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CASE FILES

Geopro® Learning Tool

June 3, 2004

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Medical Facility: Dewatering & Storm Water Clarification

Achieving high-quality water discharges from construction site dewatering systems and storm runoff can be challenging on any project. And difficulties can mount on urban sites where spatial constraints limit options. **Barton Malow Company** [Southfield, MI], Construction Manager for a new medical facility in Ann Arbor, MI, faced such conditions. To make matters worse, an unknown short-circuiting within the existing storm drain system servicing this site allowed direct discharges into an adjacent river – without treatment via a sediment basin/trap or detention pond.

Following an introduction to the use of **Applied Polymer Systems, Inc. [APS] Floc Logs®** for construction site storm water clarification, **Barton Malow**, in conjunction with the site excavation contractor, **Eagle Excavation, Inc.** of Flint, MI, set up a *Floc Log* clarification system.

The *Floc Log* system consisted of re-routing the existing pump discharge through the following components. Beginning at the up-gradient end:

- ❖ 6" wye element within which rested a *703d Floc Log*
- ❖ 250' of 3" hose
- ❖ 6" wye element within which rested a *706b Floc Log*
- ❖ 150' single-wall, corrugated plastic pipe

This system discharged clarified water and floc / chelates moving within the clarified water.



To meet water quality standards, **Barton Malow** pumped collected water into leased holding tanks. However, colloidal and other fine soil particles would not settle sufficiently within these tanks to allow discharge to the storm water drain system. Therefore, tankers were used to pump and transport the holding tank water to another on-campus location for temporary storage until a long-term solution could be developed. Since site dewatering required a 24-7 pumping schedule, **Barton Malow** faced an approximate \$1000.00 per day cost for the holding tanks and pump & transport operations. Project scheduling forecasted an approximate three-month use of this temporary 'system'. Faced with these projected costs, **Barton Malow** desired to find a less expensive 'system' alternative.



Insertion of Floc Log into wye element

Upper: Site dewatering pump casing with gravel pack [note: red hose discharge into gravel pack]
Lower: Excavation dewatering with discharge to site dewatering pump gravel pack [red hose]



Hard-pipe turns used to conserve space

Effluent from the *Floc Log* clarification system passed into a simple filter bag, allowing removal of floc and chelates. Once filtered, the water then discharged directly into the storm drain system.

Prior to installment of the *Floc Log* system, water quality collected from the site



Background: 2nd wye element discharge into plastic pipe
Foreground: Filter bag collection of floc and chelates

dewatering system varied, with a known breadth of turbidity values between 435 and 75 NTU. This variability is believed to stem from construction activity changes within the influence of the dewatering pump or within areas whose surface runoff flowed to or was pumped to the gravel pack surrounding the dewatering pump.

Post treatment consistently rendered discharge water having 13 to 17 NTU turbidity measurements [such values are similar to or better than those of many municipal water treatment systems]. This turbidity reduction was sufficient to enable system discharge directly into the storm drain system, eliminating the need for holding tanks and tanker pump/haul operations.

Total material and operational costs associated with the *Floc Log* clarification system, including all filter bags, are estimated to result in an \$85,000 to \$90,000 project savings given the projected three-month system duration need.

To learn more on how to use **APS Floc Logs** to clarify construction site storm and process water, visit:

<http://www.priceandcompany.com/Products/Sedimentctrl/polyclearify/poly.htm>

Floc Log is a trademark of Applied Polymer Systems, Inc.



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Clarified water discharges directly into storm drain system