

Project Name

Preparation of Stream Encroachment and Related Permits

Client

OENJ Corporation

Services Provided

- # Design of Great Ditch piping system, including 10-foot RCP and leachate main gravity collection lines
- # 100-year flow calculations using HEC-2 program
- # Water surface profile calculations using HEC-2 program
- # Obtained various permits from NJDEP and Army Corps of Engineers



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

SAI prepared and obtained a Stream Encroachment permit, using an HEC-2 computer model, for the OENJ redevelopment site. This permit application was prepared for the activities related to piping the Great Ditch, which traversed the site, as part of the environmental improvements and closure activities at the old landfill site.

In designing the Great Ditch piping system, stormwater runoff contributed from upstream drainage areas (approx. 840 acres) and the redevelopment portion of the site (approx. 166 acres) were considered. In addition, the effect of tidal flow downstream of the piping system was incorporated in the flow system. The piping system consisted of a 10-foot diameter RCP, approximately 5,000 feet long, and associated leachate main gravity collection lines. The overall purpose of piping the ditch was to prevent stormwater runoff from coming in contact with leachate from the landfill. The Great Ditch piping system was designed as part of the proper remediation and closure of the OENJ redevelopment site that was intended to control the leachate generated at the site and the prevention of the migration of the landfill contamination to the Newark Bay.

OENJ Project History Continued

The following elements were included in the application:

- Calculation of 100-year-flood flow generated over upstream drainage areas (840 acres)
- Routing the composite hydrograph obtained for a 100-year flow through the existing structures to the most upstream point of the piping system
- Calculation of 100-year peak flow contribution from the proposed redevelopment site
- Calculation of the water surface profiles for a 100-year peak flow using a HEC-2 computer program for existing conditions that included various obstructions such as bridges and culverts
- Calculation of water surface profiles for the proposed conditions using an HEC-2 computer program to demonstrate that upstream water surface elevation was not increased by more than 0.2 feet

Permits obtained:

- Stream Encroachment Permit, NJDEP
- Soil Erosion & Sediment Control, Somerset-Union Conservation District, Army Corps of Engineers
- Upland Waterfront Development Permit, NJDEP