Your Water, Wastewater, & Materials Dewatering Partner

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Geotubes® Dewater Contaminated River Sediment at EPA Superfund Site

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Over 5,000 lineal feet and three layers of 80' circumference Geotube® containers were used to dewater the contaminated sediment.

Objective

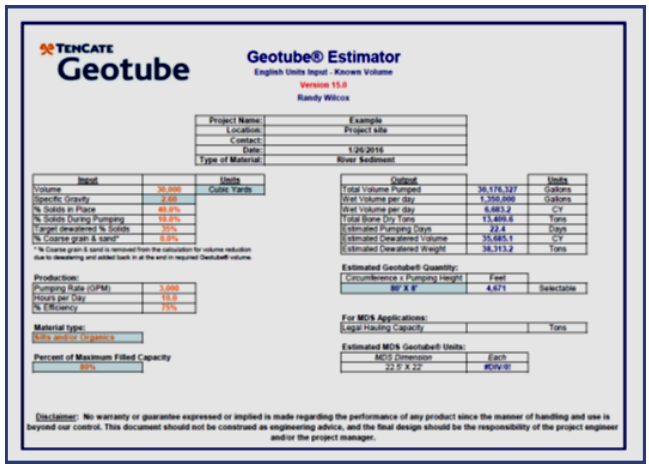
The USEPA declared the land that once contained two dumps and a large development facility in New Jersey a Superfund Site. Substandard hazardous waste handling and disposal practices at previous onsite facilities had contaminated the surrounding environment with dangerous levels of VOCs, Heavy metals, and PCBs. WaterSolve, LLC was involved with a phase of this remediation project that consisted of removing over 30,000-cubic yards of contaminated sediments from the river adjacent to the property.

Geotube® Container Sizing

Geotube® containers are manufactured from high strength polypropylene fabric and designed to allow effluent water to escape through the pores of the fabric while retaining the chemically-conditioned solids. The Geotube® Estimator, along with comprehensive sediment sampling and lab testing were used to determine the amount of Geotube® containers required. A two acre lay-down area was designed to hold up to three layers and over 5000 lineal feet of 80' circumference Geotube® containers.

WaterSolve's Chemical Conditioning

Extensive testing was performed on representative sediment samples by a WaterSolve technician in the facilities laboratory. Dewatering polymers were evaluated based on water release rate, water clarity, and flocculent appearance. In addition, dosing rate(s) were determined during bench-top dewatering experiments and recommendations provided to the contractor during this phase of the program. It was determined that a dual chemical treatment of Solve 426 and Solve 2220B would be most effective for this project.


TENCATE Geotube

Geotube® Estimator

English Units Input - Known Volume

Version 15.0

Randy Wilcox

Project Name:	Example
Location:	Project site
Contact:	
Date:	1/26/2016
Type of Material:	River Sediment

Input		Units
Volume	30,000	Cubic Yards
Specific Gravity	2.65	
% Solids in Place	40.0%	
% Solids During Pumping	10.0%	
Target dewatered % Solids	35%	
% Coarse grain & sand*	0.0%	

* % Coarse grain & sand is removed from the calculation for volume reduction due to dewatering and added back in at the end in required Geotube® volume.

Output		Units
Total Volume Pumped	30,176,327	Gallons
Wet Volume per day	1,350,000	Gallons
Wet Volume per day	6,683.2	CY
Total Bone Dry Tons	13,499.6	Tons
Estimated Pumping Days	22.4	Days
Estimated Dewatered Volume	35,685.1	CY
Estimated Dewatered Weight	38,313.2	Tons

Production:

Pumping Rate (GPM)	1,000
Hours per Day	16.0
% Efficiency	75%

Material type:

Silts and/or Organics

Percent of Maximum Filled Capacity

80%

Estimated Geotube® Quantity:

Circumference x Pumping Height	Feet	
80' X 8'	4,671	Selectable

For MDS Applications:

Legal Hauling Capacity		Tons

Estimated MDS Geotube® Units:

MDS Dimension	Each
22.5' X 22'	#DIV/0!

