

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Hydroseeding, mulching and fertilizer.
- B. Maintenance.

1.2 RELATED REQUIREMENTS

- A. Section 32 9119.13 - Topsoil Placement and Grading: Topsoil testing, planting soil placement and finish grading.
- B. Section 32 9223 – Sodding: Providing and installing sod within turf surfaced roadways.

1.3 DEFINITIONS

- A. Weeds: Include Dandelion, Jimsonweed, Quackgrass, Horsetail, Morning Glory, Rush Grass, Mustard, Lambsquarter, Chickweed, Cress, Crabgrass, Canadian Thistle, Nutgrass, Poison Oak, Blackberry, Tansy Ragwort, Bermuda Grass, Johnson Grass, Poison Ivy, Nut Sedge, Nimble Will, Bindweed, Bent Grass, Wild Garlic, Perennial Sorrel, and Brome Grass.

1.4 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Maintenance Data: Include maintenance instructions, cutting method and maximum grass height; types, application frequency, and recommended coverage of fertilizer.
- C. Maintenance Contract.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver grass seed mixture in sealed containers. Seed in damaged packaging is not acceptable. Deliver seed mixture in containers showing percentage of seed mix, year of production, net weight, date of packaging, and location of packaging.
- B. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.

PART 2 PRODUCTS

2.1 SEED MIXTURE

- A. Grass Seed: Fresh, clean, dry, new-crop seed complying with AOSA's "Rules for Testing Seeds" for purity and germination tolerances.
- B. Seed Species: Seed of grass species as follows, with not less than 95 percent germination, not less than 85 percent pure seed, and not more than 0.5 percent weed seed:
 - 1. Grass seed mixture shall be as indicated on the Drawings.

2.2 SOIL MATERIALS

- A. Amended Topsoil: As specified in Section 32 9119.13 - Topsoil Placement and Grading.

2.3 ACCESSORIES

- A. Mulching Material: Oat or wheat straw, free from weeds, foreign matter detrimental to plant life, and dry. Hay or chopped cornstalks are not acceptable.
- B. Fiber Mulch: Biodegradable, dyed-wood, cellulose-fiber mulch; nontoxic and free of plant-growth or germination inhibitors; with a maximum moisture content of 15 percent and a pH range of 4.5 to 6.5.
- C. Water: Clean, fresh, and free of substances or matter that could inhibit vigorous growth of grass.

2.4 EROSION-CONTROL MATERIALS

- A. Erosion-Control Blankets: Biodegradable wood excelsior, straw, or coconut-fiber mat enclosed in a photodegradable plastic mesh. Include manufacturer's recommended steel wire staples, 6 inches (150 mm) long.
- B. Erosion-Control Fiber Mesh: Biodegradable burlap or spun-coir mesh, a minimum of 0.92 lb./sq. yd. (0.5 kg/sq. m), with 50 to 65 percent open area. Include manufacturer's recommended steel wire staples, 6 inches (150 mm) long.

2.5 PESTICIDES

- A. General: Pesticide, registered and approved by EPA, acceptable to authorities having jurisdiction, and of type recommended by manufacturer for each specific problem and as required for Project conditions and application. Do not use restricted pesticides unless authorized in writing by authorities having jurisdiction.
- B. Pre-Emergent Herbicide (Selective and Non-Selective): Effective for controlling the germination or growth of weeds within planted areas at the soil level directly below the mulch layer.
- C. Post-Emergent Herbicide (Selective and Non-Selective): Effective for controlling weed growth that has already germinated.

2.6 TESTS

- A. Provide analysis of topsoil fill under provisions of Section 01 4000 and according to Section 32 9119.13 - Topsoil Placement and Grading.

2.7 FIELD CONDITIONS

- A. Planting Restrictions: Plant during one of the following periods. Coordinate planting periods with initial maintenance periods to provide required maintenance from date of Substantial Completion.
 - 1. Spring Planting: March 15th to June 15th.
 - 2. Fall Planting: August 15th to October 15th.
- B. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be

obtained. Apply products during favorable weather conditions according to manufacturer's written instructions.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that prepared soil base is ready to receive the work of this Section.

3.2 PREPARATION

- A. Prepare subgrade in accordance with Section 31 2200.
- B. Place amended topsoil in accordance with Section 32 9119.13 - Topsoil Placement and Grading.
- C. Protect structures, utilities, sidewalks, pavements, and other facilities, trees, shrubs, and plantings from damage caused by planting operations.
 - 1. Protect adjacent and adjoining areas from hydroseeding and hydromulching overspray.
 - 2. Protect grade stakes set by others until directed to remove them.
- D. Install erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.
- E. Moisten prepared area before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.
- F. Before planting, obtain Landscape Architect's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.

3.3 FERTILIZING

- A. Apply fertilizer in accordance with manufacturer's instructions and per recommendations per Section 32 9119.13 - Topsoil Placement and Grading.
- B. Apply after smooth raking of topsoil and prior to roller compaction.
- C. Do not apply fertilizer at same time or with same machine as will be used to apply seed.
- D. Mix thoroughly into upper 2 inches (50 mm) of topsoil.
- E. Lightly water to aid the dissipation of fertilizer.

3.4 HYDROSEEDING

- A. Apply seeded slurry with a hydraulic seeder at a rate of 3 to 4 lbs. per 1000 sq ft (1.4 to 1.8 Kg per 1000 sq m) evenly in two intersecting directions unless indicated to apply at a heavier rate on the Drawings.
- B. Do not hydroseed area in excess of that which can be mulched on same day.
- C. Immediately following seeding, apply mulch to a thickness of 1/8 inches (3 mm). Maintain clear of shrubs and trees.

