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Department of Environmental Quality
Land Quality Section
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Selecting Proper Vegetation and Establishing Ground Cover

Adequate Ground Cover

Definition Per Erosion and Sedimentation Control Professionals and Regulatory Agencies

- A covering on the surface of the soil that may also extend into the soil profile that will prevent erosion of the soil and any off-site sedimentation that could result from eroded soil such as:
  - Grasses
  - Legumes
  - Herbaceous Plants
  - Mulches
  - Pavement
  - Structures
  - Etc.

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What is the Purpose

- To prevent erosion
- To prevent off-site sedimentation
- To preserve/improve our environment for future uses
- Because the SPCA requires it
- To avoid civil penalties
- To beautify our surroundings

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Basics -

- Ground-cover is the most effective means of stabilizing soils and controlling erosion. (This includes reducing turbidity on site and offsite.)
- Vegetation is the most effective means of stabilizing soils that are not built upon (ie. Buildings, pavement, etc.)

Planning for Ground Cover

Considerations -

- Available Products
- Geographical area of the state
- Temporary Cover –VS- Permanent Cover
- Non-Native –VS- Native Ground Cover
- Time of year
- Examples of what not to do…

Available Products

- Grass (Seed, Sod, Sprigs)
- Straw, Hay, Landscape Mulches
- Rolled Erosion Control Products (RECPs)
- Hydro-Mulches
- Synthetic Roving

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Available Products

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Geographical Area:

- What you have to choose from in the Mountains, Piedmont and Coastal Plain

Mountains:

- Tall Fescue
- Sericea Lespedeza
- Korean Lespedeza
- Kentucky Bluegrass
- Fine Fescue
- Rye Grain
- German Millet

- Redtop
- Sudangrass
- Black locust
- Crown Vetch

Piedmont

- Tall Fescue
- Fine Fescue
- Kentucky Bluegrass
- Sericea Lespedeza
- Kobe Lespedeza
- Common Bermuda
- Pensacola Bahiagrass
- Centipede

- Bermuda Hybrids (sod or sprigs)
- Rye Grain
- German Millet
- Browntop Millet
- Sudangrass

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Coastal Plain:

- Common Bermuda
- Centipede
- Zoysia
- Tall Fescue
- Pensacola Bahiagrass
- Sericea Lespedeza
- Kobe Lespedeza
- Bermuda Hybrids (seed/sod/sprigs)

- German Millet
- Cordgrass
- Rye Grain

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Native Grasses for Different Regions and Soil Conditions

- Switchgrass
- Big Blue Stem
- Indian
- Little Blue Stem
- Virginia Wild Rye
- Rice Cutgrass
- Bottlebrush
- Fox Sedge, etc.

Temporary –Vs- Permanent Groundcovers

- **Temporary Groundcovers**:
  - Straw Mulch w/Tack
  - Erosion Control Matting
  - Rapid growing annual grasses, small grains or legumes.
  - **Purpose**: to provide an initial or nurse crop for erosion control on disturbed areas.

Temporary –Vs- Permanent Groundcovers

- **Permanent Groundcovers**:
  - Perennial Grasses
  - Erosion Control Matting in combination with grass.
  - **Purpose**: to reduce erosion and decrease sediment yield from disturbed areas.

Non-Native –Vs- Native Ground Cover

- Non-Native Groundcovers
  - Perennial Lawn/Turf Type that are common in North Carolina (Tall Fescue, Bermuda, Zoysia, Centipede)
  - Legumes: Sericea Lespedeza, Korean Lespedeza, Kobe Lespedeza
  - **Purpose:** Long Term Lawn and/or Soil/Slope Stabilization
  - **Advantages:** Aesthetics, Quick Growth/Stabilization

Non-Native –Vs- Native Ground Cover

- Native Groundcovers
  - Prairie, Meadow, Pasture, Slope, and Wetland/Stream Bank Uses
  - **Purpose:** Long Term Stabilization
  - **Advantages:** Well acclimated to regional and soil conditions. Less maintenance and resources required once established.

Required Equipment

- Abundant Supply of Labor
- Tractor(s)
- Implements (Plows, Seeders, Pulverizers, Aerifiers, Mowers)
- Asphalt Distributor
- Straw Blower

Available Equipment

Key Concepts in Grassing:

- Selection of Grass Type/Require Certified Seed
- Determine grassing needs for each site individually.
- Seedbed Preparation (the single most important step in growing and maintaining grass)
- Seeding (Broadcast/Rolling, Hydro-, Drill)
- Matting or Mulching and Tacking
- Periodic inspections to determine maintenance needs

Key Concepts in Application of Knowledge and Products

1) Get a soil test done prior to planting if possible and every year for your areas of existing vegetation. (gives best information and chance of getting a good stand of grass the first try)
2) Adequate seedbed prep and proper pH balancing are the two things commonly left out of a proper seeding job

Application of Knowledge and Products

Method 1: Seeding and Mulching via Broadcast or Drill

3) Spread pH adjuster (primarily agricultural lime)
4) Till soil to prepare a proper seedbed (even on slopes up to 2:1, ball and chain if steeper)
5) Pick up debris (if area is to be maintained)
6) Spread fertilizer evenly and at proper rate
7) Apply seed uniformly at specified rate via mechanical spreader, Brillion, drill, slit seeder

Application of Knowledge and Products

Method 1: Seeding and Mulching via Broadcast or Drill

8) Cultipack seeded area to firm and cover seed (This step provides good seed to soil contact)
9) Mulch with clean straw (preferably rye or wheat for grasses, coastal bermuda hay, pine straw or hydro-mulch for wildflowers)
10) Tack Straw (Em. Asphalt, Hydro-Mulch)

