

Project Spotlight

Blue Plains Treatment Plant - Washington, DC

Owner: DC Water & Sewer Authority
Contractor: Alberici

Engineer: Brown & Caldwell
Installer: MixOnSite



Background Information

Blue Plains Wastewater Treatment Plant is the largest advanced wastewater treatment facility in the world. Treating more than 370 million gallons of raw sewage a day and serving more than two million residents in the DC, Maryland and Virginia areas has allowed the Blue Plains treatment plant to be a leader in environmental protection and restoration of the Chesapeake Bay.

An expansion project at the treatment plant in 2011 would have increased lateral pressures on the foundation walls of existing structures and increased loads on buried structures.



Blue Plains Wastewater Treatment Plant, Washington, DC

Project Details

This project included excavating to the top of an existing secondary effluent outfall conduit and backfilling with a cellular light-weight concrete material to reduce loads on the existing structure. A new concrete reinforced slab was poured on top of the conduit as a roadway for facility vehicles.

The site required security clearances and restricted working hours, causing the production schedule to require the backfill work to be done in two phases. Ground dewatering was also needed because a portion of the cellular material needed to be placed below the water table.

The low-density cellular concrete was produced on-site using a mobile batch plant, silo and foam generating equipment. The mix design included cement, water and preformed foam to produce a 30 pcf material with a compressive strength of 100 psi. Lifts were limited to 3 feet and pour areas were divided into cells. Production rates were approximately 100 cubic yards per hour.



Excavation and placement of new concrete slab over existing effluent outfall conduit

Aerix Added Value

The cellular concrete effectively reduced the loads on the existing conduit. Low-density cellular concrete backfill was recommended by the engineer over EPS geofoam blocks due to the possibility of degradation from hydrocarbons and other contaminants that either exist or may enter the ground in the future.



Placement of low-density cellular concrete backfill to reduce load on existing conduit structure. Material was produced on site using a mobile batch plant, silo and foam generating equipment