

Rolled Erosion Control Products (RECPs) General Usage and Installation Guidelines for Slope



IMPORTANT NOTICE on Safety Procedures: Manufacturer's of rolled erosion control products all provide safety guidelines. ECTC recommends that the installer follow the instructions provided for their specific products.

Introduction

Soil erosion is evident in so many situations and the environmental impact can be significant. Installing rolled erosion control materials is generally easy, and the materials can be quite affordable.

The overall costs of installation can be reduced with rolled erosion control products (RECPs) versus other conventional methods of temporary protection such as blown straw. Frequently, a blown straw mulch application needs to be repaired or replaced because of wind or water erosion of the straw. When RECPs are used instead, the additional expenses of repair and replacement are not incurred.

Available hydraulic data confirms RECPs meet, and under certain conditions, can exceed the shear stress rating of rock rip rap. Some estimates indicate that installation of a turf reinforcement mat can be one-third the cost of eight-inch rock riprap for the same level of erosion control. 1(Lancaster et.al.) In many cases RECPs can also be installed on steeper grades than rock rip rap and hard armor. Of course, a benefit of a RECP is it allows vegetation growth and provides a natural



setting that is aesthetically pleasing in landscape applications.

Proper installation of RECPs is critical for a successful project. Even the best products will not work properly if not installed correctly. Just how easy is the installation of erosion control materials? This guideline provides directions for the installation of rolled erosion control materials.

Installation of erosion control materials is fairly straightforward. The manufacturers and distributors of these products offer a wealth of information about installing these products.

In describing the installation methods, the assumption is made that the designer of the project has chosen the proper products to be used in the project. There is a lot of information about designing projects using rolled erosion control products on the ectc.org website.

Key Elements for Successful Product Installation

Step One—Site Preparation:

The first step in the installation of RECPs on slopes is site preparation. Be sure the site is properly prepared before installing any RECP. The site should be fine graded to a smooth profile and relatively free from all weeds, clods, stones, roots, sticks, rivulets, gullies, crusting and caking. Fill any voids and make sure that the slope is compacted properly.

Step Two—Seeding:

The second step in the installation process of RECPs on slopes is to seed the area to be vegetated. Select a seed mix for vegetation adapted to the local geographical area. The seed must also be

suitable for site-specific soil conditions.

Always match the seed to site soil conditions for optimum germination, root system development, vegetation density, and long term functionality. Prior to RECP installation if the prepared seed bed becomes crusted or eroded, or if eroded places, ruts or depressions exist for any reason, the contractor must rework the soil until it is smooth and re-seed such areas which are re-worked.

Step Three—Prepare Anchor Trench:

At the top of the slope dig an anchor trench six-inches deep by six-inches wide. The RECP will be anchored in this trench with staples.



Prepared installation site that is free of weed, clods, stones, roots, sticks, rivulets and gullies.



