



Critical Area Planting and Mulching For Diversions and Grassed Waterways

Vermont Conservation Practice Job Sheet

342



SPECIFICATIONS

Site-specific requirements are listed on the following page(s) of this job sheet. Specifications are prepared in accordance with the Critical Area Planting 342 practice standard found in the Vermont NRCS Field Office Technical Guide. Information contained in this document is considered part of the conservation plan.

Client Name:		Farm #:	
Field(s):		Tract #:	
Designed By:		Date:	

- Plant species, seedbed preparation, seeding rates, seeding dates, seeding depths, and planting methods will be consistent with approved local criteria and site conditions. For additional seeding options refer to the 342 Critical Area Planting Specification Guide Sheet: http://efotg.sc.egov.usda.gov/references/public/VT/VT342_Specs.pdf

Purpose: <i>Check all that apply</i>	
Facilitate the establishment of vegetative cover on construction sites including NRCS conservation practice installation sites.	Stabilize areas with existing or expected high rates of soil erosion by wind or water
Conserve soil moisture	Reduce airborne particulates

TOPSOIL:

Wherever feasible, topsoil should be salvaged, stockpiled and utilized. Topsoil should not be added to slopes steeper than a 2:1 unless good bonding can be achieved. Topsoil should be added to sites where adverse soil properties or conditions exist which will prevent successful establishment and where it can be applied properly and safely. It should be free of trash, stumps, roots, large rocks, noxious weeds, toxic substances, etc. The subsoil should be scarified to a depth of about 3 inches and the stockpiled topsoil spread evenly over the area.

SITE / SEEDBED PREPARATION:

When conventional planting is proposed (normally on slopes with a 3:1 ratio or flatter), the area should be graded or shaped to permit the safe use of equipment associated with the establishment of vegetation and maintenance. Slopes must be stable and shall not exceed 1.5:1 (1.5 horizontal feet for 1 vertical foot) to achieve stability. A final slope of 3:1 or flatter is preferred to facilitate equipment use. Slopes steeper than 3:1 will normally need to be planted by hand, or with a hydroseeder.

The soil surface should be roughened lightly to a depth of 3 inches by heavy equipment or suitable farm tillage implements just prior to seedbed preparation. All required seedbed preparation should be performed just prior to, and in conjunction with planting. If rainfall occurs between the initial seedbed preparation and the planting, the site may need to be reworked. If needed, firm the seedbed with a cultipacker or other suitable implement after broadcasting seed and/or plants to insure good seed to soil contact and to prevent seeds or plants from being deeply buried.

If additional roughness is desired, stair-step grading, grooving, furrowing, or tracking may be required by heavy equipment, however, tracking may cause severe surface compaction, and may not be as effective as other forms of roughening. On clayed soils, use this method only if there is no other alternative. Soil disturbance can also be accomplished with the use of a chain harrow, hand tools, or similar equipment. When hydro-seeding, seedbed preparation may not be necessary if adequate site preparation was performed.

Any surface debris that may interfere with conventional cover establishment or maintenance operations should be removed. Install water control practices such as diversions and waterways as needed. Perform cultural practices as near to the contour as practicable.



Critical Area Planting – Job Sheet

SOIL AMENDMENTS:

Incorporate lime and/or fertilizer into the top 3 to 6 inches of the soil as a part of the seedbed preparation. If hydroseeding, incorporate the appropriate amount of lime and/or fertilizer in the slurry mix. Soil fertility and pH level should be amended to the needs of the plant species planned. Application of all soil amendments should be based on recommendations from a qualified soil testing laboratory, such as the University of Vermont Soils Testing Laboratory. Soil samples should be collected from the area to be seeded. If a sample is not feasible or practical, the following fertilizer recommendations may be used:

- Cool Season Seed Mix: Apply 400 lb/acre of 10-10-20 analysis fertilizer or equivalent. Incorporate into the top 2-3 inches of soil. If legumes are more than 20% of the mix, reduce the nitrogen to 30 lb/acre.

On sites within 50 feet of a water source, use half this fertilizer rate or none at all if there is potential for runoff to enter the water.

Apply lime to attain a pH of 6.0, if legumes are included in the seeding mixture. If only grasses are to be seeded, a pH of 5.5 is acceptable. Unless otherwise specified by the soil test, the rate of application shall be two tons of lime per acre.

