

02920 – SEEDING AND SODDING (REVISED 2013)

PART 1 - GENERAL

1.1 Related Documents

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Seeding.
 - 2. Sodding.
 - 3. Plugging.
 - 4. Meadow grasses and wildflowers.
 - 5. Sod renovation.
- B. Related Sections include the following:
 - 1. Division 2 Section "Site Clearing" for topsoil stripping and stockpiling.
 - 2. Division 2 Section "Earthwork" for excavation, filling and backfilling, and rough grading.
 - 3. Division 2 Section "Subdrainage" for subsurface drainage.

1.3 DEFINITIONS

- A. Finish Grade: Elevation of finished surface of planting soil.
- B. Manufactured Soil: Soil produced off-site by homogeneously blending mineral soils or sand with stabilized organic soil amendments to produce topsoil or planting soil.
- C. Planting Soil: Native or imported topsoil, manufactured topsoil, or surface soil modified to become topsoil; mixed with soil amendments.
- D. Subgrade: Surface or elevation of subsoil remaining after completing excavation, or top surface of a fill or backfill immediately beneath planting soil.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Certification of Grass Seed: From seed vendor for each grass-seed monostand or mixture stating the botanical and common name and percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging.
 - 1. Certification of each seed mixture for turf grass sod, identifying source, including name and telephone number of supplier.
- C. Product Certificates: For soil amendments and fertilizers, signed by product manufacturer.
- D. Qualification Data: For landscape installer.
- E. Material Test Reports: For existing surface soil and imported topsoil
- F. Maintenance Instructions: Upon completion of all sodding operations, the Contractor shall notify the Owner's Representative to inspect the work. Upon inspection, if all work is acceptable, the Owner's Representative shall record that date and shall issue a "Conditional Acceptance" letter which shall state that the Contractor shall maintain all sodded areas as specified according to the following length of time. As indicated in section 1.8.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: All work specified herein shall be performed under the direct supervision of a Superintendent thoroughly familiar with the work of this section who shall be at the project site for the duration of the work in this section.
 - 1. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when planting is in progress.
- B. Installer Qualifications: All work specified herein shall be performed under the direct supervision of a Superintendent thoroughly familiar with the work of this section who shall be at the project site for the duration of the work in this section.

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1. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when planting is in progress.
- C. Soil-Testing Laboratory Qualifications: An independent laboratory, recognized by the State Department of Agriculture, with experience and capability to conduct the testing indicated and that specializes in types of tests to be performed.
- D. Topsoil Analysis: Furnish soil analysis by a qualified soil-testing laboratory stating percentages of organic matter; gradation of sand, silt, and clay content; cation exchange capacity; sodium absorption ratio; deleterious material; pH; and mineral and plant-nutrient content of topsoil.
 1. Report suitability of topsoil for Sod growth. State recommended quantities of nitrogen, phosphorus, and potash nutrients and soil amendments to be added to produce satisfactory topsoil.
- E. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

1.6 DELIVER, STORAGE, AND HANDLING

- A. Seed: Deliver seed in original sealed, labeled, and undamaged containers.
- B. Sod: Harvest, deliver, store, and handle sod according to requirements in TPI's "Specifications for Turfgrass Sod Materials" and "Specifications for Turfgrass Sod Transplanting and Installation" in its "Guideline Specifications to Turfgrass Sodding."

1.7 SCHEDULING

- A. Planting Restrictions: Plant during one of the following periods unless otherwise approved by Owner's Representative. Coordinate plating periods with maintenance periods to provide required maintenance from date of Substantial Completion.
 1. Sodding: April 15th-October 15th.
 2. Seeding: March 1st-September 15th.
 3. Irrigated Native Seeding: March 1st-September 15th.
 4. Non Irrigated Native Seeding: November 1st-May 15th.
- B. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit. No sodding shall take place when the site is wet or during freezing temperatures.

