



CAIT

Center for Advanced Infrastructure & Transportation
Rutgers, The State University of New Jersey

PROJECT OVERVIEW REPORT

1. Center Identifying Number

139 RU9053

2. Project Title

Demonstration Project-Beneficial Re-use of Dredged Clay in Upland Sites

3. Principal Investigator

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4. NJDOT Principal

Michael Riley

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New Jersey Department of Transportation

1035 Parkway Ave.

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5. Project Objective

Based on the requirements of NJDOT we have identified three major objectives. These objectives are:

Objective 1: To conduct a geotechnical field and laboratory testing on the red-clay material.

Objective 2: To conduct a survey of potential uses of red-clay for environmental remediation.

Objective 3: To conduct an economic feasibility analysis to evaluate costs and benefits of using the red-clay for remediation.

6. Project Abstract

This project will engage a dredging company for dredging of the red-clay and transporting it to the facility. Once unloaded, the red-clay will be transported to the designated area within the facility for placement and testing. During and after spreading and compaction of the red-clay, field and laboratory testing will be conducted. Upon completion of the field and laboratory testing, there will be a final report summarizing field and laboratory findings, along with conclusions and recommendations on the management of the red-clay. The report will also be inclusive of a survey of potential uses and the economic feasibility analysis of transportation, spreading and placement of the material.

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7. Task Descriptions

Phase 1: Research Plan

Task 1- Delivery of 4,000 cubic yards of dredged clay to the Bayshore facility. Approximately 4,000 cubic yards of red-clay material should be delivered to the facility in hopper scows.

Task 2- Unloading and transport of the red-clay to test area within the facility.

Task 3 – Placement of Red-clay According to the PA’s Scope of Testing
The dredged red-clay will be delivered in large pieces up to several feet in diameter.

Task 4 – Geotechnical field and laboratory testing. The objective of the testing is to determine, a) workability of the dredged red-clay and limitations regarding placement of the material, as structural and non-structural fill and, b) the engineering properties of the red-clay once placed and compacted.

Task 5- Identify potential uses in remedial projects.

Task 6- Prepare a cost analysis in which the cost of using dredged clay for remediation will be compared with the cost of using conventional impermeable materials.

Task 7- Dispose of the material in one of two ways: 1) landfill cover for Edgeboro landfill site using red-clay mixed with granular aggregate and, 2) base and sub-base application in roadways using red clay as a filler to the mix.

8. Milestones/Dates

Phase 1 Research Implementation

Task 1 Delivery of 4,000 cubic yards of dredged clay	4/30/04
Task 2 Placement of red-clay at the test facility	4/30/04
Task 3 Placement according to the scope of work	4/30/04
Task 4 Geotechnical and laboratory testing	9/1/04
Task 5 Analysis of use potential	9/30/04
Task 6 Cost Analysis	10/31/04
Task 7 Disposal of Red Clay	10/31/04
Phase 2 Final Report	10/31/04

9. Yearly and Total Budget

Year One & Total Budget

NJDOT Sponsorship (7/15/2003-10/31/2004)	\$348,064
USDOT Sponsorship (1/1/2004-8/31/2004)	\$44,540
Total	\$392,604

10. Student Involvement

One (1) graduate student

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11. Relationship to Other Research Projects

- SROA RU3971 Dredge Material Evaluation and Utilization Plan for New Jersey
- OENJ RU9247 Laboratory Study Geotechnical Benefits of Mixing Construction and Demolition Screenings with Cement-Amended Dredged Materials
- Dredge RU4474 Development of a Dredge Planning and Decision Support Tool

12. Technology Transfer Activities

None to date

13. Potential Benefits of the Project

- Once the laboratory and field testing is completed, the final report summarizing the test results, placement and compaction related findings, and recommendations on the most economically feasible method for management of the red-clay for beneficial use at upland sites, will be prepared.
- Full electronic deliverable on CD will all data and raw data sheets in pdf format will be submitted.

14. TRB Keywords

Geotechnical engineering, Clay, Dredged Materials

15. TRB Code Words

Ttkfj, Rbmdfk, Rbmdud