Erosion and Sediment Controls for Florida

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UCF Stormwater Management Academy



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Welcome

- Information Package
- Three Topics
 - Manuals
 - Field Trip
 - Testing laboratory SMARTL
- Vision and Expectations
 - What do stakeholders want?
 - FDOT
 - FDEP
 - Water Management Districts
 - Other Stakeholders





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INITIAL RESEARCH OBJECTIVES AND TASKS

- The researchers will review and suggest potential revisions for erosion and sediment control methods for FDOT and statewide applicability
- Statewide manuals will be developed
- Testing and evaluation of BMPs will be performed, providing usage recommendations and design specifications





Current Florida Guides for Best Management Practices

- State Stormwater Rule
- Water Management District Permits
- County Requirements and City Ordinances
- FDOT Standard Specifications and other supporting documents
- Florida Development Manual
- Florida Stormwater Inspector's Manual and Training Program





Proposed Outline for the Manuals

- **DESIGN AND CONSTRUCTION MANUAL** •Introduction
 - Florida's Stormwater Regulatory
 Program
 - Erosion control and sediment control
 - Role of the State, Regional, and Local Agencies





Design and Construction

- Clean Water Act requirements NPDES requirements for Phase I and Phase II projects.
 - Water quality impacts from construction activities
 - Post-construction requirements
- Pollution
 - Description
 - Association with Construction
 - Post-construction





Design and Construction

- Operator requirements
 - Designers
 - Heavy equipment contractors
 - Support contractors
- Importance of communication and cooperation
- Maintenance requirements
 - Impacts by contractors and associated costs
 - Impacts by nature or vandalism and methods of payment for repair





Design and Construction

Designers and Regulatory Personnel

- Understanding BMP roles and limitations
- Guidelines for developing and reviewing sediment and erosion control plans
 - Northern Florida soil, geologic, and vegetation conditions
 - Southern Florida soil, geologic, and vegetation conditions
- Guidelines for developing and reviewing the content of a SWPPP
- Guidelines and illustration of sediment and erosion control plans
 - Pre-construction
 - During construction
 - Post-construction
- Development of a SWPPP and accompanying binder
- Standards and specifications
- Development of bid sheets
- Role during construction activities





Design and Construction

- Construction
 - Understanding the SWPPP and accompanying sediment and erosion control plans
 - Sequencing installation of BMPs
 - Modifying plans
 - Record keeping
 - Site preparation and maintenance
 - Correct BMP installation
- Sediment control systems
- Erosion prevention methods
- Dewatering methods





Inspector Manual

- Introduction
 - FDOT philosophy and policies
 - Role of the FDEP
 - Clean Water Act requirements
 - NPDES requirements for Phase I and Phase II projects
- Inspection Procedures
 - Structural measures
 - Non-structural measures
 - Site requirements
 - Discharge points from construction sites

- Identifying the Need for Adding or Removing BMPs
- Payment Methods
- Reporting Criteria
 - Frequency
 - Requirements
 - Forms
 - Methods
- Non-compliance Actions
 - Reporting
 - Cleanup
 - Maintenance
 - Follow-up





Inspector Manual

- Appendices will include:
 - Illustrations of pertinent BMPs and accompanying instructions and limitations
 - -Structural measures
 - -Non-structural measures
 - -NOI and NOT forms Database
- Initial Discussion





South Florida Trip Overview

- BMPs Utilized
 - Silt fence
 - Turbidity barriers
 - Sheet pile
- Personnel Interviewed
 - Contractors
 - Inspectors
 - FDOT personnel
- Other Issues Observed





Dade County Highway Project







Dade County Highway Project







Dewatering

Here is an example of dewatering around a highway:







Dewatering

Here is an example of dewatering around a highway:







Dewatering

Here is an example of dewatering around a highway:























































General Comments

- Good science as a basis
- FDOT document revisions
- Additional drawings
- Need to provide instructors with the new information and materials
- Process for packaging guidance





More Comments

- Template for SWPPPs
- CAD standard detail drawings for easy insertion into SWPPPs and plans
- Dewatering issues and procedures
- Couple incentives with disincentives for performance – contract clauses
- Tie BMP controls to various slopes, rainfall events, and runoff volumes and flows
- Incremental changes to current DOT/DEP policies and procedures





More Comments

- Address enforcement issues with both internal CEI and external EPA/DEP personnel
- Develop training tools and technical tools
- All areas of the state to be included
- Make the contractor responsible, with their requirements clearly spelled out in the pre-bid and planning phases
- Performance based, not prescriptive





Other Comments

- A clear distinction between temporary and permanent stabilization techniques
- Maintain drainage systems while new systems are being built
- Provide guidance on in-stream construction activities such as stabilizing access, maintaining flows, and damming surface water when required





Other important considerations will include:

- Different topography throughout Florida
- Dewatering and demucking issues
- Season high groundwater depths vary all over the state
- Recommendations for these parameters will be specified
- Questions and Comments





