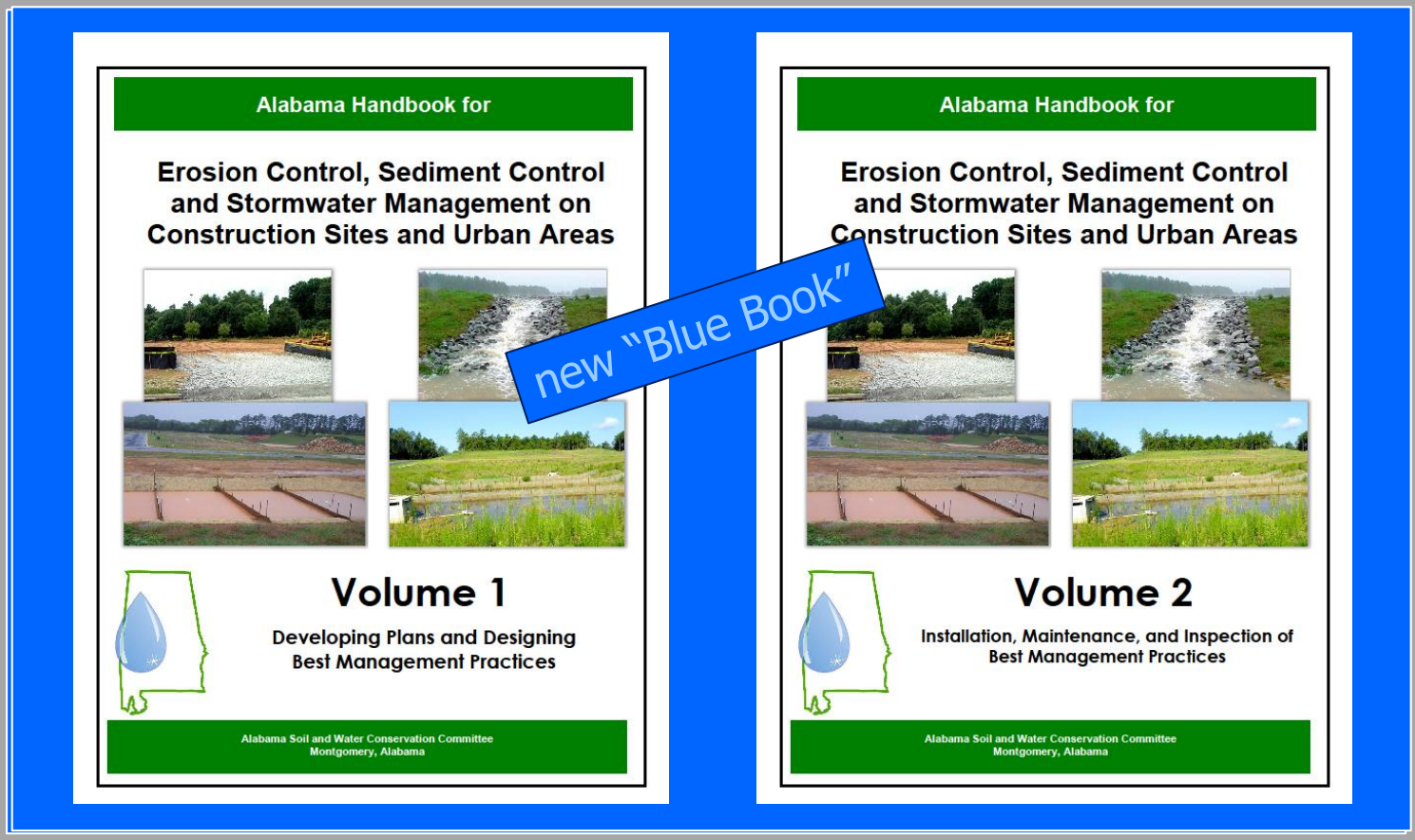
2002





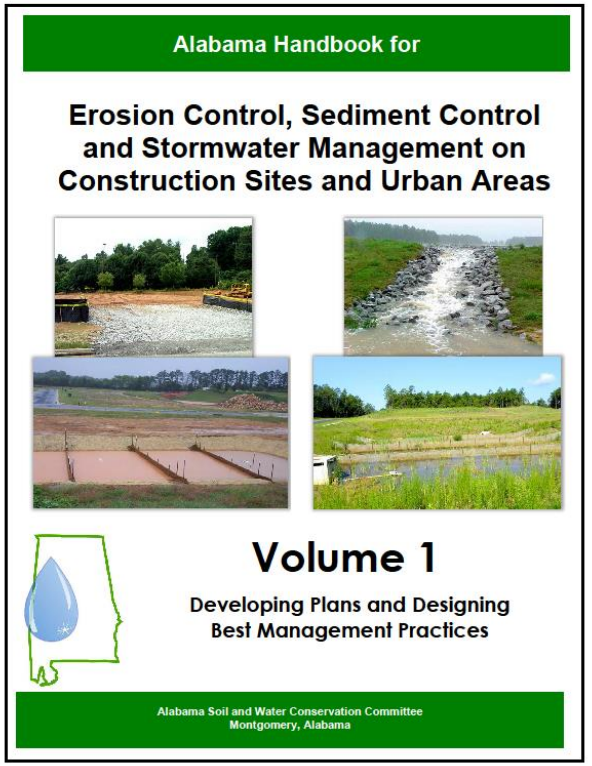
2003, 2006, 2009, 2014, 2018

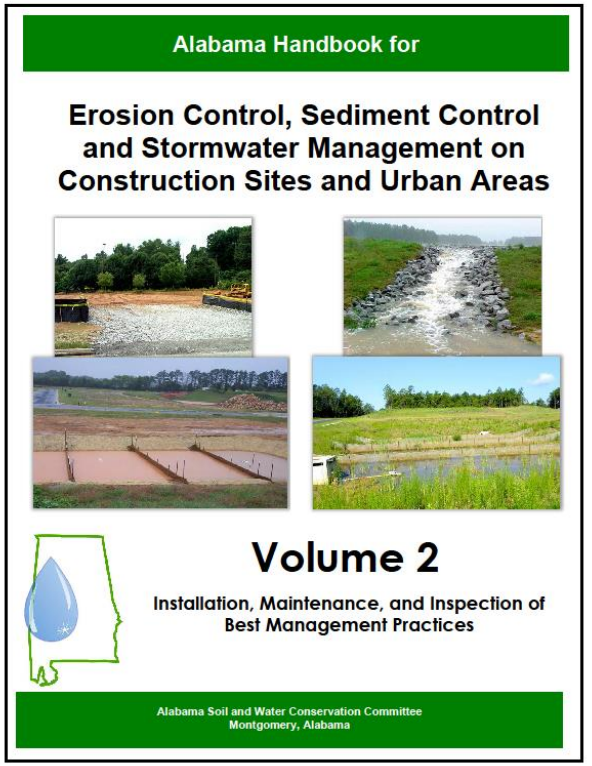
Alabama Handbook for Erosion Control ....



FREE to download a pdf and
Available for hardcopy purchase at:
http://alconservationdistricts.gov/
Resources/Erosion & Sediment Control

Google
"Conserve Alabama"





For Shipping and Handling ONLY $20

Get form from me today.

Deadline end of March.

Field (pocket) Guide

An inspectors guide
to the most used practices in Alabama

Over 20,000 Field Guides distributed thus far!

Get yours today for FREE from me.

Available free at local SWCD offices,
Download for FREE,
or
Large quantities can be purchased through Jefferson County Soil and Water Conservation Foundation

Order form at
http://alconservationdistricts.gov/Resources/Erosion & Sediment Control

Seminars

36 since November 2003

- 24 through Auburn University T Squared
- 1 through Tuskegee University
- 9 through Clear Water Alabama
- 2 through Soil and Water Conservation Society – AL Chapter

Erosion Control
vs
Sediment Control

Main Principles of E&SC
(don't involve a BMP)

- **Minimize the area disturbed by leaving existing vegetation that does not have to be removed.**

- **Minimize the time of exposure by shortening construction periods and staging a project when possible.**

- **Sequence installation in a manner that supports shortened construction periods and permits the use of temporary and permanent seeding when the practices can be most effective.**

