Segmental Retaining Wall Care, Operations and Maintenance Guide

The Segmental Retaining Wall (SRW) is constructed of concrete masonry units, geogrid soil reinforcement fabric, and compacted backfill. The structure's performance is sensitive to any post construction activities that may damage components, increase loading conditions, and/or reduce overall stability. The following list is intended to provide guidelines for the proper care of a SRW.

1. The area behind the wall that contains geogrid soil reinforcement fabric (reinforced zone) is the primary structural component of the wall system. Do not, under any circumstances, excavate through, drill through, or otherwise damage this reinforcement fabric without written approval of the design engineer of record.

2. The drain line at the base of the wall (if required and installed) was stubbed out to daylight or for final connection to storm drainage systems by others. Please insure that all connections are made to proper drain outlets and that any drains outlets to daylight are not buried.

3. The Keystone wall is normally constructed over a crushed stone base. No digging or excavation shall be done within 3 feet horizontally from bottom face of wall or to such depth that would compromise the integrity of the wall foundation.

4. All water must be diverted away from the base of wall to avoid erosion and undermining of the foundation after installation. This includes temporary site grading during construction and final site grading.

5. Landscape watering and surface drainage above the wall should be designed in consultation with the Civil and Geotechnical engineer and performed in such a way to avoid standing water, water cascading over the wall, and infiltration (saturation) of the reinforced zone.

6. Do not increase the height of the existing wall as constructed with more block units without the written approval of the design engineer of record.

7. Do not add a slope or increase the steepness of a back slope beyond what was considered in the original grading plan and wall design without written approval of the design engineer of record.

8. Do not add additional surcharges within a lateral distance of twice the overall height of the structure(s) without written approval of the design engineer of record or unless considered in the original wall design. This would include large trees, fences, sound walls, landscaping walls, swimming pools, buildings, garages, etc.

9. Do not operate heavy equipment, within four feet of top of wall face. The surcharge from equipment weight can push the upper wall units out resulting in unacceptable misalignment.

10. Segmental retaining walls are flexible structures (vs. rigid as in CMU walls) and are subject to some post construction settlement and movement. All structures (i.e. sidewalks, pavements, curbs, trash enclosures, utility lines, etc.) should be designed to handle some ground movement and not be connected directly to the wall units.

11. Retaining walls should be inspected at least once a year. Some, but not necessarily all items to be inspected are; verify that drainage measures are functioning properly, erosion has not occurred along the top, ends, or bottom of wall(s), landscaping and planting is not interfering with the wall(s) intended performance, observe and note any unanticipated movement or deflection of the wall system and evaluated by a qualified engineer. Additional inspection may be necessary immediately following a catastrophic event such has a flood, heavier than normal rain event, earthquake, etc.

12. Over time the wall face may begin to show a white flaky material and may especially be noticeable post construction. This material is called efflorescence. Efflorescence occurs when moisture evaporates from the wall face, and the naturally occurring soluble salts and bases, or the calcium carbonite (calcium hydroxide in the cement mixes with carbon dioxide in the air) is left on the face. This efflorescence is only an aesthetic concern and will not affect the structural performance of the wall. Efflorescence can typically be removed by dry brushing followed by flushing with clean water. In tougher cases power washing with muriatic acid solution will also aid the cleanup process. For additional information and removal options reference NCMA Tek bulletin 8-3A.

The information contained herein has been compiled by Keystone Retaining Wall Systems® LLC and to the best of our knowledge, accurately represents the Keystone product used in the applications which are illustrated. Final determination of the suitability for the use contemplated and its manner of use are the sole responsibility of the user. Design and analysis shall be performed by a qualified engineer.