1.8 TURF MAINTENANCE

- A. Begin maintenance immediately after each area is planted and continue until acceptable Sod is established, but for not less than the following periods:
 1. Seeded Turf: 60 days from date of Substantial Completion.
 2. Native Seeding: 60 days from date of Substantial Completion.
 3. Sodded Turf: 30 days from date of Substantial Completion.
- B. A period of 30 calendar days minimum, which shall be referred to as the "Sod Maintenance Period." At the end of this period, the sodded areas shall be given "Final Acceptance" if the sod is in a healthy condition and of a normal green color, with no bare areas larger than six (6) square inches. Mowing of sod should occur (3) days before "Final Acceptance." If sod is installed in late October, a "Final Acceptance" for sod will not be issued, until the following spring.
- C. At the end of the maintenance period, the Owner's Representative shall, within five (5) calendar days, inspect the work, and if the work is acceptable, he shall issue a Final Acceptance Sod Work" letter which shall relieve the Contractor from further obligations for Sod work only. Final acceptance of Sod work may be given independently of final acceptance of all work under this contract.
- D. The maintenance period for this work shall begin immediately after each area is sodded and shall continue in accordance with the following requirements:
 1. Minor vandalism or other damage to the sodded areas shall be the responsibility of the Contractor until all work receives Final Acceptance by the Owner's Representative. Major vandalism or damage caused by others through no fault of the Contractor or his subcontractor shall be brought to the attention of the Owner's Representative who will be the sole judge as to the extent of such damage. If such damage is deemed to be major by the Owner's Representative, any work necessary to repair the seeded or sodded area to an acceptable

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- condition shall be paid for by the Owner under the provisions of “extra work” stated in the General Conditions, if such work is authorized by the Owner’s Representative.
2. Acts of God: Minor damage to the sodded areas shall be the responsibility of the Contractor until all work receives Final Acceptance by the Owner’s Representative. Major damage caused by flood, hail, storm, wind, or large rain storm, and through no fault of the Contractor to protect his work, shall immediately be brought to the attention of the Owner’s Representative who will be the sole judge as to the extent of such damage. Major damage shall be repaired by the Contractor and paid for by the Owner, if such work is authorized by the Owner’s Representative.
 - a. When full maintenance period has not elapsed before end of planting season, or is Sod is not fully established, continue maintenance during next planting season.
 - E. Maintain and establish Sod by watering, fertilizing, weeding, mowing, trimming, replanting, and other operations. Rolls, regrade, and replant bare or eroded areas and remulch to produce a uniformly smooth turf.
 1. In areas where mulch has been disturbed by wind or maintenance operations, add new mulch. Anchor as required to prevent displacement.
 - F. Watering: Provide and maintain temporary piping, hoses, and turf-watering equipment to convey water from sources and to keep Sod uniformly moist.
 1. Schedule watering to prevent wilting, puddling, erosion, and displacement of seed or mulch. Lay out temporary watering system to avoid walking over muddy or newly planted areas.
 2. Water Sod at a minimum rate of 1 1/2” to 2” per week.
 - G. The Contractor shall be responsible for watering and mowing of the sodded areas only until Final Acceptance. The bluegrass sod shall be maintained at a height of three inches (3”) and of four inches (4”). If grass exceeds four inches (4”) in height before mowing, no more than (1/3) of top growth shall be cut off at anyone time. All clippings shall be removed from site. Do not delay mowing until grass blades bend over and become matted. Do not mow when grass is wet. Schedule initial and subsequent mowing to maintain consistent grass height. Sufficient water shall be applied during the maintenance period to maintain the sod in a healthy condition, allowing it to knit together and develop a deep root system. Care should be given to avoid standing surface water, or erosion from over watering. Failure of the irrigation system shall not relieve the Contractor from applying water required during this period.

