

SEEDING

SECTION T-901

{Instruction to Consultants: The Master Specification must only be considered to be general guidelines as it is not prepared for a Specific Project. If the items described in the Master Specification do not match the items actually going to be used in a Specific Project, then the Consultant must add new text or modify the existing text so that the final specification is fully coordinated and consistent with the Contract Drawings. The Master Specification must not be considered complete. Additions and deletions necessary to make it project specific are required from the Consultant. Items that are not part of the scope of the Specific Project must be deleted.

The Consultant must add to and/or delete paragraphs, items, etc. to the Master Specification section as required by the scope and nature of the Specific Project. The general format and general statements of the various sections must remain unchanged. The Consultant must modify and finalize the footer to identify the Specific Project as to name of project, project number, and issued for/issue date.}

PART 1 DESCRIPTION

1.01 GENERAL

- A. This item consists of seeding in the areas shown on the Plans to be regraded or as directed by the Director in accordance with these Specifications.

PART 2 MATERIALS

2.01 SEED

- A. The kinds of grass, legume, and cover-crop seed furnished must be those stipulated herein. Seed must conform to the requirements of the Illinois Department of Transportation (IDOT) Standard Specification for Road and Bridge Construction (SSRBC), latest edition, Article 1081.04 unless otherwise specified in this Specification. For Tall Fescue varieties shown in 2.01C, use parameters specified for "Fescue Inferno Tall" in Table II of Article 1081.04.
- B. Seed must be furnished separately or in mixtures in standard containers with the seed name, lot number, net weight, percentages of purity and of germination and hard seed, and percentage of maximum weed seed content clearly marked for each kind of seed. The Contractor must furnish the Director duplicate signed copies of a statement by the vendor certifying that each lot of seed has been tested by a recognized laboratory for seed testing within 6 months of date of delivery. This statement must include: name and address of laboratory, date of test, lot number for each kind of seed, and the results of tests as to name, percentages of purity and of germination,

and percentage of weed content for each kind of seed furnished, and, in case of a mixture, the proportions of each kind of seed.

- C. Seeds must be spread uniformly at the rate and mixture specified below in pounds per acre of pure live seed (PLS):

Grass Seed Blend	lb/acre PLS
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Type 1 – OMP Permanent Seed Mix

Tall Fescue (<i>Festuca arundinacea</i>)	325
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Use a minimum of 3 varieties of tall fescue. Each variety should contain a minimum of 70% viable endophytes. Varieties should come from the following list: 2nd Millennium, Bonsai, Cayenne, Cochise III, Constitution, Covenant, Coyote II, Crossfire II, Dakota, Dynasty II, Escalade, Mustang 3, Rendition, SR 8600, Taos, Titan Ltd., Titanium or Tombstone or as approved by the Director.

Type 2 – Late Fall Seed Mix

Tall Fescue (<i>Festuca arundinacea</i>)	250
Perennial Ryegrass (<i>Lolium perenne</i>)	75

Use Tall Fescue blend of varieties listed in Schedule 1 and a blend of up to two cultivars of endophyte – containing Perennial Ryegrass.

Type 3 – Dormant Seed Mix

Tall Fescue (<i>Festuca arundinacea</i>)	300
Perennial Ryegrass (<i>Lolium perenne</i>)	75

Use Tall Fescue blend of varieties listed in Schedule 1 and a blend of up to two cultivars of endophyte – containing Perennial Ryegrass.

Type 4 – Swale/Ditch Seed Mix (See OMP Standard Detail 7-03-01)

<u>Type 1</u>	325
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or

<u>Type 2</u>	325
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or

Type 3	375
and	
Red Top (<i>Agrostis alba</i>)	10
Rough Bluegrass (<i>Poa trivialis</i>)	20

Use swale mix in areas where irregular inundation is expected. The area to be seeded shall include the swale/ditch banks up to an elevation that is two feet above the normal water elevation for the channel. For normally dry channels, this shall be measured from the channel invert. The Red Top and Rough Bluegrass should be over seeded at the specified rates over the Type 1 or Type 2 seed application depending on application date.

