

## SECTION 32 92 19

### SEEDING

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Seeding Requirements

##### 1.02 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.

##### 1.03 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.

##### 1.04 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Maintenance Data: Include maintenance instructions, cutting method and maximum grass height. .

##### 1.05 REGULATORY REQUIREMENTS

- A. Comply with regulatory agencies for fertilizer and herbicide composition.

#### PART 2 PRODUCTS

##### 2.01 MATERIALS

- A. Analysis and tests and inspection of materials shall be made by NYCHA Representative, in accordance with current methods of the Association of Official Agricultural Chemists. Certified analysis by recognized laboratories shall be submitted by the Contractor to the Authority for topsoil, humus, 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:
    - 2. Acidity range - pH value 5.0 to 7.0
    - 3. 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.
      - a. Sieve Analysis - ASTM designation C 117:

1) Passing	2" sieve	100%		
2) Passing	1" sieve	95%	to	100%
3) Passing	#4 sieve	90%	to	100%
4) Passing	#100 sieve	30%	to	60%
5) Passing	#200 sieve	10%	to	30%
- B. The Housing Authority Representative(s) 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.

1. The Housing Authority Representative(s) may permit incorporation into the topsoil of additional humus 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.
- C. Humus shall be of a native type and shall consist of read 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.
1. It shall show an analysis as follows:
    - a. Maximum moisture content - 70 percent by weight
      - 1) Acidity Range - pH 5.0 to pH 7.5
        - (a) Water absorbing capacity - not less than 300% of its own weight
        - (b) (oven dried basis)
        - (c) Organic matter shall test 80% on a dry weight basis
        - (d) (Samples dried at 100 deg. C.)
        - (e) Humus with organic matter of 75 - 80% may be accepted, the deficiency to be made up in quantity.
        - (f) Low in content of woody material, iron and sulphur Ash, on dry basis, shall be not more than 20%.
- D. 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 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.
1. Approval of the tested sample shall not be construed as final acceptance of the topsoil. The Housing Authority Representative(s) 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.
- E. **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 to be from superphosphate, bone, or tankage. The potash to be in the form of sulphate of potash.
      - 1) The availability of the various elements shall conform to the standards of the Association of Official Agricultural Chemists.
        - (a) 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.
- F. **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.

- G. Permanent grass seed shall be a mixture as follows:
1. General Requirements
  2. Grass seed shall be of two kinds:
    - a. **Regular Mix**
    - b. **Shade Mix**
  3. Detail Requirements
    - a. All seed shall be fresh, recleaned, "New Crop" seed, mixed in proportions as shown by weight and testing. The minimum percentage of purity and germination, and maximum weed seed shall be as indicated below:
    - b. **Regular Mix** (60% Kentucky Blue Grass - 40% Perennial Rye Grass)
      - 1) Kentucky Blue Grass - - 97% purity 85% germination
        - (a) Acceptable Varieties - Diva 30%
        - (b) Rock Star 30%
        - (c) Perennial Rye Grass - 97% purity 90% germination
        - (d) Acceptable Varieties -Palmer IV 20%
        - (e) Pennant 20%
        - (f) NOTE: Free of Poa Annuu & Noxious Weed Seed.
    - c. **Shade Mix** (20% Red Fescue, 40% Chewings Fescue, 30% Perennial Rye Grass and 10% Kentucky Blue Grass)
      - 1) Red Fescue - 97% purity 85% germination
      - 2) Acceptable Varieties- Epic 20%
      - 3) Chewings Fescue - 97% purity 85% germination
      - 4) Acceptable Varieties- Ambrose 40%
        - (a) Perennial Rye Grass - 98% purity 90% germination
        - (b) Acceptable Varieties - Wizard 30%
        - (c) Kentucky Blue Grass - 97% purity 85% germination
        - (d) Acceptable Varieties - Baron or Atlantis 10%
        - (e) NOTE: Free of Poa Annuu and Noxious Weed Seed.
    - d. NOTE TO BIDDERS
      - 1) The Authority is willing to accept alternate grass seed varieties.
        - (a) The bidder must submit documentation to show that the varieties being submitted are equal to, or better than the variety in the specification listing.
        - (b) The accepted document for verification is THE UNITED STATES DEPARTMENT OF AGRICULTURE NATIONAL TURF GRASS EVALUATION PROGRAM, testing report for the year of the most recent test available prior to the bid.
        - (c) The Contractors submitting alternate bids for specified seed that is not commercially available must document this unavailability so that other varieties may be considered.
  4. MIXING
    - a. Seed mixing shall be performed only with a mechanical mixer.
  5. TEST CERTIFICATES
    - a. The bidder, when requested, shall submit within ten days from date of request a certified analysis of the seed(s) proposed to be furnished under this Specification. The analysis shall be performed by a recognized agricultural testing laboratory and shall not include tolerance.
    - b. Failure by the bidder to submit analysis within the time allowed may be caused for rejection.
  6. INSPECTION, SAMPLING AND TESTING
    - a. Delivery shall not be made until an Authority representative takes samples of the grass seed before it is mixed, witnesses the mixing operations and immediately seals all bags of mixed seed. The samples shall be taken and delivered by Authority personnel to a laboratory selected by the Authority for test to ascertain compliance with specification requirements. The Authority reserves the right to reject, on or after

delivery, any material which does not meet these specifications. Any costs to perform these tests shall be borne by the Contractor.

