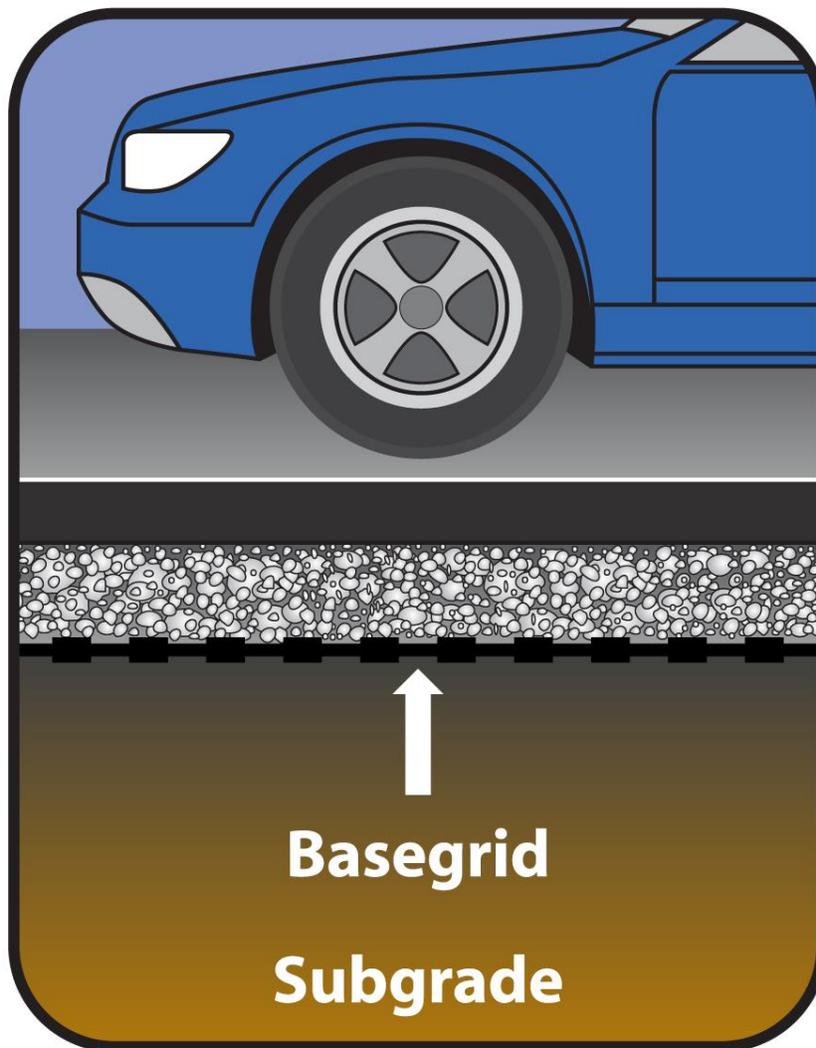




Construction Geosynthetics

Bi-Axial Base Stabilization Geogrid Installation Guide

BASEGRID



1.0 General

- 1) This guideline covers general installation of bi-axial base stabilization geogrids in flexible paved and unpaved roads.
- 2) Where contradictions occur follow the instructions of the project engineer.

2.0 Prepare Site

- 1) Remove all tree stumps and any protruding objects such as large rocks.
 - a) Fill the depressions with a suitable granular material.
- 2) Replace pockets of very weak soils with granular fill.
- 3) Do not disturb any surface hard crust overlying weaker soils.
 - a) In such instances, geogrid should be installed directly on the unprepared subgrade.
- 4) For areas that consistently hold water:
 - a) Replace the wet pumping soils with granular fill.
 - b) Install a drainage system or drain tile.

3.0 Smooth and Level Subgrade

- 1) Grade the area level as possible.
- 2) Excavate as shallow as possible to avoid creating an area that will hold water.