- D. The Contractor must store the Tall Fescue seed varieties in a cool dry place until planted to protect endophyte levels from high heat. The seed must not be stored in direct sunlight and must not be kept in a hot shed during summer.

2.02 LIME

- A. Lime, if required to adjust the soil pH, must be ground limestone containing not less than 85% of total carbonates, and must be ground to such fineness that 90% will pass through a No. 20 mesh sieve and 50% will pass through a No. 100 mesh sieve. Coarser material will be acceptable, providing the rates of application are increased to provide not less than the minimum quantities and depth specified in the special provision on the basis of the two sieve requirements above. Dolomitic lime or a high magnesium lime must contain at least 10% magnesium oxide.
- B. To determine if lime is required, the Contractor must perform 4 pH tests, located at least 50 feet apart, on the soil for each acre to be seeded. The average value of the test results must be the pH value for that acre tested. If the pH value is less than 5.5, the soil must be amended to raise the pH to the acceptable range. Lime requirement must be determined by soil test of the buffering capacity of the soil. Sufficient lime must be applied to raise soil pH to 6.5. Copies of the test results must be transmitted to the Director upon receipt by the Contractor.

2.03 FERTILIZER

- A. Fertilizer must be standard commercial fertilizers supplied separately or in mixtures containing the percentages of total nitrogen, available phosphorus, and water-soluble potash. They must be applied at the rate and to the depth specified in this Specification, and must meet the

specified requirements of the applicable state and federal laws. They must be furnished in standard containers with name, weight, and guaranteed analysis of contents clearly marked thereon. No cyanamide compounds or hydrated lime will be permitted in mixed fertilizers.

- B. The fertilizers may be supplied as a finely-ground fertilizer soluble in water, suitable for application by power sprayers or for dry application as granules.

2.04 SOILS FOR REPAIRS

- A. The soil for fill and topsoiling of areas to be repaired must be at least of equal quality to the topsoil as outlined in Section T-905, Topsoiling.

2.05 MULCH

- A. Mulch must be a hydraulic mulch meeting the requirements of Article 1081.06 (a) (2) of the Illinois Department of Transportation, Standard Specifications for Road and Bridge Construction (S.S.R.B.C.), latest edition. A mulch binder (supertackifier) must be added to the mulch mixture as per manufacturer's directions.

2.06 MULCH BINDER

- A. A supertackifier consisting of anionic polymers must be added to the mulch mixture as per manufacturer's directions. Product data for the supertackifier must be submitted to the Director for approval.

PART 3 CONSTRUCTION METHODS

3.01 ADVANCE PREPARATION AND CLEANUP

- A. After grading of areas has been completed and before applying fertilizer and ground limestone, areas to be seeded must be raked or otherwise cleared of stones, sticks, stumps, and other debris which might interfere with sowing of seed, growth of grasses, or subsequent maintenance of grass-covered areas. If any damage by erosion or other causes has occurred after the completion of grading and before beginning the application of fertilizer and ground limestone, the Contractor must repair such damage. This may include filling gullies, smoothing irregularities, and repairing other work related damages.
- B. An area to be seeded must be considered a satisfactory seedbed without additional treatment if it has recently been thoroughly loosened and worked to a depth of not less than 5 inches as a result of grading operations and, if immediately prior to seeding, the top 3 inches of soil

is loose, friable, reasonably free from large clods, rocks, large roots, or other undesirable matter, and if shaped to the required grade.

