

RELATED EXPERIENCE

THE LAKE REHABILITATION AT OAKLAND UNIVERSITY

Johnson & Anderson was contracted by Oakland University to provide a study and follow up engineering design to rehabilitate the steep banks around a 1.8 acre lake, located on the main campus, restore the integrity of the inlet and outlet pipes, and reduce the downstream erosion associated with

Location:	Auburn Hills, Oakland County, MI
Date:	2002 - 2003
Construction Cost:	\$149,800
Proposed Budget:	\$145,800
Client:	Oakland University
Contact:	Dan Niezurawski Facilities & Operations

the past operations of the outlet control weir. The project also involved establishing new outlet controls to allow the lake to function as a detention basin.

J&A staff investigated and mapped the upstream and off site drainage areas that are tributary to the lake and developed a hydraulic model to correlate runoff amounts from the commercial properties, roadways, and campus areas to the lake and immediately downstream of the lake.

The quantified amounts of runoff to the lake resulted in the design of outlet controls to reduce the rate of outflow from the lake.

The first construction phase of the project involved installing concrete end sections and streambank protection around the five inlets to the lake. To address the erosion potential of the control weir, a control structure was designed at the existing outlet pipe from the control weir. The control structure, that is primarily vinyl-coated mattresses, acts as a sediment trap and energy dissipation device.



The Lake at Oakland University

The second phase of the lake rehabilitation focused on slope stability around the banks of the lake. Using the lake level controls derived in the study, it was determined that the lake fluctuates 2.5 feet from its normal water surface elevation to the overflow elevation. Boulder retaining walls were constructed to alleviate the steep slopes around the lake. In the plateau areas created by the retaining walls, plantings were carefully chosen to tolerate the fluctuations in the water surface elevation.

The lake, located near the center of the main campus, is a focal point for the University. The completed rehabilitation of the lake resulted in a product that is aesthetically pleasing, functional, and environmentally effective.