

# **Technology Deployment Initiatives and Partnership Program**

## **Request for Funding FY 2003**

### **FHWA Strategic Goal Area:**

Corporate Management Strategies

### **Project Title:**

Highway Construction Sediment Management Using Fast Acting Flocculants

### **Problem Statement:**

Managing roadway construction project sediment runoff is a problem on most projects for the responsible parties. Keeping the turbidity levels of project runoff water to that which is acceptable to regulatory agencies requires separating sediment from runoff water and collecting it. In most cases this proves to be extremely difficult regardless of cost. The methods that have been available in the past to mitigate turbid runoff water have been at times unreliable and of questionable benefit. This has left roadway builders, engineers, and managers to look for better solutions.

### **Proposal:**

A recent advancement in sediment runoff treatment utilizes fast acting flocculants. These flocculants bond to sediment and force it to fall out of suspension. The sediment can be captured either in sand filters or be allowed to fall out onto biofiltration areas. Currently several different flocculent sediment removal approaches are being implemented for both roadway and facilities construction. This proposal is for development of a comprehensive design manual that includes engineering information related to site characteristics, hydraulics, BMP's and the use of fast acting flocculants. The manual would be useful in both the design and construction phase of most roadway projects.

Key content areas are as follows:

- Fast acting Flocculent description and information
- Evaluating Site Characteristics (soil type, climatic conditions, topography, existing vegetation)
- Site Hydraulics
- Flocculent Water Treatment Processes
- Designing and Sizing Flocculent Water Treatment Systems (Passive and Active Systems)
- Flocculent Water Treatment System Operations and Maintenance

Appendix Information is as follows:

A - MSDS

B - Aquatic Safety Information

- C - Standard Product Literature
- D - Example Projects

**Benefits:**

A comprehensive guide for the removal of suspended silts in highway construction runoff would provide improved control of silt in the design stage of project development and would be a resource to construction field engineers with specific control measures directed at specific soil and hydraulic conditions. The net result is less silt intrusion in sensitive areas and better control of runoff.

**Resources/Cost:**

Contract for synthesis using a steering committee and technical review by national experts. Publish 1000 copies of the guide initially. Estimated cost for development of the guide is \$140,000 for FY 2003. Publication and distribution costs are estimated at \$50,000 in FY 2004.

**Duration:**

Completion of guide content is expected within one year. Adoption, publication, and distribution of the guide will be by contract in FY 2004.

**Organization Method**

A steering committee with design and construction staff, possibly with input from each FLH Division, will be established to guide a contractor in developing the guide. Jason Zimmer of Natural Solutions is interested in participating.

**Submitter:**

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