- C. However, when the area to be seeded is sparsely sodded, weedy, barren and unworked, or packed and hard, any grass and weeds must first be cut or otherwise satisfactorily disposed of, and the soil then scarified or otherwise loosened to a depth not less than 5 inches. Clods must be broken and the top 3 inches of soil must be worked into a satisfactory seedbed by disking, or appropriate means.
- D. Lime if required must be sprayed only upon previously prepared seedbeds. After the applied lime mixture has dried, the lime must be worked into the top 3 inches after which the seedbed must again be properly graded and dressed to a smooth finish.
- E. Apply a slow release fertilizer containing 136 lbs N/acre, 68 P₂O₅ lbs/acre, and 68 lbs K₂O/acre immediately prior to the application described in paragraph 3.02. The slow release fertilizer should contain at least 75% slow release N, with a 12 -16 week release period. If soil tests indicate that phosphorus and potassium levels are deficient, the application rates for these nutrients should be increased.

3.02 APPLICATION METHODS

- A. Seed Application: The Contractor must apply seed uniformly to the prepared seedbed in two directions perpendicular to each other, using one or more of the following methods as required:
 - 1. Class 1 – Apply seed uniformly, using a slit seeder, cultipacker or Brillion-type seeder. Roll with corrugated roller after seeding.
 - 2. Class 2 - Broadcast seed and cover with a light disk harrow or cultipacker or other suitable equipment. Class 2 seed application to be done only with the approval of the Director.
 - 3. Class 3 - Apply seed uniformly with a hydroseeder in a mixture not exceeding 220 pounds solids per 100 gallons of water. Class 3 seed application to be done only with the approval of the Director.
- B. Mulch Application: After application of the seed using the approved methods above, mulch and mulch supertackifier must be applied immediately over the freshly seeded areas in opposing directions using the following rates:
 - 1. Mulch 3500 lbs/acre
 - 2. Mulch supertackifier per manufacturer recommendations.

Mulch must be applied in accordance with Article 251.03 (c), Method 3 of SSRBC, except that mulch supertackifier must be applied concurrently with mulch.

- C. **Spraying Equipment:** The spraying equipment must have a container or water tank equipped with a liquid level gauge calibrated to read in increments not larger than 50 gallons over the entire range of the tank capacity, mounted so as to be visible to the nozzle operator. The container or tank must also be equipped with a mechanical power-driven agitator capable of keeping all the solids in the mixture in complete suspension at all times until used.
1. The unit must also be equipped with a pressure pump capable of delivering 100 gallons per minute at a pressure of 100 pounds per square inch. The pump must be mounted in a line which will recirculate the mixture through the tank whenever it is not being sprayed from the nozzle. All pump passages and pipe lines must be capable of providing clearance for 5/8 inch solids. The power unit for the pump and agitator must have controls mounted so as to be accessible to the nozzle operator. There must be an indicating pressure gauge connected and mounted immediately at the back of the nozzle.
 2. The nozzle pipe must be mounted on an elevated supporting stand in such a manner that it can be rotated through 360 degrees horizontally and inclined vertically from at least 20 degrees below to at least 60 degrees above the horizontal. There must be a quick-acting, three-way control valve connecting the recirculating line to the nozzle pipe and mounted so that the nozzle operator can control and regulate the amount of flow of mixture delivered to the nozzle. At least three different types of nozzles must be supplied so that mixtures may be properly sprayed over distance varying from 20 feet to 100 feet. One must be a close-range ribbon nozzle, one a medium-range ribbon nozzle, and one a long-range jet nozzle. For ease of removal and cleaning, all nozzles must be connected to the nozzle pipe by means of quick-release couplings.
 3. In order to reach areas inaccessible to the regular equipment, an extension hose at least 50 feet in length must be provided to which the nozzles may be connected.
- D. **Mixtures:** Lime, if required, must be applied separately, in the quantity specified, prior to the fertilizing and seeding operations. Not more than 220 pounds of lime must be added to and mixed with each 100 gallons of water. Mulch and mulch supertackifier must be mixed together and

applied after seed application at the specified rates above but not more than 220 pounds combined solids per 100 gallons of water.