1.9 NATIVE SEEDING MAINTENANCE

- A. Begin maintenance immediately after each area is planted and continue until acceptable meadow is established, but for not less than 60 days from date of Substantial Completion. The maintenance period for this work shall begin immediately after all areas are seeded and shall continue in accordance with the following requirements:
 1. All seeded areas shall have suitable signs erected at important points, notifying the public to keep off.
- B. Minor vandalism or other damage to the seeded areas shall be the responsibility of the Contractor until all work receives Final Acceptance by the Owner’s Representative. Major vandalism or damage caused by others through no fault of the Contractor or his subcontractor shall be brought to the attention of the Owner’s Representative who will be the sole judge as to the extent of such damage. If such damage is deemed to be major by the Owner’s Representative, any work necessary to repair the seeded area to an acceptable condition shall be paid for by the Owner under the provision of “extra work” stated in the General Conditions, if such work is authorized by the Owner’s Representative.
- C. Acts of God: Minor damage to the seeded areas shall be the responsibility of the Contractor until all work receives Final Acceptance by the Owner’s Representative. Major damage caused by flood, hail storm, wind or large rain storm, and through no fault of the Contractor to protect his work, shall immediately be brought to the attention of the Owner’s Representative who will be the site judge as to the extent of such damage. Major damage shall be repaired by the Contractor and paid for by the Owner under the provisions of City of Colorado Springs Engineering Division

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Standard Specifications Section 100.23 “Changed Conditions”, if such work is authorized by the Owner’s Representative.

- D. The Contractor shall be responsible for watering and mowing the seeded areas only until final Acceptance. Mowing shall be conducted at a maximum of six inches (6”), and mowed down to four inches (4”).
- E. Upon completion of all seeding operations, the Contractor will notify the Owner’s Representative to inspect the work. Upon inspection, if all work is acceptable, the Owner’s Representative shall record that date and shall issue a “Conditional Acceptance” letter which shall state that the Contractor shall maintain all seeded areas as specified according to the following length of time.
- F. Period of 60 calendar days minimum, which shall be referred to as the “Seeded Area Maintenance Period”. AT the end of this period, the seeded areas shall be given “Final Acceptance” if the seed has germinated and there are no bare areas larger than six (6) square inches in diameter shall be re-seeded. AT the end of the maintenance period, the Owner’s Representative shall, within five (5) calendar days, inspect the work, and if the work is acceptable, he shall relieve the Contractor from further obligations for seeding work only. Final acceptance of seeding work may be given independently of final acceptance of all work under this contract.
- G. Maintain and establish meadow by watering, weeding, mowing, trimming, replanting, and other operations. Roll, regrade and replant bare or eroded areas and remulch.
- H. Watering: Provide and maintain temporary piping, hoses, and turf-watering equipment to convey water from sources and to keep meadow uniformly moist.
 - 1. Schedule watering to prevent wilting, puddling, erosion, and displacement of seed or mulch. Lay out temporary watering system to avoid walking over muddy or newly planted areas.
 - 2. Water meadow at a minimum rate of 1/2 inch per week for 8 weeks after planting

PART 2 - PRODUCTS

2.1 SEED

- A. Grass Seed: Fresh, clean, dry, new-crop seed complying with AOSA’s “Journal of Seed Technology; Rules for Testing Seeds” for purity and germination tolerances.
- B. Seed Species: State-certified seed of grass species, as follows:
- C. Seed Species: As specified on drawings.

2.2 TURFGRASS SOD

- A. Turfgrass Sod: Blended Kentucky Bluegrass.

2.3 NATIVE GRASSES AND WILDFLOWERS

- A. Wildflower Seed: Fresh, clean, dry, new seed, mixed species as follows:
- B. Native Grass Seed: Fresh, clean, dry, new seed, mixed species as follows:
- C. Wildflower and Native Grass Seed: Fresh, clean, dry, new seed, mixed species as follows:
- D. Seed Carrier: Inert material, sharp clean sand or perlite, mixed with seed at a ratio of not less than two parts seed carrier to one part seed.

