

The Garrison Inn Project

By Jamie Scott

This project was part of a larger reconstruction of a historic residential property on the Hudson River. The property, which was originally a private residence, became an historic inn and then was returned to a private home. Modern additions were added over the years, somewhat inappropriately. The goal was to restore the home and outdoor gardens to resemble the original design. This task was greatly simplified when original photographs were discovered in the house during the renovation.

The property is across the river from the United States Military Academy at West Point. We often saw helicopters buzzing about and heard booms, which we initially thought were thunder but then realized were military artillery practice.

Group Works LLC was contracted to create a series of retaining walls to establish a lower plateau that would sit on a bluff high above the Hudson River. This plateau would hold a new swimming pool complex and great lawn area. Due to the heavily sloping land and restricted access, creating staging areas for construction proved to be difficult. The shotcrete process was selected as the best solution for the retaining walls because less forming material needed to be moved into the area. In addition, shotcrete trucks have the ability to pump farther from the placement area.

The wall portion of the project started with clearing the land down to bedrock. The engineer

called for wrapping the reinforced footings over and around the bedrock to eliminate the possibility of the walls sliding on the bedrock over time. The reinforcement for footings and walls was 0.5 in. (13 mm) deformed steel reinforcing bars placed 12 in. (305 mm) on center. The reinforcement extended into the vertical walls on the same spacing. Numerous weep holes were required to help alleviate hydraulic pressure from groundwater that might build up behind the walls. The wall behind the pool was designed to have water level with the top, with the bottom stepping up and down over the exposed bedrock. The sister wall at the great lawn was built at an angle to work with the gently sloping grade of the lawn. A total of 150 yd³ (116 m³) was used in the footings and walls and water-cured with soaker hoses and tarps for 7 days.

The swimming pool phase was next. The total area required hammering out the bedrock, which took a month. The ledge rock was quite soft at the very top, but it quickly became extremely dense just below the surface. A rock drill was brought in to create relief holes in the rock to assist the hydraulic machine-mounted hammer.



Property before pool and wall construction began



Wall footings with wall forms beginning to be installed



Wall footings with wall forming and steeling completed



Shotcrete walls in place before being backfilled



Pool being formed and steeled with one wall as a backdrop



Pool shotcreted, waiting for forms to be stripped



Finished pool and walls looking northwest across the Hudson River

The pool was formed with plywood to reduce form vibration during shotcreting. (Steel-tex paper is another forming material used by the pool industry, but it is not easily braced and prone to vibration and movement during shotcreting.) Again, 0.5 in. (13 mm) deformed steel reinforcing bars were used for reinforcement,

placed 12 and 6 in. (300 and 150 mm) on center. We used dry-mix shotcrete that enabled starting and stopping the shooting as necessary to allow the nozzleman and finishers to stay coordinated. The pool, which was shot over 2 consecutive days, used a total of 95 yd³ (73 m³) and was water-cured with soaker hoses for 7 days.

The entire property is now nearing completion after 2 years of work, with the outdoor environment a key element of the restoration. The pool was put into use as soon as it was finished, keeping the owners entertained during the rest of the reconstruction process.

2011 Outstanding Pool & Recreational Project

Project Name

The Garrison Inn Project

Project Location

Garrison, NY

Shotcrete Contractor

Shur Shot Gunitite

General Contractor

Group Works LLC*

Architect/Engineer

Rader + Crews

Material Supplier/Manufacturer

Shur Shot Gunitite

Project Owner

Name withheld

*Corporate Member of the American Shotcrete Association



Jamie Scott is a third-generation Watershape Designer and Builder who has worked in the swimming pool and landscape industries for 39 years. He received his BS in business and accounting from Southern Methodist University, Dallas, TX. Scott co-owned a high-end pool and landscape firm until 1998, when he divested to found a new firm, Group Works LLC, based in Wilton, CT. Through Group Works LLC, Scott has aligned himself with Genesis

3 and other organizations that focus on continuing education and increasingly higher standards in the watershape industry. He is a Platinum Member of Genesis 3 and a certified member of the Society of Watershape Designers. Scott is also an APSP-Certified Professional Builder and an ASA member and has trained with the Portland Cement Association. Additionally, he is on track to become a registered landscape architect. Scott and Group Works LLC have been featured in regional and national publications.