4.0 Place Base Stabilization Geogrid

- 1) Place the geogrid directly on the prepared subgrade.
 - a) Roll it out flat, applying tension to minimize folds and creases.
 - b) Pins or staples may be required to anchor or tension the geogrid.
 - i) If needed, 6 or 12 inch sod staples or 18 inch washer pins are anchoring options.
 - ii) A pile of aggregate can also be effective.
 - iii) Place initial anchors before fully unrolling roll.
 - iv) Place initial anchors at center and corners before fully unrolling the roll

5.0 Overlapping

- 1) Soil CBR will determine overlapping requirements. These are general guidelines for overlapping:
 - a) Soil CBR > 3 Minimum overlap of 1 foot.
 - b) Soil CBR 1-3 Minimum overlap of 2 foot.
 - c) Soil CBR < 1 Minimum overlap of 3 foot.
- 2) Overlap adjacent geogrid sections both side-to-side and end-to-end in the direction of the fill placement.

6.0 Place and Compact Aggregate

- 1) Place and compact the gravel.
 - a) 6 to 8 inches is typically sufficient.
 - b) For very weak subgrades, thicker lifts may be required.
- 2) The preferred method is to dump the stone onto the geogrid and then push it out to provide some protection.
 - a) Ensure that construction activities proceed in a manner that minimizes wrinkles or movement of the geogrid and prevents damage to the geogrid.
 - b) Spread the aggregate in the same direction as any geogrid overlap to avoid separation between the two pieces.
 - c) Spreading aggregate with heavy equipment may create waves in the geogrid.
 - i) Gradually lift the blade or bucket while spreading to minimize waves.
 - (1) If significant waves occur, remove the anchors to dissipate the waves.
- 3) Operating on exposed geogrid.
 - a) For firm subgrades (Soil CBR > 3):
 - i) Dump trucks and rubber tired loaders may be driven directly on the geogrid.
 - (1) Avoid quick stops, starts and turns.
 - (2) Keep speeds less than 10 mph.
 - b) For weaker subgrades (Soil CBR < 3):
 - (1) Dump the stone onto the geogrid where the subgrade is most stable and then push it out towards the weaker areas.
 - (2) Low ground pressure equipment is recommended for spreading fill over soft subgrades.
 - (a) Avoid quick stops, starts and turns.
 - (b) Keep speeds less than 10 mph.
 - c) Tracked vehicles may only be driven over the area after a minimum 4 inch fill thickness has been placed on top of the base stabilization geogrid.
 - i) Do not drive tracked vehicles directly on exposed geogrid.
 - ii) Turning of tracked vehicles should be kept to a minimum to prevent displacing the fill and damaging the geogrid.
- 7) Compact fill material without overstressing the subgrade.
 - a) For soft subgrades use static compaction.
 - i) Smooth wheeled rollers have typical ground pressures of 45 to 55 psi with 100% coverage.
 - ii) Pneumatic rubber tired rollers have typical ground pressures of 85 to 100 psi with 70% to 80% coverage.
- 8) Do not operate loaded trucks or heavy equipment on the area until the compacted aggregate thickness is achieved.
- 9) Any ruts must be filled with additional aggregate to the required thickness.
 - a) Do not grade out ruts.

- i) This reduces aggregate thickness and may expose the geogrid.
- b) Typically rutting is an indication that the aggregate layer is:
 - i) Too thin.
 - ii) Too wet.
 - iii) Poorly compacted.

5.0 Type of Stone

- 1) The preferred aggregate is crushed and angular, ranging from 10% dust (or fines) up to 2 inches in diameter.
 - a) Limestone is a good option, but other stone will work fine.
 - b) Some names for this type of stone are dense grade aggregate (DGA) or crusher run.
 - c) Do not use rounded stone.

6.0 Repair

In lieu of specific project guidelines, overlap damaged areas a minimum of 3 feet in all directions with a replacement piece.

7.0 Storage

- 1) If stored outdoors for a prolonged period, elevate the base stabilization geogrid from the ground and cover 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.