2.4 TOPSOIL

- A. Topsoil: ASTM D 5268, pH range of 5.5 to 7, a minimum of 4-percent organic material content; free of stones 3/4 inch or larger in any dimension and other extraneous materials harmful to plant growth.
 - 1. Topsoil Source: Reuse surface soil stockpiled on-site. Verify suitability of stockpiled surface soil to produce topsoil. Clean surface soil of roots, plants, sod, stones, clay lumps, and other extraneous materials harmful to plant growth.
 - 2. Topsoil Source: Import topsoil or manufactured topsoil from off-site sources. Obtain topsoil displaced from naturally well-drained construction or mining sites where topsoil occurs at least 4 inches deep; do not obtain from agricultural land, bogs or marshes.

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3. Topsoil Source: Amend existing in-place surface soil to produce topsoil. Verify suitability of surface soil to produce topsoil. Clean surface soil of roots, plants, sod, stones, clay lumps, and other extraneous materials harmful to plant growth.

2.5 ORGANIC SOIL AMENDMENTS

- A. Compost: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through **1-inch** sieve; soluble salt content of 5 to 10 decisiemens/m; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings; and as follows:
 1. Organic Matter Content: 50 percent of dry weight.
 2. Feedstock: Agricultural, food, or industrial residuals; biosolids; yard trimmings; or source-separated compostable mixed solid waste.
- B. Peat: Sphagnum peat moss, partially decomposed, finely divided or granular texture, with a pH range of 3.4 to 4.8.
- C. Peat: Finely divided or granular texture, with a pH range of 6 to 7.5, containing partially decomposed moss peat, native peat, or reed-sedge peat and having a water-absorbing capacity of 1100 to 2000 percent.
- D. Wood Derivatives: Decomposed, nitrogen-treated sawdust, ground bark, or wood waste; of uniform texture, free of chips, stones, sticks, soil or toxic materials.
 1. In lieu of decomposed wood derivatives, mix partially decomposed wood derivatives with at least 0.15 lb. of ammonium nitrate or 0.25 lb. of ammonium sulfate per cubic foot of loose sawdust or ground bark.
- E. Manure: Well-rotted, unleached, stable or cattle manure containing not more than 25 percent by volume of straw, sawdust, or other bedding materials; free of toxic substances, stones, sticks, soil, weed seed, and material harmful to plant growth.

2.6 PLANTING ACCESSORIES

- A. Selective herbicides: EPA registered and approved, of type recommended by manufacturer for application.

2.7 FERTILIZER

- A. Superphosphate: Commercial, phosphate mixture, soluble; a minimum of 20 percent available phosphoric acid.
- B. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of ureaformaldehyde, phosphorous, and potassium in the following composition:
 1. Composition: 1 lb/1000 sq. ft. of actual nitrogen, 4 percent phosphorous, and 2 percent potassium, by weight.
 2. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing agency.
- C. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 30 percent water-insoluble nitrogen, phosphorus, and potassium in the following composition:
 1. Composition: 25 percent nitrogen, 10 percent phosphorous, and 10 percent potassium, by weight.
 2. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing agency.

2.8 MULCHES

- A. Straw Mulch: Provide air-dry, clean, mildew- and seed-free, salt hay or threshed straw of wheat, rye, oats, or barley.
- B. Peat Mulch: Sphagnum peat moss, partially decomposed, finely divided or granular texture, with a pH range of 3.4 to 4.8.

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- C. Peat Mulch: Finely divided or granular texture, with a pH range of 6 to 7.5, containing partially decomposed moss peat, native peat, or reed-sedge peat and having a water-absorbing capacity of 1100 to 2000 percent.
- D. Compost Mulch: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 1-inch sieve; soluble salt content of 5 to 10 decisiemens/m; not to exceeding 0.5 percent inert contaminants and free of substances toxic to plantings; and as follows:
 - 1. Organic Matter Content: **50** percent of dry weight.
 - 2. Feedstock: Agricultural, food, or industrial residuals; biosolids; yard trimmings; or source-separated or compostable mixed solid waste.
- E. Fiber Mulch: Biodegradable, dyed-wood, cellulose-fiber mulch; nontoxic; 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.
- F. Nonasphaltic Tackifier: Colloidal tackifier recommended by fiber-mulch manufacturer for slurry application; nontoxic and free of plant-growth or germination inhibitors.
- G. Asphalt Emulsion: ASTM D 977, Grade SS-1; nontoxic and free of plant-growth or germination inhibitors.

