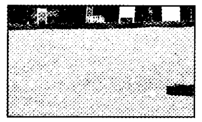
## Disturbed Area Stabilization (With Mulching Only) Ds1



**DEFINITION**
Applying plant residues or other suitable materials, produced on the site if possible, to the soil surface.

**PURPOSE**
- To reduce runoff and erosion
- To conserve moisture
- To prevent surface compaction or crusting
- To control undesirable vegetation
- To modify soil temperature
- To increase biological activity in the soil

**REQUIREMENT FOR REGULATORY COMPLIANCE**
Mulch or temporary grassing shall be applied to all exposed areas within 14 days of disturbance. Mulch can be used as a singular erosion control device for up to six months, but it shall be applied at the appropriate depth, depending on the material used, anchored and have a continuous 90% cover or greater of the soil surface.

Maintenance shall be required to maintain appropriate depth and 90% cover. Temporary vegetation may be employed instead of mulch if the area will remain undisturbed for less than six months.

If any area will remain undisturbed for greater than six months, permanent vegetative techniques shall be employed. Refer to **Ds2 - Disturbed Area Stabilization (With Temporary Seeding)**, **Ds3 - Disturbed Area Stabilization (With Permanent Seeding)**, and **Ds4 - Disturbed Area Stabilization (With Sodding)**.

**SPECIFICATIONS**
**Mulching Without Seeding**
This standard applies to graded or cleared areas where seedings may not have a suitable growing season to produce an erosion retardant cover, but can be stabilized with a mulch cover.

**Site Preparation**

1. Grade to permit the use of equipment for applying and anchoring mulch.
2. Install needed erosion control measures as required such as dikes, diversions, berms, terraces and sediment barriers.
3. Loosen compact soil to a minimum depth of 3 inches.

**Mulching Materials**
Select one of the following materials and apply at the depth indicated:

1. Dry straw or hay shall be applied at a depth of 2 to 4 inches providing complete soil coverage. One advantage of this material is easy application.
2. Wood waste (chips, sawdust or bark) shall be applied at a depth of 2 to 3 inches. Organic material from the clearing stage of development should remain on site, be chipped, and applied as mulch. This method of mulching can greatly reduce erosion control costs.
3. Polyethylene film shall be secured over banks or stockpiled soil material for temporary protection. This material can be salvaged and re-used.

**Applying Mulch**
When mulch is used without seeding, mulch shall be applied to provide full coverage of the exposed area.

1. Dry straw or hay mulch and wood chips shall be applied uniformly by hand or by mechanical equipment.
2. If the area will eventually be covered with perennial vegetation, 20-30 pounds of nitrogen per acre in addition to the normal amount shall be applied to offset the uptake of nitrogen caused by the decomposition of the organic mulches.
3. Apply polyethylene film on exposed areas.

**Anchoring Mulch**

1. Straw or hay mulch can be pressed into the soil with a disk harrow with the disk set straight or with a special "packer disk." Disks may be smooth or serrated and should be 20 inches or more in diameter and 8 to 12 inches apart. The edges of the disk should be dull enough not to cut the mulch but to press it into the soil leaving much of it in an erect position. Straw or hay mulch shall be anchored immediately after application.

   Straw or hay mulch spread with special blower-type equipment may be anchored. Tackifers, binders and hydraulic mulch with tackifier specifically designed for tacking straw can be substituted for emulsified asphalt. Please refer to specification **Tac-Tackifers.** Plastic mesh or netting with mesh no larger than one inch by one inch shall be installed according to manufacturer's specifications.
2. Netting of the appropriate size shall be used to anchor wood waste. Openings of the netting shall not be larger than the average size of the wood waste chips.
3. Polyethylene film shall be anchor trenched at the top as well as incrementally as necessary.

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## Disturbed Area Stabilization (With Temporary Seeding) Ds2

**DEFINITION**
The establishment of temporary vegetative cover with fast growing seedings for seasonal protection on disturbed or denuded areas.