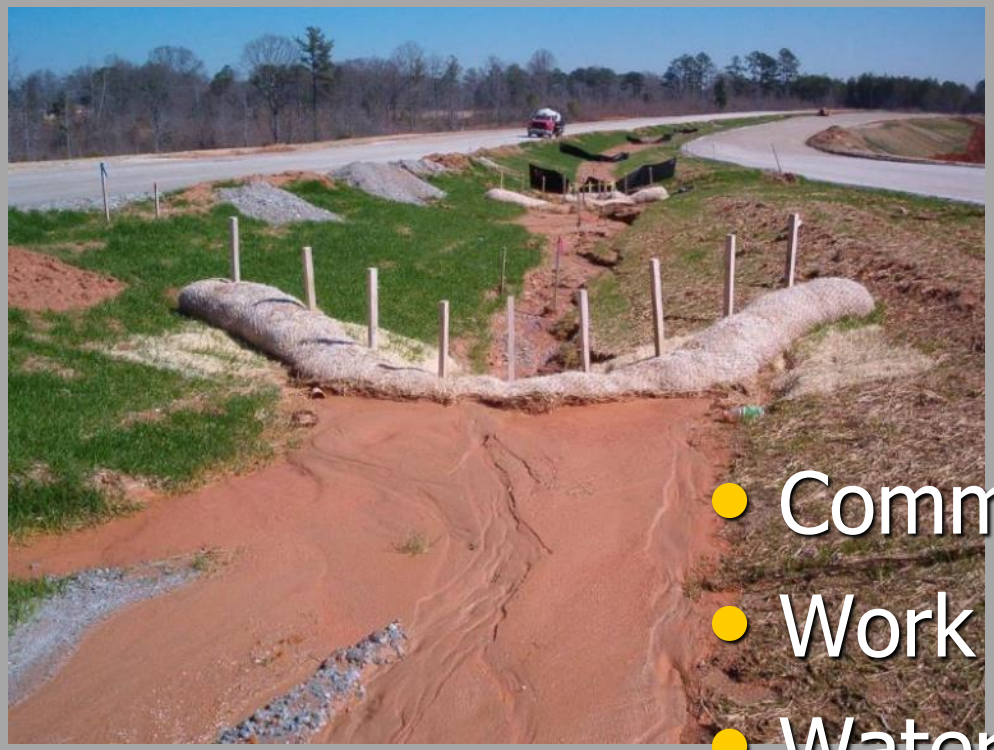
5 Pillars of Construction Stormwater Management

(Barry Fagan)

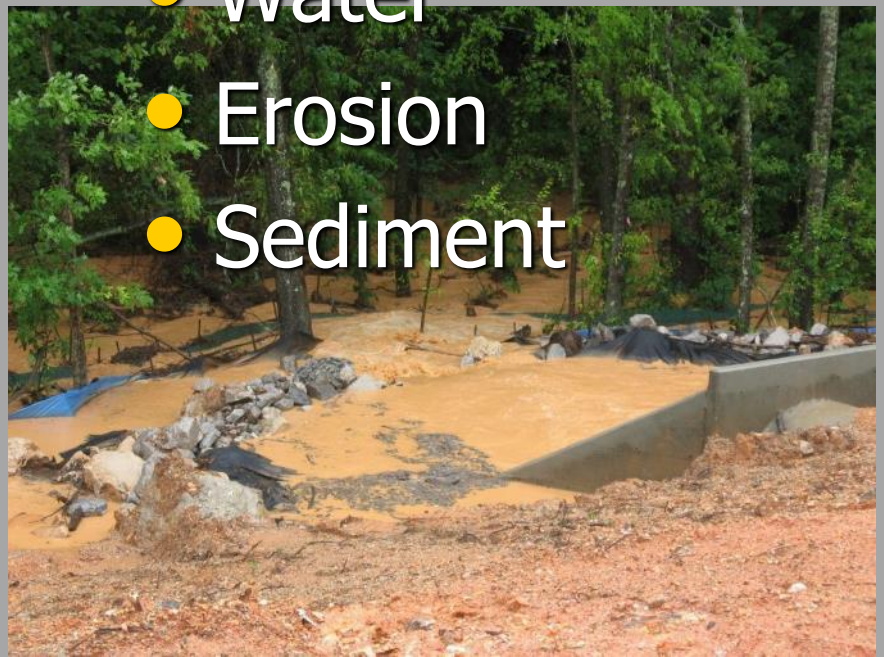
In order of Importance

- Communication
- Work
- Water
- Erosion
- Sediment

"Green is Good and Sediment S___s!"