2.9 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 long.
- B. Erosion-Control Fiber Mesh: Biodegradable twisted jute or spun-coir mesh, a minimum of 0.92 lb./sq. yd., with 50 to 65 percent open area. Include manufacturer's recommended steel wire staples, 6 inches long.

2.10 PLANTING SOIL MIX

- A. Planting Soil Mix: As specified on drawings.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas to receive Turf and grass for compliance with requirements and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities, trees, shrubs, and plantings from damage caused by planting operations. Reference tree planting schematic for exclusion of sod within tree planting well.
 - 1. Protect adjacent and adjoining areas from hydroseeding overspray.
- B. Provide 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.
- C. Stop all sod at the edge of the tree well.

3.3 SOD PREPARATION

- A. Limit Sod subgrade preparation to areas to be planted within forty eight hours. Installation of sod shall not be undertaken until adjacent site improvements and pavement is complete. No trucking or moving of equipment or materials will be permitted upon completed sod.
- B. All irrigation heads, valve boxers, drain valves and quick couplers shall be flagged prior to sodding operations.
- C. Newly Graded Subgrades: Loosen subgrade to a minimum depth of 6 inches. Remove stones larger than ¾ inch in any dimension and sticks, roots, rubbish, and other extraneous matter and

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legally dispose of them off Owner's property.

1. Apply fertilizer directly to finish grade, prior to sodding.
 2. Thoroughly blend planting soil mix before spreading or spread topsoil, apply soil amendments and fertilizer on surface, and thoroughly blend planting soil mix.
 - a. Delay mixing fertilizer with planting soil if planting will not proceed within three days.
 3. Spread planting soil mix to a depth of 4 inches, but not less than required to meet finish grades natural settlement. Do not spread if planting soil or subgrade is frozen, muddy, or excessively wet.
 - a. Spread approximately one-half the thickness of planting soil mix over loosened subgrade. Mix thoroughly into top 4 inches of subgrade. Spread remainder of planting soil mix.
- D. Unchanged Subgrades: If Turf is to be planted in areas unaltered or undisturbed by excavating, grading, or surface soil stripping operations, prepare surface soil as follows:
1. Remove existing grass, vegetation, and turf. Do not mix into surface soil.
 2. Loosen surface soil to a depth of at least of 6 inches. Apply soil amendments and fertilizers according to planting soil mix proportions and mix thoroughly into top 4 inches of soil. Till soil to a homogeneous mixture of fine texture.
 - a. Apply fertilizer directly to finish grade, prior to sodding.
 3. Remove stones larger than ¾ inches in any dimension and sticks, roots, trash, and other extraneous matter.
 4. Legally dispose of waste material, including grass, vegetation, and turf, off Owner's property.
- E. Finish Grading: Finished grading and preparation of the entire sodded or seeded bed areas shall be achieved by disc-harrow or other approved method to a depth of six-inches (6"), or determined by Owner's Representative), fine ranking and/or light dragging until the surface is smooth, friable, and of uniform fine texture and compaction, having no lumps or stones over ¾" inch. No sod shall be laid on any area which has not been so prepared. Obtain the Owner's Representative's approval of prepared areas prior to sodding. A depth of one-inch (1") shall be maintained along sidewalk, before sod is installed.
- F. Finish grades shall be as indicated on the drawing, subject to minor adjustments, as may be directed by the Owner's Representative. Tops and toes of slopes shall be rounded, and the necessary swales for the run-off of surface water shall be carefully maintained with sufficient slope.
- G. Moistened prepared Sod areas before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.
- H. Restore areas if eroded or otherwise disturbed after finish grading and before planting.

