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Innovations

In Stormwater Treatment

Bonnie Mine Road Project Summer 2006

In the summer of 2006, Moretrench of Riverview was working on the Bonnie Mine road project in Bartow Florida when heavy seasonal rains threatened to delay the project. Excess water on the site had already been a problem, and dewatering operations were being used to manage the water onsite. With all the rains the retention ponds were near capacity and the water needed to be removed to continue operations on site. The pumping operations would have to be increased to accommodate the high volumes of added stormwater.



The rains had carried excess sediment into the retention ponds, causing turbidity problems. The excess water needed to be removed quickly, which did not allow time for the sediment to settle out of the stormwater. In fact the dewatering operations would stir up the sediment, causing elevated turbidity in the ponds and in the water to be discharged.

The turbidity created by the pumping operations and rainfall posed a challenge for the project to stay in compliance. Turbidity readings at the site were over 800 NTU, well above the allowable limits for discharge. Environmental impacts from turbidity plumes, avoiding fines for discharging out of compliance water, and potential project delays were the main focus for project managers on site.



Moretrench contacted R. H. Moore and Associates, Inc. of Tampa to evaluate the turbidity issues and find a feasible solution. After going to the site and reviewing the operation it was determined that a continuous flow-through stormwater treatment ditch check system with APS Floc Logs would be the least intrusive and most cost-effective solution available, while allowing for a quick set-up and easy relocation as needed.

Samples were taken of the turbid stormwater and sent for site-specific testing to find the best Floc Log to use with the soil type present. It was found that the APS 703d and 703d#3 Floc Logs worked best on the site, along with the APS 705 Silt Stop powder. The testing results provided site-specific performance information, and showed that a duplex system would be required to drop the NTU levels and bring the project within compliance.



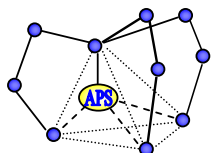
With this information, the stormwater treatment ditch could be designed. A long treatment ditch was created and lined with geotextile fabric to protect the underlying soil from erosion. Wire mesh checks were installed in the first portion of the ditch to facilitate mixing around the Floc Logs. The 703d and 703d#3 Floc Logs were placed around the checks where the turbid water would flow over and around them. The Floc Logs dissolve into the turbid water and react with the suspended sediment causing flocculation to occur.



Jute matting was installed at the end of the treatment ditch system and applied with the APS 705 Silt Stop powder. The jute matting provided a surface for the flocculated particles to adhere to and the 705 powder helped capture the fines still in suspension.

The stormwater treatment ditch with APS Floc Logs and powder allowed for continuous pumping and direct discharge off-site by dropping the NTU levels below 17, well within regulatory agency limits.

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