- Communication
- Work
- Water
- Erosion
- Sediment



Changes to Handbook

- AASHTO M-288
- Erosion Control Blanket
- Check Dam
- Sediment Barrier
- Inlet Protection
- Sediment Basin

AASHTO M-288: Geotextile Specification for Highway Applications

- In the 2009 Handbook, geotextile specifications were defined using old NRCS tables.
- In the 2014 Handbook, every time a geotextile was mentioned, the handbook stated that geotextile must meet AASHTO M-288 (NRCS tables were deleted).
- Most designers did not have access to AASHTO standards.
- The 2018 Handbook will more clearly define the AASHTO M-288 requirements for a geotextile.

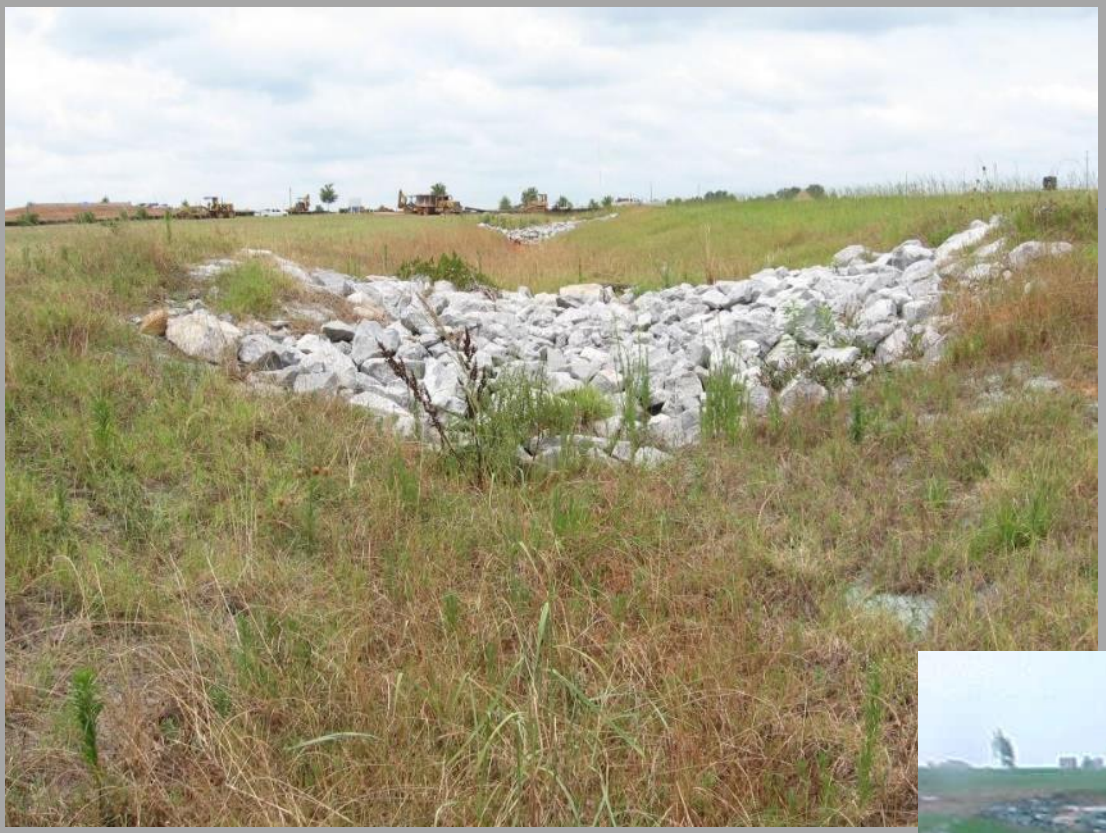
"Generally, the non-woven geotextile should meet the requirements found in AASHTO M288 for a Class 2 separation geotextile."

Erosion Control Blanket

- ECTC changed from 14 to 18 Types (not Classes) of RECPs. There are 5 major Types.
- Type 1 products have a 3-month functional longevity,
- Type 2 a 12-month,
- Type 3 a 24-month,
- Type 4 a 36-month, and
- Type 5 are Turf Reinforcement Mats for long-term erosion protection.

Check Dam - rock

- Old handbooks required rock check dams to have a keyway and geotextile between the rock and soil (separation only).
- AUESCTF found that a keyway is not necessary, but a geotextile underlayment should extend up and downstream to protect against undermining and downstream scour.
- AUESCTF also found that geotextile should be used on the upstream face of a rock check dam to increase ponding efficiency.