**PURPOSE**
- To reduce runoff and sediment damage of down stream resources
- To protect the soil surface from erosion
- To improve wildlife habitat
- To improve aesthetics
- To improve tilth, infiltration and aeration as well as organic matter for permanent plantings

**REQUIREMENT FOR REGULATORY COMPLIANCE**
Mulch or temporary grassing shall be applied to all exposed areas within 14 days of disturbance. Temporary grassing, instead of mulch, can be applied to rough graded areas that will be exposed for less than six months. If an area is expected to be undisturbed for longer than six months, permanent perennial vegetation shall be used. If optimum planting conditions for temporary grassing is lacking, mulch can be used as a singular erosion control device for up to six months but it shall be applied at the appropriate depth, anchored, and have a continuous 90% cover or greater of the soil surface. Refer to specification **Ds1-Disturbed Area Stabilization (With Temporary Seeding).**

**CONDITIONS**
Temporary vegetative measures should be coordinated with permanent measures to assure economical and effective stabilization. Most types of temporary vegetation are ideal to use as companion crops until the permanent vegetation is established. Note: Some species of temporary vegetation are not appropriate for companion crop plantings because of their potential to out-compete the desired species (e.g. annual ryegrass). Contact NRCS or the local SWCD for more information.

**SPECIFICATIONS**
**Grading and Shaping**
Excessive water run-off shall be reduced by properly designed and installed erosion control practices such as closed drains, ditches, dikes, diversions, sediment barriers and others.

No shaping or grading is required if slopes can be stabilized by hand-seeded vegetation or if hydraulic seeding equipment is to be used.

**Seedbed Preparation**
When a hydraulic seeder is used, seedbed preparation is not required. When using conventional or hand-seeding, seedbed preparation is not required if the soil material is loose and not sealed by rainfall.

When soil has been sealed by rainfall or consists of smooth cut slopes, the soil shall be pitted, trenched or otherwise scarified to provide a place for seed to lodge and germinate.

**Lime and Fertilizer**
Agricultural lime is required unless soil tests indicate otherwise. Apply agricultural lime at a rate determined by soil test for pH. Quick acting lime should be incorporated to modify pH during the germination period. Bio stimulants should also be considered when there is less than 3% organic matter in the soil. Graded areas require lime application. Soils must be tested to determine required amounts of fertilizer and amendments. Fertilizer should be applied before land preparation and incorporated with a disk, ripper, or chisel. On slopes too steep for, or inaccessible to equipment, fertilizer shall be hydraulically applied, preferably in the first pass with seed and some hydraulic mulch, then topped with the remaining required application rate.

**Seeding**
Select a grass or grass-legume mixture suitable to the area and season of the year. Seed shall be applied uniformly by hand, cyclone seeder, drill, culti-packer-seeder, or hydraulic seeder (slurry including seed and fertilizer). Drill or cultipacker seeders should normally place seed one-quarter to one-half inch deep. Appropriate depth of planting is ten times the seed diameter. Soil should be "raked" lightly to cover seed with soil if seeded by hand. See Table 6-4.1

**Mulching**
Temporary vegetation can, in most cases, be established without the use of mulch, provided there is little to no erosion potential. However, the use of mulch can often accelerate and enhance germination and vegetation establishment. Mulch without seeding should be considered for short term protection. Refer to **Ds1 - Disturbed Area Stabilization (With Mulching Only).**

**Irrigation**
During times of drought, water shall be applied at a rate not causing runoff and erosion. The soil shall be thoroughly wetted to a depth that will insure germination of the seed. Subsequent applications should be made when needed.

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## Dust Control on Disturbed Areas Du

**DEFINITION**
Controlling surface and air movement of dust on construction sites, roads, and demolition sites.

**PURPOSE**
- To prevent surface and air movement of dust from exposed soil surfaces.
- To reduce the presence of airborne substances that may be harmful or injurious to human health, welfare, or safety, or to animals or plant life.

