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These “guideline” specifications are to be used by the A/E as a base document in the development of project/site-specific Division 2 – SITE WORK specifications for Montgomery County Public Schools Construction Projects. They may or may not be complete, correct and/or appropriate for use for any given project. It is the responsibility of the A/E to review these “guideline” specifications and to edit and/or supplement them as required to ensure that they represent the full, complete, correct and code-compliant specifications required for all construction of the project to which they apply. The use of these “guideline” specifications, and/or any information herein, in no way releases the A/E from their contractual responsibility to prepare and provide the full, complete and correct code-compliant contract documents, plans and/or specifications required for construction.

Review and editing of these “guideline” specifications shall be performed by appropriately licensed Maryland professional engineer. Specifications are to be prepared in Microsoft Word, edited using the “Track Changes” feature of that software and submitted to MCPS electronically on a compact Disk for review.

SECTION 02910 – LAWNS

PART 1 - GENERAL:

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract including General and Supplementary Conditions and Division 1, Specifications Section, apply to Work in this section.

1.2 DESCRIPTION OF WORK:

- A. Section specifies materials, equipment and Work required to perform seeding and sodding operations.

1.3 RELATED SECTIONS:

- A. Refer to Section 02000, "Clearing", Section 02100 "Earthwork and Grading", and Section 02920 "Planting".

1.4 STANDARDS:

- A. Maryland Standards and Specifications for Soil Erosion and Sediment Control, current edition.
- B. Federal Seed Act.
- C. American Sod Producers Association (ASPA).

1.5 SUBMITTALS:

- A. Submit certificates, signed by producer and contractor, stating that soil amendments, seed and sod comply with this specification.
- B. Certificates to include following:
 - 1. Limestone: Type, percentage of calcium magnesium carbonates or oxides, and gradation.
 - 2. Fertilizer: Type and analysis.
 - 3. Seed: Seed mixture percentages (variety and/or specie) germination percentage, weed seed percentage and seed test date.
 - 4. Sod: Mixture percentages and classification.

1.6 PRODUCT DELIVERY AND STORAGE:

- A. Seed: Deliver in producer's original unopened containers with labels attached. Container labels to include seed mixture (variety and/or specie) germination, weed seed content and seed test date.
- B. Sod: Deliver sod in time for planting within 24 hours of harvesting. Protect from breakage and drying.
- C. Bulk Material: Accompany each delivery of bulk fertilizers and soil amendments with appropriate certificates. Provide erosion control measures to prevent erosion or displacement of bulk materials, discharge of soil-bearing water runoff, and airborne dust reaching adjacent properties, water conveyance systems or walkways.
- D. Storage: Store products in accordance with producer's recommendations. Store seed in dry locations. Store sod by stacking roots to roots and grass to grass, protected from exposure to wind, sun and freezing temperatures.

1.7 PROJECT CONDITIONS:

- A. Sod Requirements:
 - 1. Sod shall be required on areas sloped 4:1 or steeper.
 - 2. Sod shall be placed in lawn areas within 25 feet of building walls, or to a natural limit, such as a sidewalk, driveway, or edge of parking lot.
 - 3. Sod may be used as a Contractor's Option for other areas, at no increase to Contract Sum.
- B. Limitations:
 - 1. Site and Utility Construction: Do not proceed with lawn preparation until site and utility construction is complete.
 - 2. Environmental: Do not proceed with lawn preparation when ambient air temperature is below 32° F.
 - 3. Seeding: Do not proceed with seed application before or after dates specified without written authorization from Owner's Representative or Architect.
 - 4. Sodding: Deliver and install sod within 24 hours of harvesting. Do not use dormant or frozen sod.

PART 2 - PRODUCTS:

2.1 TOPSOIL:

- A. Topsoil: Refer to Section 02100, "Earthwork".

B. Sand: Refer to Section 02100, "Earthwork".

C. Organic Matter:

1. Peat Moss: Type I Sphagnum Peat Moss, finely divided with a pH of 3.1 to 5.0, and shall be free of foreign materials or mineral matter harmful to plant life.
2. Composted Sewage Sludge: Screened, lime- or polymer-dewatered and with pH in the range of 6.2 to 7.2, such as the commonly available product "ComPro", "Eckology or approved equal.
3. Leaf Compost: Screened and free of trash, such as commonly available product "LeafGro", or approved equal.
4. Pine Bark Fines: Screened, potting-grade pine bark with maximum particle size no larger than 1/2 inch, with less than 10 percent wood fiber.

D. Topsoil Mix: Topsoil mix shall have a mechanical analysis of 60–75 percent sand, 15-30 percent silt and 5-10 percent clay, and shall contain 10 percent organic matter.

