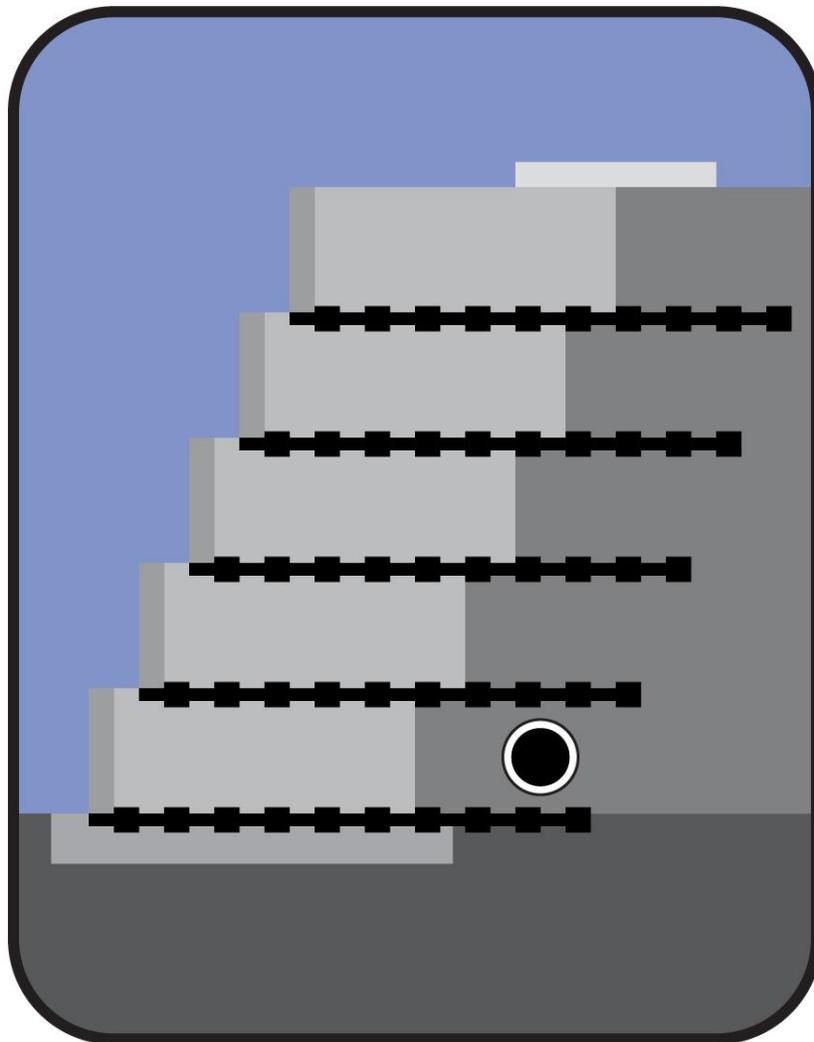




Construction Geosynthetics

## Geogrid Reinforced, Cut Segmental Retaining Wall Installation Guide

# RETAINING WALL



## 1.0 General

- 1) These procedures are general installation guidelines for Stratagrid geogrid soil reinforcement in a cut segmental retaining wall.
  - a) It is assumed all design and engineering issues have been addressed.
  - b) When contradictions occur, always follow the project engineer's and block manufacturer's instructions.
- 2) If the wall design requires multiple strengths and embedment lengths for the geogrid, precutting and marking type and location of each geogrid piece with spray paint will dramatically increase installation efficiency.

## 2.0 Installation Procedures

- 1) Excavate.
  - a) Excavate the reinforced soil zone to match the required geogrid embedment length.
    - i) Geogrid embedment length is measured from the front face of the retaining wall units.
      - (1) Embedment length of geogrid layers will be specified in the engineering design.
        - (a) Typically 66% to 75% of the wall height.
  - b) Excavate for leveling pad.
- 2) Examine foundation soils.
  - a) Assure the foundation soil strength meets the design bearing strength.
    - i) Remove soils not meeting the required strength and replaced with suitable soils.
- 3) Install leveling pad.
  - a) Use a minimum 6 inch thick layer of compacted granular fill for the leveling pad.
    - i) Do not use reinforced concrete for the leveling pad.
  - b) Firmly compact the leveling pad to create a level area for placement of the first course of wall units.
- 4) Place wall units, install drainage, backfill and compact to elevation of the first course of geogrid.
  - a) Follow the manufacturer's recommendations for unit placement, including:
    - i) Correct installation procedures for units with alignment devices and geogrid connection devices.
    - ii) Correct placement of products with lips or ridges.
    - iii) Placement of aggregate fill in hollow core units if required.
  - b) Compaction procedures.
    - i) Compact in 6 to 8 inch lifts.
    - ii) Compact to a minimum 95% Standard Proctor density.
    - iii) Compact backfill level with the top of the wall unit before placing Stratagrid.
      - (1) Elevation levels for geogrid layers will be specified in the engineering design.
        - (a) Typically compact no more than 18 inches between courses of geogrid.
    - c) Drainage.
      - i) Drainage layer.

