TO RFC AND BEYOND
Early 1900's

wind erosion

water erosion
1908
- Conference of Governors estimates nearly 500 Million tons of soil were being lost from farmlands into streams and rivers and ultimately into the ocean
- Conference of Governors discusses Soil Erosion and a plan to provide for conservation of our Natural Resources

1930
- Congress appropriates funds for studies across country to assess and develop solutions
- Terraces and Contour plowing practices to address Sheet Erosion and “soil saving” dams become effective in addressing gully erosion
- J. A. Adams develops possibly the first variation of the surface dewatering basin. Includes a vertical pipe, outlet pipe, and earthen berm creating impoundment.

Were these studies across the country the catalysts for the first EC plan?
1933
- The Soil Erosion Service (Federal) was created under Dept of Interior.

1935
- Renamed Soil Conservation Service and assigned to Dept of Agriculture.

1940’s
- Mathematical modeling to address soil loss

1948
- Federal Water Pollution Control Act

1965
- USDA published the Universal Soil Loss Equation (A=RKLSCP)

1972
- Clean water Act - planning was recognized as important to control non point source pollution. NPDES created to control point source discharge

1973
- NC Sedimentation and Pollution Control Act included requirement of Erosion Control Plan
Voila! The very cliff note version of how the EC plan came to be…. Maybe.

So, about this EC plan…. What is the purpose?

From the NC DEQ Erosion and Sediment Control Planning and Deign Manual:

The purpose of an erosion and sedimentation control plan is to establish clearly which control measures are intended to prevent erosion and offsite sedimentation. The plan should serve as a blueprint for the location, installation, and maintenance of practices to control all anticipated erosion and prevent sediment from leaving the site. The approved erosion and sedimentation control plan—showing the location, design, and construction schedule for all erosion and sedimentation control practices—should be a part of the general construction contract. State specifically the method of payment for implementing this plan in the contract, and consider erosion and sedimentation control an early pay item.
Understand/Familiarize yourself with site

- Topography
- Soils
- Jurisdictional/Sensitive Areas
- Neighbors
- Schedule
- Access

- Linear (NC DOT)
  - Traffic
  - Utilities
  - Limited ROW

EC Plan is the guide for developer/contractor to transition physical conditions of site through various degrees of risk.
- Plan should provide the necessary tools to address that risk
Topography

- Flat
  - Move water
  - Perimeter containment and occasional sediment impoundment BMPs
- Rolling
  - Slow water
  - Ditch line stabilization
  - Sediment Impoundment
    - Tiered basins
    - Diversion berms to slope drains
    - Rolled Erosion Control Products
- Drainage Area
  - Going
    - Diversions
    - Sediment Basins
  - Coming
    - Clean Water Diversions
    - Stream Crossings

Great!
- Provide clear guidance
- Consider project site to be developed.
How does that help me with design?
Modified Silt Basin
Type ‘B’
77 x 35 x 3
20 ft. weir
(See Tiered Skimmer Basin Detail)
ID 24-06.

77 x 35 x 3
2.0 inch Skimmer with 1.75 inch Orifice Diameter
20 ft. weir
(See Tiered Skimmer Basin Detail)
ID 24-06

Channel Change
WCL B Riprap
See Detail T

RIP RAP AT EMBANKMENT
SEE DETAIL BA

PROPOSED GRADE

EXISTING GROUND

ROLLING TOPO
Manage drainage areas
- TD to direct runoff to Sediment Basins
- CWD to route clean water around project
If you don’t properly design for impoundment ...
Soils

- Clay Soils
  - Moderately Erodible but significant turbidity
    - Slow runoff down
    - PAM
    - Groundcover
    - Turbidity Curtain

- Silt
  - Highly erodible
    - Slow runoff down
    - PAM
    - Groundcover
    - Impoundment

- Sand/Loam
  - Minimal/Moderately Erodible
    - Slow runoff down
    - Groundcover
Jurisdictional/Sensitive Areas

- Natural
  - Streams
    - Identify
    - Culvert/pipe sequence
    - Temporary crossings
  - Wetlands
    - Identify
    - Filling in wetland
  - Endangered Species
    - Identify
    - Permit requirements

- Cultural
  - Historical structures
  - Archaeological
  - Clear boundaries
Temporary Stream Crossing

Stream Diversion for Culvert
Neighbors
Schedule phases
Access into and out of site
Got it!
- Clear guidance
- Consider unique elements of project site
- Identify challenges & use proper BMPs in design.

So, who is the plan being designed for?
Roger!
- EC plan should provide clear guidance
- Address unique challenges of the site, and include proper BMPs.

That’s a lot of information. How do I make sure the Regulator and Contractor understand the intent of my design?

**Scheduling**
- Phase activities

**Narrative**
- Supplement/support design
- Provisions
- Detail Drawings

**Contact Information**
- Communication
Whew! I believe I got it all together....
Time to submit.

Good plan – Good comments – **RFC**!

**Mission Accomplished!**

It’s not?

**DON’T FORGET ....**
Follow up
- Communicate with contractor/developer
- Check in on the plan implementation
- Observe and Learn
  - what worked and what didn’t
  - alternatives/options

Continuing education
- Attend classes/workshops
- Network with others

“No matter how much experience you have, there’s always something new you can learn and room for improvement.”

Roy T. Bennett
Planning
Need is identified
Scoping meeting to review options

Programming
Priority
Funding

Project Development
Environmental Meetings to assess Natural and Cultural Impacts
Public input

Design/Property Acquisition
Design input from multi disciplines
25% submittal
75% submittal
100% submittal
Release for Construction

Construction
Plan implementation
Project Reviews
Erosion and Sediment Control Design and Construction Manual

BEST MANAGEMENT PRACTICES FOR CONSTRUCTION AND MAINTENANCE ACTIVITIES
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
August 2003

DEQ
NORTH CAROLINA Department of Environmental Quality

Questions?

North Carolina Erosion and Sediment Control Design Workshop
December 3, 2019

Please Remember to Complete the End of Workshop Evaluation
(separate from the PDH sponsor evaluation)