

CASE STUDY

Aquabox Solves Detention Needs at Omaha Apartment

Omaha, NE

OWNER

Alamito Leavenworth, LLC, Leavenworth, NE

ENGINEER

Thompson, Dreesen & Dorner, Inc., Omaha, NE

CONTRACTOR

Titan Trenching, La Vista, NE

INSTALLATION DATE

October 2025

PRODUCTS

310 Aquabox Modules
160 Aquabox Cube Module
200' (61 m) of 12" (300 mm) N-12® Dual Wall
70' (21 m) of 8" (200 mm) N-12 Dual Wall
6 12" (300 mm) Nyloplast® Drain Basin
6 15" (375 mm) Nyloplast Drain Basin
1 18" (400 mm) Nyloplast Drain Basin
1 30" (750 mm) Nyloplast Drain Basin
ADS Plus® Fabric

CHALLENGE

Alamito Leavenworth was rehabilitating an Omaha apartment complex that included a raised parking garage surrounded by existing buildings. With a high percentage of impervious surfaces, stormwater runoff volumes increased significantly, overwhelming the city's existing storm sewer system.

To address the drainage challenges, Advanced Drainage Systems (ADS) representatives collaborated with the project engineer to design an underground stormwater storage solution that would temporarily detain runoff and release it at a controlled rate into the municipal system. StormTech® chambers were initially specified as the preferred product, but the project's small footprint restricted the system's ability to achieve the required storage capacity using chambers.



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SOLUTION

ADS representatives recommended Aquabox modular storage and the project engineer quickly embraced the ADS solution over a concrete vault. The engineer recognized Aquabox's ability to maximize storage within the tight footprint, while providing greater design flexibility. With 96% void, the system was able to achieve the required stormwater storage volume of 7,000 cubic feet (198 cubic meters).

To meet outlet invert and cover requirements, the system was constructed using a 2.5-stack configuration consisting of 310 Aquabox modules and 160 Aquabox cubes. Aquabox was also selected for its fast and efficient installation process, which was critical to keeping the rehabilitation project on schedule. The entire Aquabox system was installed in just over two days.

A Nyloplast Inspection Port was incorporated into the system to provide convenient access for routine inspection and long-term maintenance. Stormwater runoff was collected across the site using 14 Nyloplast Drain Basins and conveyed to the Aquabox system through 8" (200 mm) and 12" (300 mm) N-12 Dual Wall high-density polyethylene (HDPE) pipe.

Downstream of the storage system, a 30" (750 mm) Nyloplast Drain Basin was installed and equipped with a weir to prevent backflow from the city storm sewer into the Aquabox system during high-flow events.

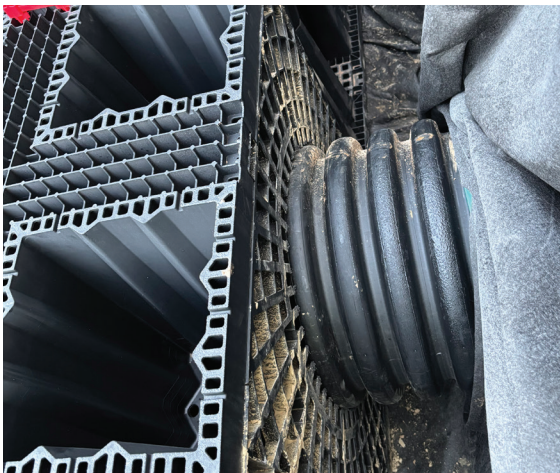
Due to the proximity of the existing building foundation, an impermeable liner was installed as an enclosure for the stone to prevent water infiltration into the subgrade. This impermeable layer helped maintain soil stability by eliminating oversaturation and potential ground movement near the structure. An ADS non-woven was used to surround Aquabox modules.

PRODUCT DESCRIPTION

Aquabox systems are engineered for use beneath parking lots and paved areas to help maximize land utilization. Manufactured from recycled polypropylene enhanced with a glass additive, the modular design allows for customized configurations to fit complex site conditions. The stackable design allows for compact on-site storage, ease of installation and is built to meet HS-20 load class standards.

Nyloplast Engineered Surface Drainage products provide dependable, project-specific solution for stormwater management. The heavy-duty PVC structures and ductile iron grates deliver the strength and durability needed to meet site demands. With a range of structures from 8"-36" (200-900 mm), Nyloplast is tailored to project requirements. Seamless compatibility with plastic underground storm drain systems allow for smooth transitions between pipe sizes and materials, as well as adjustments in elevation and direction, supporting efficient installation and long-term performance.

N-12 Dual Wall Pipe has a corrugated exterior and smooth interior wall that provide exceptional hydraulics, strength and corrosion resistance. N-12 is available in 4"-60" (100-1500 mm) diameters and in 20' (6 m) lengths to provide faster installation and lower installation costs. The integrated inline bell design allows for easy installation and eliminates chipping and cracking that is common to concrete bells. N-12 addresses subsurface and stormwater gravity-flow drainage needs.



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