

Advanced Drainage Systems (ADS) Water Quality & Underground Detention/Infiltration Units

This treatment is commonly used beneath parking lots. Like other infiltration/detention treatments, it has a tremendous capacity to reduce peak flow. Since it does not require an associated retention pond, more land is available for parking. It can be used for detention and infiltration, depending on subbase and groundwater characteristics.

It is comprised of two units in series: a water quality unit (WQU) and a larger detention/infiltration unit (DIU). Both are made of high-density polyethylene pipe. The WQU is a series of weirs constructed from 60-inch diameter pipe. The DIU consists of three, 40-foot sections of 48-inch diameter perforated pipe, connected by headers. The top

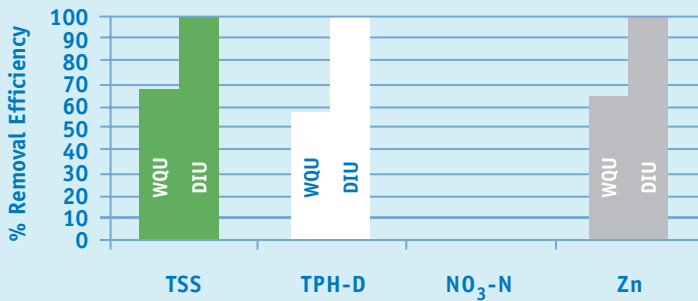
and sides of the excavation basin are wrapped in geotextile. Stormwater flows of 1 cubic foot per second (cfs) go first through the WQU and then into the DIU. Flows exceeding 1 cfs bypass the WQU through a pipe leading into the DIU. This prevents re-suspension of solids. From the DIU, stormwater infiltrates into the sandy subbase.

The WQU has two manholes for access and cleanout. Its maintenance includes removal of accumulated solids and floatables. DIU maintenance is minimal as pretreatment occurs in the WQU. Proper maintenance of the WQU prevents costly maintenance of the larger DIU.

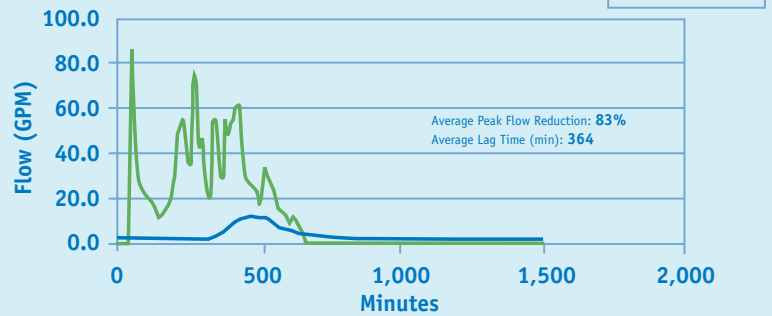


The ADS treatment system during [left] and after installation [right]. Stormwater is pretreated for sediment and floatables in the black HDPE pipes, and then flows into the adjacent storage infiltration unit, where a sandy subbase is critical to pollutant removal.

WATER QUALITY PERFORMANCE



PEAK FLOW REDUCTION



Category Type
Underground Storage & Infiltration

BMP Type
Manufactured Device

Design Source
Advanced Drainage Systems (ADS)

Basic Dimensions
Water Quality Unit: 5 ft x 20 ft
Infiltration Unit: 22 ft x 40 ft

Specifications
Catchment Area: 1 acre
Peak Flow: 1 cfs
Treatment Volume: 3,264 cft

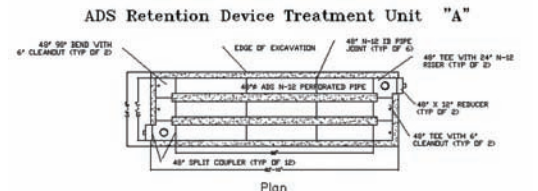
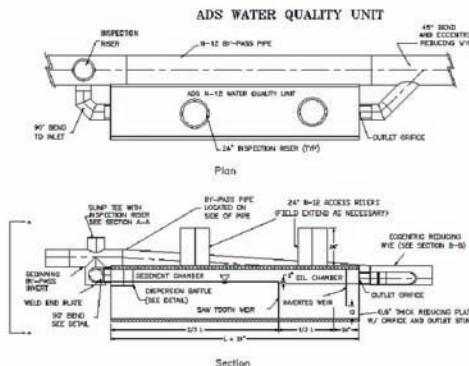
Treatment Function
Physical (1)
Physical / Chemical (2)

Cost Per Acre
\$50,008.57

Maintenance Data
Maintenance Sensitivity: High
Inspections: High
Sediment Removal: High

Water Quality Treatment Process

The WQU pretreats stormwater by allowing solids to settle in a large chamber and overflow weir, and by skimming floatables with an inverted weir. Predominant treatment occurs during infiltration from the DIU. Adequate separation from groundwater and a proper sandy subbase is essential in preventing groundwater contamination. During heavy rains, stormwater bypasses the WQU and fills the DIU's detention chamber. This unit filters and stores water up to the chamber volume, and then releases it over 24 to 48 hours.



Typical Subsurface Det/Ret Cross Section