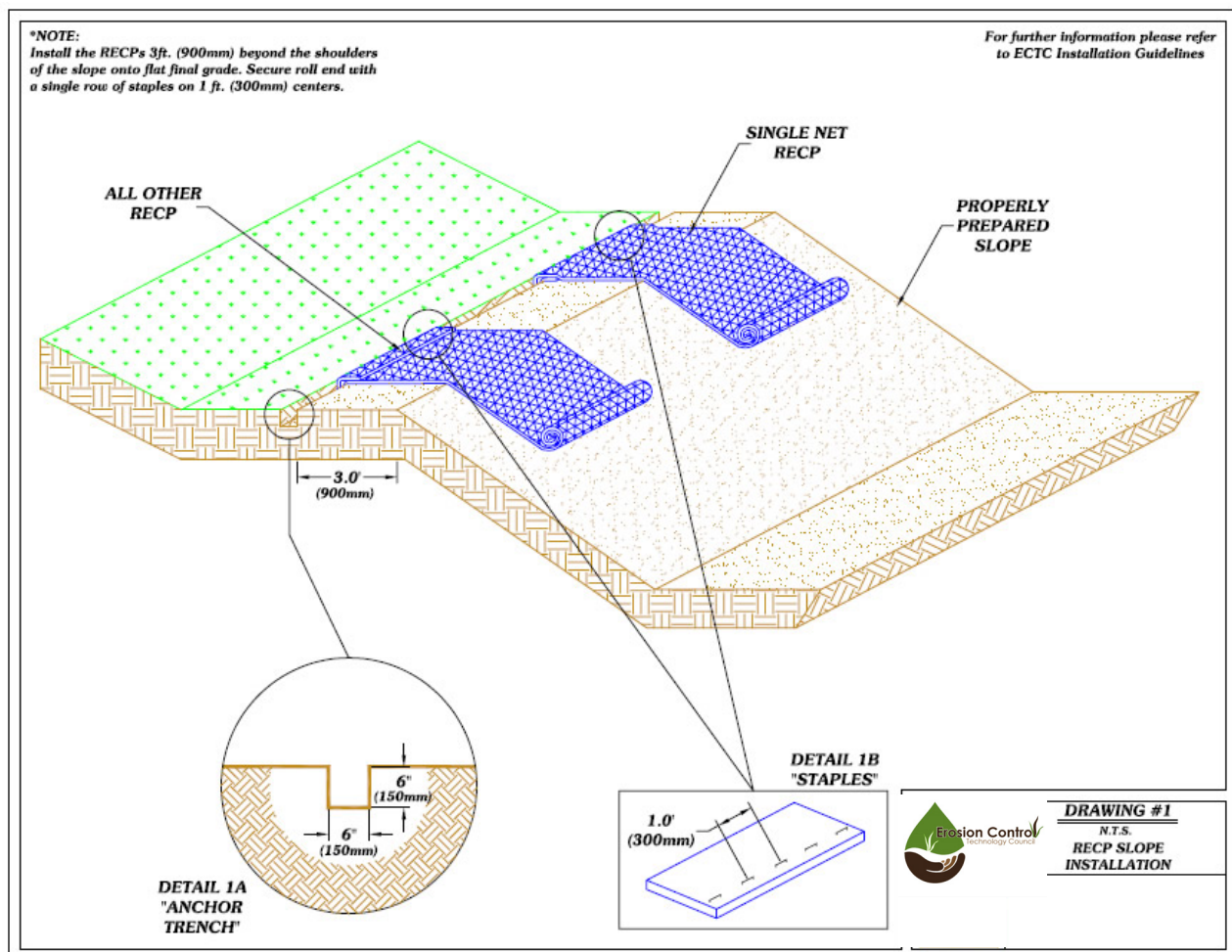
Seed can be placed by hand or with a tractor.

Key Elements for Successful Product Installation (cont.)

Ideally, allow at least three feet from the crest of the slope to the anchor trench. This may not be possible due to site conditions or other factors. The three-foot wide clearance between the slope crest and the anchor trench is most beneficial when runoff exists from higher ground. When an RECP is installed on the flat over the crest of the final grade, it will help prevent water from getting under the RECP and causing soil erosion. Staples should be installed across the top of the RECP, one foot on center along the outside parameter of the RECP.



Step Three—Prepare the anchor trench.



