

CASE STUDY

Albany Reuses Woodlawn Park Water Retained by StormTech®

Albany, NY

OWNER

City of Albany Water Department, NY

ENGINEER

City of Albany, NY

CONTRACTOR

CHA Companies, Albany, NY

INSTALLATION DATE

October 2021

PRODUCTS

618 MC-7200 StormTech Chambers
1,780' (372 m) of 24"-48" (600-1200 mm) HP Storm

CHALLENGE

In 2014, rainfall estimated at 3" (75 mm) in one hour overwhelmed Albany's combined sewer system and triggered flash flooding along several zones of the Beaver Creek sewershed. This rain event exceeded the maximum carrying capacity of the combined sewer system and caused flood damage to public and private properties and created potential health hazards.

Affected areas were Elberon Place, Hansen Alley and Ryckman Alley where floodwaters reached 6' (1.8 m). Since the event surpassed the existing facilities' capacity, the Albany Water Board pursued a more aggressive flood abatement strategy and used the 2014 storm as the design parameters.

At the time, Albany lacked clearly defined standards for stormwater reuse, so the city developed its reuse approach to meet potable-water quality requirements to ensure the highest level of safety.

SOLUTION

Advanced Drainage Systems (ADS) combined forces with Rainwater Management Solutions (RMS) to provide a packaged stormwater treatment and pumping system designed to capture, treat, and reuse stormwater stored in an underground cistern for irrigation and municipal



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vehicle filling operations. The system included a UL-listed 150 gpm (568 L/min) stormwater filtration skid equipped with a self-cleaning 100-micron backwash filter, a 5-micron cartridge sediment filter, and a UV disinfection system to remove suspended solids and inactivate microorganisms before the water was reused.

The filtration system was housed within a weatherproof marine-grade aluminum enclosure and featured a PLC-based control system with variable frequency drives (VFDs) to automatically regulate pumping operations, monitor flow, pressure, water levels, UV performance and communicate system status. An electromagnetic flow meter and pressure transmitters provide real-time operational data to optimize performance and reliability.

RMS also supplied the stormwater pumping station, consisting of a precast concrete wet well, dual 5 HP stainless steel multi-stage submersible pumps, level monitoring instrumentation, and associated piping and controls. The pumps were designed to deliver up to 132 gpm (500 L/min), while handling stormwater containing fine sediment. The integrated control system automatically adjusted pump speeds to maintain consistent system pressure to protect the equipment from low-water conditions and other faults.

ADS designed a stormwater retention system using StormTech chambers, which were installed under the outfield of Woodlawn Park baseball field. This underground system allows for irrigation of the ballfields and allowed for the expansion of one outfield and outfield fencing suitable for Babe Ruth League games. A new walking path was added to the park and features educational signage to explain the stormwater harvesting project.

By implementing stormwater reuse, Albany eliminated the need to draw water from city hydrants or other connections for maintenance and operation efforts. The design incorporates controlled conveyance, green infrastructure, underground storage, wetland systems and a stormwater reuse system to reduce strain on the combined sewer system. The re-used water, which is pumped through fill ports, is utilized to fill water trucks, water gardens throughout the city and fill vac/jet trucks for sewer maintenance.

During storm events, the Continuous Monitoring and Adaptive Control (CMAC) system detains storm flows until the combined sewer flows recede after the event's conclusion. This system benefits environmental areas and reduces flood damage to private properties, public properties and infrastructures in the vicinity.

Also, by re-using the stormwater, roughly 7,500 gallons per day (28,390 liters), the city reduces treatment demands at Albany's South Plant. The city also benefits from lower operational costs and provides social, environmental and economical benefits.



PRODUCT DESCRIPTIONS

StormTech chambers are designed to save valuable land, reduce flooding risks and protect water resources. The chambers provide a durable structural system and are designed in accordance with AASHTO LRFD Bridge Design specification for HS-20 live loads. StormTech chambers are available in a variety of sizes to meet any project need and are injection molded for uniform wall thickness. The StormTech Isolator Row utilizes a layer of ADS Plus fabric in a designated inlet row to provide enhanced suspended solids and pollutant removal. Isolator Row is NJCAT-tested and NJDEP-approved practice for stormwater pre-treatment in New York State.

HP Storm is a high-performance polypropylene pipe for gravity-flow storm drainage applications. HP Storm is the perfect choice with premium joint performance and increased pipe stiffness. HP Storm couples advanced polypropylene resin technology with a proven, dual-wall profile design for superior performance and durability. The smooth interior wall offers additional strength as well as superior flow. HP Storm has an extended bell that adds an additional factor of safety within each joint. This innovative product meets or exceeds typical standards for pipe stiffness and joint integrity and meets ASTM F2881 and AASHTO M330 for the respective diameters. HP Storm pipe is approved for use by the Army Corps of Engineers, FAA, and AREMA.



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