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Typical Section

Precast Evergreen-GEO Wall on Concrete Foundation

- Final grade min. 0.5% away from wall or else provide drainage channel
 - Add min. of 5 in. of top soil, seed and hay mulch for erosion control
 - **Fill material within precast units** to be ordinary borrow, provided friction angle is min. 35 degrees and compaction is min. 90%, max 95% density at max. $\pm 2\%$ off optimum water content - do not over compact to prevent damage to units - fill material shall have max 10 to 15% fines passing sieve #200;
 - Fill front pockets of I-shaped tray with min. 10" plantable top soil, min. 1 in. of freeboard, fill and grade as wall erection goes up, seed for erosion protection
 - Excavate in firm soil as steep as feasible for erection and back filling within a few days, min. gap to excavation line 18 in. for trench compactor
 - Fill and backfill shall follow the erection of each course of elements with a minimum berm of 10 ft. width. Max. Slope is 2:1 if fill goes up faster than wall or if wall goes up faster than backfill
 - **Backfill behind wall:** remove debris and topsoil before backfilling. Backfill partially for drainage with free draining material min. 12 in., or open graded rock fill
 - **General Backfill requirements:**
 - Lifts of max 12 in.
 - At water content max. $\pm 1-2\%$ off optimum
 - Compaction is min. 118 pcf or about 90%, max. 95% density within 4 ft. of wall
 - Do not use heavy equipment inside and closed to the wall.
 - Further away from back of wall min. compaction is min. 95%, max. 100%
- Soil properties depend on individual project design, typically:
- Min. $\phi' = 22^\circ - 32^\circ - 38^\circ$, $c' = 0$ psf, $\text{Gamma} = 115 - 125 - 135$ pcf
- Use continuous foundation drain min. 4" pipe PVC (schedule 80) or approved equal with longitudinal grade min. 0.5% and add min. 1 ft. of free draining rock covered with no woven geotextile
 - Add finger drains of min. 1 x 1 ft. to intercept any seepage water, add more drains at wet spots
 - First unit shall be adjusted using engineers level, small hardwood wedges, and fast set mortar, all units erected on mortar beds
 - Add stirrup min. two # 6 bars covered with concrete wedge in front of lowest unit to increase safety against sliding
 - Foundation pad behind first evergreen geo unit to be made with min. 12 in. of free draining material to prevent water backup
 - First units erected on mortar bed
 - Provide concrete foundation 3000 psi concrete and grade 60 rebars



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General Notes for Evergreen GEO Wall Erection

- The Evergreen – GEO unit lengths are 8 ft. from center to center of the legs.
- Start erection at place of lowest elevation of foundations
- Foundation tolerance: 1/2" is desirable, yet 1" or even 1"1/2 would be acceptable if 'minus', to be corrected by adding mortar.
- Erect the evergreen - geo wall units, making sure they are perfectly horizontal. Line them up to each other. Use small, 1/2" wide hardwood wedges and fast set mortar and engineer's level and a wooden triangle of a 1' and a 6' side, and use a 1/2" thick piece of board to space the units apart. The proper adjustment to the desirable 1/8" tolerance. This means a lot less adjustments for the upper units, which then just stack easily.

Note that the fill within the tension beams must be select fill ($\phi' = \text{min. } 35^\circ$) to mobilize friction within the fill to transfer loads from one layer to the next. Should such good fill not be available, use shear blocks to connect cross beams between levels.
- Use lb legs for bends wherever the wall is in a turn to bring the loads down to the foundation, except for the top two layers.
- Use left Leg and Right Leg units wherever the wall steps down and wherever there are turns.
- Use Top Beam units across the top of the wall for ensuring good fill compaction on the top of the wall.
- Foundation excavation must reach well bearing soil or rock. Excavate deeper as needed and as approved by the engineer as noted in specs
- Any soft, wet or organic or otherwise unsuitable material encountered in the footing area shall be removed and replaced a minimum 2 ft. away and replaced with gravel placed and compacted in 1 ft. lifts.
- Minimum requirement for foundation material beneath foundation depends on individual project and is here
 - friction angle $\phi' = \text{min. } \phi' = 34^\circ$
 - Cohesion = 0
 - Gamma = min. 125 pcf

The contractor shall consult and follow the 'erection instructions for evergreen' and the specifications as provided by the manufacturer