

Synthetic SubSurface Drainage Layer- Under Soil base

Delivery, Handling and Storage

1. The installer shall check the material upon delivery to verify that the materials received are the proper type and grade.
2. RoaDrain T shall be handled in such a manner as to ensure it is not damaged in any way. Appropriate equipment shall be employed when off loading and handling RoaDrain T.
3. RoaDrain-T shall be stored in a clean and dry environment, off the ground and out of direct sunlight and shall be protected from excessive heat, cold, mud, dirt, and dust.

Preparation

1. All vegetation should be cleared from the site and the surface made smooth. Depending on the subgrade strength, low ground pressure equipment may be required to avoid over-stressing the subgrade.
2. If pockets of very weak or pumping soils are encountered, those spots should be excavated and replaced with granular fill to result in a non-yielding subgrade. Per the direction of the engineer, other means of subgrade stabilization can be used.
3. The engineer shall verify that the surface of the area to receive the RoaDrain T is smooth and well compacted, with no voids or humps, and has the proper design grade that slopes towards the edge drain or other water collection structure as shown in figure 1. If no edge drain or water collection structure is present, one must be added.

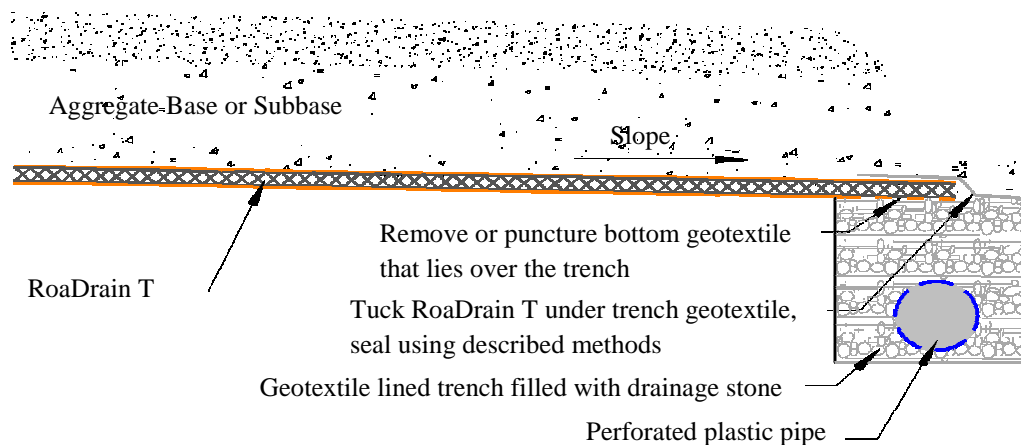


Figure 1. Typical Edge Drain Detail

Handling and Placement over Prepared Base

1. RoaDrain T should always be handled with proper equipment and care so as to prevent any damage such as cuts, tears or punctures.
2. Place and position the rolls in the proper manner at the elevations and alignment as shown in the construction drawings and as directed by the Engineer.
3. Whenever possible, RoaDrain T should run parallel to the direction of the roadway as shown in figure 2.

