

New Jersey Department of Transportation
Bureau of Research

Technical Brief

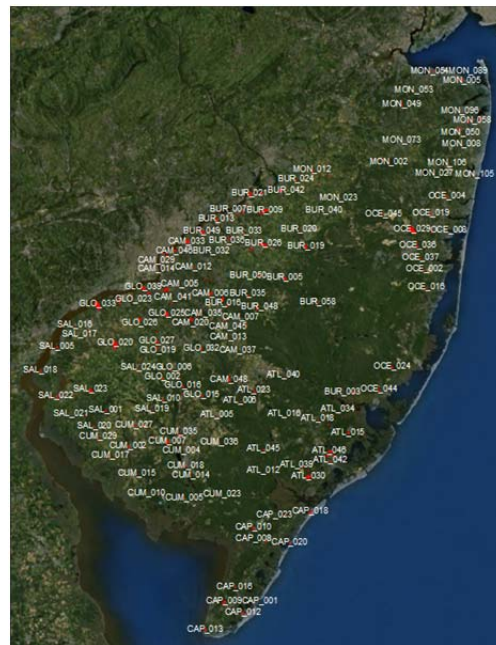


Landfill Closure with Dredged Materials - Desktop Analysis

This report describes a Rutgers University project for the New Jersey Department of Transportation (NJDOT) designed to analyze the potential for closure of New Jersey landfills using dredge material from existing Confined Disposal Facilities (CDF). The project included an update of the existing New Jersey Department of Environmental Protection (NJDEP) landfill database, the development of a rating system to identify sites with the highest potential to utilize dredged material for their closure, and the identification and preliminary investigation of the top candidate landfills based on this rating system.

Background:

The New Jersey Department of Transportation (NJDOT) has identified many confined disposal facilities (CDFs) as at or near capacity with dredged materials. Periodic dredging of channels and marinas is of significant importance to New Jersey's recreational and commercial marine transportation. Establishment of new CDFs has been deemed improbable, thus the most efficient solution to this problem is reuse of dredged materials to increase the longevity of existing CDFs. Rutgers University was contracted to investigate the potential for utilizing dredged material from these CDFs in the closure of New Jersey's uncapped landfills.



Location of all pre-1982 Landfills analyzed for closure with dredged material from CDFs

Research Objectives and Approach:

The investigation involved the update of the New Jersey Department of Environmental Protection's (NJDEP) existing landfill database to fill existing data gaps. Next, a numerical rating system was established to evaluate landfill/CDF pairs for potential closure of the landfill with dredged materials. The pairs with the greatest potential for closure were identified in collaboration with personnel from the NJDOT Office of Maritime Resources and the NJDEP Solid and Hazardous Waste Management Program. Phase I Environmental Site Assessments were then conducted for the selected landfills to determine their suitability for closure.

Findings:

The project yielded several results, including the following:

- The NJDEP landfill database was updated and converted to GIS form.
- A ranking system was developed to identify landfill/CDF pairs with the greatest potential for closure.
- The ranking system was applied to the database and the top landfill/CDF pairs were identified.
- Phase I Environmental Assessments were completed for the selected landfills.

Due to the post-ranking identification of several of the highly ranked landfills as previously closed, redeveloped, or undergoing an active site remediation, as well as a shift in the NJDOT Office of Maritime Resources' CDF priorities following Hurricane Sandy, the four landfills ultimately selected for Phase I Assessment were not among the most highly ranked pairs. These landfills were the Tinton Falls Municipal Sanitary Landfill in Tinton Falls, Monmouth County; Winzinger Landfill in Hainsport, Burlington County; Elsinboro Township Sanitary Landfill in Elsinboro, Salem County; and Filmore Sanitary Landfill in Middle Township, Cape May County. Personnel from T&M Associates and a team of undergraduate Rutgers University BioEnvironmental Engineering students conducted the Phase I Environmental Site Assessments for these four landfills.

Conclusions:

During this project a systematic approach was developed to identify pre-1982 landfills that have the greatest potential for closure using dredged material stored in CDFs throughout NJ. This approach was developed and applied throughout NJ. However it was later determined that due previously unidentified existing conditions at several of the landfills and shifting dredging priorities due to external events, many of the landfill/CDF pairs that were identified as having the greatest potential for closure were not available. The approach that was developed was an effective approach for this problem and would have achieved greater success if not for unknown status of many of the pre-1982 landfills.

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A final report is available online at: <http://www.state.nj.us/transportation/refdata/research/>.

If you would like a copy of the full report, send an e-mail to: Research.Bureau@dot.state.nj.us.

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