



Construction Exit - CE

DEFINITION
A stone-stabilized pad located at any point where traffic will be leaving a construction site to a public roadway.

PURPOSE
To reduce or eliminate the transport of material from the construction area onto a public roadway.

CONDITIONS
This practice is applied at appropriate points of construction egress. Geotextile underliners are required to stabilize and support the pad aggregates.

DESIGN CRITERIA
Formal design is not required. A typical construction exit is shown in Figure 1. The following standards should be used:

Aggregate Size: Stone should be in accordance with TDOT #1 or #2 stone specifications (1.5 to 3.6 inch stone), washed, and well graded. Refer to specification Riprap - RR for aggregate size tables.

Pad Thickness: The gravel pad should have a minimum thickness of 6 inches.

Pad Length and Width: At a minimum, the width should equal full width of all points of vehicular egress, but not less than 20 feet wide. Pad length should be no less than 50 feet.

Washing: If the action of the vehicle traveling over the gravel pad does not sufficiently remove the material, the tires should be washed prior to exit onto public roadways. When washing is required, the wash rack should be designed for the anticipated traffic loads and placed on level ground, on a pad of coarse aggregate (such as TDOT #57). A typical wash rack is shown in Figure 2. The wash rack design may consist of other materials suitable for truck traffic that remove mud and dirt. The wash rack should have provisions that intercept the sediment-laden runoff and direct it into a sediment trap or sediment basin.

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Location: The exit should be located wherever traffic will be leaving a construction site directly onto a public roadway.

CONSTRUCTION SPECIFICATIONS
It is recommended that the exit area be excavated to a depth of 3 inches and be cleared of all vegetation and roots.

Waterbar Diversion: On sites where the grade toward the public roadway is greater than 2%, a waterbar diversion 6 to 8 inches high with 2:1 side slopes should be constructed across the foundation of the construction exit to prevent storm water runoff from leaving the site. Refer to specification Diversion - D6. Diverted runoff should be directed into a sediment trap or sediment basin. Refer to specification Sediment Trap - ST or Sediment Basin - SB.

Geotextile: The geotextile under-liner must be placed the full length and width of the exit. Refer to specification Geotextile - GE.

INSPECTIONS
Inspections of construction exit should be made at the end of each shift or workday.

MAINTENANCE
The exit should be maintained in a condition that will prevent tracking or flow of material onto public right-of-way. This may require periodic top dressing with fresh stone, as conditions demand, and repair and/or cleanout of any structures to keep sediment. All materials spilled, dropped, washed, or tracked from vehicles or site onto roadways or into storm drains must be removed immediately.

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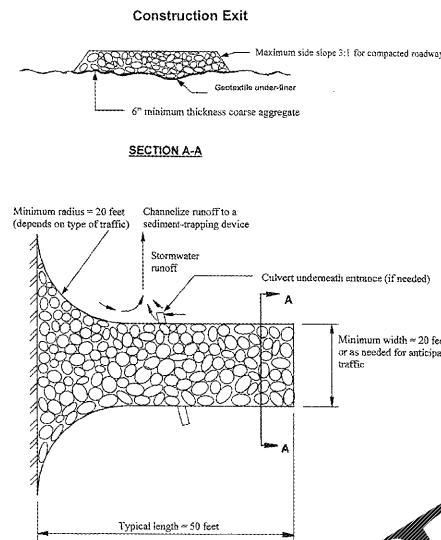


Figure 1

Source: Knoxville Engineering Department

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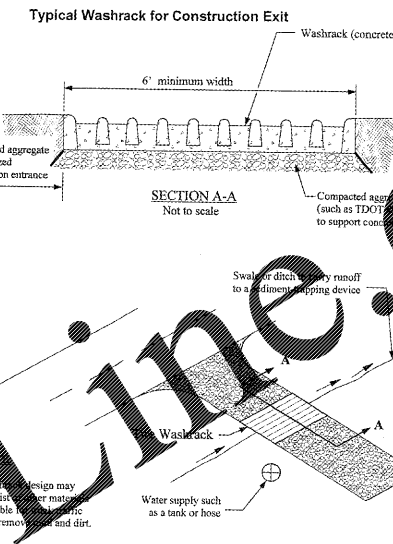