E. Soil Amendments:

1. Limestone: Pulverized dolomite or dolomitic limestone. Carbonate contents (calcium and magnesium carbonate) 85 percent by weight.

| <u>Sieve Size</u> | <u>Percentage Passing</u> |
|-------------------|---------------------------|
| No. 20 | 90 |
| No. 100 | 40 |
2. Fertilizer: Uniform in composition free flowing and suitable for application equipment. Mixture containing following percentages of plant food by weight:
 - a. Available Nitrogen: 5 percent.
 - b. Available Phosphoric Acid: 10 percent.
 - c. Water Soluble Potash: 10 percent.
3. Inoculants to be pure culture of nitrogen fixing bacteria produced specifically for specified seed. Inoculants mix rate for hydraulic seeding to be four times producer's recommendation.

2.2 SEED:

A. Seed shall be "Maryland Certified Seed", labeled in accordance with State Seed Law. Seed used shall have been tested within six months immediately preceding date of sowing. Quality of seed used shall be shown on bag tags to conform to specified guidelines. Purity and germination specified are minimum percentages by weight.

1. Weed seed not to exceed 0.50 percent for each mixture. Noxious weed, including Johnson grass, Canada Thistle, Quackgrass and Poison Ivy are prohibited.

B. Seed Mixture No. 1:

| <u>Type</u> | <u>% by Weight</u> | <u>Min. % Purity</u> | <u>Min. % Germination</u> |
|--------------|--------------------|----------------------|---------------------------|
| Tall Fescue: | 80 | 95 | 85 |

(Provide a mixture of at least 3 separate types, "Rebel", "Gazelle", "Falcon", "Finelawn" or "Jaguar")

| | | | |
|-----------------------------|----|----|----|
| Kentucky Bluegrass | 10 | 95 | 85 |
| Improved Perennial Ryegrass | 10 | 95 | 85 |

1. Substitutions of seed type or percentages will be allowed only upon approval of Owner's Representative.

2.3 SOD:

A. Sod: Shall be free of disease, soil borne insects, clover, broadleaf weeds and noxious weeds. Sod shall be considered free of such weeds if less than 2 such plants are found per 100 square feet of area.

1. Classification: Maryland "Certified Sod".

2. Mixture:

| 3. <u>Kind of Seed</u> | <u>% By Weight</u> |
|------------------------|--------------------|
| Merion Bluegrass | 30 |
| Fylking Bluegrass | 20 |
| Adelphia Bluegrass | 20 |
| Common Bluegrass | 20 |
| Pennlawn Fescue | 10 |

Or approved equal.

4. Sod shall be relatively free of thatch. Thatch buildup which significantly detracts from appearance of sod may be sufficient cause for rejection.
5. Sod shall conform to approved sample. Non-conforming sod shall be removed from Project Site and replaced at no increase to Contract Sum.
6. Sod shall have been mowed prior to stripping and have been maintained for a minimum of three months at or near height of final clipping at nursery. Maximum height 2 1/2 inches.
7. Sod shall be machine stripped at a uniform soil thickness of 3/4 inch thick, excluding top growth and thatch.
8. Pad sizes shall be supplier's standard width and length. Maximum allowable deviation from supplier's standard sizes shall be 5 percent. Broken pads or pads with uneven ends will not be acceptable.
9. Root development to be such that standard size pieces of sod will support their own weight and retain their size and shape when suspended vertically from a firm grasp on uppermost 10 percent of pad area.
10. Under moderate moisture conditions, pad weight not to exceed 7 pounds per square foot. Minimum pad weight not less than 4 pounds per square foot.

2.4 MISCELLANEOUS PRODUCTS:

A. Mulch for Seeding (Fiber Mulch): Refer to Section 02140, "Soil Erosion and Sediment Control", and as noted.

1. Unweathered and unchopped small grain straw, free of noxious weeds.
2. Contractor's Option: Paper Fiber Mulch, manufactured of recycled paper products, by Central Fiber Corporation, Wellesville, Kansas. Type: "Second Nature", or approved equal.
3. Contractor's Option: Fiber Mulch manufactured by Weyerhaeuser Company, Tacoma, Washington. Type: "Silva-Fiber", or approved equal.

B. Fiber Mulch Anchoring Products: Refer to Section 02140 "Soil Erosion and Sediment Control", and as noted.

1. Organic Binder manufactured by Grass Growers, Plain Field, New Jersey. Type "Terra Tack I", or approved equal.
 - a. Organic Binder Mixture: One part organic binder to 20 parts water.

