The existing structure consisted of a steel grate deck on 43 ft. steel multi-girders founded on steel sheet pile abutments. Significant section loss to the girders and active tipping of the abutments lead to the need to replace the bridge. Soil investigations and a hydraulic scour analysis indicated that a deep foundation was required to provide scour resistance. After finding a prevalence of cobbles and boulders that would create obstacles for pile driving, micropiles were chosen. Three-sided precast concrete arch top units and precast headwalls were supported by cast-in-place footings and flanked by cast-in-place wingwalls. This system provided the most cost-effective alternative and provided a larger freeboard than that required. The existing sheet piling was left in place and utilized as cofferdams during construction, as well as scour protection after construction.

The precast units have a clear width of 48 ft. with an 11 ft. rise. Due to the height of the units, they were shipped on their side. When it came time to install the units, the intention was to use the common “lift and role” procedure to stand them upright. This process worked easily with the interior 5 units. The fascia units, however, presented a small challenge. Both were cast with a small piece of headwall at the middle of the span, adding just enough extra weight to prevent the unit from rolling over. By removing the swivel connectors, the fascia units were easily stood up. Even with this minor delay, all seven units were set in less than 5 hours, with the precast headwall installed very soon after. Construction started in May 2011 and was completed in November 2011.

Timber railing was used since the bridge is located in the Adirondack Park.
New Rail Trail Through Housing Subdivision Connects to Walkway Over The Hudson

In developing a new 292 unit housing project in the Village of Hopewell Junction, Toll Brothers recognized the natural attractions of utilizing an old railroad bed running through the subdivision to accommodate walkers, bikers, and even automobile traffic. Working with Metzger Construction Corp of Wappinger Falls, NY and A & R Concrete Products of New Windsor, NY, they developed a buried culvert system to handle the foot and bike traffic through the culvert while carrying car traffic over it. As site contractor, Metzger handled all the foundations, excavation, infrastructure work, such as roads, drainage, water, etc.

The precast box culverts are 10’-6” by 12’-0” (ID) and have 10” thick walls, floor, and roof. Weighing 20.5 tons, each piece made a full truck load. A & R engaged Delta Engineers, Endwell, NY to do the engineering for the culverts. Additionally, precast T-Wall Retaining Wall units were utilized at the culvert ends to retain the surrounding soil. These units, with their connected tie back embedments, and natural stone finish, were supplied by the Fort Miller Company. Thanks to Joe Amoia, A & R Concrete Products and John Komsa, Metzger Construction Corp., for supplying this information.

Harrington Road Bridge over Mill Creek

Precast Credits: Owner – Warren County Department of Public Works; Engineer – CHA; Contractor – Arch Bridge Contracting Corp; Precaster – LHV Precast, Inc. Thanks to Tony Papile, P.E., Director of Technical Services – Transportation Structures, CHA, for submitting this article and the photos.
Box Culvert Chosen For Design-Build Project at U.S. Army’s Fort Belvoir

Throughout the 93-year-old history of this installation, one of its goals has always been to protect the environment. As a result of the 2005 Defense Base Closure and Realignment Commission, Fort Belvoir has experienced a substantial increase in people stationed or employed there, and this increase in traffic required infrastructure upgrades. A new culvert replaced two aging runs of 36 inch reinforced concrete pipe; the stream bed upgrade required 172 linear feet of 12’ x 10’ skewed culvert. In keeping with its mission as environmental stewards, an additional 172 linear feet of culvert tunnel was installed to facilitate egress and ingress for the large population of white-tailed deer. It is 12 feet wide by 14 feet high, leaving plenty of open space and light for deer to cross safely under the roadway. A mixture of crushed stone and an organic soil product on the floor simulates a more natural base for travel. This article is extracted from one by Christopher Speck, Oldcastle Precast, and published in the Precast Concrete Association of Virginia Newsletter, Summer 2011.

Approximately 1,320 tons of precast product were supplied for this dual structure, covering stream bed and deer run, and carrying car traffic.

Precast Perfect for R & D

Spillman Company, Columbus, Ohio, recently manufactured a special wet cast mold for Castone Corporation of Opelika, AL. Eighteen “Modular Reaction Wall Blocks” were produced in the mold to be used by the University of Alabama’s Science and Engineering Department in their Structures Lab. The eighteen blocks will be bolted and post-tensioned together and to a footer in the lab through the array of sleeves in different configurations. Then reactions to various physical forces will be measured.

Each of the eighteen castings measured 88” square x 24” deep with four 20” square sleeve openings and twenty-one 4” diameter PVC sleeves through holes that (continued on page 4)
Welcome to Mid Hudson Concrete Products Inc.

PCANY is very pleased to welcome Mid Hudson Concrete Products, Cold Spring, NY, as our newest Septic Tank Producer Member. As with all our members, you can find information on their quality product line on our website, as well as theirs.

Precast Perfect for R & D

serve as the post-tensioning ducts. The form itself was fabricated from 1/4” hot rolled steel plate reinforced with angles, channels, and bars to support the casting loads. So Castone would have the required access to fill all of the PVC conduits into each casting, all four sides were removable and connected to the base pallet and to each other with coil hardware. The four 20” square blockouts were fitted with cover plates so the concrete wouldn’t overflow into them and appropriate top ties were fitted to the form to control dimensional tolerances and to allow for positioning of cast-in hardware. Thanks to Theodore Coons, Spillman Company, for this article and the photographs.

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