



CASE STUDY

PROJECT NAME

Bluewater Lake State Park,
Prewitt, NM

SYSTEM SPECIFICATIONS

Daily Flow = 4500 GPD

TOTAL ABSORPTION AREA

TBD

INFILTRATOR PRODUCTS SPECIFIED

Infiltrator Quick4 Plus High Capacity
Chambers

INSTALLATION DATE

Summer 2017

ENGINEER

Ron Taylor, P.E., NM State Parks Design
and Development Bureau

SYSTEM OWNER

New Mexico State Parks

Innovative Evapotranspiration System Reduces Nitrogen and BOD Challenges for New Mexico State Park

SUMMARY

New Mexico's 3,000-acre Bluewater Lake State Park in the Zuni Mountains sits at an elevation of 7,550 feet with access to the 1,200-acre Bluewater Lake. The park offers camping, boating, hiking, birding, horseback riding and fishing and features bathrooms, showers and a RV dump station. Two septic systems handling wastewater from the park were compromised and not operating properly and the leachfield was clogged due to high strength BOD and required replacement.

CHALLENGES

A New Mexico Environment Department (NMED) program evaluates state park campgrounds for nitrogen concerns and looks for cost-effective handling methods for RV and park waste.

Conventional disposal trenches were not an option due to the nitrogen concerns. Other challenges included a geology of fractured rock, lack of soil cover, and discharge of nitrates to groundwater. O&M costs were also a concern in selection of a system and design.

SYSTEM DETAILS

The 4500-GPD hybrid 3-tank system designed features a new 20,000-gallon, 3-chamber tank which includes the pump tank, aeration tank, and a pump chamber to reduce the BOD that is typical of RV waste due to formaldehyde additives commonly used for odor control. Two positive displacement blowers cycle on and off every 40 minutes 24/7. While peak season is summer, the system operation remains constant year-round. An evapotranspiration (ET) bed with Infiltrator Quick4 Plus High Capacity Chambers is low pressure dosed and fully lined to conserve 100% of the water as New Mexico's climate is ideal for the combined effects of evaporation from soil and transpiration from plants for wastewater disposal. Wicking sand was specified to pull water upward via capillary action for utilization by the plant root structure or to evaporate into the atmosphere. The system is covered with sandy loam/topsoil and planted with native species and salt tolerant grass.

RESULT

Regulators were pleased with the system design and operation and recommended a similar approach for other sites. Maintenance will include routine pumping of the septic tanks and routine filter cleaning. The ET bed system needs little to no maintenance.



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