Project Schedule for Manuals

ID	Task Name	Duration	Start	Finish	124, '0	Sep	o 25, '	Nov 27,	' Ja	n 29	, 'O A	pr 2,	'06 J	un 4,	'06 A	ug 6,	, '0	Oct 8	'06	Dec '	10, '
		[Days]			S S	i N	1 T	WT	F	S	S	M	T	W	Т	F	S	S	M	Т	W
1	Kick-off Meeting	1d	10/19/05	10/19/05																	
2	T1- Review FDOT's Typical SWPPPs	120d	10/20/05	4/5/06			Í.														
3	Review Technical Publications and Data	90d	10/20/05	2/22/06			Ú														
4	T2- Review Technical Literature from other State Agencies	90d	10/20/05	2/22/06			1														
5	FDOT Site Visits	90d	10/20/05	2/22/06			Í.														
6	T3- Solicit Feedback from FDOT Personnel	70d	10/20/05	1/25/06			Í.														
7	Contractor Personnel Interviews	60d	10/20/05	1/11/06																	
8	Identify Statewide problems/best corrective measures	30d	1/26/06	3/8/06																	
9	T4a- Evaluation of current methods	30d	2/23/06	4/5/06																	
10	T4b- Identification of all new methods worthy of FDOT	30d	2/23/06	4/5/06																	
11	Prepare Draft Outline	10d	4/6/06	4/19/06																	
12	T5- Prepare Initial DRAFT of Manuals	180d	4/20/06	12/27/06																	
13	T6- Submit Quarterly Report 1	4d	12/12/05	12/15/05				1 2/	12	_											
14	T6- Submit Quarterly Report 2	1d	3/16/06	3/16/06						Ĭ	-3	16	-								
15	T6- Submit Quarterly Report 3	1d	6/16/06	6/16/06										-6/1	16	_					
16	T6- Submit Quarterly Report 4	1d	9/15/06	9/15/06				- - - -									9	/15			





T2.1 Reviews and Evaluations

- Review FDOT's typical SWPPPs
- Complete site visits of FDOT projects
- Assess the applicability of existing Florida erosion and sediment control documents:
- DOT's Standard Indices
- Approved Product List
- Standard Specifications Manual
- Erosion & Sediment Control Drainage Handbook
- Plans Preparation Manual

- Stormwater Facilities Handbook
- Project Management Handbook
- Inspector's Manual
- FDEP's Sediment and Erosion Control Manual
- Other erosion control publications





T2.2 Other Programs Nationwide

- Qualities of other programs that Florida may like to consider:
 - Standard installation procedures
 - Standard details for various BMPs
 - SWPPP statewide and EPA criteria
 - Approved product list periodic testing and certification programs





T2.2 Other Programs Nationwide

 Review current practices and literature from other State Agencies







T2.2 Other Procedures





In-state, non-FDOT example



T2.2 Other Procedures





Current FDOT example



T2.2 Other Procedures





Out-of-state example



T2.3 Stakeholder Input

- Solicit feedback from FDOT District Permit Coordinators and Compliance Inspectors
- Conduct meetings with select FDOT, FDEP, and WMD personnel
- Determine most significant permit, regulatory, and compliance issues
- Action items will be developed





T2.4 Evaluation and Identification

- Evaluation of current methods
- Identification of all new erosion and sediment control methods worthy of using, based on review by DOT personnel and focusing on their concerns.
- A list of preferred BMPs will be identified





T2.5 Draft Manuals

- Update and provide draft copies of the Florida Erosion and Sediment Control Manuals
 - Designers and Contractors
 - Inspectors
- Update and provide draft copies or markups of:
 - FDOT Standard Indexes
 - Approved Product List
 - Specifications Manual
 - Erosion and Sediment Control Handbook
 - Plans Preparation Manual
 - Stormwater Facilities Handbook
 - Project Management Handbook
 - Inspectors Manual with Checklists
 - Construction Project Administration Manual
 - SWPPP Templates, etc.





Stakeholder Inputs

- Valued Input
- One year Project
- Email updates and review information
- Contact information
 - Vince Peluso 407.823.4148 and vpeluso@mail.ucf.edu
 - Marty Wanielista 407.823.4144
 wanielis@mail.ucf.edu





SMA Laboratory Facility

- Rainfall Simulator
- Sloping Laboratory Erosion Device (SLED)
- Materials index testing
- Water quality analysis
- Field testing





Design of Storm Water Academy Test Set-up





SMA

Research and Testing Laboratory

- List of test methods that UCF can currently perform related to soils, materials, and erosion testing
 - Soil particle size distribution/dispersivity
 - Sieve and hydrometer analysis
 - Multi-point Atterberg limits
 - Compaction/plasticity/consolidation
 - Soil density/specific gravity
 - Water content/permeability
 - Direct shear/unconfined compression





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Erosion and Sediment Controls for Florida

- Questions and Concerns?
- Follow-up Meeting and Schedule
- Review of Action Items
- Closing Comments