Key Elements for Successful Product Installation

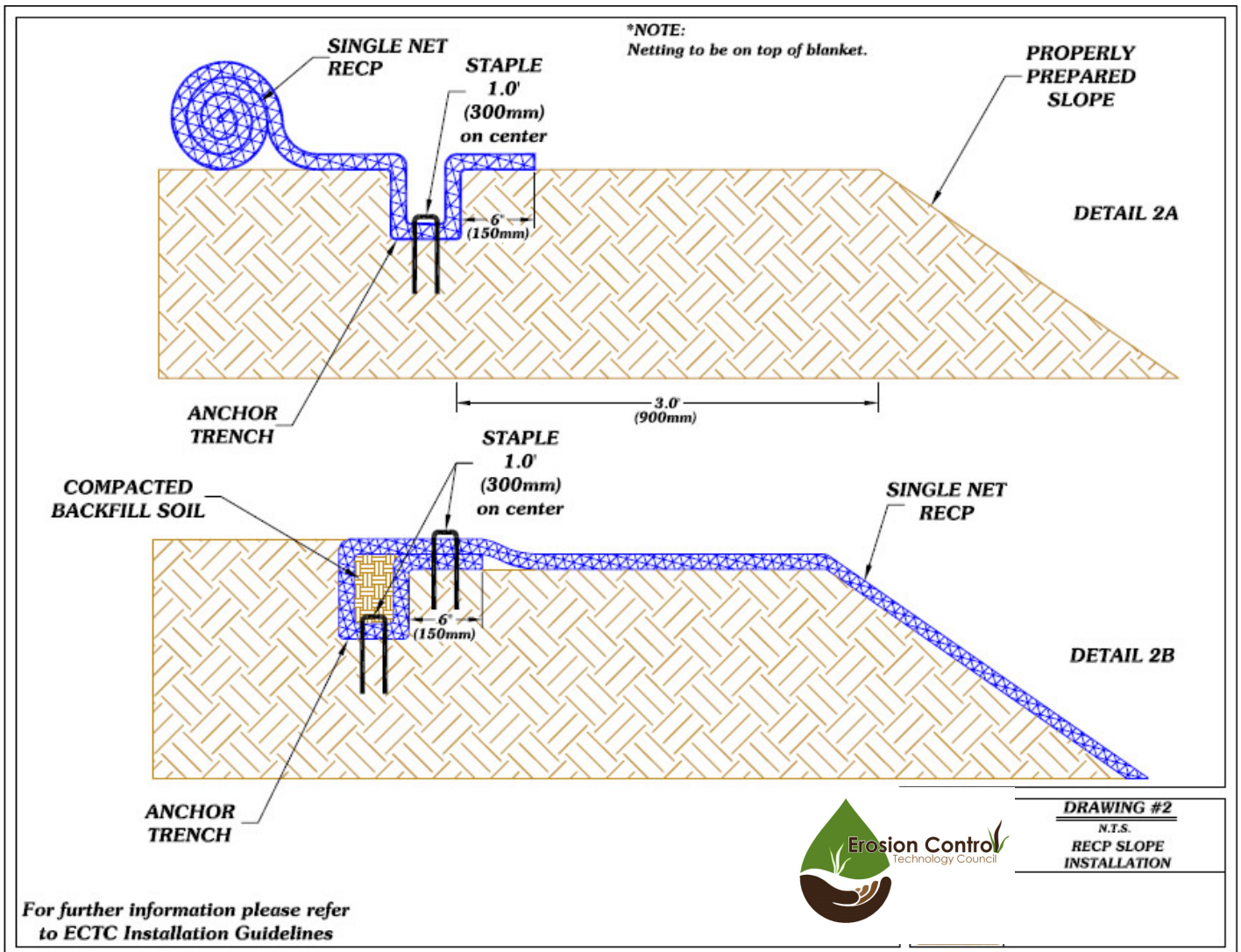
Step Four—Secure RECP in Anchor Trench:

Begin RECP placement past the anchor trench. The Federal Highway Administration proposed FP-03 Specifications suggest that the RECP should extend 30 inches past the anchor trench. Run the RECP down into the anchor trench.

Anchor the RECP with staples in the anchor trench. The Federal Highway Administration proposed FP-03 Specifica-

tions suggest that the RECP be fastened using staples or stakes 12 inches on center. ECTC suggests that you use this as a guideline, but take RECP type, soil and site conditions into consideration when securing the RECP into the anchor trench. Be sure to drive staples or stakes flush with the soil surface.

