

*Focus of this Issue:  
Storm Water Systems, Waste Water Systems, Septic Systems*

## Stormwater Retention System for New Commercial/Industrial Development



4 x 4 Leaching Galleries

Photo by Eastern Precast

Like many communities, Brookfield, CT wants to control storm water runoff from being a destructive force or from overloading existing stormwater systems, and at the same time, they recognize the need to help nature recharge their under-

ground aquifers. Thus new developments, which almost always involve large paved areas in addition to significant square footage of new hard roof surface, are required to pacify the increased storm water runoff generated.

Shown in their naked beauty during construction, these four foot cubes of hollow, perforated concrete serve as an important component of such a system. After these thirsty storage boxes are placed on a level and firm earth base, large stone fill (nominal 1 1/4 inch) is placed over and between the units to render a porous, stable sub-system capable of accepting storm flows. This will be covered with filter fabric, a layer of bank run gravel, and grassy or asphalt areas as needed. Thus the new site drainage system flows into this hidden underground retention facility, from whence it partially recharges ground waters while permitting a piped, controlled over-flow into a nearby natural pond. And this system won't rust out in the future.

Eastern Precast Company, Brookfield, CT supplied some 180 units for this project. End units are cast with manholes for inspection access. Many different shapes are available to tie into surface drainage receptacles, inflow and outflow piping, and clean-out accommodations. (See related articles on the following pages.) □

## Custom Oil & Grit Separator for Stormwater Flow

A large part of any precasters' business consists of standard products, made in typical sizes, and often carried in inventory. But that in no way rules out custom shapes, special sizes, or clever solutions to unique challenges regularly found in the construction world. For example, a 12' long by 8' wide by 5' deep (inside dimensions) box is not your everyday burial vault.

On another stormwater control project in Brookfield, CT, Eastern Precast fabricated the large concrete structural unit, shown on the right being installed, according to plans and specifications specifically designed for the work by the project consulting engineer. These included coating the inside four walls with a special epoxy coating, and the entire outside with a bituminous coat. (Check the PCANY website, [www.pcanyc.org](http://www.pcanyc.org), for the Feb 2006 Newsletter to see the bright blue epoxy color of the inner walls contrasted to the grey dividers and the black outside.)

The only mechanically operating parts on this system are the roof clean-out openings. The two interior concrete baffles, approximately equally spaced from the end walls, form chambers for grit to settle and oil to rise, in combination with the



Custom Oil & Grit Separator for Stormwater Flow

Photo by Eastern Precast

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### Custom Oil & Grit Separator for Stormwater Flow *(continued)*

sizable container which creates a slow through-flow speed. Similar to a typical septic tank in operation, T-baffled outlet piping stops the floating oil from leaving the collection chamber. The pipe entry and exit openings were plant supplied with flexible compression fittings to further ensure long term watertightness, no matter the pipe angles to the tank, or pipe settlement with time.

This is a heavy piece of concrete – but notice how carefully rigged and evenly balanced it is. And for fun, how many people and how many pieces of equipment are being used to accurately position it?

[Answer: 1 backhoe, 2 shovels, 2 rakes, plus one gloved left hand are visible.....] □

### The Possibilities Are Endless...

Shown awaiting shipment from Eastern Precast, this unit is for the discharge end of a detention pond serving a residential community in Millerton, NY. It will be installed so that the low front wall establishes the maximum desired pond water level. If storm surges cause the pond to fill and begin over-flowing

the wall, it will be carried away via a 4-foot diameter pipe which will be set to proper final grade, and concreted into the large rectangular opening on the back side. The small side opening will serve an auxiliary inflow pipe from elsewhere on the project.



Outlet Control Structure for Detention Pond Photo by Eastern Precast



Not Your Ordinary Concrete Manhole Photo by Eastern Precast

This four-foot diameter duplex pump chamber concrete manhole is configured to serve a new home being built on a site that is lower than the street sewer line. The plant assembled package includes two pumps, electrical and control wires, operating and alarm floats, interior piping and valves, plus the raising/lowering chain and assembly for servicing.

Once in place, the electrical contractor will complete all wiring, including the control panel located inside the house. The panel not only automatically alternates pump cycles, it also will warn of a pump malfunction while operating only the remaining pump, or warn of high fluid levels. The project plumber merely connects the in and out piping, and checks that everything is operating properly. To make his job easier, and prevent unwanted ground water inflows or raw sewage outflows, the manhole pipe openings are plant cast with compressible flexible fittings.