Figure 2

Source: Knoxville Engineering Department

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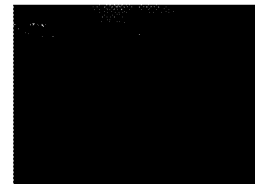
CE CONSTRUCTION EXIT NTS

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STABILIZATION PRACTICES

7.11 ROLLED EROSION CONTROL PRODUCTS



ROLLED EROSION CONTROL PRODUCT

Definition
Rolled erosion control products (RECPs) are manufactured sheets of mesh materials (e.g., straw, coir, wood fibers, curled wood, etc.) that are bound into netting composed of either photodegradable synthetic or natural materials. They are usually delivered to a construction site in rolls which are then installed as a protective covering designed to protect soil and hold seed and mulch in place on slopes and in channels, so that vegetation can become well established. This section only addresses RECPs applied to slopes. RECPs as channel linings are covered in Section 7.12 Channels.

Purpose
To reduce soil erosion and assist in the growth, establishment and protection of temporary or permanent vegetation on steep slopes.

Conditions Where Practice Applies
RECPs can be applied to steep slopes where erosion hazards are high and conventional seeding is likely to be too slow in providing adequate protective cover. RECPs can be applied to cut or fill slopes of 2.5:1 or steeper with a height of 10 feet or greater in need of protection during establishment of temporary or permanent ground cover.

Planning Considerations
There are many types of erosion control nets and blankets on the market that may be appropriate in certain circumstances. In general, most nets require mulch in order to prevent erosion because they have a fairly open mesh. Blankets typically do not require mulch because they have a tighter mesh and a thicker surface.

Good ground contact is critical to the effectiveness of these products. If good ground contact is not achieved, the RECP can concentrate runoff, resulting in significant erosion. It is preferred that loose woven netting made with natural fibers be used.

Most netting used with blankets is non-photosensitive, meaning they break down under sunlight (not UV stabilized). However, this process can take months or years even under bright sunlight. Once vegetation has established, sunlight does

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not reach the mesh. It is not uncommon to find non-biodegradable netting still in place several years after the installation. This can be a problem for maintenance requires the use of mowers or ditch cleaning equipment. In addition, birds and small animals can become trapped in the netting.

Biodegradable blankets are available for use in sensitive areas. These organic blankets are usually held together with fiber mesh and stitching which may last up to one year.

Design Criteria
Formal design of RECPs applied to slopes is not required. However, for each location erosion control blankets are used, the type of blanket should be indicated in the EPC Plans.

The use of erosion control blankets on cut or fill slopes may be considered for the following conditions:

- In flat rolling terrain, on 2H:1V or 3H:1V slopes that are 20 feet or greater in height;
- On steep slopes (in soil) that are 30 feet or greater in height;
- On steep slopes on hilly terrain, 2H:1V or 3H:1V fill slopes and/or 2H:1V or 3H:1V cut slopes (in soil) that are 30 feet or greater in height;
- On slopes built on highly erodible soils such as sandy/loess soils in West Tennessee;
- On slopes running adjacent to a stream or adjacent to a large ditch or channel that supplies directly into high-quality or sediment-impaired waters near the roadway connection;
- At point of stormwater runoff concentration where off-site runoff threatens stability of cut slopes.

On sites with flat slopes or short slope lengths, it may be possible to substitute mulch control netting or open weave textiles for erosion control blanket, based on economic considerations.

In addition to the above criteria, the designer should consider the design life of the erosion control blanket. The designer should ensure that it is possible for the permanent vegetation to become well established before the degradable portions of the blanket have degraded to the point that their resistance to erosion is significantly reduced.

Construction Specifications
Even if properly designed, if not properly installed, erosion control blankets will likely not function as desired. Proper installation is imperative. Even if properly installed, if not properly timed and nourished, vegetation will likely not grow as desired. Proper seed/vegetation selection is also imperative.