**CONDITIONS**
This practice is applicable to areas subject to surface and air movement of dust where on and off-site damage may occur without treatment.

**METHOD AND MATERIALS**

**A. Temporary Methods**

**Mulches.** See standard **Ds1 - Disturbed Area Stabilization (With Mulching Only)**. Synthetic resins may be used instead of asphalt to bind mulch material. Refer to specification **Tac - Tackifiers**. Resins should be used according to manufacturer's recommendations.

**Vegetative Cover.** See specification **Ds2 - Disturbed Area Stabilization (With Temporary Seeding)**.

**Spray-on Adhesives.** These are used on mineral soils (not effective on muck soils). Keep traffic off these areas. Refer to specification **Tac - Tackifiers.**

**Tillage.** This practice is designed to roughen and bring clods to the surface. It is an emergency measure that should be used before wind erosion starts. Begin plowing on windward side of site. Chisel-type plows spaced about 12 inches apart, spring-toothed harrows, and similar plows are examples of equipment that may produce the desired effect.

**Irrigation.** This is generally done as an emergency treatment. Site is sprinkled with water until the surface is wet. Repeat as needed.

**Barriers.** Solid board fences, snowfences, burlap fences, crate walls, bales of hay and similar material can be used to control air currents and soil blowing. Barriers placed at right angles to prevailing currents at intervals of about 15 times their height are effective in controlling wind erosion.

**Calcium Chloride.** Apply at rate that will keep surface moist. May need retreatment.

**B. Permanent Methods**

**Permanent Vegetation.** See specification **Ds3 -Disturbed Area Stabilization (With Permanent Vegetation)**. Existing trees and large shrubs may afford valuable protection if left in place.

**Topsoiling.** This entails covering the surface with less erosive soil material. See specification **Tp - Topsoiling.**

**Stone.** Cover surface with crushed stone or coarse gravel. See specification **Cr-Construction Road Stabilization**.

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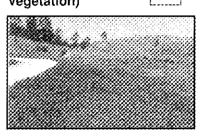
## Disturbed Area Stabilization (With Permanent Vegetation) Ds3



**DEFINITION**
The planting of perennial vegetation such as trees, shrubs, vines, grasses, or legumes on exposed areas for final permanent stabilization. Permanent perennial vegetation shall be used to achieve final stabilization.

**PURPOSE**
- To protect the soil surface from erosion
- To reduce damage from sediment and runoff to down-stream areas
- To improve wildlife habitat and visual resources
- To improve aesthetics

**REQUIREMENT FOR REGULATORY COMPLIANCE**
This practice shall be applied immediately to rough graded areas that will be undisturbed for longer than six months. This practice or sodding shall be applied immediately to all areas at final grade. **Final Stabilization** means that all soil disturbing activities at the site have been completed, and that for unpaved areas and areas not covered by permanent structures and areas located outside the waste disposal limits of a landfill cell that has been certified by the GA EPD for waste disposal, 100% of the soil surface is uniformlycovered in permanent vegetation with a density of 70% or greater, or landscaped according to the Plan (uniformly covered with landscaping materials in planned landscaped areas), or equivalent permanent stabilization measures.

Permanent vegetation shall consist of, planted trees, shrubs, perennial vines; or a crop of perennial vegetation appropriate for the region, such that within the growing season a 70% coverage by perennial vegetation shall be achieved. Final stabilization applies to each phase of construction. For linear construction projects on land used for agricultural or silvicultural purposes, final stabilization may be accomplished by stabilizing the disturbed land for its agricultural or silvicultural use. Until this standard is satisfied and permanent control measures and facilities are operational, interim stabilization measures and temporary erosion and sedimentation control measures shall not be removed.

**CONDITIONS**
Permanent perennial vegetation is used to provide a protective cover for exposed areas including cuts, fills, dams, and other denuded areas.

