

City of Anderson, SC Dam Rehabilitation Meeting Community's Needs & Improving City's Flood Protection Requirements

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ABSTRACT. Huntington Hills Dam is an earthen embankment structure that has a crest length of approximately 500 feet and a maximum height of approximately 25 feet. In 2004, the principal spillway, which consisted of a Corrugated Metal Pipe conduit riser and pipe, deteriorated to a point where maintenance of the historical normal pool elevation was not feasible. Between 2004 and 2007, the principal spillway completely failed, thereby allowing the reservoir to drain.

Given that the subject dam is classified as a High Hazard Structure, all proposed actions to remediate the failed spillway system had to be reviewed and approved by the South Carolina Department of Health and Environmental Control prior to implementation. Schnabel was retained by the City of Anderson (City) to evaluate the dam and spillway system and to develop a conceptual design to bring the structure into general compliance with South Carolina Department of Health and Environmental Control's (SCDHEC's) laws and regulations. According to the City, the rehabilitation of the dam and spillway needed to encompass three key components: 1) aesthetics and recreational use for the residents surrounding the lake; 2) provide flood protection for downstream property owners, and 3) comply with SCDHEC's laws and regulations.

In order to accommodate topographic site constraints, Schnabel designed a labyrinth crested drop spillway to serve as the auxiliary spillway. The principal spillway, which consisted of a cast-in-place concrete riser and ductile iron conduit, were designed to discharge into the stilling basin of the auxiliary spillway. The combination pipe and riser principal spillway and labyrinth drop spillway provides a lake that this is aesthetically pleasing to the surrounding residents, reduces downstream flows, and meets/exceeds the requirements established by SCDHEC.

In addition to the above described spillway design, modifications to the dam included the construction of an internal drainage system and flattening of the slopes to improve long-term stability of the embankment.

Construction of the rehabilitation measures begin in 2009 and were completed in 2010. Today, the structure provides flood protection for downstream residents while exceeding the requirements of SCDHEC and serving an amenity feature for residents.