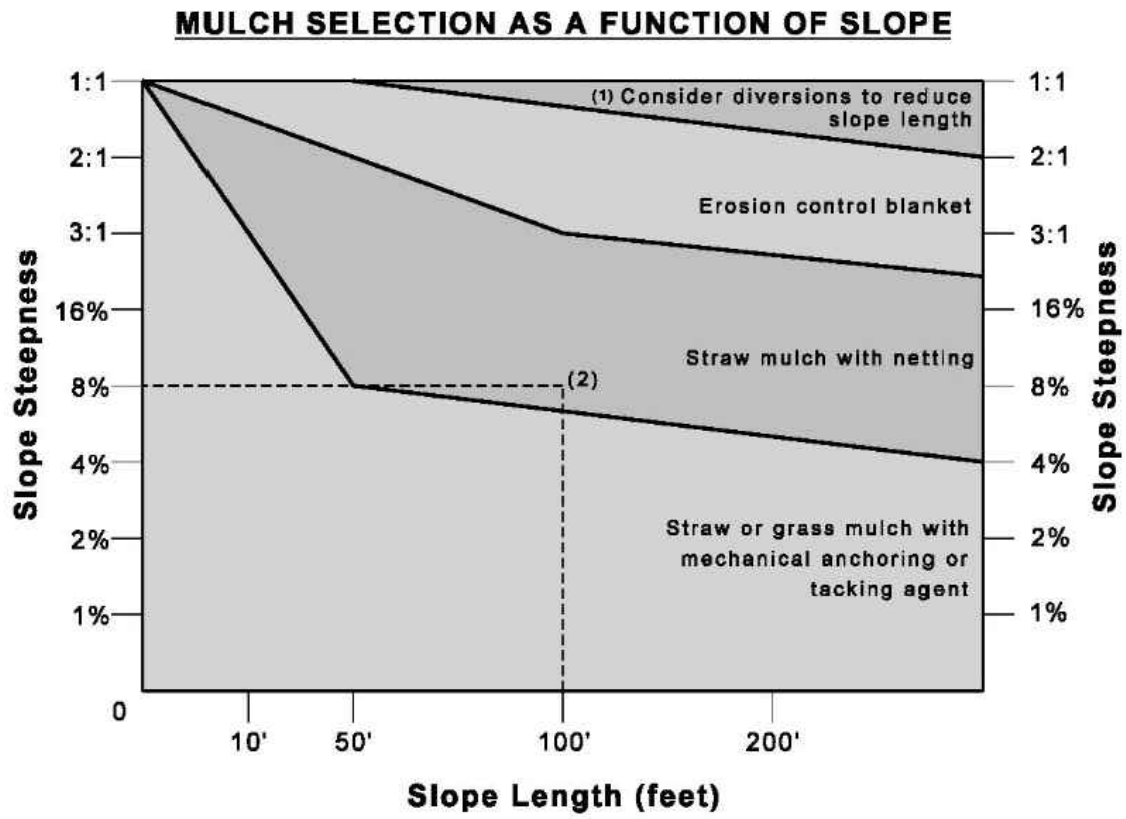




(1) For slopes steeper than 1:1, consider building a diversion above slope to divert water.
(2) Example: An 8% slope, 100 feet long, requires straw mulch with netting

GENERAL MULCH RECOMMENDATIONS TO PROTECT FROM SPLASH AND SHEET FLOW

Material	Rate Per Acre	Requirements	Notes
Straw	2 to 2.5 tons	Dry, unchopped unweathered; avoid weeds	Spread by hand or machine; must be tacked or tied down
Wood Fiber or Wood Cellulose	0.5 to 1 ton		Use with hydro seeder; may be used to tack straw. Do not use in hot, dry weather.
Wood Chips	5 to 6 tons	Air dry. Add nitrogen fertilizer at 12 lb per ton	Apply with blower, chip handler, or by hand. Not for fine turf areas.
Bark	35 cu. yds.	Air dry, shredded, or hammermilled; or chips	Apply with mulch blower, chip handler or by hand. Do not use asphalt tack.

