

FLYING HIGH

Airport-area construction project manages contaminant levels

By Mitchell Stocki

In October 2011, Glen Arm Building Co. had a challenge to overcome. The company was in the cut-and-fill phase of a construction project, but found that the storm water treatment basins that were set up had effluent levels far higher than the acceptable level set by the Maryland Department of the Environment (MDE). The MDE requires all discharge to be under 150 nephelometric turbidity units (NTUs), but the basins throughout the project were at contaminant levels as high as 1,712 NTUs after frequent rain events during the spring.

Phil Romar of Glen Arm contacted Keith Martin of Hanes Geo, a provider of storm water and erosion control products. Martin had successfully employed a semi-passive dewatering manifold system using HaloKlear biopolymers in a similar situation. Together, Hanes Geo and HaloKlear were able to find a quick solution that brought the NTU discharge well below the required threshold.

The Project

Glen Arm Building Co. is overseeing the construction of five new industrial buildings spread over 743,000 sq ft of land adjacent to the Baltimore Washington International Airport

corridor in Hanover, Md. The buildings are being constructed in an area directly surrounding the airport, just beyond the car rental agencies and air cargo areas.

The construction site is located in a red-clay-laden area that experienced a very wet spring. The site had various storm water basins located throughout the project area with water volumes ranging from 250,000 gal to 1 million gal of water.

The cut-and-fill portion of the project was the first stage of the construction process. This stage can last from two to four months and consists of removing vegetation, moving dirt, laying rounds and preparing the foundations for the buildings. During this stage, the construction company set up nine different storm water basins for treating water runoff. As the basins filled up, the NTUs were noted to be very high. It was then that Glen Arm realized that the discharge levels were nowhere close to those required by the MDE, and the water could not be discharged to the protected natural forest conservation area bordering the site.

Glen Arm considered using polyacrylamide (PAM) to treat the water, but with the heavy red clay soil in the area, PAM would not be effective, as it

“blinds” the water—it forms a gelatinous, sticky substance when mixed with the clay that does not allow water to pass through the sediment bag.

If Glen Arm considered an active treatment, sand filtration was a possible option—but there is a high cost associated with active treatment, not to mention more time involved.

The company originally was alerted to the HaloKlear manifold system from the Anne Arundel County Inspectors, which was being used on other sites in the county and learned that it, too, could benefit from implementing the same system on its treatment ponds. The HaloKlear product and manifold were already approved by the MDE.

Martin was contacted, and he demonstrated the system to Glen Arm. “Once demonstrated, they implemented the system immediately—not only because of how fast it cleaned the water to acceptable levels, but also because it was so much cheaper to implement than any other system out there,” Martin said.

Cut-and-Fill Challenge

During the cut-and-fill phase, the contractor had implemented all possible means to control turbidity with the required BMPs, but the site itself

offered no natural filtration within the perimeter of the project, and the heavy red clay seen within the water column from a distance was an alarming prospect for this high-traffic location.

The project basins had various levels of contaminated effluent levels at the time that Hanes Geo and HaloKlear were called in. Some were reading as low as 191 NTUs, while others were reading as high as 1,712 NTUs. However, all of the effluent was still higher than the MDE threshold of 150 NTUs. Something had to be done that required minimal space, cost and time.

Lots of Ponds

Hanes Geo suggested the installation and deployment of seven different semi-passive manifold systems using HaloKlear segmented socks. These systems were placed at various storm water basins located throughout the project. The series of DPS manifolds were pumping 200 gpm of water when needed into a 15-by-15-ft 8-oz. sediment bag. The sediment was captured in the dirt bag by the HaloKlear polymer, but some of the smaller clay microns got through the sediment bag. The effluent water then was polished through an attached channel with an excelsior blanket before a final polishing phase of a 12-by-12-ft 8-oz filter cloth. Finally, the runoff was discharged into the forest conservation area. Glen Arm tested all water before discharging into the conservation area and was averaging 19.67 NTUs—well below the required MDE requirement of 150 NTUs.

With multiple ponds to treat, the manifold system was an efficient solution because it is easy to move from pond to pond. The unit is mobile—just pick up the pump, move the system and treat a new pond. It was decided that seven different manifold systems were to be installed to treat the nine ponds; Glen Arm found them so affordable that the



A dirt bag, shown here in front of a storm water basin, captured sediment.

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less than one hour for each pond. The system takes less than 10 minutes if the PVC manifold is already assembled.

End Result

The project managers were able to reduce influent NTUs by 683. The solution was easy to implement, took up a minimal amount of space and was affordable. This construction project will take two to three years to complete and is projected to stay on schedule, and the ponds using the HaloKlear manifold system will remain in place until the building and permanent roads are in place. Several of the ponds may need to be treated longer depending on the soil conservation requirements. [SWS]

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company eventually realized it was better to have more units than to move them from treatment pond to treatment pond.

Time was of the essence for the project, and the HaloKlear manifold system can be set up, start to finish, in

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