SEEDING:

All purchased seed shall conform to the current rules and regulations of Vermont Agency of Agriculture, Food & Markets and shall meet or exceed the standards for purity and germination of pure live seed (80% germination). All purchased seed shall be fully tagged or certified by a commercial supplier. Seed that has become wet, moldy or otherwise damaged in transit or storage shall not be used. Legume seeds shall be inoculated with the proper, viable Rhizobium bacteria before planting. Inoculant shall be kept as cool as possible until used and shall not be used later than the date indicated on the package. When hydroseeding, use four times the recommended inoculant rate. Oats are the recommended nurse crop.

Seeding Methods

Apply seed uniformly by hand, cyclone seeder, drill, cultipacker-seeder, or hydroseeder. The preferred method of seeding is by drilling or cultipacker-seeder method, because these methods optimize seed to soil contact. Seeding operations shall be done on the contour, to the extent feasible.

Drill

On slopes where practical, a grass drill (not a grain drill) or cultipacker-type seeder shall be used to plant grass/legume seed. Grasses shall not be planted more than 1/4 to 1/2 inch deep. If the drill does not have a packer attachment, a packer/roller shall be trailed behind the drill. Where practical, seed shall be applied in two directions perpendicular to each other. Apply one-half the seeding rate in each direction.

Broadcast

Seed may be broadcast by using a cyclone or whirlwind seeder, or by hand. If spread by hand, small or light-seeded species such as redtop may be mixed with filler (e.g., sawdust, rice) to achieve an even distribution. Seed shall be applied in two directions, each perpendicular to one another. One-half the seeding rate shall be applied in each direction. Seed shall be incorporated 1/8 to 1/4 inch deep by raking or dragging, cultipacking, or tracking with heavy machinery. Raked areas shall be rolled with a weighted roller to provide good seed to soil contact.

Hydroseeding

This method is best suited for steep, inaccessible areas where use of a drill or other mechanized equipment is not feasible. Hydroseeding shall be done in two separate operations with seed and fertilizer applied in the first pass, and mulch applied in the second pass. Do not use burnt or hydrated lime when hydroseeding. If legume inoculant is used, seeding shall be accomplished within 3 to 4 hours after slurry is mixed, or a fresh supply of inoculant shall be added. If possible after seeding, the area shall be tracked with heavy machinery such as a bulldozer to improve seed to soil contact.

MULCHING:

Mulch shall consist of natural and/or artificial non-toxic materials, such as wood shavings, straw, hay, bark chips or fabric of sufficient thickness and durability to achieve the intended mulch effect for the required time period. Tackifiers, emulsions, netting, pinning, or other methods of anchoring mulch shall be sufficiently durable to maintain mulch in place until it is no longer needed. The use of mulch that contains noxious weeds is not permitted.



Critical Area Planting – Job Sheet

Mulch shall be used where needed to accomplish one or more of the following purposes:

- Provide temporary erosion control when seeding must be delayed until the proper planting dates, or until plantings become well established;
- Conserve soil moisture to aid seed germination and plant survival;
- Reduce weed growth in planted areas;
- Reduce surface compaction or crusting, and improve water infiltration.

All newly planted areas that are subject to erosion shall be mulched.

Soil Stabilization Matting

Soil stabilization matting shall have a uniform thickness and distribution of natural or biodegradable synthetic fibers or cords that freely allow penetration by water and plant seedlings. Matting shall resist decay for a minimum of 6 months and a maximum of 12 months. Matting shall not contain any harmful chemicals or other materials that may leach into the soil, or reduce the germination and establishment of seedlings. Matting products shall be applied on seeded areas and shall be secured to the soil surface according to the manufacturer's instructions. Soil stabilization matting is especially applicable where high water velocities are expected.

Straw or Hay Mulch

Straw or hay shall be applied at the rate of 2 tons per acre (90 pounds per 1,000 square feet) immediately following seeding. Straw and hay shall be unweathered and free of any known viable seeds of objectionable weeds such as Johnsongrass, shattercane, thistle, or others as specified. Spread mulch uniformly by hand or by mechanical methods so that approximately 85% of the soil surface is covered. This will provide erosion protection and allow adequate light penetration for seedling germination. Straw or hay shall not be chopped or finely broken during application.

