

Division 32 - Exterior Improvements
SECTION 32 92 23
SODDING**PART 1 - GENERAL****1.01 GENERAL REQUIREMENTS**

- A. The Contractor is referred to the Instructions to Bidders and General Conditions, NYCHA Contracts; the Special Notice to Contractors; the Form of Proposal; the Form of Bid Bond; Division 01 - General Requirements of the Contract Specifications; the Contract Drawings and all Amendments and Addenda thereto; all of which govern the Work of this Section.

1.02 SECTION INCLUDES

- A. Placing topsoil.
B. Fertilizing.
C. Sod installation.

1.03 RELATED REQUIREMENTS

- A. Section 31 22 00 - Grading: Topsoil material.
B. Section 31 22 00 - Grading: Preparation of subsoil and placement of topsoil in preparation for the work of this section.

1.04 DEFINITIONS

- A. Weeds: Includes 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.

1.05 REFERENCE STANDARDS

- A. TPI (SPEC) - Guideline Specifications to Turfgrass Sodding; Turfgrass Producers International; 2006.

PART 2 - PRODUCTS**2.01 MATERIALS**

- A. Certified analysis by recognized laboratories shall be submitted by the Contractor to the Authority for topsoil, fertilizer, grass seed, insecticides and materials of similar character. Manufacturer's analysis for Standard Products will be acceptable.
1. Topsoil shall be one grade only. It shall consist of natural loam topsoil free from subsoil, stones, sticks, roots, and debris of any kind. It shall be obtained from an area which has never been stripped and shall also be of uniform quality. It shall be removed to a depth of one (1) foot, or less if subsoil is encountered. If a truckload of topsoil is considered by the Authority to contain too much undesirable material to be corrected on site; the entire

truck load shall be rejected. No topsoil shall be delivered in a frozen or muddy condition. Topsoil shall comply with the following requirements:

- a. Acidity range - pH value 5.0 to 7.0
 - b. Organic content - 5% minimum not to exceed 14% as determined by weight loss on ignition of moisture free samples dried at 100 to 110 degrees C.
 - 1) Sieve Analysis - ASTM designation C 117:
 - (a) Passing 2" sieve 100%
 - (b) Passing 1" sieve 95% to 100%
 - (c) Passing #4 sieve 90% to 100%
 - (d) Passing #100 sieve 30% to 60%
 - (e) Passing #200 sieve 10% to 30%
 - c. The Housing Authority Inspector reserves the right to reject topsoil in which more than sixty-five percent (65%) of the material passing #100 sieve consists of clay as determined by the Buoyous Hydrometer or decantation method. All percentages are to be based on dry weight of sample. Electrical Conductivity shall be less than 1500 mhos/cm. A higher level indicates excessive salt content. The testing method shall be the saturated paste method.
 - d. The Housing Authority Inspector may permit incorporation into the topsoil of additional humus or rotted manure to correct a deficiency of not more than one (1) percent in organic matter provided the topsoil otherwise complies with the requirements of the Specifications.
2. Representative samples of the topsoil shall be taken by the Contractor at the source and delivered to a recognized testing laboratory. Samples and certified analysis shall be submitted by the Contractor at his/her own expense for approval by the Authority. The chemical and mechanical analysis shall show the acidity range, organic content, clay content, sieve analysis and electrical conductivity. A statement shall accompany the certified report giving the location where the topsoil is obtained, the name and address of the owner of the topsoil and the approximate quantity of the topsoil.
 3. Approval of the tested sample shall not be construed as final acceptance of the topsoil. The Housing Authority Inspector reserves the right to take samples of the topsoil delivered to the site of the work and analyze them for comparison with the Specifications at ANY time during the contract period. The cost of this test will be borne by the Authority. Should the test show non-compliance with the Specifications, the Authority will charge the cost of any such tests to the Contractor. Topsoil delivered which does not comply with the Specifications will be rejected and shall be removed from the Development by the Contractor at no cost to the Authority.
- a. Fertilizer for lawns shall be commercial fertilizer 10-6-4 mixture granular fertilizer, the elements of which are derived from organic sources shall contain the following percentages by weight:
 - 1) 10% - Nitrogen, 6% - Phosphoric acid, 4% - Potash

