

Sanitary Main River Crossing

City of Williamston WWTP, MI: Oct. 2010 - Jan. 2011

As part of its infrastructure upgrade, the City of Williamston needed a 24" sanitary main extended from north to south across the Red Cedar River to its waste water treatment facility and the construction of a deep well adjacent to the existing facility. Designed by C2AE (Lansing, MI), this extension required pipe and well activities to be completed 'in the dry' using cofferdam workspace isolation coupled with combined well point and trash pump dewatering. One of the challenges facing this project involved treating turbid water from within the cofferdams during soil excavation, well-point installation/develop procedures and trash pump operation. With confined working space available, standard stormwater basins could not be constructed. In addition, local regulations limited the turbidity level of treated stormwater discharges to the river to 100 NTU. Given the clayey subgrade soil conditions, limited space and strict discharge requirements, C2AE contacted **InterfaceH₂O™** for information regarding its water clarification system, **WaterMatrix™**.

WaterMatrix is a transportable, quick-to-make-ready-for-operation water treatment system. It uses flocculation and chelation technologies to capture and remove significant percentages of both suspended and dissolved contaminants within water. Fed by either pumps or gravitational flow, **WaterMatrix** units enable efficient polymer introduction, floc/chelate formation and contaminant removal processes within a single, self-contained, portable unit. The combination of portability, effective water quality improvement performance, high flow rate capability and small footprint allows this equipment to economically service a wide variety of stormwater, site dewatering and process water applications.

WaterMatrix 366M950 unit arriving at Williamston WWTP



Operational: 50' x 12' footprint at flow rates up to 700 gpm



Contractor E.T. MacKenzie Company (Grand Ledge, MI) utilized the **WaterMatrix** unit as site conditions warranted simply by starting and stopping its pumps. During the two+ month project duration with varying weather and dewatering needs, the system functioned at flow rates estimated between 100 and 700 gpm generated by the a number of combinations among two 3" pumps and one 4" pump. The inlet manifold provided flexibility with respect to which pump or pumps could be used.

WaterMatrix inlet manifold provides simple flow rate flexibility



Applied Polymer Systems, Inc. 703d#3 Floc Logs® provided the water treatment chemical combination best suited for the unusual site conditions:

1. Bench testing to determine the most effective polymer was not possible due to the soils which were to be treated were not available until construction operations were underway.
2. Therefore, only a polymer with known ecological toxicity safety would be used in the event that unused polymer might be discharged to the river if a less-than-efficient match existed between the flocculent and targeted contaminants (soil particles).
3. Changing soil types would be encountered and 703#3 Floc Logs had developed a long-history of effective and efficient performance with Michigan's soil lithologies.
4. A wide range of flow rates within the system would occur, again mandating use of an environmentally safe polymer.

Dewatering operations using trash pumps



Clarified water from inlet NTUs ranging from 80 to 1850



Water quality improvement measurements were taken periodically during the project using EPA approved NTU meters.

Inlet NTU range: 80 to 1850

Outlet NTU range: 20 to 85

Volume of floc/chelate removed during project operations totaled in excess of 200 cubic feet.

For more information regarding **WaterMatrix** systems, contact **InterfaceH₂O, LLC**.

InterfaceH₂O and WaterMatrix are trademarks of InterfaceH₂O, LLC.

WaterMatrix equipment is patent pending

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