On sites where mulch is exposed to displacement by wind and water, it shall be anchored immediately after placement. The following method shall be used: mulch netting (degradable plastic, jute, or cotton netting). Staple the netting in place using wire staples.

Supplemental Watering

If soil moisture is deficient, supply new seedlings with adequate water (a minimum of 1/4 inch twice a day) until vegetation is well established. This is especially necessary when seedlings are made in abnormally dry or hot weather or on droughty soils.

OPERATION AND MAINTENANCE:

Check new seedlings and plantings every few days during the first month to assess progress and apply the needed care (irrigation, reseeding, remulching, etc.). Water sod establishments as needed for the first 30 days after placement. After the first month, the planting should be inspected at least twice in the establishment year and then at least annually. Evaluate the site within several months of seeding. If the stand is uniform but too thin (50 to 80% ground cover), apply additional seed during the next optimum seeding period with a no-till drill, grain drill, or hydroseeder as site conditions dictate. Sites with an establishment rate of less than fifty percent (50%) should be reseeded in accordance with the original planting plan. Determine the reasons for planting failure and corrective measures should be incorporated into the remedial planting.

The planting must be restored and protected from adverse impacts such as vehicular and pedestrian traffic, pest infestations, pesticide use on adjacent lands, livestock damage and fire. Vegetation damaged by machinery, herbicides, or erosion should be repaired promptly. The area must be protected from livestock grazing until the vegetation is well established and the site is stabilized. If soil moisture becomes critically deficient, irrigate the site if practical and feasible. Weed competition must be controlled by mowing or with herbicides. Use caution when spraying chemicals on lands that are adjacent to the site.

Maintenance practices and activities are not to disturb cover during the primary nesting period from May 1 to July 15 for grassland species. Activities may occur during this period only in the establishment year. To benefit insect food sources for grassland nesting birds, spraying or other control of noxious weeds should be done on a "spot" basis to protect forbs and legumes that benefit native pollinators and other wildlife.

Remove temporary diversions, silt fences, etc. after the area is stabilized.



Critical Area Planting & Mulching – Seeding and Management Specifications:

Field # or Unit Name	Acres	Associated Conservation Practice or CIN	Plant Species	Seeding Rate per Acre	Planned Date	Seeding Method
			Mulch Type	Mulch Rate/Acre		Mulch Method
			Fertilizer NPK	Fertilizer Rate/Acre		Fertilizer Method
			Lime	Lime Rate/Acre		Lime Method
Field # or Unit Name	Acres	Associated Conservation Practice or CIN	Plant Species	Seeding Rate per Acre	Planned Date	Seeding Method
			Mulch Type	Mulch Rate/Acre		Mulch Method
			Fertilizer NPK	Fertilizer Rate/Acre		Fertilizer Method
			Lime	Lime Rate/Acre		Lime Method

Total Quantity of Critical Area Planting Seed, Fertilizer and Lime Required:

Seed: Mulch: Fertilizer: Lime:

Following Are Typical Critical Area Planting Seed Mixtures From the 342 Specification Guidance Sheet:

TABLE 2: Permanent Seeding Mixtures by Purpose

Plant Species	Seeding Rate *		Soil Drainage Class of Mix	Shade Tolerance of Mix	Comments
	lb/ac	lb/1,000 sf			
Grassed Waterways, Diversions, Spillways, Streambanks					
1. Creeping Red fescue	15	0.3	Well-Moderately Well	Poor	In lieu of birdsfoot trefoil, substitute with 4 lb/ac of white clover on well to moderately well drained soils or alsike clover on somewhat poorly drained soils.
Smooth bromegrass	15	0.3			
Redtop or	2	0.05			
Perennial Ryegrass	5	0.1			
Birdsfoot trefoil (opt.)	8	0.2			
2. KY bluegrass	15	0.3	Well-Moderately Well	Fair	Use this mixture in areas which are mowed frequently.
Creeping red fescue	15	0.3			
Redtop	2	0.05			
Perennial Ryegrass	5	0.1			
Birdsfoot trefoil or White clover	8	0.2			
	4	0.1			

If you have questions about this planned **Critical Area Planting** practice contact:

Name:	Tel:	Email:
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