

STANDARD AND SPECIFICATIONS FOR VEGETATING SAND AND GRAVEL BORROW AREAS



Definition

Vegetating inactive borrow areas with sustainable herbaceous perennial plants.

Purpose

To provide appropriate vegetation to stabilize the soil, thus preventing wind and water erosion from causing on-site or off-site damages.

To create a more aesthetically pleasing view.

To enhance the wildlife habitat for greater diversity.

Condition Where Practice Applies

Sand and gravel borrow areas which have had EITHER the top portion of the soil profile replaced as 'topsoil' or overburden with greater than 15 percent fines included, OR the sand and gravel mined condition remains without 'topsoil' being replaced resulting in sand and gravel with less than 15 percent fines.

Design Criteria

1. Depending upon the type of unconsolidated material being mined, side slopes shall be graded in accordance with the New York State Mined Land Reclamation Law. Minimum requirements are: for fine sand, silt, clay the slope shall not exceed 2 horizontal to 1 vertical (26°); for coarse sand and gravel the slope shall not exceed 1.5 horizontal to 1 vertical (33°)
2. Rocks and other debris shall be removed from the site or buried during grading.

3. Surface soil layer shall be sampled from 0-6" in depth. Combine about 15 core samples to represent the site soil conditions. Analyze to determine pH, P and K.
4. Obtain a larger (5-10 lbs.) soil sample to represent the surface soil texture. Analyze for percent fines (particles less than .074 mm or 200 mesh sieve).
5. Apply soil amendments as indicated by soil chemical test. The surface to be seeded shall be limed to a pH of 6.0 using agricultural ground limestone. Fertilize to achieve a moderate level of available phosphorus (P₂O₅) and potassium (K₂O). If the soil must be fertilized before results of a soil test can be obtained to determine fertilizer needs, apply 50 pounds per acre of nitrogen. Incorporation will be accomplished following the seeding.
6. Select the appropriate seed mix based on percent fines and time of planting.
 - a. **IF 15 percent fines or less:** use the warm season grass mix. If fall planting is necessary, use a temporary cover to allow planting of the warm season grasses in early spring. Two (2) bushels of oats per acre is suggested as this will winter kill and not be competitive when the permanent seeding is made. Another option is small grain straw at two (2) tons per acre. Do not use old hay.
 - b. Warm Season Grass Table:

Species	Variety	Certified Seed PLS*/Acre (lbs.)
Switchgrass	Blackwell, Shelter Pathfinder, or Trailblazer	2
Coastal panicgrass	Atlantic	2
Big bluestem	Niagara	4
Little bluestem	Aldous or Camper	4
Sand bluestem	Goldstrike	2
Sand lovegrass	Nebraska 27 or Bend	2
Total mix (PLS/acre)		16 lbs.

*Pure Live Seed (PLS) = (% germination x % purity)/100

Pounds to be seeded = (100 x lbs. of 100% PLS required)/% PLS of commercial seed being used.

- c. **IF greater than 15 percent fines:** use a grass/legume mixture, or the warm season grass mix.
- d. Grass/Legume Table:

Species	Variety	Pure Live Seed Per Acre (lbs.)
Tall fescue	KY-31/Rebel	10
Redtop	Common	2
Perennial rye-grass	Pennfine/Linn	5
Birdsfoot trefoil*	Empire plus Pardee	8**

* legume in seed mixture needs to be inoculated.
 ** 4 lbs. of each is best. 8 lbs. of either one is good.

OR

Species	Variety	Pure Live Seed per Acre (lbs.)
Flatpea*	Lathco	10.0
Perennial pea*	Lancer	2.0
Crownvetch*	Penngift/Chemung	10.0
Tall fescue	KY-31/Rebel	10.0
Total Mix (lbs./acre)		32.0

* legume in seed mixture needs to be inoculated.

7. Planting instructions:

- a. Planting dates are very critical for warm season grasses. Very early spring (March/April) is best. The success rate decreases notably by the end of May. Fall seedings are not recommended. Grass/legume mixes may be reliably planted from early spring through June 15. Avoid June 16 through August 15. After August 15, seed anytime until ground freezes.

- b. A temporary cover of 2 bushels of oats may be seeded between August 15 and September 15 (oats will winter kill). This works well preparing for early spring seedings.
- c. Inoculate legume seed immediately prior to actual seeding. Use 4 times the standard agricultural rates.
- d. The seed mix must be uniformly broadcast. A hydroseeder works well or spread by hand if necessary. The use of spinner type seeders is difficult due to the lightweight and fluffy seed characteristics of some species.
- e. Incorporate the soil amendments and seed.
 - i. "Tracking" an area is using a bulldozer having cleats at least 1 inch in depth. Operation of the dozer shall be perpendicular to the contour and such that the entire area is covered by the tracks.

OR

- ii. Pulling a cultipacker over the entire site with the tines up or no deeper than 1 inch. This option only works if soil moisture is near field capacity.

- 8. Mulching is essential for immediate erosion control and uniform establishment of cool season grasses and legumes on sands and gravels. Use a heavier rate for the grass/legume seedings of 4000 lbs./ac. Use only small grain straw. Mulching of warm season grasses may not be necessary when runoff and sediment delivery is not an issue. If erosion control is necessary for warm season grass sites, mulch with 3000 lbs./ac. of small grain straw (not grass hay). On sites where mulch can be avoided, warm season grasses will respond favorably.
- 9. Anchor the mulch by using the bulldozer tracking technique. This may be done simultaneously with seed incorporation. Optional anchoring techniques and materials are available in the Mulching Standard.
- 10. Site protection is necessary to avoid wheel and tire damage.