3.4 SEEDING

- A. Sow seed with spreader or seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.
 1. Do not use wet seed or seed that is moldy or otherwise damaged.
- B. Sow seed at the rate: As specified on drawings.
- C. Rake seed lightly into top 1/4 inch topsoil, roll lightly, and water with fine spray.
- D. Protect seeded areas with slopes exceeding 3:1 or greater with erosion-control blankets installed and stapled according to manufacturer's written instructions.
- E. Protect seeded areas with slopes not exceeding 3:1 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 depth over seeded areas. Spread by hand, blower, or other suitable equipment.
 1. Anchor straw mulch by crimping into topsoil with suitable mechanical equipment.
 2. Bond straw mulch by spraying with asphalt emulsion at the rate of 10 to 13 gal. /1000 sq. ft. Take precautions to prevent damage or staining of structures or other plantings adjacent to mulched areas. Immediately clean damaged or strained areas.

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3.5 HYDROSEEDING

- A. Hydroseeding: Mix specified seed, fertilizer, and fiber mulch in water, using equipment specifically designed for hydroseed application. Continue mixing until uniformly blended into homogeneous slurry suitable for hydraulic application.
 - 1. Mix slurry with non-asphaltic tackifier.
 - 2. Apply slurry uniformly to all areas to be seeded in a one-step process. Apply mulch at a minimum rate of 1500-lb/acre dry weight but not less than the rate required to obtain specified seed-sowing rate.
 - 3. Apply slurry uniformly to all areas to be seeded in a two-step process. Apply first slurry application at a minimum rate of 500-lb/acre dry weight but not less than the rate required to obtain specified seed-sowing rate. Apply slurry cover coat of fiber mulch at a rate of 1000 lb./acre.

3.6 SODDING

- A. Laying Sod: Lay sod within 24 hours of harvesting. Sod shall be laid on a firm moist bed with tight joints so that no voids occur under or between strips. All ends should be tucked and unrolled. Stagger sod strips or pads to offset joints in adjacent courses. Avoid damage to subgrade or sod during installation. Any depressions or mounds occurring after sodding shall be corrected prior to acceptance of work. No sod shall be laid on a frozen bed or installed on Fridays. No sod shall be laid within the tree planting well.
- B. Sod shall be blended Kentucky Bluegrass turf, approved by owner and supplied from a single approved source. Sod shall be one inch (1") minimum thick dense and free of weeds and stones. All sod shall be inspected and approved by the Owner's Representative at the time of delivery. Sod shall be sufficiently moist so that the soil will adhere to the roots when handled. Delivered sod shall contain no more than five (5) percent broken rolls. Sod that has become moldy, withered, or yellow from storage or drying, or does not meet minimum thickness requirements may be rejected at the time of planting. Sod out for more than 24 hours from the time of cutting shall not be used.
- C. As soon as sod has been laid, it shall be watered and rolled using a Jackson Sod Roller, True Temper Model 12LR with 240# of water approved equals, so that the sod makes a tight bond to the sod bed. Work sifted soil or fine sand into minor cracks between pieces of sod; remove excess to avoid smothering sod and adjacent grass.
 - 1. Lay sod across angle of slopes exceeding 3:1.
 - 2. Anchor sod on slopes exceeding 4:1 with wood pegs or steel staples spaced as recommended by sod manufacturer but not less than 2 anchors per sod strip to prevent slippage.
- D. Saturate sod with fine water spray within two hours of planting. During first week, water daily or more frequently as necessary to maintain moist soil to a minimum depth of 1-1/2 inches below sod.

3.7 SOD RENOVATION

- A. Renovate existing sod damaged by Contractor's operations, such as storage of materials or equipment and movement of vehicles.
 - 1. Re-establish sod where settlement or washouts occur or where minor regrading is required.
- B. Remove sod and vegetation from diseased or unsatisfactory sod areas: do not bury in soil.
- C. Remove topsoil containing foreign materials resulting from Contractor's operations, including oil drippings, fuel spills, stone, gravel, and other construction materials, and replace with new topsoil.
- 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 ripped, bare and compacted areas thoroughly to a soil depth of 6 inches.
- H. Apply soil amendments and initial fertilizers required for establishing new Turf and mix thoroughly into top 4 inches of existing soil. Provide new planting soil to fill low spots and meet finish grades.
- I. Apply sod as required for new Turf.
- J. Water newly planted areas and keep moist until new sod is established.

