

CITY OF ALBUQUERQUE

PLANNING DEPARTMENT – Development Review Services



October 9, 2015

Philip W. Clark, P.E.
Clark Consulting Engineers
19 Ryan Road
Edgewood, NM 87015

CCEal bq@aol.com

Richard J. Berry, Mayor

RE: Signal Point Subdivision (C20D070)
Retaining Wall and Scour Wall Concerns
Shown on Grading and Drainage Plan
Engineer Stamp Date: 9/15/15

Dear Mr. Clark,

Based upon the information provided in your Grading and Drainage Plan submittal, there have been serious concerns regarding the structural design of the Retaining/Scour wall presented on your plan. Having had over 19 years of experience in structural design, I have been asked to review the wall for its design feasibility and safety. My comments are as follows:

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New Mexico 87103

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1. The Scour wall portion is being designed as a “key”. This is not an appropriate application of a key. A key is used to prevent sliding and is generally very short (4” to 12”). Once a key is longer than that, it must be designed to resist moment/rotation at the footing. Usually once a key is over 18” it becomes wide and requires heavy reinforcement, and it is better to widen the footing rather than increase the depth of the key.
2. To place the Scour wall below the retaining wall footing is not sound engineering practice. Once the soil below the toe has scoured away, the retaining wall has lost most of its bearing resistance and will likely fail in soil bearing, overturning, and sliding.
3. Keystone walls are not generally used as scour walls. Without a solid monolithic face, water eventually erodes the joints and seeps behind the wall, possibly undermining the soil stability behind the wall. The manufacturer would have to provide documentation stating that the product has been designed and tested to serve as a scour wall.
4. Scour walls are designed with the scour depth above the footing. Generally, there is some guidance given in AASHTO and other codes as to what this depth should be. Furthermore, a keystone wall does not have a solid monolithic footing (see comment below).
5. In general, the monolithic structural elements (such as concrete walls/slabs) are used for scour or any condition where the wall may be exposed to water, particularly moving water. This is because any undermining of the soil at a single point would allow for load transfer. A Keystone or block wall with discontinuous elements would not allow for such a load transfer.
6. Retaining walls must be designed, taking into account the Dead Load, Wind Load, and Seismic Load of any supported garden walls which bear on them. These loads add significantly to the Soil Bearing Pressure and Overturning Mechanisms

If you have any questions, you can contact me at 924-3695.

Sincerely,

A handwritten signature in dark ink, appearing to read "Rita F. H.", with a long horizontal flourish extending to the right.

Rita Harmon, P.E.
Senior Engineer, Planning Dept.
Development Review Services

Orig: Drainage file
c.pdf: via Email: recipient