The inclusion of flexible compression pipe fittings is a rather small additional cost to manholes, septic tanks, storm water structures, and the like. This small cost is easily offset by the ease and speed of making the on-site pipe connections. Experience widely proves that job site mortared pipes do not remain watertight, and result in unwanted fluid flows and ground or roadway subsidence. PCANY recommends that these improved connection devices be required in every such structure. □

### PCI Bridge Design Manual Seminars

132 registrations were received for the two full-day seminars last month, and according to the completed evaluations, the learning experience was well received. On behalf of PCANY and those in attendance, we again thank Dr. Reid Castrodale of Carolina Stalite Company, Eric Thorikildsen of Collins Engineers PC, and Troy Jenkins of CDS Engineers for their presentations. The design reviews with examples were generally useful, and the LRFD highlights and explanations were enlightening. As an example that you can't please everyone, one person said the best part was the food. Thanks to all who attended, offered useful suggestions for future seminars, and who supported the event with their display tables: Clough Harbour & Associates, Degussa Construction Chemicals America, Grace Construction Products, The Fort Miller Company, and L.C. Whitford Materials Company. If any attendee failed to receive their PDH Certificate (7 hrs), please let us know. □

## Welcome to Erdman Anthony and Shumaker Consulting Engineers

It is always a pleasure to welcome new PCANY Members, and this month we recognize two additional Professional Members: Mr. Leszek Janik, PE with Erdman Anthony in Rochester, and Mr. Antonio R. Malakia, PE, with Shumaker Consulting Engineering & Land Surveying in Binghamton. Counting all categories, we now total 100 members. □

### PCANY Annual Meeting February 16, 2006

Lunch will be available at noon, with the meeting starting at 1 pm; location is the AGC Conference Room, Suite 203, 10 Airline Drive, Latham, NY.

Agenda: Reports on 2005 activities and financial review; miscellaneous topics regarding the year ahead; discussions with the NYSDOT concerning ribband design and coefficient of friction under precast walls; septic group report; presentations by Associate Members; election of officers and other business.

Please advise Carl Buchman how many will attend, especially for lunch, for ordering purposes; home office 585-385-3456. □

## pcaStructurePoint Supports Concrete Design Programs at Universities

*(taken from PCA Building Better Outcomes January 2006)*

The design of reinforced (non-prestressed) concrete tanks requires that attention be given not only to strength requirements, but to serviceability requirements as well. A properly designed tank must be able to withstand the applied loads without cracks that could cause leakage. The goal of designing and constructing a structurally sound tank that will not leak is achieved by providing the proper amount and distribution of reinforcement, the proper spacing and detailing of construction joints, and the use of quality concrete, placed using proper construction practices.

As part of PCA's University Outreach Program, pcaStructurePoint recognizes the important role of concrete design education for the next generation of structural engineers. To support concrete design programs at universities, pcaStructurePoint offers substantial discounts in licensing its software for educational and research purposes. To learn more about their available software products, send an email to [univ@pcaStructurePoint.com](mailto:univ@pcaStructurePoint.com). □

#### Visit [www.pcany.org](http://www.pcany.org) for more information on:

- **precast concrete products** and their application
- **precast concrete producers** with links to their websites
- **precast concrete association of New York, PCANY**

If you would like to receive this newsletter via email instead of hard copy in the mail, send your request and email address to [pcany@aol.com](mailto:pcany@aol.com).

## NOWRA Vacuum Testing Shatters Misconceptions, Exceeds ASTM Standards



2005 NOWRA Test Demonstrations

Photo from Jepco Sales

During a special educational tour at a wastewater treatment facility in Huntsburg, OH, multiple concrete tanks were vacuum and water tested in a demonstration showing ASTM test procedures and bringing education to the regulatory community. The tanks did so well that they outlasted the vacuum testing time requirements by more than 90 times the requisite test time and met the water testing standards. The testing was terminated due only to time constraints of the observers. (Taken from Issue 6, 2005 *NPCA Update*).