- (1) ¾ inch washed aggregate is preferred.
- (2) Wrap the entire drain aggregate with a 4 ounce nonwoven geotextile.
  - (a) US Fabrics' US 100NW is recommended.
- (3) Place the geotextile before placing the aggregate layer.
- ii) Start drainage layer by laying down geotextile and then placing a 2 inch high, 6 inch wide layer of drainage aggregate running the length of the wall directly behind the first course of wall units and compact.
- iii) Place a 4 inch perforated pipe on top of the stone.
  - (1) Outlet the water away from the toe of the wall.
- iv) Place additional drainage aggregate.
  - (1) The 6 inch wide layer of geotextile wrapped drainage aggregate covers the entire height of the structure and is placed in lifts along with the backfill.
  - (2) Terminate the drainage layer at the first course of geogrid by wrapping the fabric over the top of the aggregate.
  - (3) Repeat the process after each Stratagrid layer is installed.
- 5) Place geogrid.
  - a) Remove all debris from the top of the segmental wall units prior to placing the Stratagrid.
  - b) The geogrid design strength is in the roll direction and it must be installed perpendicular to the wall face.
    - i) There are very lightweight geogrid products which are bi-axial and can be installed in either direction.
      - (1) Strata SG 150 is an example.
        - (a) It is the only bi-axial geogrid manufactured by Strata.
        - (b) Typically for walls no more than 5 feet in height.
      - (2) If unsure, check product packaging or call US Fabrics for verification.
  - c) The geogrid is typically placed within 1 inch of the front face of the retaining wall unit.
  - d) Stratagrid must lay flat on the wall unit and compacted backfill soils.
  - e) Adjacent sections of Stratagrid must always abut each other.
    - i) Do not overlap layers of Stratagrid.
  - f) Adjacent sections of geogrid must be placed to assure the horizontal coverage shown on the plans.
  - g) Stratagrid must be laid in one continuous section to achieve the specified embedment length.
    - i) Stratagrid cannot be spliced to achieve embedment length.
- 6) Place the next course of segmental wall units.
  - a) Pull geogrid taut to remove slack and wrinkles prior to placement of backfill.
    - i) A pitchfork works well.
    - ii) Staking may be required to keep the geogrid taut during placement of backfill placement.
      - (1) After backfilling the stakes can be removed.
- 7) Place and compact backfill over the Stratagrid.

- 8) Repeat installation steps as necessary.

### **3.0 End of Work Day Procedures**

- 1) Slope the last completed level of backfill away from the wall to direct rainwater runoff away from the wall face.
- 2) Take measures to prevent runoff from adjacent areas entering the wall construction site.

### **4.0 Restrictions**

- 1) Use only small, walk behind compaction equipment for compacting of any fill within 3 foot of the wall face.
- 2) Do not allow tracked equipment to travel directly on Stratagrid.
  - a) For necessary travel on the geogrid, use only lightweight, rubber tired equipment.
    - i) Avoid quick stops, starts and turns.
    - ii) Keep speeds less than 10 mph.
- 3) Do not leave heavy equipment parked adjacent to the top of the wall at any time.
- 4) Do not stockpile any construction materials adjacent to the top of the wall.

### **5.0 Verification**

- 1) During installation periodically review and confirm:
  - a) Construction plans.
  - b) Horizontal alignments of wall and segmental units.
  - c) Batter and setback of segmental units.
  - d) Elevations of footing and top of wall.
  - e) Elevations of Stratagrid geogrid layers.
  - f) Specifications for Stratagrid geogrid, segmental units, drainage stone and reinforced backfill.

### **6.0 Storage**

- 1) Geogrid rolls are wrapped in a UV protective cover.
- 2) If stored outdoors for a prolonged period, geogrid must be elevated from the ground and covered with a tarpaulin or opaque plastic.
  - a) Contractor must insure rolls are adequately protected from:
    - i) Moisture
    - ii) Ultraviolet radiation
    - iii) Chemicals that are strong acids or bases
    - iv) Temperatures in excess of 140°F
    - v) Animal destruction

This material is presented for general information only. Always verify the suitability for a specific application with the project engineer. Where contradictions occur, follow the instructions of the project engineer. There is no implied or expressed warranty regarding the installation procedures or the geosynthetic products in this guide. Installation procedure and product choice is the sole responsibility of the contractor and contractor assumes all liability.