2. Contractor's Option: Synthetic binder additive manufactured by American Hoechst Corporation, Summerville, New Jersey. Type: "Curosol AH", or approved equal.
- C. Hydroseeding Equipment: Provide equipment with agitation system, which maintains mixture solids in complete suspension and spray nozzles, which produce, even distribution of slurry mixture.
- D. Sod stakes: Softwood, ½ inch by 1 inch by 8 inches.
- E. Water: Refer to Section "Temporary Facilities and Utilities" and as noted. In event public water supply shortage occurs and moratorium is adopted, obtain water from approved source and transport to Project Site at no increase to Contract Sum.

PART 3 - EXECUTION:

3.1 SUBGRADE PREPARATION:

1. Unpaved areas, Section 02100, "Earthwork and Grading" and as noted.
2. Verify sub-grade elevations and correct discrepancies. Mow, rake and remove temporary stabilization provided to control soil erosion. Apply soil amendments at rate indicated by soil analysis recommendations. Mix amendments uniformly into sub-grade, and break up sub-grade by tilling, disking or harrowing to five-inch depth. Rake sub-grade, removing debris and stones exceeding one inches in dimension.
- B. Topsoil Mix Placement: Place and uniformly spread topsoil mix over prepared sub-grade to lightly compacted six-inch depth. Do not place frozen or muddy topsoil or topsoil on frozen, muddy or excessively wet sub-grade.
- C. Testing: Seeding and sodding contractor shall at his or her expense test areas where topsoil has been spread at a frequency of 2 samples per 5000 sq. ft. Samples shall be prepared and tested in accordance with USDA Cooperative Extension Service Guidelines. Testing shall be conducted by Maryland State laboratory or a recognized commercial laboratory and results submitted in writing to Architect, Owner Contractor. Any difference from previous topsoil test shall be reconciled at no cost to Owner. Tests shall determine amount of soil amendments necessary.
- D. Topsoil Mix Preparation: Apply fertilization to in-place topsoil mix with mechanical spreaders. Apply at a rate of 20 pounds per 1000 square feet. Apply limestone to topsoil with mechanical spreaders. Adjust application rate in accordance with topsoil mix analysis at no increase to Contract Sum. Bond topsoil to sub-grade and mix soil amendments uniformly into topsoil mix by tilling, disking or harrowing to six inch depth. Rake topsoil mix, removing debris and stones exceeding one inch in dimension. Smooth and lightly compact prepared topsoil layer by rolling with commercial grade drag rollers or equal, prior to seeding or hydro seeding.

3.2 SEEDING:

- A. Sow seed with spreader or seeding machine. Do not broadcast or drop seed when wind exceeds 5mph. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other. Do not use wet seed or seed that is moldy or otherwise damaged. Do not seed against trees. Limit seed to outside edge of planting saucer.
- B. Sow seed at a rate of 5 to 8 lbs/100SF or as indicated on Drawings.
- C. Rake seed lightly into top 1/8 inch of soil, roll lightly and water with fine spray.

- D. Protect seeded areas with slopes exceeding 1:4 with erosion-control blankets and 1:6 with erosion-control fiber mesh installed and stapled according to Manufacturer's specifications.
- E. Protect seeded areas with erosion-control mats where shown on drawings.
- F. Protect seeded area with slopes not exceeding 1:6 by spreading straw mulch. Spread uniformly at a minimum rate of 2 tons/acre to form a continuous blanket 1-1/2 inches in loose thickness overseeded areas. Crimp straw mulch by crimping into soil with suitable mechanical equipment.
- G. Protect seeded areas from hot, dry weather or drying winds by applying compost mulch within 24 hours after completion of seeding. Soak areas and scatter mulch to a uniform 3/16 inch thickness and roll surface smooth.

3.3 HYDROSEEDING:

- A. Protect improvements and facilities during hydroseed application to prevent over-spray damage. Restore lawns, damaged by construction operations, as directed by Owner's Representative or Architect.
- B. Hydroseeding: Mix specified seed, fertilizer, and fiber mulch in water, using equipment specifically designed for hydroseed applications. Continue mixing until uniformly blended into homogeneous slurry suitable for hydraulic application.
 - 1. Mix slurry with nonasphaltic tackifier.
- C. Slurry Application: Apply slurry uniformly to areas to be seeded in a one-step process. Apply at a rate so that mulch component is deposited at not less than 1500 lbs/acre dry weight, and seed component is deposited at not less than specified seed sowing rate. Application dates shall be 01 March to 15 May and 15 August to 31 October. Apply slurry mixture uniformly to prepared topsoil, in one continuous hydraulic operation. Do not begin hydraulic application until completion of topsoil preparation.