Application of Knowledge and Products

Method 2: Old Fashioned Way + Hydro-Help

3) Spread pH adjuster (primarily agricultural lime)
4) Till soil to prepare a proper seedbed (even on slopes up to 2:1, ball and chain if steeper)
5) Pick up debris (if area is to be maintained)
6) Spread fertilizer and seed evenly and at proper rates via hydro-seeder

Application of Knowledge and Products

Method 2: Old Fashioned Way + Hydro-Help

7) Mulch with clean straw (preferably rye or wheat for grasses, coastal bermuda hay or pine straw for wildflowers)
8) Tack (Em. Asphalt, Hydro-Mulch)

Application of Knowledge and Products

Method 3: Hydro-Seeding and Mulching (paper, wood, BFM)

2) VERY IMPORTANT: Adequate seedbed prep and proper pH balancing are the two things commonly left out of a proper hydro-seeding job
3) Spread pH adjuster (primarily agricultural lime)
4) Till soil to prepare a proper seedbed (even on slopes up to 2:1, ball and chain if steeper)
5) Pick up debris (if area is to be maintained)

Application of Knowledge and Products

Method 3: Hydro-Seeding and Mulching (paper, wood, BFM)

6) Spread fertilizer, seed and mulch evenly and at proper rates via hydro-seeder

Ground Cover: Important Notes

- Make sure you are getting what you specified. (Warning)
- Make sure you specify what is right for the site
- Anchoring Straw Mulch: Emulsified asphalt tack and hydro-mulch are the way to go depending on your needs, and crimping can be okay on flat low flow areas but you must increase the amount of straw by 30-50%).
- **DO IT RIGHT THE FIRST TIME!!!**

Erosion Control Matting:

- Temporary Matting
- Permanent Matting
- Polypropylene Roving
- Site/Use Specific (If you need it use it…If you think you need it USE IT!)

Erosion Control Matting: Advantages

- Temporary and Permanent Matting provide a great initial/temporary cover that protects the grass seed and the underlying soil until the vegetation can permanently stabilize the soil.
- Channel Lining (if you decide you don't want to use rip-rap)
- Slope Protection
- Vegetative Re-enforcement
- Many Varieties: Light-Duty to Heavy-Duty

Erosion Control Matting: Helpful Hints

- Waste and Overlap for blankets on slopes depending on specification of installation can be as high as 16-17%.
- Waste and Overlap in channels is roughly 3% for single width, 10-12% for triple width and up to 17% for more than 3 blanket widths.

Erosion Control Matting: Important

- If you need it use it…..If you think you need it ***USE IT!!!***

  The Point Being: Erosion Control Matting should be used properly the first time and not in a second effort to repair a failure in the beginning. When this happens it is already too late.

Hydro-Mulching:

- Paper
- Wood
- Blends
- Bonded Fiber Matrix (BFM's)
- Etc.
- Site/Use Specific

Hydro-Mulching: Advantages

- Jet Nozzles and Hoses provide accessibility to hard to reach places
- Provide another option on very steep slopes where matting cannot be installed
- Many Varieties

Erosion Control Matting and Hydro-Mulching:

- VERY IMPORTANT: Hydro-Mulching and Erosion Control Matting are not magic bandages. You can't just throw seed down and put this on top. You still have to do all the seedbed preparation, fertilization, liming and anchoring.

General Notes for Grassing, Matting and Maintenance

- You should have a long term maintenance program to follow. (This Includes:)

Maintenance Program

- Yearly inspection of your site (minimum, more if you can make the time). This will allow you to catch problems before they get out of hand.
- Get a Soil Test Yearly. (Free from NCDA)
- Determine/Identify your stabilization needs
- Then do it!

Determining Continued Needs

- Based on your inspection and the soil analysis, identify any problems and prioritize them. Your budget might not handle every problem at once but you will have information from which to work.
- If you need help in making these determinations call a qualified professional contractor or the State Extension Service

Common Maintenance Practices

- Mowing or Watering if possible/practical (stressed areas or to help new vegetation)
- Fertilizer Topdressing
- Liming
- Overseeding (using site specific grasses)
- Aerifying
- Seeding & Mulching
- Erosion Control Matting
- Any combination

TIPS for Grassing & Maintenance

- Use a Qualified (Licensed or Certified) Grassing and Erosion Control Contractor. Check qualifications of company and personnel, ask for references. A professional would be glad to help you put an installation and maintenance plan/program together.
- Set priorities
- Ask for material receipts from contractors (get what you are paying for).
- Check on progression of work

Issues/Concerns

- Old Specifications
- Poor Seed Mix Designs
- Grassing/Stabilization….Necessary Evil or Commodity

Issues/Concerns:

- Old Specifications:
  - Some specifications are still being cut and paste from projects that are over 15-20 years old
  - They are out-dated and sometimes specify outdated, poor or extinct products and methods

Issues/Concerns

- Poor Seed Mix Designs
  - Only provide seed mixes in the plans and specifications that are possible for the site in question. You should provide both Temporary and Permanent Mixes and it is excellent if you also give separate Seasonal Mixes. However, do not provide a mix if it is not geographically or climatically proper for the site.

Issues/Concerns

- Grassing/Stabilization….<u>Necessary Evil or Commodity</u>
  - Do not think that this should be treated trivially. Its expense should not be viewed as a necessary evil in order to comply with the law. This is a valuable commodity for a construction site and life of a piece of property. Keep in mind, you get what you pay for. How many times do you want to pay for it.

THE END……Almost!

Any Questions?