

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

### Engineered Upgrade for Trailer Park

Three different PCANY members supplied McCagg Excavation, of Ghent, NY, various products required to upgrade the sewage and surface water flows for this work in Claverack, NY. Keeler Vault supplied three 1250 gallon one piece pump chambers, designed for H-20 loading. Fort Miller supplied two 2000 gallon and one 2500 gallon two piece septic tanks, also designed for H-20 loading. And Grimm Building Materials supplied the precast concrete manholes which were used in the surface water drainage system; in addition, one was used as a collection station for septic tank effluent prior to its flow to the distribution box.

The septic tanks were set in three areas of the park with a pump station attached to each tank. A designated number of trailers were hooked up to each septic tank with either a 6" or 8" main. Joe Keeler, who supplied the photos and story, described the job as just a normal kind of repair job, not huge in scope, but interesting in that three members produced the product needed for the work. He

also quoted the contractor as saying "he has bought from all three in the past, and has great confidence in their products."

The septic tanks were set by an on-site crane; the pump chambers were set directly by the crane mounted on the delivery truck; and the manholes were set by the excavator. Note: the NPCA's "Best Practices Manual for Precast Concrete On-Site Wastewater Tanks" recommends that the minimum clearance between a tank and the excavation is 18", with the compacted backfill being replaced in lifts less than 24" thick, free of any large stones or other debris. [Contact NPCA or PCANY for a copy of this very useful publication; also available are PCANY's "Concrete Septic Tank Installation Guidelines", NPCA's "Recommended Installation Procedures – Storm and Sanitary Manholes", and three different articles on Vacuum Testing Tanks for Watertightness and Proof of Structure.]



Pump chambers are set directly by the delivery truck



Septic tank (rear) and pump chamber just after setting

## Dewberry Promotes Thomas Fredricks, PE

Congratulations to Tom Fredricks upon his promotion to associate and assistant director of transportation engineering. And please be assured all members of PCANY

are always available to help with the design, specification, and application of precast and prestressed concrete products in the transportation field.

## Kingston Armory Upgrade Requires More Parking Space

The new parking areas developed at the Kingston, NY Armory required additions to the sewer and storm drainage systems. The coated man holes shown are for the sewer additions. According to Joe Amoia of A & R Concrete Products, the coating was sprayed on the outside only; it was specified for added protection against water leakage in or out, and to help preserve the structure. The spread bases of the manhole bottoms were required due to the sandy soil conditions, helping to distribute load and anchor the units. The plain concrete boxes in the photo will become part of the drainage system.



Precast manholes ready to ship

Photo by A & R Concrete Products

## Breaking the Record

“Breaking the Record” is the title of an article in the October issue of *On-site Installer*, which described “the largest privately-owned on-site system in the state” of Wisconsin. When the Highway 29 bypass project rerouted traffic around Chippewa Falls, the owner of Travel Country Plaza on the east side of town took the opportunity to develop another on the west side. The new plaza includes a full-service truck stop with convenience store, mini-mall, restaurant, and 78-room hotel with banquet seating for 300 in an adjoining conference center. This building project required an on-site system to service the needs of the entire complex. The owner selected Geo Tech Soil and Site Evaluation to design the system.



Setting top of 38,000 gallon Equalization Tank



Equalization tank in foreground and five 10,000 gallon treatment tanks each with 9.0 FAST unit

The design components included: an 8000 gallon four compartment grease interceptor tank; 12,000 gallon lift station; 10,000 gallon single compartment septic tank; 38,000 gallon, single compartment flow equalization tank; five 10,000 gallon tanks with fixed activated sludge treatment (FAST) units from Bio-Microbics; a 12,000 gallon

single compartment dose tank; and a four-zone drain-field...all designed to handle 27,633 gpd. Wieser Concrete produced and delivered all the tanks from their Portage, WI plant. Many thanks to our industry friends at Wieser for supplying the photos and story of this very impressive project. As reflected by the two primary stories in this issue, precast concrete tanks are the solution of choice for any size storm water, waste water, or septic system.

# Concrete – the SMART Choice for Storm Water Detention Systems

*(written by Sherman Dixie)*

## **Structural integrity**

- Reinforced precast concrete systems are extremely durable
- 100 year design life
- No special backfill requirements means installation is simplified
- Strength is built into pipe
- Flotation risk is eliminated with precast concrete systems
- Shallow covers are no problem, exceeds HS 20 loadings

## **Maximize land use and the owner’s investment**

- All land can be used for building and parking, maximizing investment
- More parking spaces means building can be larger
- Large volumes of water can be handled in a small footprint
- Maintenance costs are substantially lower with precast
- Precast concrete systems can be used in conjunction with structural storm water quality units
- Sustainable development concept
- Precast concrete takes unsightly “wet ponds” underground

## **Always a superior choice to flexible pipe systems**

- Using precast concrete avoids high lifelong maintenance costs
- Owners don’t have to be concerned with corrosion or deflection issues
- Plastic pipe has far greater flotation risk
- Precast concrete pipe offers the greatest long-term value
- Precast concrete systems are constructable

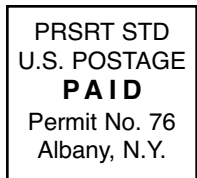
## **Reduce owner’s financial risk**

- Detention ponds have liability issues such as increased mosquitoes and a need for fencing
- Flexible pipe may deflect and lose volume
- Valuable land use can be maximized
- No business disruption due to failed pipe

## **True environmental benefits**

- Concrete is made of the most common natural resources (sand, stone, water, cement) and readily available
- Concrete pipe ranked number one in environmental performance compared to metal and plastic pipe
- Concrete has the lowest ecotoxicity to sediment, soil, water, and humans compared to any other product
- Concrete ranks number one in lowest use of energy and lowest depletion of natural resources
- Concrete can be made in close proximity to a job site, eliminating the need for fuel to transport the product long distances





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## New assignments at NYSDOT

Best wishes to Mathew Royce, who has been assigned to the Bridge Design Bureau where he will serve as a Project Engineer overseeing 3 - 4 Design Squads. He will be missed, both professionally and personally. And welcome to Michael Twiss, who has been named the new Supervisor of the Concrete Engineering Unit, effective January 11, 2007; we look forward to working together.

## Seminar on Parking Structures

PCANY will co-sponsor a full-day seminar with ACI and PCI, "Design and Construction of Concrete Parking Structures", in Albany on April 16, 2007. Seminar attendees will learn about:

- Design and Material Considerations
- Good Design Practices for All Types of Construction
- And Much More
- Selecting the Structural System
- Requirements for Durability

All attendees will receive the ACI 362.1R-97 publication, "Guide for the Design of Durable Parking Structures", the PCI publication "Precast Prestressed Concrete Parking Structures: Recommended Practice for Design and Construction", a 260-page workbook of all the seminar slides with a supplementary appendix of data, and Professional Development Hour credits. All members of ACI, PCI, and PCANY can receive a fee reduction of \$140. Registration is through ACI Headquarters.

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