- D. Apply water with a fine spray immediately after each area has been mulched. Saturate to 4 inches (100 mm) of soil.
- E. Following germination, immediately re-seed areas without germinated seeds that are larger than 4 by 4 inches (100 by 100 mm).

3.5 TURF RENOVATION

- A. Renovate turf damaged by Contractor's operations, such as storage of materials or equipment and movement of vehicles.
 - 1. Reestablish turf where settlement or washouts occur or where minor regrading is required.
 - 2. Install new planting soil as required.
- B. Remove sod and vegetation from diseased or unsatisfactory turf areas; do not bury in soil.
- C. Remove topsoil containing foreign materials, such as oil drippings, fuel spills, stones, gravel, and other construction materials resulting from Contractor's operations, and replace with new planting soil.
- D. Mow, dethatch, core aerate, and rake existing turf.
- E. Remove weeds before seeding. Where weeds are extensive, apply selective herbicides as required. Do not use pre-emergence herbicides.
- F. Remove waste and foreign materials, including weeds, soil cores, grass, vegetation, and turf, and legally dispose of them off Owner's property.
- G. Till stripped, bare, and compacted areas thoroughly to a soil depth of 6 inches (150 mm).
- H. Apply soil amendments and initial fertilizer required for establishing new turf and mix thoroughly into top 4 inches (100 mm) of existing soil. Install new planting soil to fill low spots and meet finish grades.
 - 1. Soil Amendment(s): according to requirements of Section 32 9119.13 - Topsoil Placement and Grading. Apply as recommended by topsoil analysis.
 - 2. Initial Fertilizer: Commercial fertilizer or Slow-release fertilizer applied according to manufacturer's recommendations.
- I. Apply seed and protect with straw mulch as required for new turf.
- J. Water newly planted areas and keep moist until new turf is established.

3.6 PROTECTION

- A. Identify seeded areas with stakes and string around area periphery. Set string height to 24 inches (600 mm). Space stakes at [] inches ([] mm).
- B. Moisten prepared area before planting if surface is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil
- C. Cover seeded slopes where grade is 4 inches per foot (100 mm per m) or greater with erosion fabric. Roll fabric onto slopes without stretching or pulling.

- D. Lay fabric smoothly on surface, bury top end of each section in 6 inch (150 mm) deep excavated topsoil trench. Provide 12 inch (300 mm) overlap of adjacent rolls. Backfill trench and rake smooth, level with adjacent soil.
 - 1. For erosion-control mats, install planting soil in two lifts, with second lift equal to thickness of erosion-control mats. Install erosion-control mat and fasten as recommended by material manufacturer.
 - 2. For erosion-control blanket or mesh, install from top of slope, working downward, and as recommended by material manufacturer for site conditions. Fasten as recommended by material manufacturer.
- E. Secure outside edges and overlaps at 36-inch (900 mm) intervals with stakes.
- F. Lightly dress slopes with topsoil to ensure close contact between fabric and soil.
- G. At sides of ditches, lay fabric laps in direction of water flow. Lap ends and edges minimum 6 inches (150 mm).

3.7 MAINTENANCE

- A. Provide maintenance at no extra cost to Owner; Owner will pay for water.
- B. See Section 01 7000 - Execution Requirements, for additional requirements relating to maintenance service.
- C. Provide a separate maintenance contract for specified maintenance service.
- D. Provide maintenance of seeded areas for a minimum of three months from Date of Substantial Completion or until grass is well established and exhibits a vigorous growing condition. Continue maintenance until turf is satisfactory.
- E. Turf installations shall meet the following criteria as determined by Landscape Architect
 - 1. Satisfactory Seeded Turf: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 sq. ft. (0.92 sq. m) and bare spots not exceeding 5 by 5 inches (125 by 125 mm).
- F. Mow grass at regular intervals to maintain at a maximum height of 2-1/2 inches (65 mm). Do not cut more than 1/3 of grass blade at any one mowing.
- G. Neatly trim edges and hand clip where necessary.
- H. Immediately remove clippings after mowing and trimming.
- I. Water to prevent grass and soil from drying out.
- J. Roll surface to remove minor depressions or irregularities.
- K. Control growth of weeds. Apply herbicides in accordance with manufacturer's instructions. Remedy damage resulting from improper use of herbicides.
 - 1. Apply pesticides and other chemical products and biological control agents in accordance with requirements of authorities having jurisdiction. Coordinate applications with Owner's operations and others in proximity to the Work. Notify Owner before each application is performed.

2. Post-Emergent Herbicides (Selective and Non-Selective): Apply only as necessary to treat already-germinated weeds and in accordance with manufacturer's written recommendations.

- L. Immediately reseed areas that show bare spots.
- M. Protect seeded areas with warning signs during maintenance period.

3.8 RESTORATION OF SETTLED GRADES

- A. At the end, twelve months after the date of substantial completion of the soil installation work, inspect the site and restore any areas where the grades have settled beyond the elevations shown on the drawings.
 1. Lawn areas: Remove the sod using mechanical sod cutter from the settled area and add the specified top soil or planting mix. Re sod the area using the sod cut from the lawn. In the event that the sod cannot be reused, install new sod that matches the seed mix on the lawn.
 2. Planting Areas: Where the settlement is 3-inches or less, remove the mulch, top dress the area with the specified topsoil or planting mix and re mulch.
 3. Planting Areas: Where the settlement is greater than 3-inches remove the mulch and plants, add the specified topsoil or planting mix and re mulch.

3.9 CLEANUP

- A. Promptly remove soil and debris created by turf work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.
- B. Erect temporary fencing or barricades and warning signs as required to protect newly planted areas from traffic. Maintain fencing and barricades throughout maintenance period and remove after plantings are established.
- C. Remove nondegradable erosion-control measures after grass establishment period.

END OF SECTION