**PLANNING CONSIDERATIONS**

1. Use conventional planting methods where possible.
2. When mixed plantings are done during marginal planting periods, companion crops shall be used.
3. No-till planting is effective when planting is done following a summer or winter annual cover crop. Sericea lespedeza planted no-till into stands of rye is an excellent procedure.
4. Block sod provides immediate cover. It is especially effective in controlling erosion adjacent to concrete flumes and other structures. Refer to Specification **Ds4-Disturbed Area Stabilization (With Sodding).**
5. Irrigation should be used when the soil is dry or when summer plantings are done.
6. Low maintenance plants, as well as natives, should be used to ensure long-lasting erosion control.
7. Mowing should not be performed during the quail nesting season (May to September).
8. Wildlife plantings should be included in critical area plantings.

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**Table 6-5.1. Fertilizer Requirements**

| TYPE OF SPECIES | YEAR | ANALYSIS OR EQUIVALENT N-P-K | RATE | N TOP DRESSING RATE |
|---|---|---|---|---|
| 1. Cool season grasses | First<br>Second<br>Maintenance | 6-12-12<br>6-12-12<br>10-10-10 | 1500 lbs./ac.<br>1000 lbs./ac.<br>400 lbs./ac. | 50-100 lbs./ac. 1/2/<br>---<br>30 |
| 2. Cool season grasses and legumes | First<br>Second<br>Maintenance | 6-12-12<br>0-10-10<br>0-10-10 | 1500 lbs./ac.<br>1000 lbs./ac.<br>400 lbs./ac. | 0-50 lbs./ac. 1/<br>---<br>— |
| 3. Ground covers | First<br>Second<br>Maintenance | 10-10-10<br>10-10-10<br>10-10-10 | 1300 lbs./ac. 3/<br>1300 lbs./ac. 3/<br>1100 lbs./ac. | —<br>--<br>— |
| 4. Pine seedlings | First | 20-10-5 | one 21-gram pellet per seedling placed in the closing hole | --- |
| 5. Shrub Lespedeza | First<br>Maintenance | 0-10-10<br>0-10-10 | 700 lbs./ac.<br>700 lbs./ac. 4/ | --- |
| 6. Temporary cover crops seeded alone | First | 10-10-10 | 500 lbs./ac. | 30 lbs./ac. 5/ |
| 7. Warm season grasses | First<br>Second<br>Maintenance | 6-12-12<br>6-12-12<br>10-10-10 | 1500 lbs./ac.<br>800 lbs./ac.<br>400 lbs./ac. | 50-100 lbs./ac. 2/6/<br>50-100 lbs./ac. 2/<br>30 lbs./ac. |
| 8. Warm season grasses and legumes | First<br>Second<br>Maintenance | 6-12-12<br>0-10-10<br>0-10-10 | 1500 lbs./ac.<br>1000 lbs./ac.<br>400 lbs./ac. | 50 lbs./ac./6/ |

1/ Apply in spring following seeding.
2/ Apply in split applications when high rates are used.
3/ Apply in 3 split applications.
4/ Apply when plants are pruned.
5/ Apply to grass species only.
6/ Apply when plants grow to a height of 2 to 4 inches.

## Topsoiling Tp

**DEFINITION**
Stripping off the more fertile top soil, storing it, then spreading it over the disturbed area after completion of construction activities.

**PURPOSE**
To provide a suitable soil medium for vegetative growth on areas where other measures will not produce or maintain a desirable stand.

**CONDITIONS**
This practice is recommended for sites of 2:1 or flatter slopes where:

1. The texture of the exposed subsoil or parent material is not suitable to produce adequate vegetative growth.
2. The soil material is so shallow that the rooting zone is not deep enough to support plants with continuing supplies of moisture and food.
3. The soil to be vegetated contains material toxic to plant growth.

**CONSTRUCTION SPECIFICATIONS**
**Materials**
Topsoil should be friable and loamy, free of debris, objectionable weeds and stones and contain no toxic substance that may be harmful to plant growth. A pH range of 5.0-7.5 is acceptable. Soluble salts should not exceed 500 ppm.