7. METHOD OF TESTS AND PENALTIES

- a. After standard tolerances have been allowed, penalties shall be imposed based on the difference, if any, between the specification requirements and a test report on the samples taken at the time of the mix, or from deliveries. Such samples will be submitted to the New York State Agricultural Experimental Station, Geneva, New York. Their test report shall be used as a basis for any and all penalties imposed.
- b. In order that penalties shall be justly invoked, the bidder shall submit with his bid, unit prices on each variety of seed comprising the mixture as covered by this specification. The Authority reserves the right to deduct penalties for non-compliance on any variety as listed herein.
- c. The tolerances for purity and germination shall be determined in accordance with the Rules and Recommendations for Testing Seeds of the Association of Official Seed Analysis of North America, latest edition.

8. METHODS OF DETERMINING DEFICIENCY

- a. Deficiency in pure live seed content shall be determined in accordance with the method of the following example:

1) <u>Purity</u>	<u>Germination</u>	<u>Live Seed</u>
(a) Specification		
(b) Requirements	99% x	90% =89.10%
(c) Tolerance	0.4%	6%
(d) Difference	98.6% x	84% =82.82%
(e) Found by Test	90.0% x	80% =72.00%

9. DEDUCTIONS

- a. The percentages of deductions from the payment due shall be the sum of the percentage of deficiency herein. Percentage of pure live seed content shall be determined by multiplying the percentage of purity by the percentage of germination and dividing by 100.

- 1) Additional deductions shall be calculated as follows:

(a) Deficiency in Pure	Additional
(b) <u>Live Seed Content</u>	<u>Deduction</u>
(c) 0.% to 5.00%	0%
(d) 05.01% to 10.00%	5%
(e) 10.01% to 20.00%	10%
(f) 20.01% to 30.00%	20%
(g) 30.01% to 40.00%	30%
(h) 40.01% to 100%	(No Payment)

- b. In the example cited above, the total deduction to be made is 10.82% plus 10% or 20.82%.
- c. When the deficiency in pure live seed content is found to be in excess of 40%, no replacement will be allowed and no payment will be made for the seed delivered.
- d. If the seed delivered is not of the kind and variety specified, and is found to be defective, no replacement will be allowed and no payment will be made for the seed delivered.

2.02 PLANTING OPERATIONS

- A. The season for the planting of lawns with grass seed shall be from:

- 1. ----- March 15th to May 15th -----
- 2. ----- August 15th to October 1st -----

- a. 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 Representative(s) the general construction work is sufficiently advanced.

- b. Permanent grass seeding is to be done in areas to be restored to lawn as indicated on the Drawings and in accordance with these Specifications.
- c. Topsoil shall be spread in all areas indicated as being restored to lawn areas on the Drawings. Before depositing and spreading the topsoil, collect all surface stones exceeding ½" diameter in any direction and remove from site as well as all other debris. 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.
- d. Humus (if required by the NYCHA Representative(s)) shall be spread over the topsoil area and shall be incorporated into the top three (3) inches of the topsoil at the rate of 3-1/3 cubic yards per 1000 square feet using a steel rake or grading box and rototiller.
- e. After topsoil is in place, the fertilizer 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 using a mechanical broadcast spreader and rototiller.
- f. After the fertilizer has been applied, the 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 using a mechanical broadcast spreader and rototiller.
- g. Rototill and flat roll with a 500 lb. roller alternatively 1 time in two directions crosswise, to produce a level fine, smooth formed seed bed.
- h. Pretreat all perennial weed roots with "Roundup Pro" liquid concentrate broad spectrum herbicide or approved equal mixed and applied as per manufacturer's recommendations 21 days prior to sowing of seed, as supplied by Professional Tree Surgeons 580 W. Hoffman Avenue, Lindenhurst, N.Y. PH: 1-800-873-3203. APPLY ONLY TO SEED BED taking care to NOT let drift encroach on turf or other plant materials in proximity to the seed bed(s) being treated.
- i. Permanent grass seed shall be sown at the rate of eight (8) lbs. to 1,000 square feet of area. The seed shall be sown evenly and lightly wood raked into the ground, after which the ground shall be rolled with a 500 pound roller and then thoroughly watered with a fine spray.
- j. The Contractor shall be responsible for producing a good stand of grass acceptable to the Authority. Any areas not doing well or damaged shall be re-seeded. At intervals as may be required according to season conditions, the Contractor shall mow and water the grass, do the necessary weeding and other incidental work required to keep the areas in proper condition. (No lawns will be accepted until they are covered with a satisfactory, healthy stand of grass of the varieties specified and have been mowed twice.)
- k. Permission to use Development hydrants 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.
  - 1) The Contractor must have all tools necessary for using city hydrants in his or 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.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

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

**END OF SECTION**