"OLD" Rock Check Dams

Rock Check Dam

Check Dam - other

- The new handbook contains information on:
  - Wattle Check Dams
  - Silt Fence Check Dams
  - Sand Bag Check Dams

- Underlayment
- "U" Shape
- Tee-Pee staking
- Pin down

Wattle Check Dam

- Underlayment
- Upstream “V”
- Notch correctly

Silt Fence Check Dam

- Underlayment (not shown)
- Middle layer parallel
- Splash pad

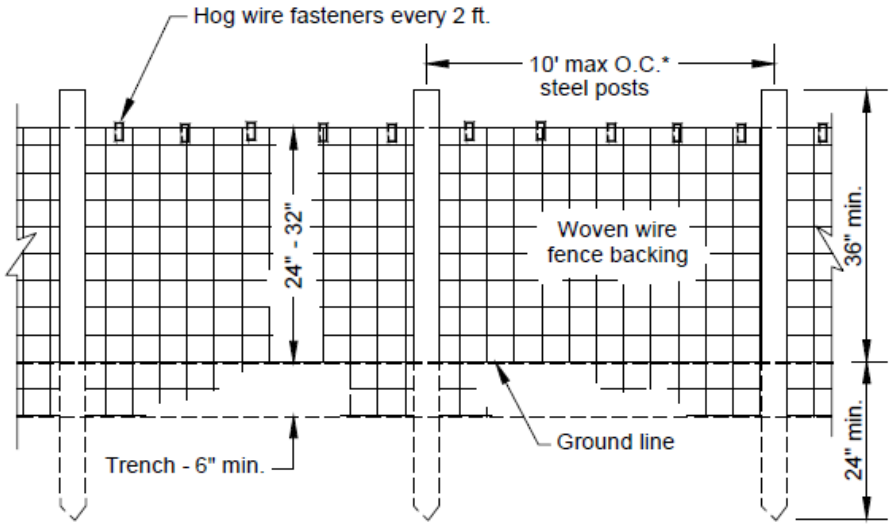
Sand Bag Check Dam

Sediment Barrier

- The old handbook had 3 types of silt fence. Type "A" fence was the same as the ALDOT wire backed silt fence.
- The 2018 handbook will only have 2 recommended types of silt fence (reinforced and non-reinforced).
- At locations were a silt fence ponds water, the posts should be 5 ft. spacing instead of 10 ft.
- AUESCTF found that a geotextile "off set" installation performed better than the conventional installation.

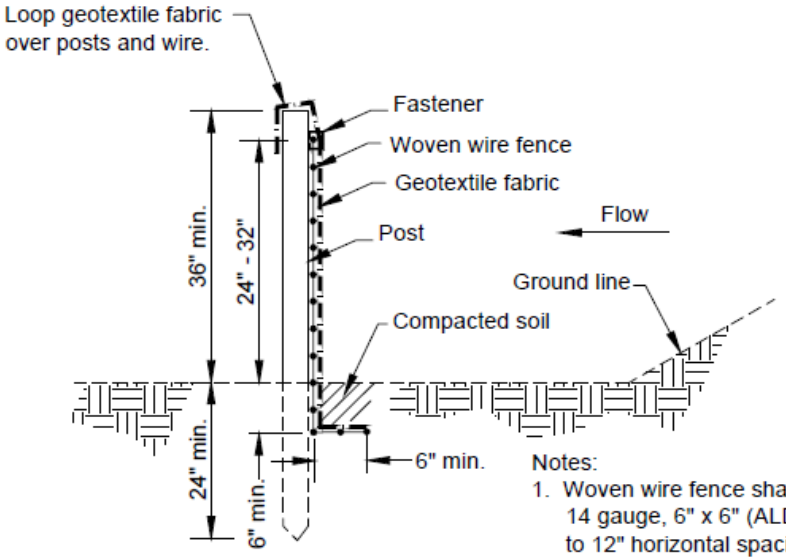

MARK 17

"Type A" Silt Fence



FRONT VIEW
(Not to scale)

