

Project Name

Jersey Gardens Mall Stormwater Management Plan and Related Permits

Client

OENJ Corporation

Services Provided

- ✍ Stormwater Management Plan
- ✍ Design of Pipe Culvert
- ✍ Design of Detention Basins
- ✍ Stormwater Permit Acquisition

Project Description

In 1992, the Danish development firm OENJ, purchased a 166-acre tract of property located in New Jersey, just across from Newark International Airport. The property is bordered by the Newark Bay to the East and the New Jersey Turnpike to the West. The site was a former landfill with a tidal stormwater ditch running nearly the length of the property. OENJ retained SAI to perform environmental and engineering services to prepare the property for redevelopment.



Approach

To prepare this site for development, environmental investigations, engineering design, and permitting had to be simultaneously performed and coordinated. SAI provided the following services: prepared a stormwater management plan; identified potential uses for the property and developed a preliminary plan; prepared a conceptual closure design and cost estimates; prepared and submitted a closure plan (including remedial design) and prepared and submitted critical permits; prepared the final closure design; and prepared an ISRA remedial investigation report and remedial action workplan.

Stormwater Management

The former landfill site was considered extremely difficult to develop because it was bisected by a 40-foot-wide tidal ditch. The ditch drained over 500 acres of urbanized land in the City of Elizabeth. SAI obtained conceptual approval from New Jersey Department of Environmental Protection (NJDEP) to pipe the ditch because the ditch was acting as a conduit for leachate from the landfill. However, in order to pipe the ditch, SAI needed to address all the upstream stormwater.



Jersey Gardens Mall Stormwater Project History – Continued

A conventional analysis predicted an inflow of approximately 1300 cfs. By conducting hydrologic modeling for the flow routing and backwater effects of several upstream constraints, SAI was able to convince NJDEP that the proper design constraint for the pipe would be 300 cfs. SAI designed a 10-foot-diameter specially reinforced pipe with corrosion protection to address landfill conditions.

Since the mall building was constructed over sections of the pipe, special inspection/cleaning chambers were designed for pipe maintenance.

SAI also designed the stormwater control system for the property itself, including parking areas with roof drains. A series of detention ponds were designed to fit into the overall site plan. The ponds discharge to the 10-foot culvert beneath the site.

Permitting

Preparing the Site for Development Required the Following Permits and Approvals:

- ✍ Landfill Disruption and Closure Permit
- ✍ Upland Waterfront Development Permit
- ✍ State Wetlands General Permit
- ✍ Corps of Engineers Wetlands Approval
- ✍ Stream Encroachment Permit
- ✍ Memorandum of Agreement
- ✍ Remedial Investigation Report/Remedial Action Work Plan Approval
- ✍ Discharge to Groundwater Permit
- ✍ Discharge to Surface Water Permit
- ✍ Soil Erosion and Sediment Control Approval
- ✍ Treatment Works Approval
- ✍ Sewer Connection Permit
- ✍ Local Sewerage Authority Approval
- ✍ EPA Approval for PCB Emplacement

It is estimated that the site, during the construction and final use stages as a multi-use shopping mall, created 5,000 full time jobs for the Elizabeth Urban Enterprise zone.



The 5,000-foot culvert was graded to allow tidal flow to enter an upstream tidal pond and also accommodate maximum freshwater inflow.



The 10-foot diameter pipe was designed to accommodate loads from fill and parking areas constructed over the pipe.