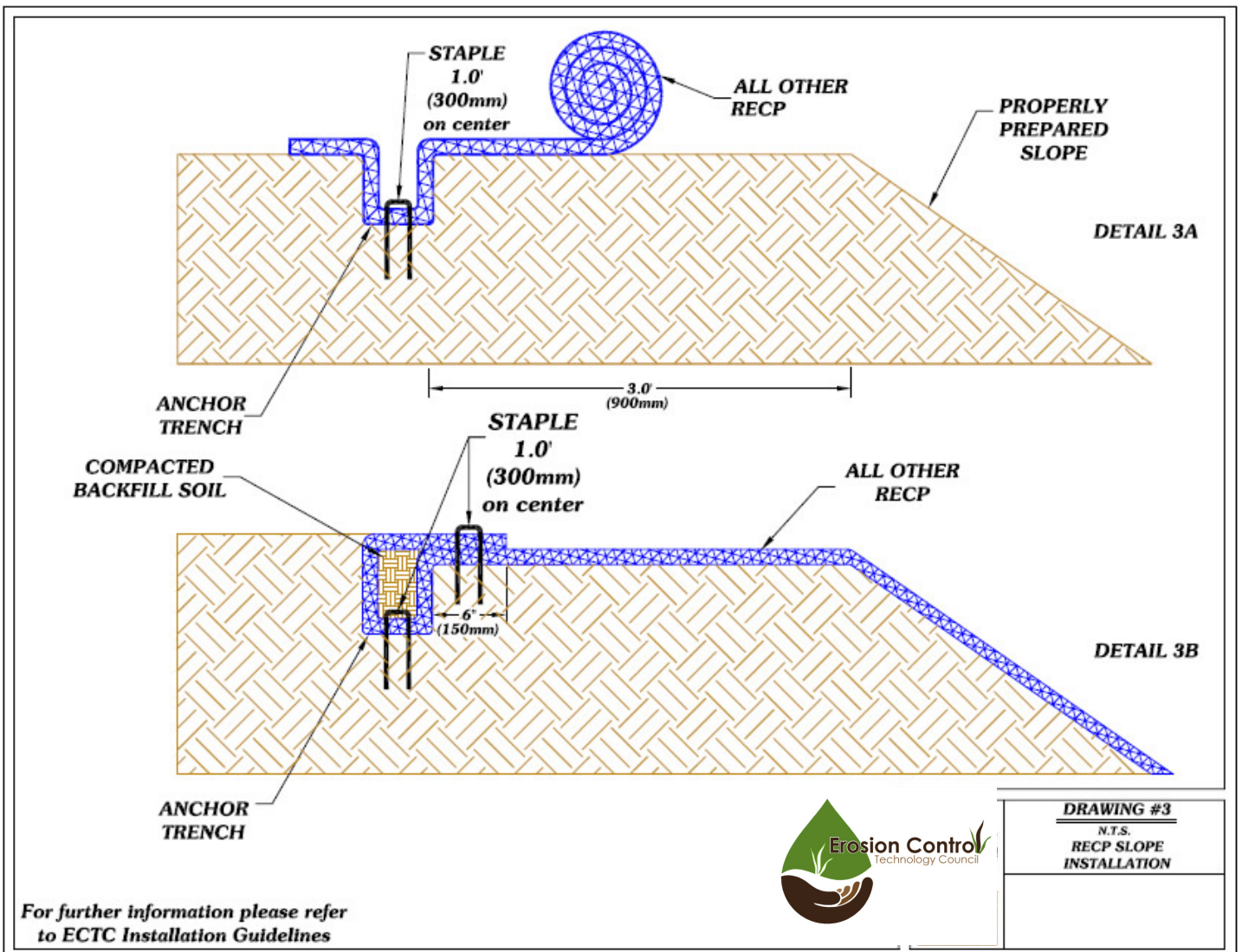
Backfill the anchor trench and compact the soil. Place seed over the compacted soil. Cover the compacted soil with



Key Elements for Successful Product Installation (cont.)



Step Four—Secure the RECP in the anchor trench.



Key Elements for Successful Product Installation (cont.)

the remaining 12 inches of the terminal end of the RECP. Staple or stake terminal end down slope of the anchor trench on 12-inch centers.

