



Horizon Six Detention Basin

Mohave County, Arizona

Rain: It is a weather occurrence not typically associated with Arizona. But those who live in the Grand Canyon state know that once the rain begins it quickly escalates to a torrential downpour. Each summer Arizona rainstorms wreak havoc on Mohave County. Rains not only cause flash floods throughout the region, but also result in significant erosion and sediment run off from the hills surrounding Lake Havasu; leading to discoloration in the lake's traditional blue waters.

In an effort to combat seasonal flood issues in Horizon Six, a subdivision located just outside Lake Havasu City, Mohave County officials commissioned the construction of detention basins and flood control channels that would, among other things, eliminate the threat of flooding for over 100 properties within the subdivision.

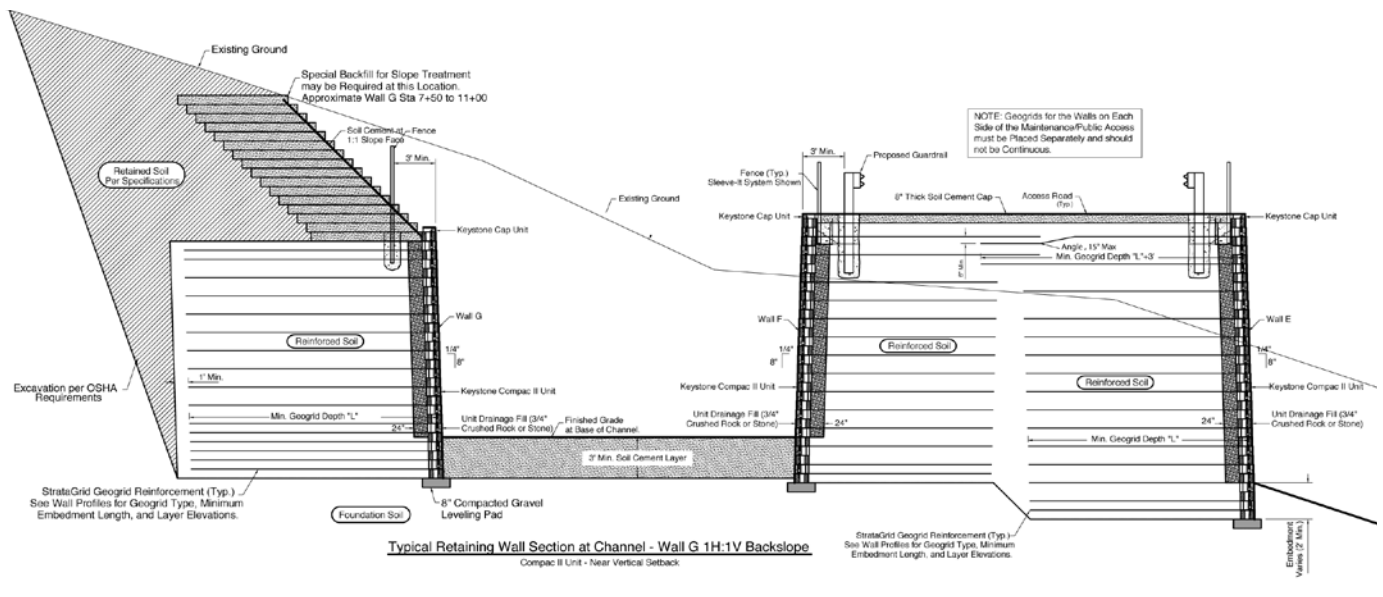
Construction on the \$4.5 million project was done in two phases. Beginning in August 2012, roughly 210,000 cubic yards of earth was excavated from the project site. The size of the detention basins is estimated to accommodate as much as 74 acre-feet of water, or the amount of water produced by a 25-year storm. The basins required the support of several large retaining walls.



Project:	<i>Horizon Six Detention Basin</i>
Location:	<i>Mohave County, Arizona</i>
Keystone Product:	<i>Keystone Compac II</i>
Keystone Supplier:	<i>Oldcastle Superlite</i>
Total Wall Area:	<i>64,000 square feet</i>
Wall Contractor:	<i>KeyWest Retaining Systems</i>
Engineer:	<i>Keystone Engineering</i>
Civil Engineer:	<i>Coe & Van Lou Consultants</i>
Geotechnical Engineer:	<i>Terracon</i>



CASE STUDY



The project was originally specified and designed around another segmental retaining wall product. Knowing the project required both battered and near-vertical walls, Keystone licensee Oldcastle Superlite saw an opportunity for the Keystone Compac II unit due to the unique near vertical and battered pin holes within each unit. *“It was an extremely important job for us to be involved in,”* said Nathan Angel, Oldcastle Superlite. *“It allowed us to keep our name out there and remind folks segmental retaining walls are still necessary in Arizona.”* The product originally specified required two different blocks in order to complete the project; one to build the near vertical walls and another for the battered set-back walls. The Keystone Compac II unit, using the Keystone fiberglass interlocking pin system, was able to accomplish both. *“Space was limited on the job site,”* said Mike Pruden, KeyWest Retaining Systems, the contractor responsible for installing the walls. *“Using two blocks wasn’t going to be an option. There was too much already taking place on site.”* Changing the product required a redesign of the project and Keystone engineers were engaged to assist with that process. Once Keystone’s revised design was approved, construction on the project began.



Walls B, C & D and Sedimentation Basins 2 & 3

Walls lettered A – I, ranging in height from five feet up to 25 feet were constructed using roughly 64,000 square feet of Keystone Compac II units. Battered walls (roughly 20,000 square feet) were constructed within the detention basins, while the near vertical walls were built along the flood control channels. The Keystone design called for two types of Stratagrid – SG500 & SG200. Some of the walls required geogrid levels to be installed on every course along the bottom of the wall, eventually reducing frequency of use to every other course and finally to every three courses.

Lake Havasu is a desert oasis surrounded by dry, granular cobble material. Construction on the tallest wall began in August 2012, a time when temperatures can easily reach 110 degrees. *“The biggest thing is getting water into the material so it can be compacted,”* said Pruden. The dry material, however, proved to have some advantages. Soil on the project site was so coarse, allowing for free drainage, that a draining zone was not required behind the units. A crew of 6-11 workers was able to install an average of 760 square feet each day. *“We ran into situations where we were depleting the backfill supply faster than it could be graded,”* said Pruden. The Mohave County detention basin was completed in January 2013.

For more information on the Keystone Compac II unit or other innovative Keystone products, please visit www.keystonewalls.com or call 800-747-8971.



Channel Walls G & F and Access Road