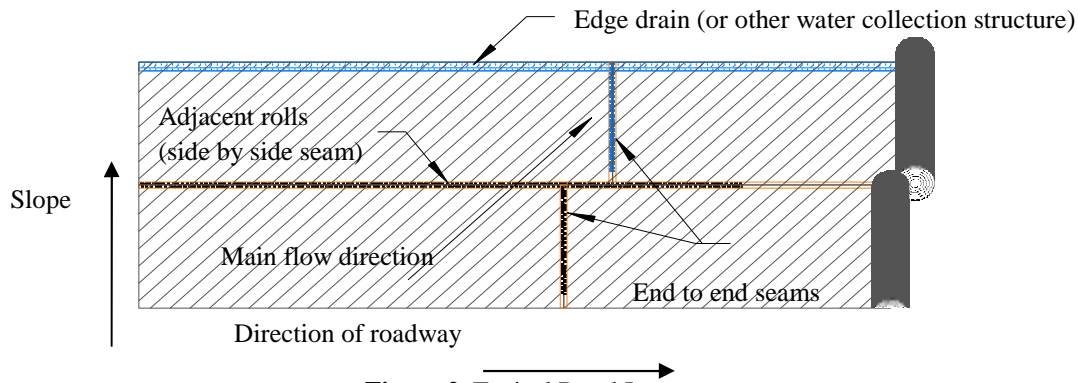


Figure 2. Typical Panel Layout

4. Steps should be taken to prevent the leading edge of the material from curling up by securing it to the subgrade with sandbags or steel pins.
5. To prevent wrinkles, maintain proper tension and alignment when unrolling RoadDrain T.
6. Drainage cores of adjacent panels and end to end panels should overlap 3" as shown in figures 3 & 4. When placed over a very stiff subgrade, the cores may be butt tight together without overlap as shown in figures 5 & 6.

Seaming

1. The fabric filters are wider than the drainage core. These "flaps" ensure ample fabric is available for proper seaming. Be sure to follow proper seaming methods to ensure continuity of flow and prevent soil particles from entering the drainage core.
2. To prevent movement and maintain alignment during fill placement, cores of adjacent panels (side by side rolls) should be tied every 5ft along their length with plastic cable ties and every 2ft along their width (end to end rolls). Cable ties should have a minimum tensile strength of 50 lbs.
3. To prevent soil from entering the drainage core, adjacent panels shall be seamed by tucking and overlapping the flaps as shown in figure 3. End to end rolls and cut rolls (no geotextile flap) will require a separate strip of non-woven geotextile be placed over the seam as shown in figure 4.

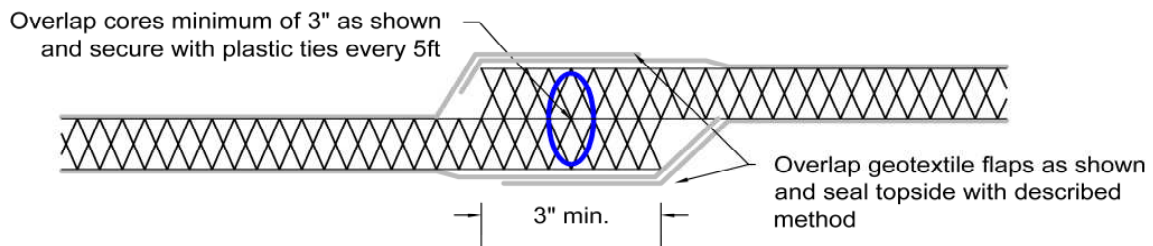


Figure 3. Seaming Adjacent Rolls along Their Length

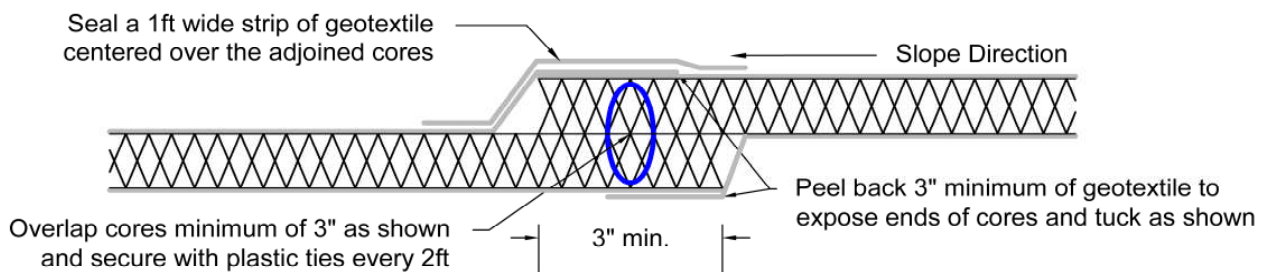


Figure 4. Seaming Rolls End to End

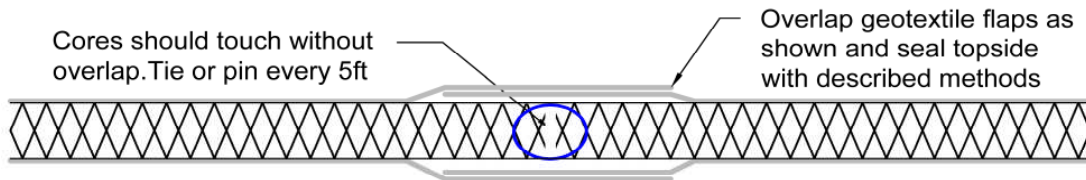


Figure 5. Seaming Adjacent Rolls Butted Along Their Roll Length
(Very stiff sub grades only)

