

PRODUCTS IN ACTION



Three 200-ft sections of thermoformed HDPE liner were assembled to create a water clarification channel for this construction site dewatering operation.

Dewater to Protect

By Kit Jones

Construction site dewatering is not a new phenomenon. Over the last decade, however, water resource management at nearly every level has become a sensitive and high-profile environmental issue, especially when it comes to the protection of lakes, streams and estuaries. Preserving these areas is becoming more difficult as the conversion of surrounding land into commercial and residential habitats creeps closer to these delicate water ecosystems.

Reusable water clarification system dewateres environmentally sensitive site

What is good for the environment is not always practical for the contractor, though. Today, not only must the water be removed during the construction process, it also has to be clarified before it can be discharged. Although absolutely critical, this process adds time and cost to major construction projects located in these sensitive areas. That is why it is paramount for contractors to understand the importance of these water discharge issues and take a proactive approach in discharge removal and groundwater treatment.

A recently completed highway expansion project along a section of I-75 in Florida is a prime example of the right way to dewater a site. This particular project is located close to a body of water designated by The Florida Department of Environmental Protection (DEP) as an Outstanding Florida Waterbody (OFW). Any body of water flagged as an OFW means that its current water quality level must be maintained.

Problem: NTU Range Out of Compliance

The Florida DEP set the criteria for this site at 29 NTU above background. On this particular site, “background” was ranging from 1 NTU to 4 NTU on any given day. When preconstruction water clarity tests indicated the untreated water was ranging between 100 NTU and 950 NTU, it was apparent the contractor had his work cut out for him.

With this issue in front of him, the contractor contacted R.H. Moore & Associates, a local distributor of erosion control and soil stabilization products, seeking a quick and cost-effective solution. After assessing the situation, R.H. Moore & Associates proposed a portable, aboveground water clarification “treatment channel” to bring the site’s turbid groundwater into compliance.

Solution: Construction of an Aboveground Water Clarification Channel

To begin, seven 200-ft-long high-density polyethylene (HDPE) trapezoidal-shaped channels called SmartDitch were assembled along the roadside near the source of the water runoff. Approximately 20 SmartDitch sections were used to create each channel. Watertight gaskets and removable screws were used to ensure the ditch was leak-free and could be disassembled easily upon project completion.

Once the channels were in place, APS floc logs

designed to remove fine particles from water and reduce NTU values were placed every 9 ft inside the channel. Then at the downstream end of channel, the contractor laid approximately 100 ft of all-natural woven, biodegradable jute matting on top of construction film to further capture loose particles and fine sediment. It is important to note that the groundwater quality was tested to make sure the appropriate floc logs were specified.

With the channels ready to go, submersible pumps and hoses were engaged at the upstream end to begin the dewatering process. Due to the frequent storm events and high groundwater in this area, the contractor ran the dewatering/clarification system 12 hours per day. Because the water clarification channels were 18 in. deep by 48 in. wide, they could handle up to 13.5 in. of water at velocities of nearly 10 ft per second at a 5% slope.

Results: Clean Water & Environmental Compliance

Inspectors tested the water daily to make sure the turbidity level was meeting the water clarity criteria. “Without a doubt, this system saved the contractor time and money,” said Jeff Peterson, a product applications specialist with R.H. Moore & Associates. “Without this channel system in place, even the most environmentally conscious contractor could not have stayed in compliance and most likely would have paid extensive fines.”

To keep the clarification channels running efficiently, one or two hours of maintenance per day is necessary. Although the jute mats should be replaced daily, the floc logs can last up to a month and the ultraviolet-resistant HDPE channel liner can be reused numerous times.

Furthermore, upon completion of a dewatering project, the channels can be disassembled, stacked onto pallets and transported to the contractor’s construction yard, where they can remain until the next dewatering project. www.wwdmag.com

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ARTICLE SUMMARY

Challenge: A Florida highway expansion project was being conducted along a DEP-flagged water body with excessive NTU measurements.

Solution: The project contractor specified a portable, aboveground water clarification treatment channel to manage the site’s turbid groundwater.

Conclusion: Upon completion of the dewatering project, daily inspections found compliant turbidity levels on site.

The Florida Department of Environmental Protection has given the OFW or “Outstanding Florida Waters” label to 41 of its 1,700 rivers, lakes and chains, estuarine areas, as well as the entire Florida Keys region.

These water areas are now protected because of their natural attributes. Their state of “good” water quality is not to be downgraded. Therefore, any water runoff coming from a construction site around these areas, including groundwater and storm water, must be treated before it can be safely discharged back into the area.