Grade the surface of installation areas so that the ground is smooth and soil loose. When seeding prior to installation, follow the steps for seed bed preparation, soil amendments, and seeding. All gullies, rills, and any other disturbed areas must be fine graded prior to installation. Spread seed before blanket installation. (Important: Remove all large rocks, dirt clods, stumps, roots, grass clumps, trash, and other obstructions from the soil surface to allow for direct contact between the soil

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surface and the blanket.) Terminal anchor trenches are required at blanket end. Terminal anchor trenches should be a minimum of 12 inches in depth and 6 inches in width.

Installation for Slopes: Place the blanket 2-3 feet over the top of the slope and into an excavated end trench measuring approximately 12 inches deep by 6 inches wide. Pin the blanket at 1 foot intervals along the bottom of the trench, backfill, and compact. Unroll the blanket down (or along) the slope maintaining direct contact between the soil and the blanket. Overlap adjacent rolls a minimum of 3 inches. Pin the blanket to the ground using staples or pins in a 2 foot center-to-center pattern or as recommended by manufacturer.

Anchoring Devices: 11 gauge, at least 6 inches length by 1 inch width, staples or 12 inch minimum length wooden stakes are recommended for anchoring the blanket to the ground.

Drive staples or pins so that the top of the staple or pin is flush with the ground surface. Anchor each blanket every 3 feet along its center. Longitudinal overlaps must be sufficient to accommodate a row of anchors and uniform along the entire length of overlap and anchored every 3 feet along the overlap length. Roll ends may be spliced by overlapping 1 foot (in the direction of water flow), with the upstream/upslope mat placed on top of the downstream/downslope blanket. This overlap should be anchored at 1 foot spacing across the blanket. When installing multiple width mats be sure the factory, air factory seams and field overlaps should be similarly anchored.

Maintenance and Inspection Points
Good contact with the ground must be maintained, and erosion must not occur beneath the blanket.

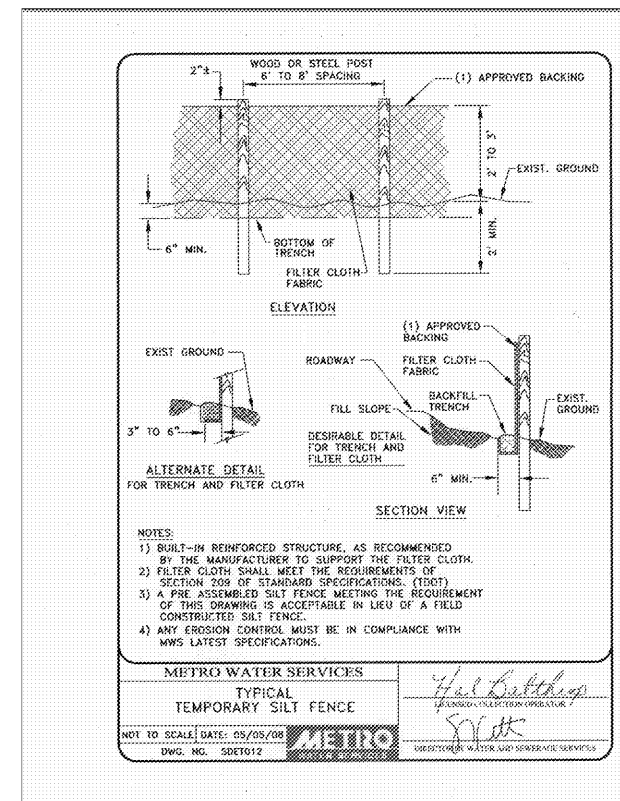
Any areas of the blanket that are damaged or not in close contact with the ground shall be repaired and stapled.

If erosion occurs due to poorly controlled drainage, the problem shall be fixed and the eroded area repaired.

Monitor and repair the blanket as necessary until ground cover is established. Inspections should include walking across the slope to check for erosion gullies that can be felt rather than seen.

References
TDOT Design Division Drainage Manual
TDOT Erosion Control Standard Drawing EC-STR-34
North Carolina Erosion and Sediment Control Planning and Design Manual

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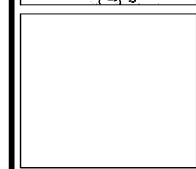


SF SILT FENCE NTS

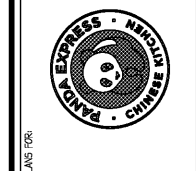
RECP ROLLED EROSION CONTROL PRODUCT NTS



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