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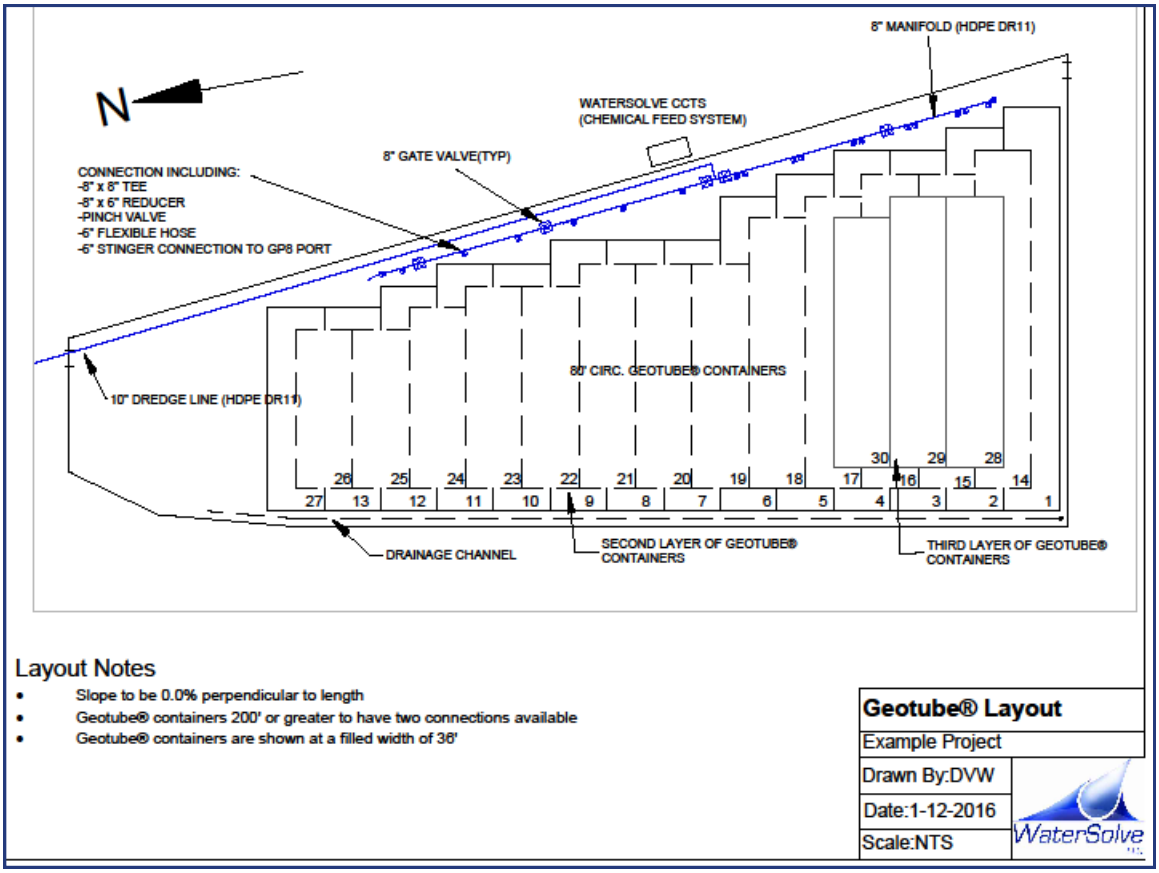
The Geotube® estimator used to determine the amount of Geotube® containers.

WatersSolve's CCTS (Chemical Control and Tracking System) trailer was used to chemically treat the dredged sediment.

The Result

The contractor selected by the USACE for this phase of remediation contracted with WaterSolve to help with the dewatering portion of the project. WaterSolve was tasked to provide Geotube® containers, Polymer Feed Equipment, Polymer and the technical assistance for daily operations. The project was deemed a success after four months of dredging when over 30,000-cubic yards of contaminated sediment was pumped to and dewatered in over 5,000 linear feet of Geotube® containers.



CAD drawings used to show Geotube® containers layout and piping configurations.