Step Five-RECP Deployment:

Starting at the crest of the slope, roll the RECP down the slope in a controlled manner. The best way is for the installer to be on the downside of the slope in front of the RECP and walk the roll down the slope with each backward step. Approximately every 20 feet to 25 feet pull the RECP to take out any excess slack. Do not over

stretch the RECP as this may cause bridging of the RECP over the soil surface. The goal is to have the RECPs contour and have intimate contact with the soil.

To overlap or not to overlap?

The edges of the adjacent RECPs may or may not overlap, depending upon type of product used and the manufacturer's recommended practice. Check with the product manufacturer for instructions on this aspect of the installation.



Step Five—Starting at the crest of the slope, roll the RECP down the slope in a controlled manner.

Key Elements for Successful Product Installation (cont.)

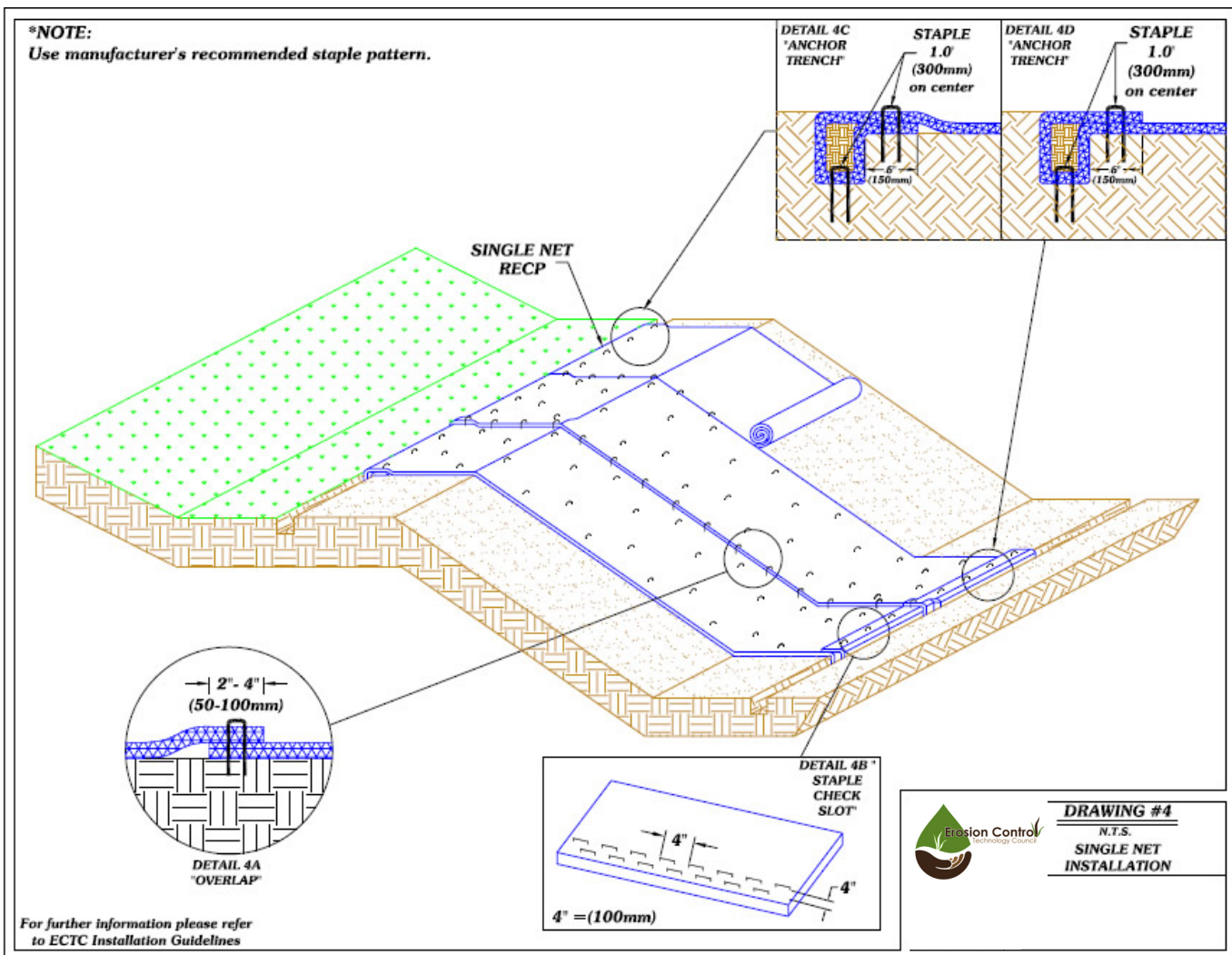
The manufacturers have done extensive research and have tremendous field experience on what method works best for their products. If an overlap is recommended, it is typically two inches to four inches.