**Testing**
Field exploration should be made to determine whether the quantity and quality of surface soil justifies stripping.

**Stripping**
Stripping should be confined to the immediate construction area.

A 4 to 6 inch stripping depth is common, but may vary depending on the particular soil.

**Topsoil pH**
If pH value is less than 6.0, lime shall be applied and incorporated with the topsoil to adjust the pH to 6.5 or higher. Topsoils containing soluble salts greater than 500 parts per million shall not be used.

**Stockpiles**
The location of topsoil stockpiles should not obstruct natural drainage or cause off-site environmental damage.

**Stabilization**
Stockpiles shall be contained by sediment barriers to prevent sedimentation on adjacent areas. Stockpiles shall be stabilized in accordance with specifications **Ds1 and Ds2 - Disturbed Area Stabilization (With Mulching) and (With Temporary Grassing)**, respectively, or **Tac-Tackifiers.**

**Site Preparation**
**(Where topsoil is to be added)**

**Topsoiling** - When topsoiling, maintain needed erosion control practices such as diversions, grade stabilization structures, berms, dikes, level spreaders, waterways, sediment basins, etc.

**Grading** - Grades on the areas to be topsoiled that have been previously established shall be maintained.

**Liming** - Soil tests should be used to determine the pH of the soil. Where the pH of the subsoil is 6.0 or less or composed of heavy clays, agricultural lime shall be spread at the rate of 100 pounds per 1,000 square feet. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedure.

Bonding - Use one of the following methods to insure bonding of topsoil and subsoil:

1. Tilling. After the areas to be topsoiled have been brought to grade, and immediately prior to dumping and spreading the topsoil, the subgrade shall be loosened by discing or scarifying to a depth of at least 3 inches to permit bonding of the topsoil to the subsoil.
2. Tracking. Passing a bulldozer over the entire surface area of the slope to leave horizontal depressions.

**Applying Topsoil**

1. Topsoil should be handled only when it is dry enough to work without damaging soil structure.
2. A uniform application of 5 inches (unsettled) is recommended, but may be adjusted at the discretion of the design professional.

Table 6-37.1. Cubic Yards Of Topsoil Required For Application To Various Depths

| Depth (inches) | Per 1,000 Square Feet | Per Acre |
|---|---|---|
| 1 | 3.1 | 134 |
| 2 | 6.2 | 268 |
| 3 | 9.3 | 403 |
| 4 | 12.4 | 537 |
| 5 | 15.5 | 672 |
| 6 | 18.6 | 806 |

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## BUFFER ZONE Bf

**DEFINITION**
A strip of undisturbed, original vegetation, enhanced or restored existing vegetation or the re-establishment of vegetation surrounding an area of disturbance or bordering streams, ponds, wetlands, lakes and coastal waters.

**PURPOSE**
To provide a buffer zone serving one or more of the following purposes:

- Reduce storm runoff velocities
- Act as screen for "visual pollution"
- Reduce construction noise
- Improve aesthetics on the disturbed land
- Filtering and infiltrating runoff
- Cooling rivers and streams by creating shade provide food and cover for wildlife and aquatic organisms
- Flood protection
- Protect channel banks from scour and erosion

**CONDITIONS**
A natural strip of vegetation should be preserved and, if needed, supplemented to form the buffer zone. There are two types of buffer zones.

**General Buffers**
A strip of undisturbed, original land surrounding the disturbed site. It can be useful not only to filter and infiltrate runoff, but also to act as a screen for "visual pollution" and reduce construction noise. General buffers may be enhanced to achieve desired goals.

**Vegetated Stream Buffers**
Buffers bordering streams are critical due to the invaluable protection of streams from sedimentation. Stream buffers are also useful in cooling rivers and providing food and cover for wildlife. Refer to the minimum requirements in Act 599 (O.C.G.A. 1-7-1, et. seq.) and Chapters 16 and 15 of the NRCS Engineering Field Handbook.