3.4 SODDING:

- A. Sod Installation:
 - 1. Sod shall not be installed within 25 feet of the building after 01 September.
 - 2. Sod shall be transplanted within 24 hours from time it is harvested, unless stacked at its destination in a manner approved by Owner's Representative. Stacked sod shall be kept moist and protected from exposure to air and sun, and from freezing. Any sod permitted to dry out shall be rejected whenever, in judgment of Owner's Representative or Architect, its survival after placement is doubtful. No payment will be made for rejected sod. In no event shall more than forty-eight (48) hours lapse between cutting and planting of sod.
 - 3. Do not place sod when temperature is below freezing. No frozen sod shall be used, and no sod shall be placed on frozen, powder-dry or excessively wet soil.
 - 4. Lightly moisten prepared topsoil mix, in event ambient air temperature exceeds 90° F, during installation.
 - 5. Sod shall be lifted from trucks or stacks by hand. Begin installation with first row in straight line (e.g. walk edge, curb, etc.). Install subsequent rows parallel to first row, with tight joints. Stagger lateral joints one-half pad length. Do not stretch or overlap joints.
 - 6. Slopes (exceeding 4 feet horizontal to 1 foot vertical): Begin installation with first row at top of slope and parallel to slope contour. Install subsequent rows parallel

to first row. Set and drive sod stakes flush with top of sod. Use two stakes per square yard or as directed by Owner's Representative or Architect.

7. Moistened sod immediately after installation. Compact sod upon completion of installation with light rollers and thoroughly water.
8. Adequate water and watering equipment must be on hand before sodding begins, and sod shall be kept moist until root system adheres to underlying soil, and sod becomes established and is accepted by Owner's Representative or Architect.

3.5 CLEANING:

- A. Clean improvements and facilities damaged by hydraulic seed application over-spray as directed by Owner's Representative or Architect.

3.6 ACCEPTANCE:

- A. Acceptance of seeded and/or sodded areas shall not be considered until the approximate date the school session begins (1 September). Planted areas shall be properly maintained from the time of planting or placing of sod until 1 year beyond acceptance date.
- B. Seeding/sodding subcontractor shall request in writing through the Contractor an on-site inspection with Architect and Owner's Representative to determine acceptability.
 1. A stand of grass shall be deemed acceptable if after a minimum of three (3) mowings, there is a uniform stand. (95 percent germination minimum) of weed free turf composed of the specified grasses with an average height of 3 inches and no bare spots.

3.7 WARRANTY/MAINTENANCE:

- A. Warranty and maintenance shall be simultaneous for one (1) year after acceptance. Turf and lawn plantings shall be alive and in satisfactory growth at end of warranty period.
- B. Following shall be included as a part of one year maintenance agreement (Included in base bid).
 1. Periodical sampling of soil to monitor and maintain a pH of 6.8 (+/- 0.5).
 2. During the fall, apply 18-24-12 fertilizer in three equal applications at rates which will provide a total of 1½ - 2 lbs of actual nitrogen per 1000 sq. ft. Fertilizer shall be in granular form and be 100% organic and contain at least 25% of nitrogen in a slow release form. Apply a pre-emergent crabgrass control following spring between April 01 and April 15 and follow that with an application of a post-emergent control in early June.
 3. Apply a post-emergent broadleaf weed control, only as needed, between May 15 and June 15. (Application of weed control shall not conflict with required use of the lawn.)
 4. A cosmetic fertilizer application made in mid June of ½ lbs per 1000 sq. ft. of slow release nitrogen.
 5. Mowing/Edging:
 - a. Mow lawn and turf areas as necessary to maintain a grass height between 2-1/2 inches - 3-1/2 inches throughout the mowing season and remove grass clippings during or immediately after mowing, if needed to preclude clumping or thick deposits of clippings that may damage the turf. Regular mowing at three (3) inch height and before four (4) inch growth occurs, will preclude the need for clippings removal. Maintain a high-quality cut, sharpened mower blade. Mowing to be completed be-

- tween 6:00 a.m. and 6:00 p.m. on any day except Saturdays, Sundays and holidays. Coordinate with school schedule.
- b. Trim around obstacles, raking excessive grass clippings and removing debris from walks, curbs and parking areas. NOTE: Weed eaters shall not be used to trim around trees with smooth bark in trunk area.
 - c. Edge sidewalks, curbs and paved areas every other mowing and remove debris from edging operations and sweep paved areas clean upon completion of work. NOTE: Caution shall be used to avoid flying debris, and safety glasses shall be worn during this operation.
6. Provide nine (9) monthly (Dec, Jan, and Feb exempt) turf inspections and reviews to be completed by a qualified turf agronomist.
7. Contractor shall irrigate the seeded/sodded site areas to insure a continuous growth throughout growing season. Contractor shall furnish water and necessary irrigation equipment.

END OF SECTION