Installation Guidelines for GEO SF TrailGrid / Geogrid Soil Reinforcement

The purpose of this installation guideline is to provide information that will help ensure that the geogrid is properly identified and installed. This guideline provides information about identifying, handling, storing and installing the geogrid.

Material Identification, Storage and Handling

The Geogrids are rolled on cores with sufficient strength to avoid damage to the geogrid and to provide ease of handling. Individual rolls are stretch wrapped in a plastic covering to protect the geogrid from damage during shipping and handling. The geogrid is identified using a label; which provides information about the geogrid type (SF 20, etc.) and a quality control lot number.

While unloading or moving the geogrid be sure to prevent damage to the protective wrapping and the geogrid. Should long term storage (greater than 2 weeks) be required, ensure that the protective wrap is intact. Store the geogrid so that it is protected from excessive heat sources such as flame, welding sparks or unit heaters.

Geogrid Placement

Prior to placing the geogrid, the excavation shall be cleaned of all excess material and the foundation base prepared. The geogrid shall be rolled out, cut to length, and laid at the proper elevation, location and orientation as shown on the contract drawings. Orientation of the reinforcement is extremely important since geogrids vary in strength with roll direction. The stronger direction of the SF geogrid should be laid in the direction of the main reinforcement. This is usually in the roll or machine direction. The contractor shall be responsible for correct orientation. Reinforcement should be placed coincident with the compaction lift nearest the design elevation on the drawings. The geogrid can be placed directly on the existing fill surface. No special surface treatment, such leveling or smoothing is required. If a sheepfoot roller is utilized, the imprints are an acceptable surface for reinforcement placement as long as the depths of the imprints do not exceed 12 inches.

After being rolled out, the reinforcing material should be tensioned by hand until it is taut, free of wrinkles and lying flat. Overlaps, if shown on the drawings should be maintained. However, adjacent panels of geogrid should be butt together and do not normally need to be overlapped. No overlaps should be allowed in the direction of strength. Mechanical connections such as nylon electrical ties between adjacent rolls should be made at this time, if required. The reinforcing shall be cut to lengths as shown on the contract drawings. A razor blade, scissors or sharp knife are acceptable instruments to cut the geogrid. Certain fill properties, fill placement procedures and/or weather conditions may require the reinforcement to be held in place by staples, pins, sandbags or fills, as directed by the engineer.
Placement of Fill Over Reinforcement

Control of the fill placement should be performed using the standard method utilized in the contract as defined in the project specifications or as directed by the engineer. Care should be taken to prevent wrinkles and/or movement of the geogrid during fill placement and spreading. When practical, fill is to be placed in the direction in which the reinforcement was laid out, to aid tensioning. However, if fill must be placed transverse to the roll length, slight (4 inch) overlaps between roll widths with the top.

Panel or reinforcement being the first to receive fill, will prevent permanent folding of reinforcement rubber-tired equipment is allowed to pass over bare reinforcement at slow speeds, (less than 10 mph) and without sudden braking. Track equipment should not be allowed onto uncovered reinforcement. To avoid damaging the reinforcement, a minimum of six inches of fill on top of the reinforcement shall be placed before tracked equipment can be operated.

Tension should be maintained in the geogrid until at least 70 percent of the grid area is covered with fill. Proper tensioning is required to minimize facing movement for reinforced soil structures. The geogrid should not be spliced in the strength direction by overlapping, sewing or other means. The geogrid should be installed on one continuous piece with the principal strength direction extending from the face of the reinforced soil structure back into the embankment.

Place only that amount of geogrid required for construction. This will prevent potential damage by others as well as prevent excessive exposure to sunlight. After a layer of geogrid has been placed, the next lift of soils shall be placed, compacted and prepared as required. After the proper soil lift has been placed and compacted to the required elevation, the next geogrid layer shall be installed. This process shall be repeated for each subsequent layer of geogrid and soil.

Each soil lift should be compacted to a minimum 95 percent of Standard Proctor or as directed by the engineer. It is recommended the cohesive soils be compacted in lifts not to exceed 5 inches to 8 inches of compacted fill and granular soils be compacted in lifts not to exceed 10 inches to 12 inches of compacted fill. It is also recommended that compacted soil layers between geogrid layers not be less than 6 inches. Positive drainage shall be maintained during and after to construction in such a manner as to prevent erosion of the reinforced soil structure.