In most cases, the buffer zone will be incorporated into the permanent vegetative cover. Refer to specification **Ds3 - Disturbed Area Stabilization (With Permanent Vegetation)**.

**DESIGN SPECIFICATIONS**
Important design factors such as slope, hydrology, width and structure shall be considered. While Georgia's Environmental Protection Division enforces minimum stream buffer requirements, expanding the stream buffer width is always encouraged. If any land-disturbing activity, including exempt and non-exempt practices, occurs within the GA EPD mandated stream buffers, cut and fills within the buffer shall be stabilized with appropriate matting or blanket.

**General Buffers**
A width should be selected to permit the zone to serve the purpose(s) as listed above. Supplemental plantings may be used to increase the effectiveness of the buffer zone.

**Vegetated Stream Buffers**
The structure of vegetated stream buffers should be considered to determine if the buffer must be enhanced to achieve the necessary goals. The size of the stream as well as the topography of the area must be considered to determine the appropriate width of the vegetated stream buffer. A vegetated stream buffer of 50 feet or greater can protect waters from excess sedimentation. The buffer should be increased 2 feet in width for every 1% slope (measured along a line perpendicular to the stream bank). Surface water pollution can be reduced with a 100 foot or wider vegetative buffer.

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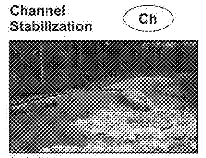
## Channel Stabilization Ch



**DEFINITION**
Improving, constructing or stabilizing an open channel for water conveyance.

**PURPOSE**
Open channels are constructed or stabilized to be non-erosive, with no sediment deposition and to provide adequate capacity for flood water, drainage, other water management practices, or any combination thereof.

**CONDITIONS**
This standard applies to the improvement, construction or stabilization of open channels and existing ditches with drainage areas less than one square mile. This standard applies only to channels conveying intermittent flow, not to channels conveying a continuous, live stream.

An adequate outlet for the modified channel length must be available for discharge by gravity flow. Construction or other improvements of the channel should not adversely affect the environmental integrity of the area and must not cause significant erosion upstream or flooding and/or sediment deposition downstream.

**DESIGN CRITERIA**
**Planning**
The alignment and design of channels shall give careful consideration to the preservation of valuable fish and wildlife habitat and trees of significant value for wildlife food or shelter or for aesthetic purposes.

Where channel construction will adversely affect significant fish or wildlife habitat, mitigation measures should be included in the plan. Mitigation measures may include pools, riffles, flats, cascades or other similar provisions.

As many trees as possible are to be left inside channel rights-of-way considering the requirements of construction, operation, and maintenance.

Unusually large or attractive trees shall be preserved.

**Realignment**
The realignment of channels shall be kept to an absolute minimum and should be permitted only to correct an adverse environmental condition.

**Channel Capacity**
The capacity for open channels shall be determined by procedures applicable to the purposes to be served.

**Hydraulic Requirements**
Manning's formula shall be used to determine velocities in channels. The "n" values for use in this formula shall be estimated using currently accepted guides along with knowledge and experience regarding the conditions. Acceptable guides can be found in hydrology textbooks.

**Channel Cross-Section**
The required channel cross-section and grade are determined by the design capacity, the materials in which the channel is to be constructed, and the requirements for maintenance. A minimum depth may be required to provide adequate outlets for subsurface drains, tributary channels, etc.

**Channel Stability**
All channel construction, improvement and modification shall be in accordance with a design expected to result in a stable channel that can be maintained.

**Characteristics of a Stable Channel**

1. Aggradation or degradation does not interfere with the function of the channel or affect adjacent areas.
2. The channel banks do not erode to the extent that the channel cross-section is changed appreciably.
3. Excessive sediment bars do not develop.
4. Excessive erosion does not occur around culverts, bridges or elsewhere.
5. Gullies do not form or enlarge due to the entry of uncontrolled surface flow to the channel.
6. The determination of channel stability considers "bankfull" flow. Bankfull flow is defined as flow in the channel that creates a water surface that is at or near normal ground elevation for a significant length of a channel reach. Excessive channel depth created by cutting through high ground should be considered in determinations of bankfull.

