

# City of Salem Landfill Closure

Salem County, New Jersey

## Property Owner:

City of Salem

## Contact:

Earl R. Gage, Mayor  
City of Salem  
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## Purpose:

Landfill Closure & Redevelopment



## History:

The City of Salem landfill was in operation for over 30 years accepting municipal waste. The property is located in an advantageous commercial zone of the city immediately adjacent to the local port. In compliance with the EPA and the New Jersey Department of Environmental Protection (NJDEP), the City was directed in 1986 to begin planning the proper closure of the landfill. Over the next several years, the city engaged consultants to evaluate the scope and cost related to the closure of the landfill. At that time, it was determined that the cost of the closure would be approximately \$5 million, with an additional \$1.5 million needed for the post-closure monitoring. The City of Salem did not have the financial resources for a traditional cap, and was looking for creative engineered alternatives to properly close the landfill.

In 1996, Soil Safe approached the City of Salem with an alternative and innovative means of closing the 41 acre landfill at no cost to the City. Soil Safe's proposed closure design met all federal and NJDEP requirements pursuant to RCRA Subtitle D performance standards.

## Soil Safe Closure Concept:

Soil Safe's business model includes the recycling and beneficial use of non-hazardous contaminated soil. Through its stabilization treatment process, Soil Safe manufactures a recycled engineered Soil Product that has received Green Approved Product certification to the ICC 700 National Green Building Standard for recycled paving sub-base and other engineered soil material applications.

Soil Safe agreed to cap the Salem landfill in exchange for the City allowing Soil Safe to use the landfill as a NJDEP Permitted Class B Soil Recycling Center during the project. All project funding was obtained through Soil Safe's customers who paid Soil Safe a fee to recycle their non-hazardous soil. Soil Safe constructed the landfill cap from manufactured Soil Product all made from the incoming soil. In this manner, Soil Safe was able to cap and close the landfill and fund the post closure monitoring program at no cost to the City of Salem. In addition, Soil Safe's cap design allows the City to use 70% of the capped landfill area for boat storage, generating ongoing revenue for the City today and into the future.

## Alternate Design:

The alternate design proposed to the City of Salem provided an environmental cap meeting all performance based standards of RCRA Subtitle D, and a firm, stable, relatively flat usable surface for future development. The entire cap section was made from the recycled manufactured soil products. Using Hydraulic Evaluation of Landfill Performance (HELP) modeling, the NJDEP determined that the alternate design was equivalent or superior to a traditional clay or geomembrane cap, and approved the design.

## Project Construction:

A total of 1.9 million tons of soil was recycled by Soil Safe and used to construct the cap on the 41 acre landfill. The following primary activities were conducted by Soil Safe on the project:

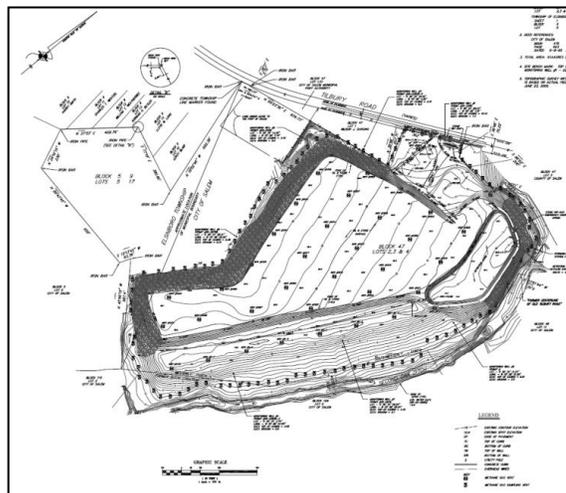
- Construction of temporary and permanent access roads and support facilities.
- Site preparation, sediment/erosion control and water treatment.
- Waste grading and gas studies.
- Swale and dissipation apron construction.
- Installation of 36 passive gas vents.
- Stormwater detention pond and outfall structure construction.
- Placement, compaction and permeability testing of 1.9 million tons of soil.
- Second Oak Ditch and wetland restoration.
- Slope armoring and restoration.
- Surface tar & chip installation.
- Site vegetation and close-out.

## Project Result:

Upon completion of the project by Soil Safe, the City received a No Further Action declaration from the NJDEP.



By funding the project through the beneficial use of recycled material, Soil Safe was able to close the landfill at no cost to the City, and completely fund the post closure monitoring program.



In 2002, from nearly 900 entries, this project was awarded the Construction Project of the Year by the New Jersey Society of Municipal Engineers.

