Multiple severe storms and harsh weather in 2004 resulted in flooding and other weather-related damage to the site where County Route 34 crosses Hollow Brook (Culvert 72/0.36) in the Town of New Lebanon in Columbia County, NY. As a result, the Federal Emergency Management Agency (FEMA) declared the County an eligible disaster area under Disaster No. FEMA 1654 DR NY.

The culvert carrying CR 34 over the Hollow Brook previously consisted of two distinct types of construction that were interconnected with one another. The downstream portion of the culvert, which was immediately beneath the roadway, consisted of a concrete superstructure and concrete abutments constructed by the County in 1946. The upstream half of the culvert was a dry-laid stone masonry arch and headwall which carried a previous roadway alignment of CR 34. This stone arch and headwall took the place of wingwalls on the upstream end of the concrete culvert and as such the two distinct portions of the culvert were integral with each other for conveying stream flow and retaining the roadway embankments.

The referenced flooding caused washout and collapse of approximately half of the stone masonry arch and headwall on the upstream end of the culvert. This collapse of the stone arch structure resulted in slope failure of a portion of the 6-meter high roadway embankment, putting the safety and stability of the roadway in jeopardy. Barton & Loguidice, P.C. (B&L) was retained to investigate the site and develop an engineering design report and remediation plan. Through coordination with Federal Emergency Management Agency (FEMA) and the New York State Emergency Management Office (SEMO), the Columbia County DPW secured emergency funding (federal and state) and proceeded with the design and construction of a replacement structure.

(continued on page 5)
ARRA Funding Aides Replacement of New Baltimore Road Bridge

Wilbur Smith Associates provided construction inspection and contract administration services to the Greene County Highway Department for the replacement of the New Baltimore Road Bridge over Hannacrois Creek in the town of New Baltimore, Greene County, NY. This project was advanced as a locally administered federal aid project, designated to receive funding through the American Recovery and Reinvestment Act (ARRA).

The existing 77-foot-span, prestressed concrete box-beam/steel-beam bridge, supported on concrete abutments, was completely removed and replaced with a new precast concrete BEBO arch bridge with precast concrete wingwalls and headwalls, designed by Creighton Manning Engineering. The new span length is 59'-11” and the new bridge width is 30'-10”, which includes two, 10’ lanes and 4’ shoulders and concrete parapets. The exposed concrete surfaces received an architectural treatment to maintain the aesthetics that Greene County required.

The precast arch system was chosen based on economics, aesthetics, and limited future maintenance requirements. Precast shop inspection was provided by Atlantic Testing Laboratories. The construction cost was $1.118M. Construction started in July 2009 and was completed in December 2009. All work was completed on time and within budget by the contractor, Bette & Cring LLC.

Our thanks to John Saia, Jr. of Wilbur Smith Associates for this article and photographs.
The old corrugated metal pipe arch bridge on Route 104 in Jeddo, NY was in urgent need of repair or replacement. If the old bridge were to be removed and replaced, the traveling public would have been subjected to a long and very inconvenient detour. A member of the NYSDOT – Structures design staff remembered reading a PCANY article from October 1994 entitled “Precast Concrete Gives New Life to Old Arch Bridge” The story began “Precast concrete load bearing arch segments have given new life to an old stone arch bridge on Route 67 over the Cayadutta Creek in Fulton County, NY” and ended with “Engineer and owner of the project is the New York State Department of Transportation. Kistner Concrete Products fabricated the segments at their plant in Lockport, NY.” Well, why not do the same thing on this Jeddo bridge?

Once again, Kistner supplied 10” thick precast arch segments to span 24'-0" between the restored footings. Each oversize piece had to be shipped on edge; they were then picked up and rolled to a vertical position, and next slid into place under the old arch, on HDPE plastic strips. The pieces were secured by two rows of 1” dia. stainless steel threaded rods. Installation of the 10 arch sections (and 2 fascia sections for one side) started at 10:00 am and was finished at 5:45 pm. Next, grout was pumped into the interstitial space through grout ports supplied in the new precast arch sections, to structurally support the failing corrugated metal pipe arch sections.

This State bridge replacement project was designed by the NYSDOT Structures group. Contractor for the work was CATO Construction Inc., and Kistner Concrete Products Inc. supplied the work from their Lockport plant.