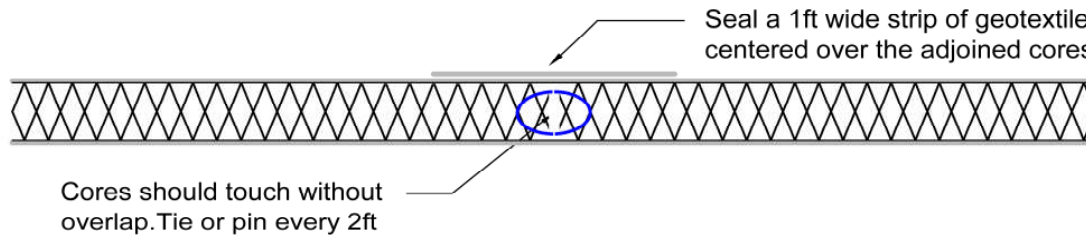


Figure 6. Seaming Rolls Butted End to End
(Very stiff sub grades only)

- Overlaps and strips of geotextile need to be secure and remain in place for the duration of the fill placement operation. Approved methods include sewing, heat bonding or a spray adhesive such as 3M Hi-Strength 90 or by applying duct tape. If heat bonding is used, care must be taken to not burn through the geotextile
- RoaDrain T can be made to fit any width or length by cutting the material. Long cuts are best made with a contractors saw employing an abrasive (non-toothed) blade. Shorter cuts can be made with a sharp serrated blade utility knife. Cutting exposes the core edge. All exposed core edges (except the edge connected to the edge drain, see figure 1) shall be wrapped with a strip of geotextile and secured utilizing methods described above.

Repairs

Prior to covering the deployed geocomposite, each roll shall be inspected for damage. Potential repair techniques will be addressed separately for just geotextile damage and for geonet damage on the geocomposite.

Geotextile Damage:

Syntec recommends patching small holes with an 8" x 8" geotextile piece. Apply the spray adhesive (Note: 3M Hi-Strength 90 adhesive is the recommended adhesive.) to one side of the 8x8" textile patch. Center and apply the 8x8" textile patch over the small holes in the geotextile. Firmly press 8x8" textile patch over repair area. If the damaged area of the geotextile is greater than this patch size, a bigger patch is recommended instead of using a multitude of 8" x 8" patches. If the geotextile is damaged beyond 50 percent of the width of the roll, a full width piece of geotextile shall be cap-stripped over the damaged area as recommended above and seamed to the adjacent panels.

Geonet Damage:

Damage to the geonet portion of the deployed geocomposite shall be patched by placing a geonet or geocomposite patch extending 12 inches beyond the edges of the damaged area. The patch shall be secured to the original geonet by tying every 6 inches with approved tying devices. If the damage on the geonet portion of the deployed geocomposite is more than 50 percent of the width of the roll, this entire full width section shall be cut out, and the two portions of the geonet (end to end) shall be joined as explained above in figure 4.

Fill Soil Placement

- Placement of the cover soil shall proceed immediately following the placement of the geocomposite and its consequent approval by the responsible party. Geocomposites usually shall be covered within 14 days.
- Initial load of specified fill shall be back dumped onto the RoaDrain T and spread to create a working platform. Subsequent

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loads shall be dumped onto previously placed fill and spread with a tracked dozer or similar equipment.

3. When dumping or spreading fill material, equipment operators must not allow sharp implements such as dozer blades and loader buckets to come in direct contact with the RoaDrain T.
4. No tracked equipment shall be allowed to operate directly on the RoaDrain T. If required, and at the discretion of the engineer, rubber tire vehicles may be permitted to operate on the RoaDrain T, but only in the presence of a very stiff, non yielding subgrade. Vehicles operating on the RoaDrain T must do so slowly and in a straight forward or backwards motion. The vehicle operator shall avoid sharp or standing turns and abrupt stops or acceleration.