**CHANNEL LININGS AND STRUCTURAL MEASURES**
Where channel velocities exceed safe velocities for vegetated lining due to increased grade or a change in channel cross-section, or where durability of vegetative lining is adversely affected by seasonal changes, channel linings of rock, concrete or other durable material may be needed. Grade stabilization structures may also be needed.

The following categories for flow velocities shall apply when selecting the channel lining:

**Category 1 (less than 5 ft/sec*)** Ch-1

**Vegetated Lining**
A vegetated lining may be used to stabilize channels with a velocity of less than five ft/s temporary erosion control blankets or sod shall be used on all channels and concentrated flow areas to aid in the establishment of the vegetated lining. Refer to specifications **Ds3 - Disturbed Area Stabilization (With Permanent Vegetation), Ds4 - Disturbed Area Stabilization (With Sodding), and Ss - Slope Stabilization.** Hydraulic Erosion Control Products (HECPs) are not intended to be applied in channels, swales or other areas where concentrated flows are anticipated, unless installed in conjunction with Rolled Erosion Control Products (RECPs).

**Category 2 (greater than or equal to 5 ft/sec* but less than 10 ft/sec*)** Ch-2

**Turf Reinforcement Matting**
Turf Reinforcement Matting (TRM) shall be used, if a vegetated lining is used, on channels with velocities greater than or equal to 5 feet but less than 10 ft/sec. TRM is a permanent synthetic erosion control matting that is used in channels to stabilize them while permanent vegetation is rooting and to provide additional long-term protection.

Velocity of the channel flowing at the bankfull discharge or the 25-year frequency discharge, whichever is the greater, shall be used in determining the appropriate TRM for stabilization of the channels.

**Rock Riprap Lining**
Rock riprap shall be designed to resist displacement when the channel is flowing at the bankfull discharge or 25-year frequency discharge, whichever is the greater. Rock riprap lining should be used when channel velocities are greater than or equal to 5 ft/sec but less than 10 ft/sec.

Dumped and machine placed riprap should not be installed on slopes steeper than 1-1/2 horizontal to 1 vertical. Rock shall be dense, resistant to the action of air and water, and suitable in all other respects for the purpose intended. Rock shall be installed according to standards specified in Riprap, Appendix C.

A filter blanket layer consisting of an appropriately designed graded filter sand and/or gravel or geotextile material shall be placed between the riprap and base material. The gradation of the filter blanket material shall be designed to create a graded filter between the base material and the riprap. A geotextile can be used as a substitution for a layer of sand in a gradient filter or as the filter blanket. Criteria for selecting an appropriate geotextile and guidance for recommended drop heights and stone weights are found in AASHTO M288-96 Section 7.5, Permanent Erosion Control Specifications.

**Category 3 (greater than or equal to 10 ft/sec*)** Ch-3

**Concrete Lining**
If a channel has velocities high enough to require a concrete lining (when channel velocities exceed 10 ft/sec), methods should be utilized to reduce the velocity of the runoff and reduce erosion at the outlet - a common problem created by the smooth, concrete lining. Refer to specification **St - Storm Drain Outlet Protection** for information regarding energy dissipators.

If a concrete lining is chosen, it shall be designed according to currently accepted guides for structural and hydraulic adequacy. It must be designed to carry the required discharge and to withstand the loading imposed by site conditions.
A separation geotextile should be placed under concrete linings to prevent undermining in the event of stress cracks due to settlement of the base material. The separation geotextile will keep the base material soils in place and minimize the likelihood of a system failure.

**Grade Stabilization Structures**
Grade stabilization structures are used to reduce or prevent excessive erosion by reduction of velocities in the watercourse or by providing structures that can withstand and reduce the higher velocities. They may be constructed of concrete, rock, masonry, steel, aluminum, or treated wood.

