

WILLOW BROOK DAM ENGINEERING SERVICES FOR DAM SAFETY REGULATORY COMPLIANCE TOWN OF BLOOMING GROVE, NEW YORK		YEAR COMPLETED	
		PROFESSIONAL SERVICES 2016 – Present	PROJECT CONSTRUCTION 2019
PROJECT OWNER Town of Blooming Grove			
RIZZO CLIENT Orange & Rockland Utilities, Inc.			
CLIENT – POINT OF CONTACT NAME Mr. Dennis Smalley	CLIENT – POINT OF CONTACT EMAIL smalley@oru.com	CLIENT – POINT OF CONTACT TELEPHONE NUMBER (845) 352-6000	

RIZZO International, Inc. (RIZZO) acquired RIZZO Associates, Inc. in November 2017. RIZZO remains a global engineering and consulting firm headquartered in Pittsburgh, Pennsylvania US. This project was contracted/completed under the RIZZO Associates name.

RIZZO was retained to provide professional engineering services in connection with dam safety regulatory compliance issues for Willow Brook Dam, a Class C High-Hazard Dam. The dam is located in the Town of Blooming Grove, Orange County, New York. The dam is regulated by the New York State Department of Environmental Conservation (NYSDEC).



Willow Brook Dam was constructed circa 1924 by Orange & Rockland Electric Co. Construction of Willow Brook Dam created Orange and Rockland Lakes, a series of small lakes that are hydraulically interconnected and act as one reservoir. The Dam was originally constructed to provide cooling water for a coal-fired power plant which has since been demolished. The lake is currently only used for recreational purposes. Willow Brook Dam is a 550-foot long earthen embankment dam. The crest of the earthen embankments is at El. 587.5. The embankment is approximately 20 feet tall at the maximum section.

The Project involves:

- Evaluation of existing data and site conditions;
- Preparation of a Dam Safety Inspection Report;
- Development of an Inspection and Maintenance (I&M) Plan;
- Development of an Emergency Action Plan (EAP);
- Preparing an Engineering Assessment Report for submission to the NYSDEC; and
- Development of the Upgrade Design.

The Engineering Assessment included:

- Hazard classification reconnaissance;
- Complete Dam Safety Inspection;
- Evaluation of the Dam’s spillway capacity, structural stability, and outlet works (lake drain) capacity;
- Review of the Dam’s Emergency Action Plan (EAP);
- Conclusions as to whether the Dam is in conformance with current Dam regulations and safety guidance; and
- Recommendations based on the observations and conclusions of the engineering assessment.

The Upgrade Design included the following work to bring Willow Brook Dam into conformance with NYSDEC Regulations:

- Design the Spillway to safely pass the SDF and to be stable against overturning and sliding;
- Re-grade the downstream embankment slope to increase the sliding stability;
- Design a proper seedbed near the culvert to prevent erosion from backflows at the base of the dam;
- Design and specify a precast box culvert to pass the SSDF flow; and also
- Investigate the potential for liquefaction.

Currently, RIZZO also provided NYSDEC Permit Assistance to ORU. Construction is anticipated for 2019.

RIZZO CONTRACT AMOUNT: \$ 203,757

RIZZO PROJECT NO.: NY13-5047