SEEDING REQUIREMENTS

Dates for Seeding											
Permanent Seeding	Jan	Feb	March	April	May	June	July	Aug	Sep	Oct	Nov
Tall Fescue			O	O	O			O	O		
Smooth Brome			O	O	O			O	O		
Fescue & Brome			O	O	O	O	P	O	O		
Fescue, Rye & Bluegrass	A	A	O	O	O	P	P	O	O	P	A
Temporary Seeding	Jan	Feb	March	April	May	June	July	Aug	Sep	Oct	Nov
Rye or Sudan	A	A	O	O	O	O	O	O	O		A
Oats	A	A	O	O	O	O	O	O	O		A

O = Optimum seeding dates
A = Acceptable seeding dates
P = Permitted seeding dates with reseeding 2 months later - Initially use 50% of seed and 75% of fertilizer. Reseed with additional 75% seed and remaining fertilizer.

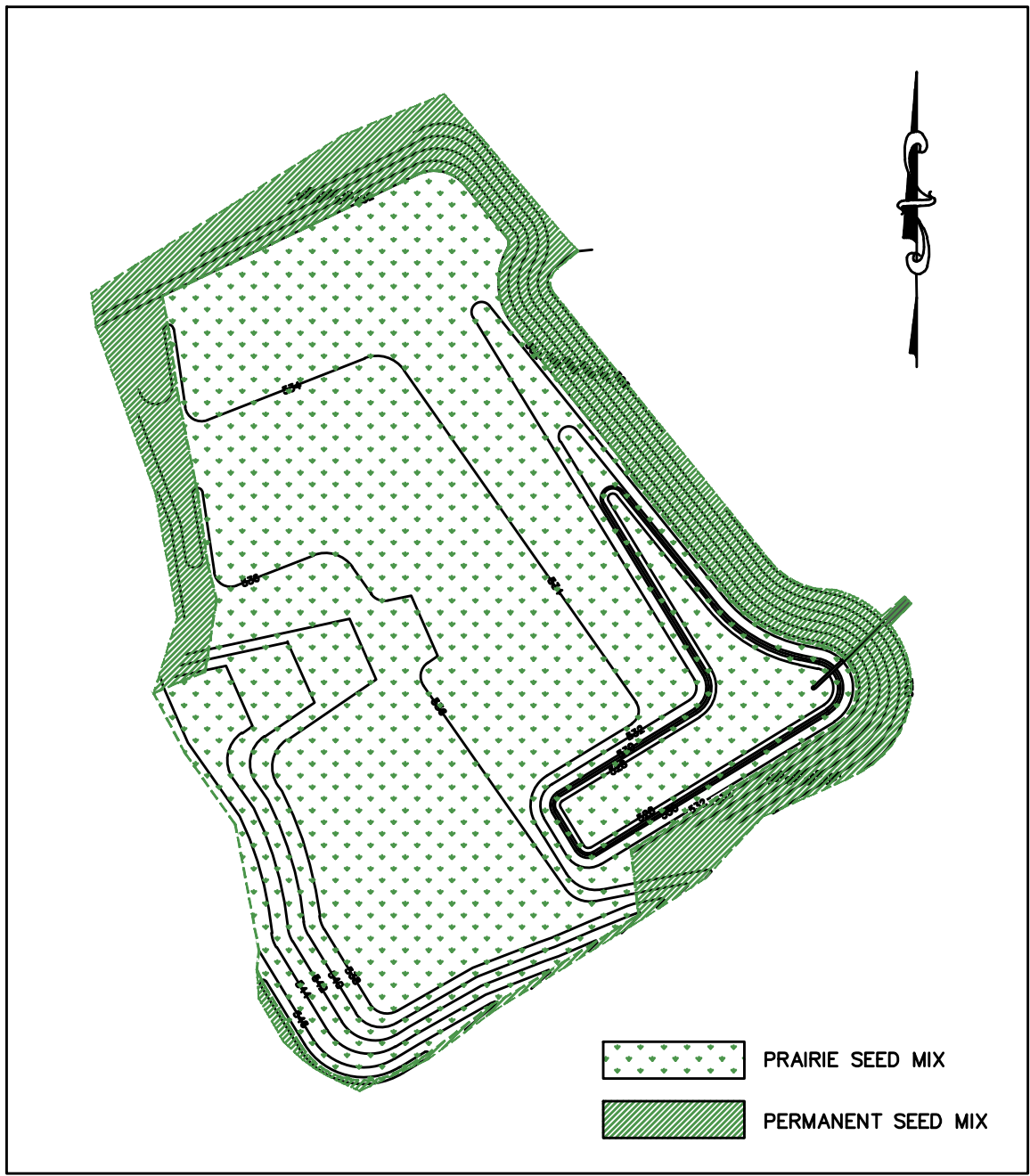
Minimum Fertilizer and Seeding Rates		
Permanent Seeding*	Pounds per acre	Pounds Per 1000 sq. ft.
Tall Fescue	300	7.0
Smooth Brome	200	4.6
Mixture # 1	250	5.7
Mixture # 2	210	4.8