- (a) One-quarter (1/4) of the nitrogen shall be in the form of nitrates, one-quarter (1/4) in the form of ammonia salts and one-half (1/2) in the form of natural organic nitrogen. Available phosphoric acid shall be from superphosphate, bone, or tankage. The potash shall be in the form of sulphate of potash.
 - (b) The availability of the various elements shall conform to the standards of the Association of Official Agricultural Chemists.
 - (c) Fertilizer shall be delivered, mixed as specified, in standard size bags, showing weight, analysis and name of manufacturer, and shall be stored in weatherproof storage place and in such a manner that its effectiveness will not be impaired.
- 2) Granulated Limestone shall be a commercial grade limestone uniformly granulated so it can be evenly distributed by a mechanical spreader. Total carbonates shall not be less than eighty percent (80%) or 44.8% calcium oxide equivalent; for purposes of calculation, total carbonates shall be considered as calcium carbonate.
- 3) The Contractor shall lay weed-free cultivated sod in areas shown on the Drawings. Sod shall contain a mixture of the following grass varieties: (65% of the mixture by weight) for the sod shall be a blend of three or four of the following varieties:
 - (a) Blackstone
 - (b) Apollo
 - (c) Rambo
 - (d) Total Eclipse
 - (e) Rugby II
 - (f) Baronie
- 4) 35% of the mixture by weight) for the sod shall be a blend of two or three of the following:
 - (a) Brilliant
 - (b) Baron
 - (c) Moonlight
 - (d) Caliber
 - (e) Washington
 - (f) Liberator
- 5) Sod shall be of good texture, free from obnoxious roots, stones and foreign material. Sod shall be in fifteen (15) inch wide strips, uniformly one (1) to one and one-half (1-1/2) inches thick with clean cut edges. It shall be fresh cut and moist and shall not be dormant, muddy, frozen or from cold storage. The Authority may inspect the sod before it is cut but reserves the right to reject, on or after delivery, any sod which does not meet these Specifications. The Contractor shall deliver to the site only as much sod as can be installed in one day.
- 6) Humus shall be of native type and shall consist of reed peat or sedge peat, but not peat-moss. Humus shall be from fresh water site conditioned in storage piles after

excavation for at least six months, including one freezing and thawing period. It shall be free from sticks, stones, weedy roots or other foreign matter and when delivered from stock piles shall contain between 35 per cent and 50 per cent moisture. Only natural domestic humus suitable for soil mix shall be used, of such a composition as to furnish ample water holding capacity and retention of plant food. Humus shall be dark brown to black in color. It shall show an analysis as follows:

- (a) Maximum moisture content 70% by weight
- (b) Acidity Range - pH 5.0 to pH 7.5
- (c) Water absorbing capacity not less than 300% of its own weight (oven dried basis)
- (d) Organic matter shall test 80% on a dry weight basis (Samples dried at 100 degrees C.). Humus with organic matter of 75% - 80% may be accepted, the deficiency to be made up in quantity.

B. PLANTING OPERATIONS

1. The season for planting lawns with sod shall be:
 - a. ----- March 15th to May 30th and -----
 - b. ----- August 15th to November 30th -----
 - 1) The preparation of lawn areas may begin prior to the specified planting season providing the subgrade has been established and providing that in the judgement of the Authority Inspector the general construction work is sufficiently advanced.
 - 2) The Contractor shall provide new Sod-lawn and topsoil in areas indicated on the Drawings. The existing soil or pavement shall be removed as required to install new topsoil to a minimum depth as herein specified and establish required grades.
 - (a) In areas where existing pavement is to be removed and Sod is to be established, the area shall be prepared by removing all pavement and subgrade material. The area shall then be filled with compacted topsoil so there is a flush transition in grade from the existing lawn to the level of the new Sod.
 - 3) New topsoil shall be spread in all areas being restored to lawn as indicated on the Drawings. Before depositing and spreading the topsoil, the subsoil surface is to be raked clear of stones, debris, or rubbish. Topsoil shall be spread, raked, compacted and otherwise manipulated to form, after settlement, smooth draining grades. The depth of the topsoil after compaction shall be six (6") inches, unless otherwise shown on the Drawings.
 - 4) Ground limestone - granulated limestone shall be evenly distributed over the topsoil at the rate of 110 lbs. per 1,000 square feet and shall be thoroughly incorporated into the top three (3) inches of topsoil at least seven (7) days before application of the fertilizer.
 - 5) Humus - Before any fertilizers have been applied and before sod is laid, humus shall be spread over the area and incorporated into the top three (3) inches of the topsoil with a rototiller (taking care not to injure tree or other plant roots in proximity) at the rate of 3-1/3 cubic yards per 1000 square feet.

