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Innovations

Polymer Enhanced BMPs: Tank Systems

Mole Constructors – Tunnel Project, Gwinnet County, GA

Mole Constructors is a tunneling contraction company based out of Solon, Ohio. In April 2007, Mole Constructors began a three year project in Gwinnett, County Georgia digging a 15,921 linear foot tunnel. In the beginning stages of the project Mole Constructors was faced with turbidity issues in their stormwater discharge. It was at this juncture that they sought out the assistance of Applied Polymer Systems.

APS worked with Mole Constructors to find BMPs that would resolve their issues and allow for offsite discharge. Many of APS performance tested Polymer Enhanced Best Management Practices (PEBMP's) were considered from the use of a tank system with particle curtains to a split pipe flume system. Mole used several BMPs to treat their issues and to achieve maximum results. The main system Mole uses is a three (3) tank system with particle curtains and 706b Floc Logs.

Using multiple Best Management Practices (BMPs) in a treatment train creates a system that is better suited to prevent erosion and keep stormwater discharge in compliance.



Photo of the tunnel dug by Mole Constructors in Gwinnet County, Georgia.

The system that Mole created was comprised of a mixing launder, three (3) tanks, and particle curtains. The mixing launder is a split pipe that sits on top of the three tanks.



Three tanks make up the system and involve the use of Floc Logs and particle curtains to treat incoming water and remove sediments before discharge.



The launder followed the perimeter of the tanks on three sides and then discharged into the first tank. The first tank was used to capture the large particulate, while the second and third tanks contained particle curtains which work to capture finer particulate that has not settled to the bottom.

For a period of time it was necessary to insert custom pH logs to control a pH problem that Mole was experiencing. The pipe between the first and second tanks was retrofitted to accommodate a custom pH Floc Log that would dissolve and adjust the pH of the water flowing through the second and third tanks. After the water has moved through all three tanks it is then discharged into a pond prior to being discharged into the open environment.

The treated water is discharged from the third and final tank to a pond. The water is treated again with 706b Floc Logs inserted into the pond discharge pipe and other storm drain pipes to allow for offsite discharge. This is an extra measure to further improve water clarity and to catch any extra sediment that may be picked up after flowing from the discharge pond.

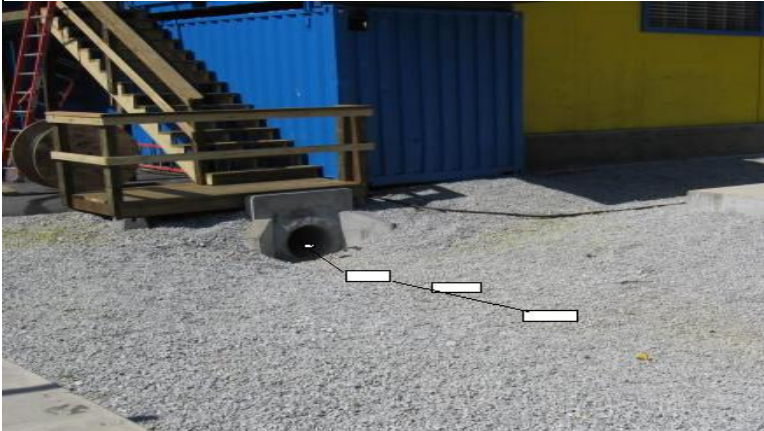
The tanks were monitored regularly to show the consistent reduction of turbidity.



Above: Particle curtain strategically placed to catch the particles that did not settle out by gravity.

Left Top: Floc Logs were placed in the storm drains to further treat the water discharging off site.

Left Bottom: After treatment, water is discharged directly into the open environment.



In September 2008, samples were taken from each of the three tanks and the discharge pipe. Tank 1 measured 1.23 NTU, Tank 2 measured 15.20 NTU, and Tank 3 measured 6.98 NTU. The NTU in the discharge pipe measured 0.62. Upstream and downstream readings were also taken, with an upstream reading of 1.65 NTU and a downstream reading of 1.39 NTU. The downstream NTU is significant because Mole was given a discharge limit of no more than 25 NTU above background, or the upstream NTU value. Monitoring continued for months after the initial testing with discharge and pond NTU readings ranging from 5.0-20.0.

This is one of many examples where APS has been able to provide solutions to multiple issues using APS performance tested PEBMPs.

For product and distributor information please contact us at:

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