Some RECP manufacturers recommend that the adjacent RECPs be installed so that the edges butt against one another and do not allow the soil to be exposed. Follow the manufacturers rec-

ommendations on whether to overlap or abut edges.

Step Six-Staple or Stake the RECP:

Secure the overlap or the edges with staples. The typical installation will require one staple be placed at three to five feet intervals along the vertical length of the RECPs. Staples should be staggered every 18 inches to 24 inches horizontally across the RECP.



Key Elements for Successful Product Installation (cont.)

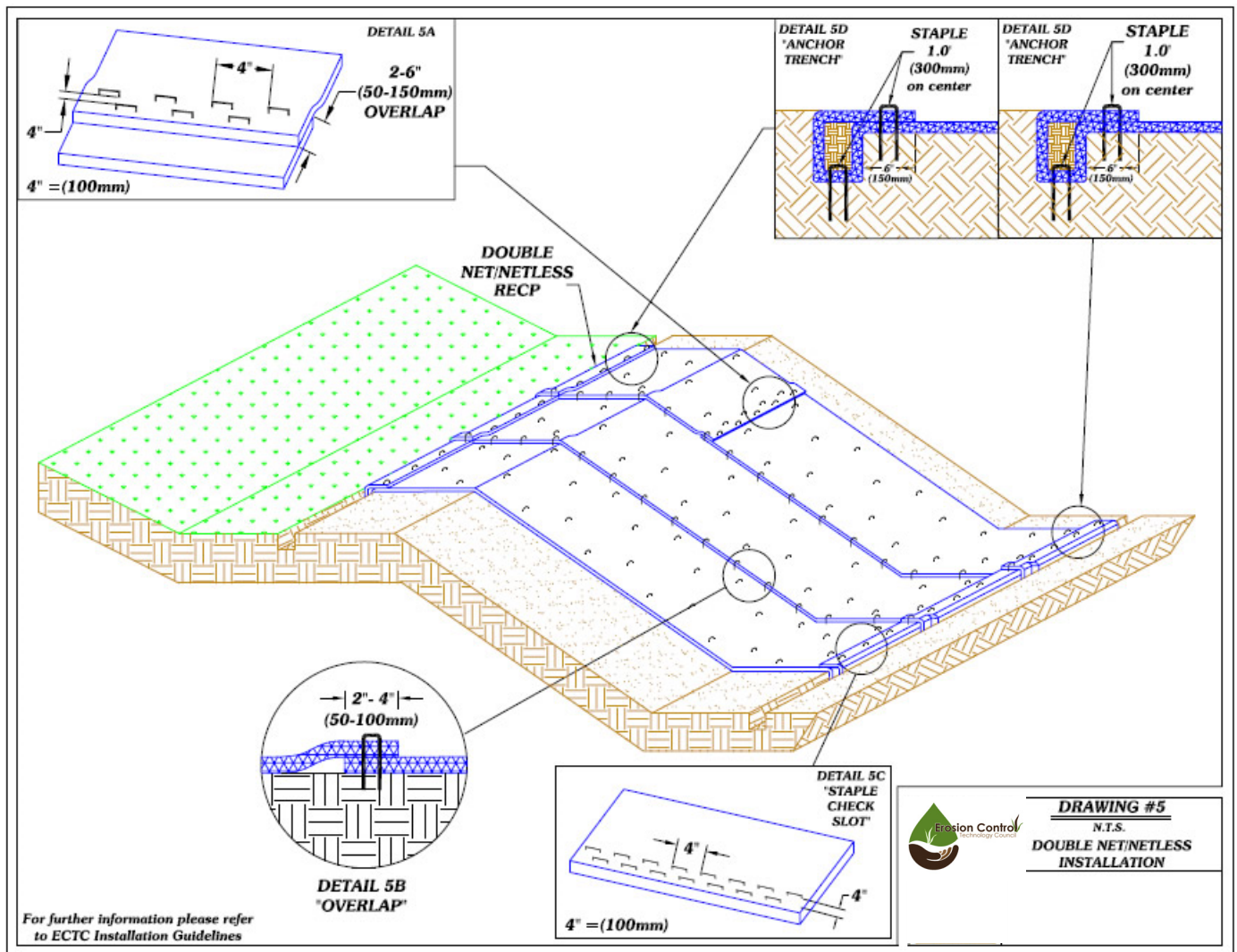
The FHWA proposed FP-03 Specifications recommend that all RECP materials be securely anchored at an approximate minimum rate of 1.5 staples or stakes per square yard. However, soil types and other site conditions may require additional stapling.

