Installation - Slope Protection

Geocell is installed quickly and easily by a 2 to 4 men crew of semi-skilled labor without any specialized equipment. Sections are shipped to the job site in collapsed form.

Prepare the site to the design specifications (grade, geometry, soil compaction, etc.) The area should then be dressed to be free of soil clods, roots, stones or vehicle imprints of any significant size. Any voids should be filled in order to obtain a smooth laying surface allowing Geocell to fit flush against the ground surface contours.

Excavate anchor trench where an anchorage trench is specified, each panel should be anchored at the top of the slope in a trench whose dimensions are determined by design depending on the geometry of the slope. For shallow slopes, anchor trenches may not be required as pins used to fasten the system to the slope can provide sufficient anchorage strength.

Geocell panels can be expanded to the full open dimension, parallel to the flow direction. Anchor the panel at the top of the slope and fasten at the bottom of the trench with rebar and BaseCaps. The anchorage trench at the top may be filled with any suitable fill material. If possible, backfill with concrete to reduce the trench embedded length.

Along the slope the Geocells should be anchored with rebar with BaseCaps typically 12-18” in length depending on the consistency of the slope material. The spacing between the rebar shall be determined by design with each rebar placed on the junctions of the panel.

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Securely fasten down the panel ensuring the rebar are arranged in a staggered pattern like the number 5 on a dice. Adjacent panels should be fixed using the same J-stakes, one stake every 2-4 cells, depending on selected BaseCore Geocells.

Infilling can be performed manually or carried out using mechanical plany such as a front-end loader, backhoe, bottom dump bucket or a conveyor system. Geocell cells can be filled with top-soil, or any other material such as soil/grass, gravel or even concrete, etc. Depending on the final aesthetics and vegetation requirements. The fill material shall be placed to approximately 3/4” above the top of the cells and then lightly tamped and levelled to the height of the cell.

If seeding is specified then it is recommended to place the seeds approximately 3/4” below the finished level. Application of a further 1/2” layer of fine top-soil (such as sandy loam) is recommended after seeding and this final layer should be lightly raked (using the back of the rake) to evenly cover the Geocell cells.
Seeded areas may be protected with light synthetic or natural fibre blankets especially where steep slopes are constructed.

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It is important to ensure the lower cells at the toe of the slope are fixed in a base trench or secured carefully by rebar. When this is not properly done, the lower cell row may lift. Infiltration water, passing through the cell apertures, will then cause the emptying of infill from the bottom. When the first row of cells is empty, the second row begins to rise, and so on. Erosion continues up to the first stake that is able to resist the cell from rising. Therefore it is essential that the first row of cells is properly fixed, so that this problem is resolved.

Also if there is a long slope upstream, or there is any possible cause of intense run-off, the top rows can be subject to intensive erosion. The changes of slope angle, in fact, causes a local increase in water flow speed. To avoid the consequent erosion, it is necessary to cover the zone with a bio-mat or, better, with a geomat. It is strongly recommended to excavate a draining ditch immediately upstream the surface to be protected, thus reducing the run-off.

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