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3.8 SATISFACTORY TURF

- A. Satisfactory Seeded Turf: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities. The maintenance period for this work shall begin immediately after all areas are seeded and shall continue in accordance with the following requirements.
- B. All seeded areas shall have suitable signs erected at important points, notifying the public to keep off. Minor vandalism or other damage to the seeded areas shall be the responsibility of the Contractor until all work receives Final Acceptance by the Owner's Representative. Major vandalism or damage caused by others through no fault of the Contractor or his subcontractor shall be brought to the attention of the Owner's Representative who will be the sole judge as the extent of such damage. If such damage is deemed to be major by the Owner's Representative, any work necessary to repair the seeded area to an acceptable condition shall be paid for by the Owner under the provision of "extra work" stated in the General Conditions, if such work is authorized by the Owner's Representative.
- C. Acts of God: Minor damage to the seeded areas shall be the responsibility of the Contractor until all work receives Final Acceptance by the Owner's Representative. Major damage caused by flood, hail storm, wind or large rain storm, and through no fault of the Contractor to protect his work, shall immediately be brought to the attention of the Owner's Representative who will be the sole judge as to the extent of such damage. Major damage shall be repaired by the Contractor and paid for by the Owner, if such work is authorized by the Owner's Representative.
- D. The Contractor shall be responsible for watering and mowing the seeded areas only until Final Acceptance. Mowing shall be maintained at a height of three inches (3") and mowed only by equipment with sharp blades. Sod shall be mowed before grass reaches a height of four inches (4"). If grass exceeds four inches (4"). If grass exceeds four inches (4") in height before mowing, no more than (1/3) of top growth shall be cut off at any one time.
- E. Upon completion of all seeding operations, the Contractor will notify the Owner's Representative to inspect the work. Upon inspection, if all work is acceptable, the Owner's Representative shall record that date and shall issue a "Conditional Acceptance" letter which shall state that the Contractor shall maintain all seeded areas as specified according to the following length of time.
- F. Period of 60 calendar days minimum, which shall be referred to as the "Seeded Area Maintenance Period". At the end of this period, the seeded areas shall be given "Final Acceptance" if the seed has germinated and there are no bare areas larger than six (6) square inches. All bare areas larger than (6) square inches in diameter shall be re-seeded.
 - 1. At the end of the maintenance period, the Owner's Representative shall, within five (5) calendar days, inspect the work, and if the work is acceptable, he shall relieve the Contract from further obligations for seeding work only. Final acceptance of seeding work may be given independently of final acceptance of all work under this contract.
- G. Satisfactory Sodded Turf: At the end of maintenance period, a healthy, well-rooted, even-colored, viable Sod has been established, free of weeds, open joints, bare areas, and surface irregularities.
- H. Re-establish Turf that does not comply with requirements and continue maintenance until Turf are satisfactory.

3.9 NATIVE SEEDING

- A. Method of Application: Refer to Detail Supplement or drawings.
- B. Do not broadcast or drop seed when wind velocity exceeds 5 mph. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.
 - 1. Do not use wet seed or seed that is moldy or otherwise damaged.
- C. Sowing rates vary with mix of species but are usually much lighter than turfgrass seed application rates. Revise to suit Project.
- D. Sow seed at the net rate of 6 oz. /1000 sq. ft.
- E. Brush seed into top 1/16 inch of topsoil, roll lightly, and water with fine spray.

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- F. Protect seeded areas from hot, dry weather or drying winds by applying compost mulch within 24 hours after completing seeding operations. Soak and scatter uniformly to a depth of 3/16 inch and roll to a smooth surface.
- G. Water newly planted areas and keep moist until meadow is established.

3.10 CLEANUP AND PROTECTION

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

END OF SECTION 02920 – SEEDING AND SODDING (REVISED 2013)