These structures are constructed where the capability of earth and vegetative measures is exceeded in the safe handling of water at permissible velocities, where excessive grades or overall conditions are encountered or where water is to be lowered structurally from one elevation to another. These structures should generally be planned and installed along with or as a part of other erosion control practices.

The structures shall be designed hydraulically to adequately carry the channel discharge and structurally to withstand loadings imposed by the site conditions. The structure shall meet requirements of **Gr - Grade Stabilization Structure.**

* The equivalent shear stress may also be used to determine the appropriate measure.

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TO BE SHOWN ON THE EROSION AND SEDIMENT CONTROL PLAN

1. The velocity in the channel, in ft/sec, for when the channel is flowing at the bank-full discharge or 25-year frequency discharge, whichever is the greater.
2. The type of lining to be used to stabilize the channel, i.e. vegetation (Ch-1): indicate type of vegetation and matting or blanket to be used), riprap (Ch-2): indicate average stone size), or concrete (Ch-3).

ROLLMAX™ ROLLED EROSION CONTROL SS Ch-2

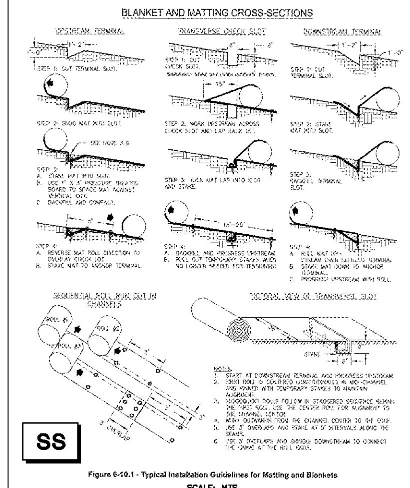
Specification Sheet – BioNet® C125BN™ Erosion Control Blanket

Tensar NORTH AMERICAN GREEN

* GC TO USE THIS PRODUCT (OR APPROVED EQUAL) FOR SLOPE MATTING AND CHANNEL STABILIZATION FOR THIS PROJECT.

### TYPICAL INSTALLATION GUIDELINES FOR ROLLED EROSION CONTROL PRODUCTS (RECP)

BLANKET AND MATTING CROSS-SECTIONS




SS

Figure 6-10.1 - Typical Installation Guidelines for Matting and Blankets
SCALE: NTS

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(XX) REPRESENTS NOTE/FEATURE WHICH CORRESPONDS WITH THE ES&PC PLAN CHECKLIST. SEE SHEET ES-4 FOR ES&PC CHECKLIST.

# EROSION SEDIMENTATION, AND POLLUTION CONTROL DETAILS

GWINNETT COUNTY
Department of Planning and Development
These project documents have been reviewed by applicable County Departments and have been found to be in substantial compliance with the applicable codes and regulations.
Oct 08, 2019
AUTHORIZED

GWINNETT COUNTY CASE • CDP2018-00236

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GSWCC# 22364
ISS. 05/16/2018
EXP. 05/16/2021

(02) (08)

Project Title
LLOYD N. HARRIS TRAIL @ HARBINS PARK
2995 LUKE EDWARDS ROAD
BY: GWINNETT COUNTY DEPT. OF COMMUNITY SERVICES
LAWRENCEVILLE, GEORGIA
5TH DISTRICT, LAND LOT 251, PARCEL ID# R5262 003

| (07) REVISIONS | BY |
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| DRAWN BY | DMN |
| CHECKED BY | THH |
| DATE (06) | 09/25/2019 |
| SCALE | NO SCALE |
| JOB No. | 18-LD-068 |
| SHEET NUMBER | ES-7 |

18-LD-068 DETAILS_E.DWG

USER dnevin – Oct 01, 2019 – 4:21pm
Z:\all project data\Projects\2018\18-ld-068 harbins park trail, gwin co, ga\LD\production\production drawings\18-LD-068 Details_E.dwg

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