Thanks to Mike Kistner for the story and photos.
Clarkson Parma Town Line Road Culvert Replacement

The project involved the replacement of two existing 5’ x 5’ reinforced concrete box culverts, constructed in 1924 with a single precast four-sided reinforced concrete culvert structure along a curved alignment. The new structure has a clear span of 12’, a height of 6’, an out-to-out width (travel lanes, shoulders, and headwalls) of 35’-4”, and a lay length of approximately 69’. The precast concrete culvert was chosen as the most economical solution, as compared with a prestressed slab/integral abutment bridge option. The precast culvert option allowed for installation on a curved alignment to more efficiently carry the stream channel.

Wingwalls were placed where needed to retain embankment fill. The wingwall at the southwest corner of the structure was cast-in-place to reduce associated costs with relocating overhead utility lines. The remainder of the wingwalls were precast and connected to the culvert structure via closure pours. The top slab of the culvert was detailed such that it will prevent ponding of subgrade drainage on the structure.

As the owner of the structure, the Monroe County Department of Transportation (MCDOT) directed the project from inception through construction. MCDOT contracted with Dewberry-Goodkind, Inc. to perform the design engineering and construction support services associated with the project which began in May of 2008. The design schedule allowed for MCDOT’s desire to begin construction on July 20, 2009 with a scheduled completion date of October 30, 2009.

The Town of Clarkson Highway Department performed many of the general construction tasks such as the removal of the existing structures, grading for the placement of the new precast concrete culvert, backfill of the new culvert, installation of a closed drainage system, excavation of the roadway approaches, paving operations, and general grading of the project site. In essence the Town of Clarkson Highway Department was the general contractor for the project. C.P. Ward, Inc. performed the portion of the project entailing placement of the new precast culvert and cast-in-place concrete pours, which was bid out to contractors as a lump sum bid.

The project was progressed by the Town crews working a schedule consisting of four 10-hour days and one 4-hour day. All ten box culvert sections and 7 wing wall elements were installed in one day. Occasionally crews worked overtime hours to complete tasks that necessitated extra time to complete. As a part of the project team, the Town was responsible for maintaining contact with MCDOT regarding design questions and construction coordination regarding materials and needed specialized equipment or subcontractors.

Note the curve developed as the box sections were placed (continued on page 5)
Clarkson Parma Town Line Road Culvert Replacement  

The overall progress of the project was managed by Tom Fry of MCDOT. Chris Sichak of Dewberry was the project manager for the project design and construction support process. In addition to the coordination required between town crews and MCDOT, coordination was required with C.P. Ward for construction of the new structure. Andrew Bouquin of C.P. Ward was responsible for the installation of the new precast concrete structure along with cast-in-place wingwall, headwall, and closure pours. Kistner Concrete Products, Inc. was responsible for fabricating the precast culvert and associated precast wingwalls. The project team worked successfully together to deliver a completed product which enabled the roadway to be opened on October 16, 2009 with no safety incidents or lost-time injuries.

Special thanks to Chris Sichak, PE, Structural Project Manager at Dewberry, for this story and the photos.

Replacement of Storm Damaged Culvert in Columbia County  

The replacement structure utilized a combination of pre-cast and cast-in-place concrete construction. The structure consisted of six precast concrete, three-sided rigid frame units, each with an 18-foot span and a 10-foot rise. The rigid frame units were founded on cast-in-place concrete footings that were stepped to accommodate the change in rock elevations at the project site.

Project credits include: Owner – Columbia County DPW; Emergency Funding Agencies – FEMA & SEMO; Engineer – Barton & Loguidice, P.C.; Contractor – A. Colarusso & Son, Inc.; Precast Manufacturer – Rotondo Precast, Avon, CT.

And thanks to Jeremy Bourdeau for submitting this article and photos.
An excerpt from

“Accelerated Bridge Construction – Designing for Contractors”

by Jim McMinimee and Mary Lou Ralls – an article in STRUCTURE Magazine, Sept. 2009

Accelerated Bridge Construction (ABC) has taken off in the United States in recent years. This is primarily due to two interrelated factors: (1) The need to replace deteriorated bridges, and (2) The need to maintain traffic flow during peak traffic hours.

The Utah DOT has completed 127 bridges using different ABC methods, and is transitioning to ABC as standard practice by 2010. The ABC methods include everything from prefabricated elements such as decks, to moving entire structures using self-propelled modular transporters (SPMTs). UDOT began its ABC implementation with the reconstruction of I-15, in time for the 2002 Winter Olympics. Partial-depth, precast, prestressed concrete deck panels and other ABC methods were used on the project to speed construction.

