

Holly Hill Dam, Murfreesboro, NC

JEWELL Engineering Consultants (JEC)

This project began on September 18, 2003 when Hurricane Isabel struck mightily in the historic Town of Murfreesboro and caused significant damage to Holly Hill Road Dam and the surrounding community. The dam is located immediately upstream of Chowan College and is classified as high hazard by NC Dam Safety. The dam, which was built in the 1950's, sustained substantial damage from large uprooted trees as well as drainage problems along the road and spillway system.

JEWELL Engineering was hired by the Town of Murfreesboro to provide the engineering services necessary to repair the dam and restore the pond in one of the Town's many beautiful neighborhoods. The repairs included removal of all trees from the dam embankment, removal of large trees beyond the dam embankment that could restrict spillway capacity, concrete repairs to the spillway and bridge, pressure grouting of voids beneath the concrete spillway slab, construction of a new siphon bottom drain, construction of a sediment control and trash guard system at the inlet of the new siphon, pressure grouting and abandonment of a corroded corrugated metal pipe bottom drain, construction of a weighted filter over the outlet area of the abandoned bottom drain pipe, abandonment of a non-essential water main across the dam, and removal and replacement of the roadway across the dam embankment.

Communication has been the key element in the success of this project. JEWELL Engineering and the Town of Murfreesboro have stayed in close contact with one another as well as with regulatory authorities since the engineering analysis phase began. Although the process to coordinate with regulators and the Town has been extensive, the additional time has been offset by substantial savings in construction costs while also accomplishing other less fiscal-related preferences for the Town. Design options for handling the bottom drain repairs as well as tree removal with embankment fill reconstruction were presented to the Town and NC Dam Safety officials to determine the most cost effective and appropriate course of action for repairing the dam. Such coordination on fundamental engineering design options proved very beneficial.

An example that was not as technically oriented, yet still very indicative of the communication which has led to the success of the project involved the removal of trees along the spillway system. Since the objective to keep the spillway clear from substantial blockage by downed trees would involve the removal of all large trees adjacent to the spillway, the Town expressed concerns about the future aesthetics of the area. Leaving any trees on the dam was not a design option; on the other hand, some leniency existed for trees designated for removal beyond the dam embankment. After further considerations, a line item was placed in the bid form for tree removal to exclude Dogwood trees located beyond the dam embankment. NC Dam Safety agreed with the approach due to the limited growth potential of Dogwoods. As you can see in the most recent photo, the objective to adequately remove the trees while maintaining aesthetic features has been fulfilled.

In closing, the success of this project proves the old adage that good communication really works. The project has been completed and is considered a win-win for all stakeholders.

DAMS/LAKES REHABILITATION



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