Effective Jan. 1, all NPCA certified plants that produce concrete septic tanks will be required to perform and document the results of vacuum and/or water testing. The Fifth Edition of the NPCA Quality Control Manual for Precast Concrete Plants can be viewed and downloaded at [www.precast.org](http://www.precast.org). □

**RETURN SERVICE REQUESTED**

## Calendar of Coming Events & Continuing Professional Education

**Manufactured Concrete Products Exposition, February 23 - 25, Anaheim Convention Center**

**Installation of Residential On-Site Wastewater Treatment Systems** (full-day OTN class, 7.5 Contact Hours),  
**March 14, Monroe County DOH**

**Stormwater Conference and Trade Show, March 30, RIT Inn and Conference Center, Rochester**

**2006 Concrete Bridge Conference** (HPC: Build Fast, Build to Last), **May 7 - 10, The Nugget, Reno**

### Producer Member Companies:

AFCO Precast, Middle Island, NY  
A & R Conc Specialties, New Windsor, NY  
Bayshore Conc Prod, Cape Charles, VA  
Binghamton Precast, Binghamton, NY  
Carrara & Sons, Middlebury, VT  
Coastal Pipeline Products, Calverton, NY  
Concrete Building Supply, Plattsburgh, NY  
William E. Dailey, Shaftsbury, VT  
The Fort Miller Co, Schuylerville, NY  
Hanson Pipe and Products, Pottstown, PA  
Jefferson Concrete, Watertown, NY  
Kistner Conc Products, East Pembroke, NY  
Newcrete Products, Parsippany, NJ  
Oldcastle Precast, South Bethlehem, NY  
Riefler Concrete Products, Hamburg, NY  
Roman Stone Const Co, Bay Shore, NY  
Rotondo Precast, Avon, CT  
Schuykill Products, Cresona, PA  
Sunnycrest Inc, Auburn, NY  
Unistress Corp., Pittsfield, MA  
LC Whitford Co., Wellsville, NY

### Associate Member Companies:

A-Lok Products, Tullytown, PA  
Amcrete Products, Newburgh, NY  
Concrete Sealants, Royersford, PA  
Cresset Chemical Co, Weston, OH  
Dayton Richmond Corp, Collinsville, CT  
degussa.Construction Chemicals, Cleveland, OH  
Eastern States Steel, Upper Saddle Riv, NJ  
Engineered Wire Products, Upper Sandusky, OH  
Euclid Chemical Co, Saratoga Springs, NY  
WR Grace, Old Chatham, NY  
H & H Hulls, Hudson, NY  
Helsler Industries, Tualatin, OR  
Henry Company, Houston, TX  
Meadow Burke, Merrimack, NH  
Mixer Systems, Pawaukee, WI

Northeast Solite Corp., Saugerties, NY  
O W Hubbell & Sons, New York Mills, NY  
Polylok, Yalesville, CT  
Press Seal Gasket Corp, Boxford, MA  
Jepco Sales, Royersford, PA  
JVI Inc, Pittsfield, MA  
NPC Inc, Milford, NH  
A L Patterson, Fallsington, PA  
Rebar Systems, Cotuit, MA  
Sika Corporation, Fairless Hills, PA  
Spillman Company, Columbus, OH  
Splice Sleeve N.A, Bonita Springs, FL  
Stelcrete Industries, Niagara Falls, Ontario  
Stephenson Equipment, East Syracuse, NY  
Syracuse Castings Sales Corp, Cicero, NY  
TUF-TITE, Lake Zurich, IL  
USF Fabrication, Durham, CT  
E-Z Set, Haymarket, VA

### Septic Tank Producer Companies:

Burnett Concrete Products, Wolcott, NY  
Butts Concrete Products, Masonville, NY  
Eastern Precast Co, Brookfield, CT  
Grimm Build Materials, Green Island, NY  
Guardian Block, Schenectady, NY  
Keeler Vault, Hudson, NY  
Oneonta Block, Oneonta, NY  
R Deso, Inc Champlain, NY  
Woodard's Concrete Products, Bulville, NY  
Zeiser Wilbert Vault, Elmira, NY

### Professional Member Firms:

Abate Engineers, Buffalo, NY  
Advance Testing, Stockbridge, MA  
Barton & Loguidice, Syracuse, NY  
Bay Saver, Mount Airy, MD  
A.S. Bell Engineering, Slingerlands, NY  
Bergmann Associates, Rochester, NY  
A L Blades, Hornell, NY

C & S Engineers, Inc., Syracuse, NY  
Clough Harbour & Assoc, Albany, NY  
Con/Span Bridge Systems, Dayton, OH  
Delta Engineers, Binghamton, NY  
DiDonato Associates, Buffalo, NY  
Finley Engineering Group, Tallahassee, FL  
FRA Engineering, Henrietta, NY  
Greenman-Pederson Inc, Albany, NY  
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Hunt Engineers & Architects, Corning, NY  
LaBella Associates PC, Rochester, NY  
LEAP Associates, Tampa, FL  
Maser Consulting, West Nyack, NY  
McFarland-Johnson, Inc., Binghamton, NY  
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