

Session 51

Josh Boan

FDOT Central Environmental Management

US-98 Soft Armor Countermeasures utilizing polymer technology

Topic Description

Case study on the use of PAM in soft-armouring coastal roadway shoulder post-hurricane.

Speaker Biography

Currently serves as the FDOT State Environmental Research Administrator and State Wetland Programs Administrator and is involved in all aspects of FDOT environmental issues including permitting and erosion/sediment control policy and procedure. A former US Air Force Academy cadet and a graduate of the University of Florida.

Session 51

Mike Shepard

FDOT Central Drainage Office

US-98 Soft Armor Countermeasures utilizing polymer technology

Topic Description

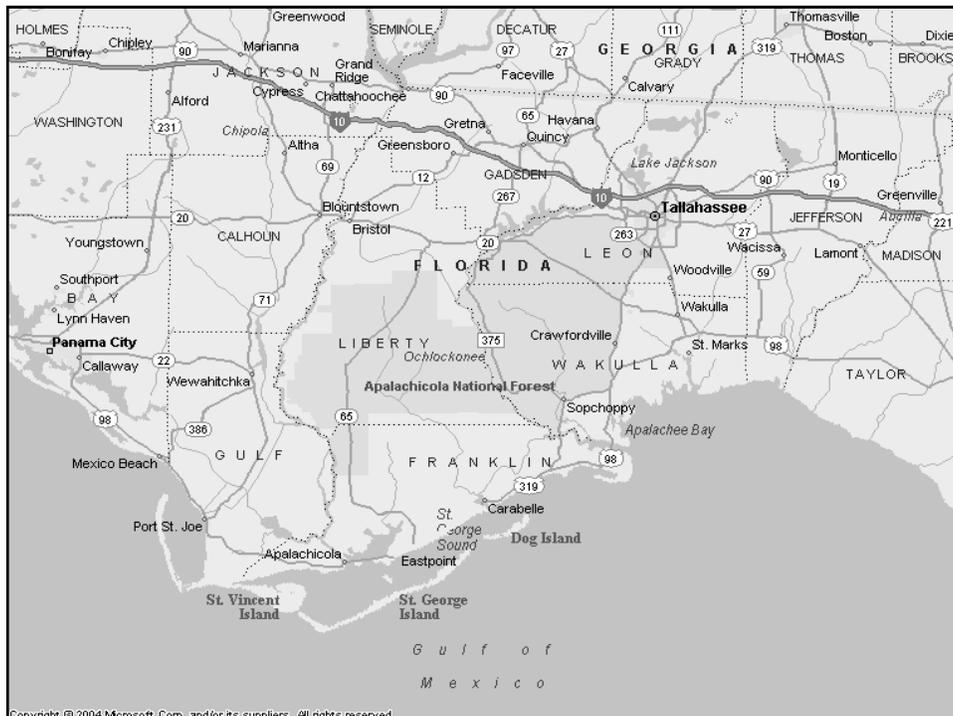
Case study of the US-98 (post-hurricane) soft-armor counter measures with the utilization of polymer enhanced technology.

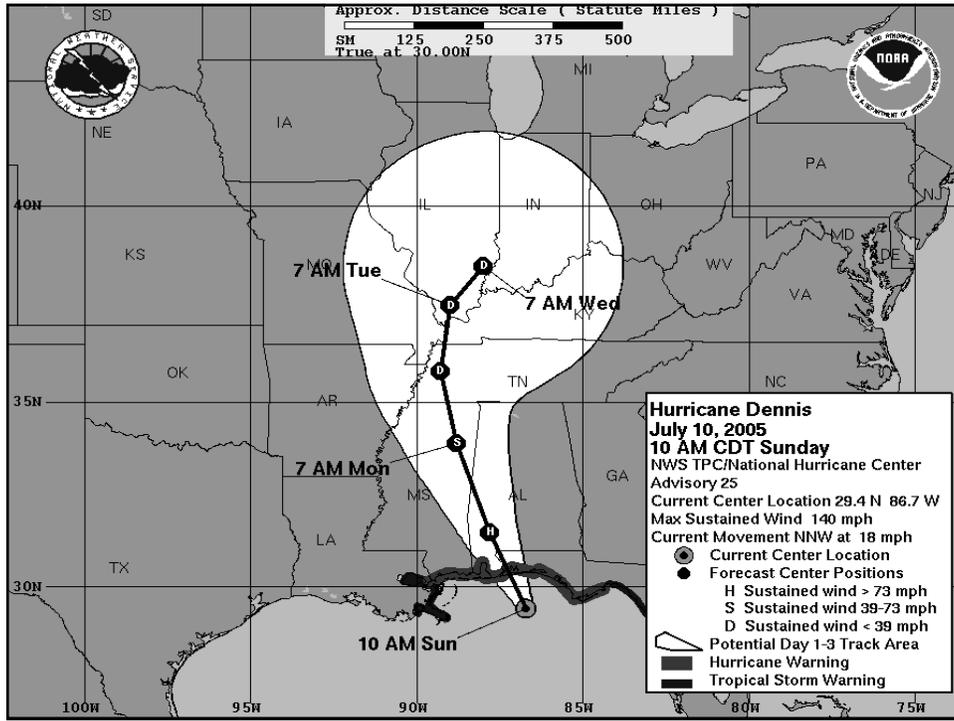
Speaker Biography

Michael Shepard is currently a Drainage Engineer at the Central Office. He was previously an Area Design Engineer at the Central Office and a Drainage Engineer in District 3. He has been with the FDOT for 9 years. Michael received his BS in Civil Engineering from the FAMU/FSU College of Engineering in 1996. Prior to employment with the FDOT, he worked in construction and materials for 10 years with the private sector.