Mixture # 1 = Tall Fescue @ 150 pounds per acre and Brome @ 100 pounds per acre.
Mixture # 2 = Tall Fescue @ 100 pounds per acre; Perennial Rye grass @ 100 pounds per acre; and Kentucky Blue grass @ 10 pounds per acre.
* = Seeding rate for slopes in excess of 20% (5:1), shall be 10 pounds per 1000 sq. ft.

Temporary Seeding	Pounds per acre	Pounds Per 1000 sq. ft.
Rye or Sudan	150	3.5
Oats	200	2.5

Fertilizer	Permanent Seeding (pounds per acre)	Temporary Seeding (pounds per acre)
Nitrogen	45	30
Phosphate	65	30
Potassium	65	30
Lime - ENM	600	600

ENM = Effective neutralizing material per State evaluation of quarried rock.



SEEDING PLAN
SCALE: 1"=100'

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Sediment and Erosion Control Manual

SEEDING RECOMMENDATIONS:

(Modified from "Landscape Guide for Stormwater Best Management Practice Design, St. Louis, MO by MSD, Rev. 2, May 2012 – Chapter 2)

Note: These are "Recommendations", not "Directives".
Actual "Means and Methods" shall be contractors' responsibility.

Site Preparation

For new construction or bare soil: Once a rough-finished grade is completed, sample the soil according to MU University Extension specifications. Obtain a soil analysis for warm season grasses (equivalent of University Extension Code 7) from University Extension or other certified laboratory. Amend based on the test result recommendations and till into the top six inches of soil. Loosen any areas compacted greater than 300 psi with an agricultural compaction tester to a depth of 8" then firm with a cultipacker.

Seeding

PRAIRIE SEED MIX		
Grasses/Sedges:		
Botanical Name	Common Name	Ounces/Acre
Andropogon ternarius	Splitbeard bluestem	32
Andropogon virginicus	Broomsedge	32
Bouteloua curtipendula	Sideoats grama	64
Schizachyrium scoparium	Little bluestem	64
Sporobolus heterolepis	Prairie dropseed	16
Forbs:		
Botanical Name	Common Name	Ounces/Acre
Coreopsis lanceolata	Lanceleaf coreopsis	20
Ratibida pinnata	Yellow/Grey coneflower	8
Solidago nemoralis	Old field goldenrod	4
Chamaecrista fasciculata	Partridge pea	32
Coreopsis tinctoria	Plains coreopsis	4
Palafoxia callosa	Palafoxia	4
Rudbeckia hirta	Black-eyed susan	4
Rudbeckia missouriensis	Missouri black-eyed susan	7

Sowing Seeds: Seeding should be done only during periods when the ground may be traversed with equipment without rutting or placing seed at depths over one quarter inch. Seed should be sown in a grid pattern, spreading half the seed mixture over the entire area in one direction then spreading the other half over the same area, in a perpendicular direction. Seed can be sown on snow, although

some seed may be eaten by birds. During winter freezes and thawing, seeds sown on the surface work their way into the soil to the proper depth.