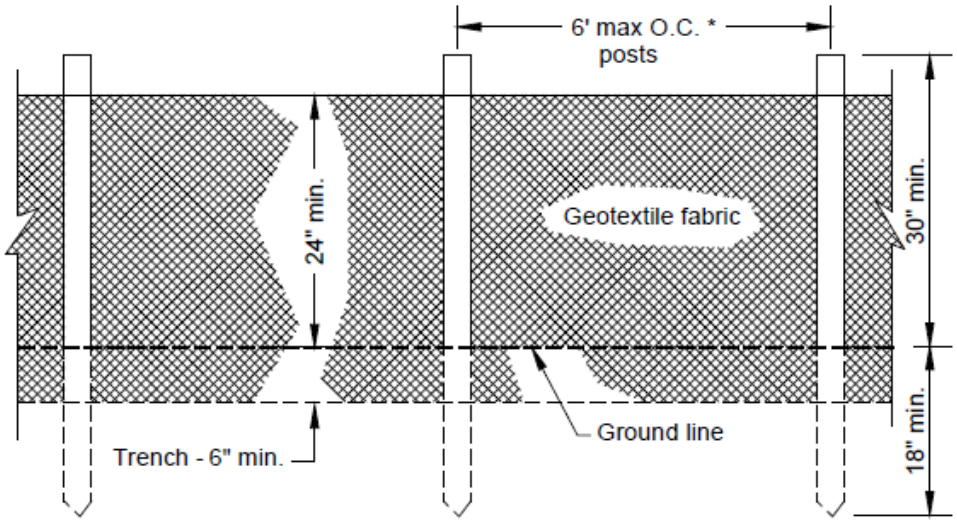
* AASHTO M-288 recommends a 4 ft. post spacing.



SIDE VIEW
(Not to scale)

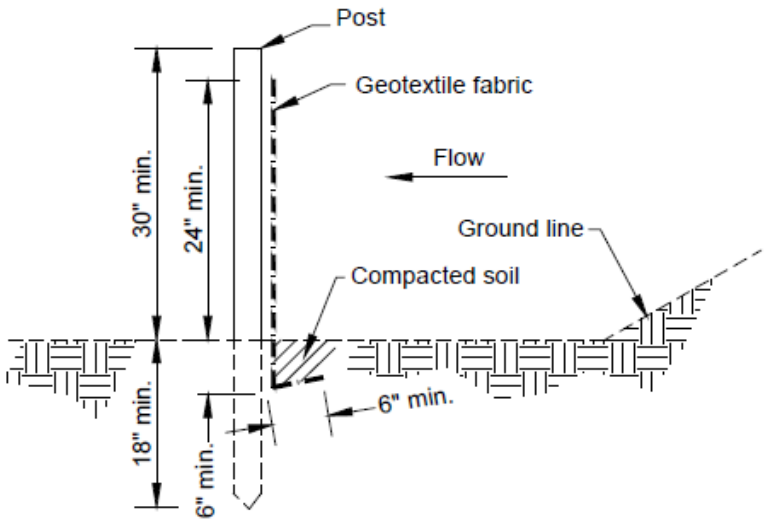
Notes:

1. Woven wire fence shall be minimum 14 gauge, 6" x 6" (ALDOT allows up to 12" horizontal spacing).
2. The woven wire fencing shall be fastened to the upstream side of posts by staples or wire ties.
3. Geotextile fabric shall be securely fastened to the woven wire fencing.
4. Machine trenched geotextile shall be trenched vertical at least 8" deep.



FRONT VIEW
(Not to scale)

* According to ASTM D4632/D4632M : When geotextile elongation ≥ 50%, use 4 ft. post spacing



SIDE VIEW
(Not to scale)

"Type B" Silt Fence

"Off-Set" Installation

Inlet Protection

- The 2018 handbook will have only one practice "Inlet Protection" that includes all types of stormwater inlet protection devices.
- All use a geotextile underlayment per AUESCTF recommendations.

Inlet Protection

- Silt Fence Inlet Protection
- Block and Gravel Inlet Protection
- Sand Bag Inlet Protection
- Wattle Inlet Protection

- **Underlayment**
- **Bracing**
- **Pin down**
- **Dewatering**

Silt Fence Inlet Protection

- **Underlayment**
- **Geotextile between blocks and gravel**
- **Cinder blocks**
- **Dewatering**

Block and Gravel Inlet Protection

Sand Bag Inlet Protection

- **Underlayment**
- **Middle layer parallel**

- **Underlayment**
- **Pin down**
- **Tee-Pee staking**

Wattle Inlet Protection

Sediment Basin

Introduce PAM upstream in a turbulent flow area and not on the first baffle


Any Burning Questions??