US 98 (Franklin County) Soft Armor Countermeasures Utilizing Polymer Technology (Case Study)

Josh Boan, FDOT EMO
Michael Shepard, FDOT Drainage
Steve Iwinski, Applied Polymer Systems, Inc.

















EMERGENCY REPAIR CONTRACT

- \$10.8 Million Contract awarded to C.W. Roberts Contracting
- Goal to re-construct and open traffic on US 98 (approx. 14 miles).
- Emergency repairs to be completed in 14 days.



















Design Objectives

- Quickly Protect and minimize erosion of front slopes and shoulders
 - Requires low maintenance solution
 - Vegetation that can resist harsh environment
 - Short-term (1-2 years) solution until more “permanent” countermeasures are identified
 - Accommodates future construction of paved shoulders
 - Cost effective design

Initial Design Considerations

- Curb and Gutter
- Turf Reinforcement Mat (TRM) with seed or sod
 - Permanent, Non-degradable
 - High Tensile Strength
 - Predominately used for High Velocity Channels or Steep Slopes
 - Costly (\$12-\$15 SQ YD)

District 3 and CO Coordination

- Reviewed sample of proposed TRM
- Field Review of site conditions
 - Slopes
 - Soils
 - Existing Vegetation
 - Other Site Challenges
- Reviewed alternative solutions
- Consulted with Applied Polymer Systems

Final Selection of Soft Armor Countermeasure Matrix

- Key components
 - Compost
 - ✓ Moisture Retention
 - Jute Erosion Control Blanket (ECB)
 - ✓ Natural “rebar”
 - Polyacrylimide (PAM) Powder
 - ✓ Bonding Agent
 - Vegetation (Bermuda Sod)

Scope of Services

Work consists of removing existing turf, blade and shape existing shoulders and front slopes, preparation and placement of 2" depth compost, erosion control blanket (jute mat), polyacrylimide powder (QPL# M-0203) to be placed at 25lb/ac as directed by the engineer and Bermuda grass sod.













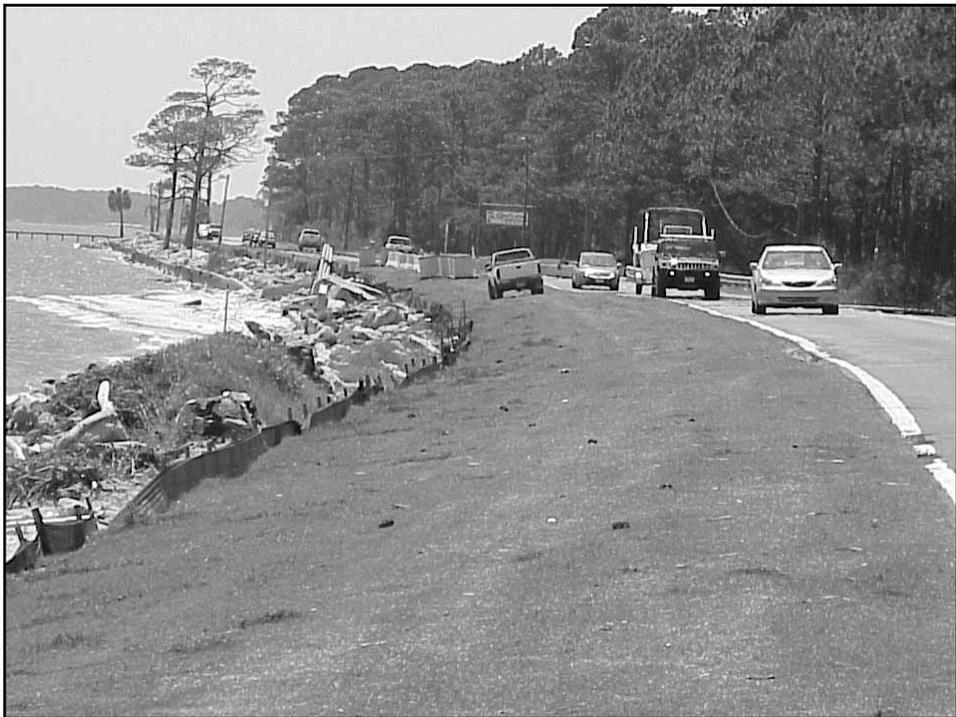
Contract Quantities and Cost

Pay Item	Description	Unit	Quantity	Unit Price	Total
101-1	Mobilization	LS	1	75000.00	75,000
102-1	MOT	LS	1	30000.00	30,000
577-70	Shoulder Rework	SY	71,000	2.00	142,000
104-13	Silt Fence Staked Type III	LF	32,500	2.00	65,000
162-3-100	Finish Soil Layer (Compost) (2")	SY	71,000	2.00	142,000
575-1-6	Sodding	SY	71,000	2.65	188,150
104-1-100	Silt Stop Powder CPL M- 203 Misc Erosion Control	LB	300	50.00	15,000
104-1	Artificial Covering	SY	51,000	1.50	76,500
570-9	Water for Grassing	MG	440	25.00	11,000
				Total	\$744,650

8 MONTHS LATER:

Still Performing







Acknowledgements

- Greg Ouzts – Assistant Operations Engineer, Midway Operations D3.
- Marlon Holzbach – VMS Inc

Questions ?

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