If the RECP needs to be spliced in the middle of a slope be sure the RECP is “shingled” with the up-slope RECP overlapping the down-slope RECP. There should be two-six inches of over-

lap in a splice. Use a staple check slot to secure the overlap. A staple check slot is made by placing a row of staples four inches on center and then placing a second row of staples four inches on center, staggered from the first row.

Step Seven—Securing the RECP at the Slope Toe

Roll the RECP two feet past the toe of the slope. Secure with staples or stakes one foot on center across the RECP.



Key Elements for Successful Product Installation (cont.)

Alternative Slope Installation Method

On short slopes, some manufacturers allow for a horizontal installation method to avoid extra handling and cutting of the RECP. In other words, the RECP is installed from the base of the slope first rolling the product out horizontally across the slope face and proceed up to and over the crest to protect the final grade.

The same final grade installation and stapling procedures still apply. At the

base of the slope, allow the RECP to extend two feet on to the flat ground at the toe area (if possible) and then let the remainder of the RECP width lay up the slope above the toe area. Some manufacturers suggest that their RECPs be buried in a toe trench, stapled, and buried before proceeding with the remainder of the installation. The next RECP is then installed up the slope, above and parallel to the first RECP. Allow a two-inch to four-inch overlap from the higher RECP onto the RECP below to create a shingle effect.



Step Six—If the RECP needs to be spliced in the middle of a slope be sure the RECP is “shingled” with the upslope RECP overlapping the downslope RECP.

You can obtain the CADD drawings from the ECTC.org website. They are available in a PDF and DWG format.

Manufacturer Recommended Installation

ECTC has an RECP specification for products. Visit the ECTC website to find this and more information on rolled erosion control products.

ECTC encourages specifiers, designers, installers and inspectors to contact the RECP manufacturers for additional

guidance on product quality, testing and performance. They have specialists on staff that can further guide you on the proper use and application of RECPs.

About ECTC

The Erosion Control Technology Council (ECTC) is committed to promoting cost-effective erosion and sediment control solutions through leadership, standardization and education. ECTC assists agencies, engineers, designers, contractors and other entities in the proper application, installation and specification of erosion control technologies while establishing guidelines for product quality, testing and performance.

ECTC's mission has grown even more important as new end-users look for guidance in employing RECPs, HECPs and SRFRs to comply with more stringent erosion/sediment control regulations.



Education and Standardization for a Growing Industry

Phone: +1 (720) 353-4977

www.ectc.org

©Erosion Control Technology Council 2014. www.ectc.org