For areas less than 20,000 square feet: Seed sowing can be done by hand if the area is less than 20,000 s.f.

For areas over 20,000 square feet: Cultipacker type seeders (Brillion) or no-till seed drills (Truax or Great Plains) specifically designed for the seeding of native grasses and forbs must be used. The seeding depth must be set to provide a final seed depth of one quarter inch or less. Prior to starting work, all seeding equipment must be calibrated and adjusted to sow seeds at the proper rate. Equipment shall be operated in a manner to ensure complete coverage of the area. This equipment plants the seed in rows by cutting slits into the soil and planting the seed at the proper distance, and depth. No-till drills cause minimal soil disturbance which results in less weed seed germination.

If soil conditions are too wet or slopes are too steep for drilling, the broadcasting of seed is acceptable on exposed soil only. If seed is broadcast, it must be mixed with an equal amount of inert filter (such as perlite, sand, vermiculite, ground corn cobs) to enable an even distribution of seed. Mix ratios of seed and inert filters at 1:1 or 2:1 of filter to seed. A mechanical broadcast seeder, such as Truax Seed Slinger, may be used. Fluffy seed will not go through a traditional gravity flow seeder.

Seed should be broadcast in two applications of half the seed, where the second application of seed overlaps the previous application in a grid pattern. Broadcast seeded areas should be raked, rolled or dragged perpendicular to the slope within 24 hours after seeding, or as soon as site conditions permit. The use of compaction wheels on the seed drill is acceptable. Hydros seeding is not acceptable.

Seed drills may be borrowed from various state agencies or hired through a landscape contractor that specializes in prairie seeding. To learn how to borrow and use a no-till seed drill, contact your local Missouri Department of Conservation office to locate the Private Land Conservationist in your county.

Erosion Control Mats

Erosion control mats are an important component of seeding. Without them, uniform seed-soil contact can be compromised and costly seed is lost. Because establishing a thorough cover of native vegetation from seed may take 2-3 years, it is important that the erosion control mat be rated for similar longevity. However care must be taken in selecting an erosion control mat because longer life erosion control mats typically are more tightly woven, which may impede seedling germination.

A wood shavings mat (Curlex #1 or Curlex #2 or equivalent) shall be laid over seed placed from the bottom of the basin and up to the 1-yr. ponding elevation. Coir fiber blankets are recommended for establishing stream buffers, up to the bankfull elevation, and where more than 100' of overland flow is upgradient (uphill) of the seedbed. Outside of these areas, and where slopes are steeper than 10:1, either a coir fiber blanket or (lighter and less expensive) straw blanket (North American Green S75 or equivalent) should be laid over seed and anchored into prepared soil.

Contractor shall consult with the erosion control mat manufacturer to select a mat appropriate for the particular application.

Germination: Prairie seed begins to germinate in April and continues through June. Some germination even occurs the next spring. Seedlings may be difficult to see because of their small size and the annual weed competition.

Type	Brand Name	Description
Wood shavings mat	Curlex® #1 or Curlex® #2 in areas of concentrated flow	Expands when wet causing the material to adhere to the surface and releases moisture to terminating seeds. Product is entirely biodegradable in two months.
Straw mat	North American Green® S75® Single Net Straw Blanket	The interwoven strands can move independently of each other providing better moisture absorption, flexibility, and conformance with the soil surface. Decomposes in one year.
Coir fiber	North American Green® C125® Blanket	Intermediate weight coconut based product with a rated longevity of 24 months. Typical applications include high flow areas and shorelines.