- 6) Fertilizer - After topsoil is in place, commercial fertilizer (10-6-4) shall be applied at the rate of 25 lbs. per 1,000 square feet and worked lightly into the top three (3) inches of topsoil.
- 7) All ground limestone and commercial fertilizer shall be spread by mechanical means only. It shall also be worked with a rototiller; there shall be NO manual working of fertilizer and limestone into the topsoil UNLESS the new lawn panel or area is too small to accommodate the Contractor's rototiller OR in areas where rototilling would cause injury to tree and other plant roots.
- 8) The sod shall be laid on soil which shall be reasonably moist. It shall be laid smoothly, edge to edge, and all openings shall be plugged with sod, NEVER filled with seed. In drainage-ways and where continuous or solid sodding is called for on the drawings; the sod shall be laid with their longest dimensions parallel to the contours. Such sodding shall be begun at the base of slopes or grades and the sodding shall progress in continuous parallel rows working upward. Vertical joints between such sod shall be staggered. All sod shall be laid to the grades specified and the grades formed with special care at the junction of drainage-ways. Immediately after the sod is laid, it shall be pressed firmly into contact with the sodbed by tamping, rolling, or by other approved methods so as to eliminate all air pockets, provide true and even surfaces at the specified finished grades, insure knitting and protect all exposed sod edges but without displacement of the sod or deformation of the surface of the sodded areas and watered at the rate of five (5) gallons per square yard (20 liters/square meter) of sodded area unless otherwise directed by the Site Improvements Horticulturist. Prior to and until issuance of partial or final acceptance, the Contractor shall maintain all sodded areas for a period of time until sod is thoroughly established and flourishing as shall be determined by the Authority. Maintenance shall include watering and mowing.
- 9) Pegging
 - (a) Sod shall be held in place by stakes in all drainage-ways, swales etc., on all slopes steeper than 1:4 and elsewhere where specified or directed. Pegging shall be done immediately after tamping or rolling. At least one stake shall be driven through each sod strip to be staked, and the stakes shall not be spaced more than 2 feet (600 millimeters) apart. Stakes shall have their flat sides against (parallel to) the slope and be driven flush.

10) FINISHING

- (a) Excess sod or excess soil resulting from excavations or trenching shall be disposed of as approved. Excess soil shall not be left to form a ridge adjacent to the sodded area or sodded strips. No payment will be made for rejected or excess sod which is not laid.
- (b) Permission to use Development hydrants and/or hose bibbs must be obtained from the Development's Manager or Superintendent 48 hours prior to irrigating plants. Where water is supplied from City hydrants, the Contractor shall obtain a hydrant permit from the Department of Environmental Protection. Permits are issued for a thirty - (30) day period, and the Contractor is responsible for keeping the permits current. The permits are available from each DEP borough office.

- (c) The Contractor must have all tools necessary for using city hydrants in his/her possession at time of planting to ensure that this specification is adhered to. If conditions do not allow the use of New York City water sources; the contractor must obtain their own source of water. No direct payment shall be made for water obtained from city or other sources, HOWEVER the cost thereof shall be deemed included in the item price bid of all plant materials in this contract.
- (d) Prior to requesting inspection by the Authority the Contractor shall mow sodded areas a minimum of two times at ten day intervals, commencing with the date that each sodded area is laid, unless otherwise directed by the Authority.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Place topsoil in accordance with Sections 31 30 00 and 32 91 19.

3.02 LAYING SOD

- A. Moisten prepared surface immediately prior to laying sod.
- B. Lay sod immediately after delivery to site to prevent deterioration.
- C. Lay sod smooth and tight with no open joints visible, and no overlapping; stagger end joints 12 inches (300 mm) minimum. Do not stretch or overlap sod pieces.
- D. Water sodded areas immediately after installation. Saturate sod to 4 inches (100 mm) of soil.
- E. After sod and soil have dried, roll sodded areas to ensure good bond between sod and soil and to remove minor depressions and irregularities.

3.03 MAINTENANCE AND PROTECTION OF WORK

- A. The Contractor will be held responsible for the maintenance of all work and parts thereof prior to Final Acceptance by the Authority. No planting will be accepted unless it shows a healthy growth and satisfactory foliage conditions.
 - 1. Maintenance to be performed by the Contractor shall include watering of lawns, mowing, cleaning-up, protecting fences, and all other necessary work of maintenance.
 - 2. The Contractor shall provide at his/her own expense protection as specified for all sodded areas against trespassing and damages at all times. If any lawns are damaged or injured, they shall be treated or replaced.
 - 3. Protection shall consist of a orange construction fence not less than thirty (30) inches high and erected in a substantial manner. These protective fences shall be maintained by the Contractor until Final Inspection, and thereafter shall be removed from accepted areas within ten (10) days.

END OF SECTION