- E. All water used must be obtained from fresh water sources and must be free from injurious chemicals and other toxic substances harmful to plant life. Brackish water must not be used at any time. The Contractor must identify to the Director all sources of water at least 2 weeks prior to use. The Director may take samples of the water at the source or from the tank at any time and have a laboratory test the samples for chemical and saline content. The Contractor must not use any water from any source which is disapproved by the Director following such tests.
- F. All mixtures must be constantly agitated from the time they are mixed until they are finally applied to the seedbed. All such mixtures must be used within 2 hours from the time they were mixed or they must be wasted and disposed of at locations acceptable to the Director.
- G. The mixtures must be applied by means of a high-pressure spray which will always be directed upward into the air so that the mixtures will fall to the ground like rain in a uniform spray. Nozzles or sprays will never be directed toward the ground in such a manner as might produce erosion or runoff.
- H. Particular care must be exercised to insure that the application is made uniformly and at the prescribed rate and to guard against misses and overlapped areas. Proper predetermined quantities of the mixture in accordance with Specifications must be used to cover specified sections of known area. Checks on the rate and uniformity of application may be made by observing the degree of wetting of the ground or by distributing test sheets or paper or pans over the area at intervals and observing the quantity of material deposited thereon.

3.03 MAINTENANCE OF SEEDED AREAS

- A. The Contractor must protect seeded areas against traffic or other use by warning signs or barricades, as approved by the Director. Surfaces gullied or otherwise damaged following seeding must be repaired by regrading and reseeding as directed. The Contractor must mow, water as directed, and otherwise maintain seeded areas in a satisfactory condition until final inspection and acceptance of the work. Areas with excessive weed growth must be regraded and/or treated with an application of a select herbicide, at the approval of the Director, and reseeded to establish a satisfactory stand of grass. Watering will only be accomplished at night or as directed by the Director.

- B. When the seed application method outlined above is used for work done out of season, it will be required that the Contractor establish a good stand of grass of uniform color and density to the satisfaction of the Director. If at the time when the Contract has been otherwise completed it is not possible to make an adequate determination of the color, density, and uniformity of such stand of grass, payment for the unaccepted portions of the areas seeded out of season will be withheld until such time as these requirements have been met.

3.04 TIME OF SEEDING

- A. The seeding and related operations must be performed during the following periods:
1. Standard seeding must occur between March 15 and September 15. Apply at specified rate and mix according to 2.01C (Type 1).
 2. Late fall seeding must occur between September 16 and October 15 according to 2.01C (Type 2).
 3. Late Fall seeding can be done between October 16 and November 14 at the direction of the Director (Type 2).
 4. Dormant seeding must occur between June 15 and August 15 at the discretion of the Director and between November 15 and December 31 or until the ground becomes frozen according to 2.01C (Type 3).
 5. Seeding must be done immediately upon completion of work in a given area. The outlet channel, peripheral drain and other areas of work completed during the course of the Contract must be permanently seeded during the next seeding period after completion. If it is more than 45 days until the period, the Contractor must use temporary protection measures to prevent soil erosion, and they will be acceptable to the Director.
 6. No seeding may occur between October 16 and November 14 (except as directed by the Director in Section 3.04.A.3) and between January 1 and March 14.

PART 4 METHOD OF MEASUREMENT

4.01 Completed and approved work will be measured as follows:

- A. Seeding, Permanent. Permanent seeding must include seed bed preparation, including fertilization, and hydroseeding (seed, fertilizer, mulch, and mulch supertackifier).

- B. Lime, pH Adjustment. During seed bed preparation, if lime is needed for pH adjustment, then it must be measured as a separate item.

PART 5 BASIS OF PAYMENT

5.01 Accepted quantities ordered by the Director and measured as described in will be paid for under:

- A. Item T-901-01 – Seeding, Permanent – per acre
- B. Item T-901-02 – Lime, pH Adjustment – pounds per acre

END OF SECTION T-901