UDOT’s ABC implementation has relied on industry collaboration to be successful. Obtaining contractor input in the early stages of ABC projects leads to more cost-effective, long-lasting bridges with early completions. By posting in-depth ABC details on the website, UDOT is opening its doors to contractors and showing them that this is the new way of doing business in Utah. Contractors are encouraged to access UDOT ABC manuals, drawings, specifications, and details from past projects.

---

Precast Concrete Association of New York
2829 East Avenue
Rochester, NY 14610
Tel: 585-249-9564 • Fax: 585-381-0945
Email: pcany@aol.com
Web: www.pcany.org

MEMBERS

Sunnycrest Inc., Auburn, NY, 315-252-7214

Roman Stone Construction Co., Bay Shore, NY, 631-667-

Oldcastle Precast Inc., DBA Rotondo Precast, Avon, CT, 860-673-3291
Oldcastle Precast Inc., Middle Island, NY, 631-924-7400

Northeast Prestressed Products, LLC, Cressona, PA, 570-385-2652

Sunnycrest Inc., Auburn, NY, 315-252-7214

Oneonta Block, Oneonta, NY, 607-432-6641

Iron Horse Transport Inc, Smithtown, NY, 646-529-0336

Newcrete Products, Division of New Enterprise Stone & Lime Newcrete Products, Division of New Enterprise Stone & Lime

Guardian Concrete Products, Schenectady, NY, 518-372-0080

Binghamton Precast & Supply, Binghamton, NY, 607-722- 0304


C&D, Syracuse, NY, 315-434-3200

Clough Harbour & Assoc. LLP, Albany, NY, 518-453-3961

Collins Engineering Inc., Albany, NY, 518-436-0392

Delta Engineers PC, Binghamton, NY, 607-231-6612

Dewberry, New York, NY, 212-685-0900

Didonato Associates PE, PC, Buffalo, NY, 716-656-7900

Earth Tech/AECOM, Latham, NY, 518-951-2200


Erman,Anthony,Rochester, NY, 585-240-2666

Fisher Associates PE, LS, PC, Rochester, NY, 585-334-1310

FRA/T V Lin International, Henrietta, NY, 585-359-0280

Greenman-Pedersen, Inc., Buffalo, NY, 716-633-8444

Hunt Engr Arch Surveyors PC, Horseheads, NY, 607-358- 1000


LaBella Associates, PC, Rochester, NY, 585-454-6110

Lamont Engineers, PC, Cobliss, NY, 518-234-6028

Maser Consulting, West Nyack, NY, 845-727-1160

McFarland-Johnson, Inc., Binghamton, NY, 607-723-9421

O’Neill Consulting, Spring Lake, NJ, 732-974-0129

Popol Consulting Engineers, Penfield, NY, 585-388-2060

Ryan-Biggs Assoc., PC, Troy, NY, 518-272-6266

A H Sample, Inc., Otisville, NY, 601-847-8945

R Samels Engineers, Henrietta, NY, 585-334-5549

Shumaker Consulting Engineering & Land Surveying, PC, Binghamton, NY, 607-798-6081

Simpson Gumpertz & Heger, Inc., Waltham, MA, 781-907-9000

SJB Services, Inc., Hamburg, NY, 716-649-8110

Stocum, DeAngelis & Associates, PC, Latham, NY, 518-783-0000

Stiebem County DPW, Bath, NY, 607-666-4279

TransTech Systems, Schenectady, NY, 518-272-4067

TVGQA Consultants, Elma, NY, 716-655-8842

Watson Engineering, PC, Oswego, NY, 607-223-4800

Walls Architecture & Engineering, PC, Buffalo, NY, 716-206-1500

WSP-Sells, Briarcliff Manor, NY, 914-747-1120

Wilbur Smith Associates, Latham, NY, 518-783-1887

OFFICERS, DIRECTORS AND STAFF

President: David Wan, Oldcastle Precast

Vice-President: Joseph Amico, A.R. Concrete

Secretary: Mike Wegand, J.P. Carrara & Sons

Treasurer: Todd Clarke, Lakeland’s Concrete Products

Immediate Past President: Tom Montabane, Roman Stone

Construction

Associate Member Director: Wally Swiger, A-Lok

Professional Member Director: Doug Vandeveer, Lamont

Engineers

Sepic Tank Group Director: Ed Pennypacker, Jepco Sales

NECSA Director: Ric Sullivan, Lehigh Northeast Cement Co.

Executive Director: Carl Buchman, PCANY, 585-249-9564