Vegetation Establishment

Post planting establishment practices for three full growing seasons are critical to the success of seeded projects. Fast-growing annual and biennial weeds can shade out slower growing native forbs, grasses, and sedges. Common biennial weeds include Queen Anne's lace, bull and Canada thistle and curly dock. Common annual weeds include moth mullein, fleabane, mare's tail, foxtail grass, chicory, ragweed, lambsquarters, mustard and smartweed. The forthcoming Chapter Three will contain information regarding weed management and identification.

Year one: Control weeds by keeping them mowed to a height of 6-12 inches throughout the first growing season. Most prairie seedlings are less than 6 inches tall in their first growing season and are seldom damaged by mowing. Do not allow weeds to get over 12 inches before cutting because tall weeds will shade out small prairie seedlings and long clippings can smother small seedlings. Keeping weeds cut back the first year also prevents production of more weed seeds that could become a problem in the future.

Pulling weeds in year one can cause problems because prairie seedlings are small the first year and are easily pulled up with the weeds and the disturbed soil can expose new weed seeds. However, if you know how to identify young weeds, it is safe to pull them, as long as you do not disturb nearby prairie seedlings. To remove large weeds, cut them off at the base and remove any seed heads from the site.

Year two: If weeds are a problem, mow them at a height of 12 inches since prairie seedlings will be taller the second year. If biennials are a problem, mow them at 12 inches when they are in full

bloom. This should kill them or set them back severely. If may be desirable to re-seed areas that are thinly covered by plants or bare.

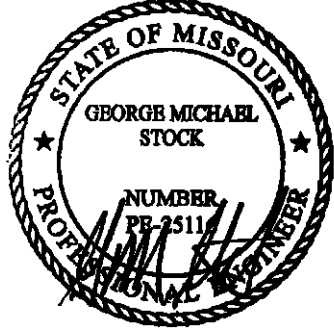
Equipment: String trimmers work well on projects less than 20,000 square feet as tractor-driven mowers are needed for larger areas. Adjust mower to cut higher than 6 inches. Where lawn mowers are the only available or size-appropriate machine, set the mower deck to highest setting (this is normally 4-5 inches).

Seeding and Vegetation Establishment Schedule Summary	
March – September	If BMP soil bed is ready during this time, install first seeding consisting of cover crop and annuals only. Required native seed mix may only be seeded October - February
October – February	Sow native seed mix. Include cover crop and annuals if first seed sowing.
March – May	Seed mix germinates. Survey seedlings to determine germination success. 80% cover and 60% species survival is required. Begin mowing annual weeds. Do not let weeds grow over 12 inches.
June – September	Continue mowing weeds as needed. Do not let weeds grow over 12 inches.
Year 2	If required seeding success is not met, over-seed October through February. Continue mowing if annual weeds continue to dominate.
Year 3	Mow or burn annually in late winter or early spring (January-March).

Long-term maintenance: After year three, a late winter or early spring burn or mowing is recommended once every year or two to set back trees and shrubs. Standing prairie plants are full of over-wintering insects and provide food and cover for winter birds. It may be desirable to sow more seed or plant seedlings to maintain or increase species diversity.

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Parcel ID:
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O'Fallon, Missouri 63368

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Phone: (636) 530-9100
Contact: Doug Bruns, P.E.
doug.bruns@stockass.com



07/10/24

GEORGE M. STOCK E-25116
CIVIL ENGINEER
CERTIFICATE OF AUTHORITY
NUMBER: 000996

Developer / Owner Information

TRISTAR WING, L.L.C.
c/o TRISTAR COMPANIES
12647 Olive Blvd., Suite 510
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Seeding Tables and Plan

P+Z No. : 23-010299
Approval Date : 09/07/23

Permit No. :

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