

CASE STUDY

Aquabox System Eliminates Michigan Courthouse Flooding

Monroe, MI

OWNER

Monroe County, MI

ENGINEER

Mannik & Smith Group, Monroe, MI

CONTRACTOR

Desbrough Excavating and Trucking, Dundee, MI

INSTALLATION DATE

2024

PRODUCTS

42 Double Stacked Aquabox Modules
35' (11 m) of 6" (150 mm) Duraslot® slotted drains
5 24" (600 mm) Nyloplast® drain basins

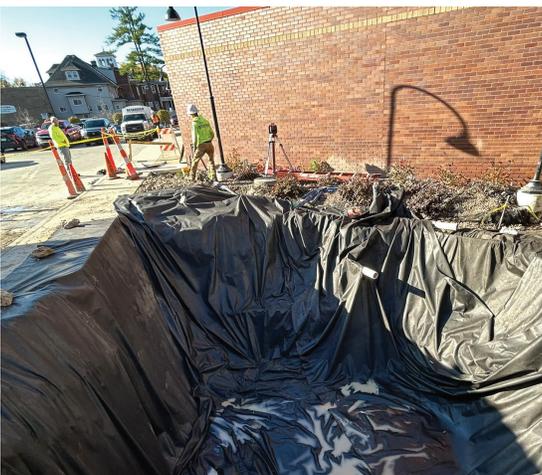
CHALLENGE

A courtyard separates the Monroe County (MI) Courthouse and the City of Monroe's City Hall. Due to the increased frequency and intensity of heavy rain events in the southeastern Michigan city, the courtyard was prone to flooding in a low spot near the courthouse's entrance. Pumps in place to move the stormwater from the low spot could not handle the volume causing courtyard and street flooding.

SOLUTION

In a search for underground storage options, Advanced Drainage Systems (ADS) was contacted. Based upon available space, ADS recommended Aquabox, a modular underground system designed for sustainable stormwater management, as an extension of the stormwater system capabilities.

Aquabox was perfect for the tight footprint as 96% of its storage volume is within the product. Aquabox provided a higher ratio storage volume than many other products. The Aquabox system was installed near the site and is connected with Nyloplast drain basins, Duraslot slotted drains and the pumps, which were previously installed in the courtyard.



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If the pumps can not keep up with the falling rain, the stormwater will drain from the Nyloplast basins and Duraslot drains to the Aquabox system, which is wrapped in a geotextile fabric and surrounded by stone. Once the rain has subsided and the pump has emptied the manholes, the stormwater will flow from the Aquabox system to the manholes and the pump will remove it from the site.

The Aquabox system, which is double stacked, installed smoothly in a day. ADS personnel were on site to answer any questions the contractor may have had. The installation acts as a last resort by holding 8,100 gallons of stormwater that may otherwise intrude into the courthouse and likely cause damage to the building's interior.

PRODUCT DESCRIPTIONS

Aquabox systems are designed primarily to be used under parking lots to maximize land usage. Aquabox is manufactured from recycled polypropylene with a glass additive and the adaptable components enable customized layouts to fit complex sites. A system can be used for detention, infiltration and water harvesting. The 29.5" x 29.5" x 31.5" (750 x 750 x 800mm) modules are light weight for easy and fast installation. Each Aquabox module has 15.24 cubic feet (0.43 m³) of storage.

Nyloplast drain basins and curb inlets were custom built for the project as they are for each application. Nyloplast products are more durable and corrosion resistant than precast basins and combine a rugged PVC structure with ductile iron grates. The basins can be easily adjusted in the field to meet the final grade. The structures are shipped with rubber gaskets to ensure a watertight connection.

Duraslot captures sheet flow across flat or mildly sloped drainage areas. Duraslot can be installed in shallow applications and is ideally suited for heavy load rated applications on roads, airports and warehouse projects. The pipe is light weight, easy to field cut and is installed in 10' (3 m) sections.



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