PART 1 - GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM C 602	(1995; Rev. A) Agricultural Liming Materials
ASTM D 4427	(1992; R 1996) Peat Samples by Laboratory Testing
ASTM E 11	(1995) Wire-Cloth Sieves for Testing Purposes

COMMERCIAL ITEM DESCRIPTIONS (CID)

CID A-A-1909	Fertilizer

DEPARTMENT OF AGRICULTURE (DOA)

DOA FSA	(January 1985) Federal Seed Act Rules and Regulations of the Secretary of Agriculture
DOA SSIR	(April 1984) Soil Survey Investigation Report No. 1, Soil Survey Laboratory Methods and Procedures for Collecting Soil Samples, Soil Conservation Service

1.2 DEFINITIONS

1.2.1 Stand of Turf

95 percent ground cover of the established species.

1.3 RELATED REQUIREMENTS

Section 02935, "Landscape Maintenance" applies to this section for pesticide use and plant establishment requirements, with additions and modifications herein.

1.4 SUBMITTALS

Submit the following in accordance with Section 01330, "Submittal Procedures."

1.4.1 SD-03, Product Data

a. Wood cellulose fiber mulch

b. Fertilizer

c. Include physical characteristics, and recommendations.

1.4.2 SD-06, Test Reports

a. Topsoil composition tests (reports and recommendations).

b. Plant tissue sample test

1.4.3 SD-07, Certificates

a. State certification and approval for seed

1.5 DELIVERY, STORAGE, AND HANDLING

1.5.1 Delivery

1.5.1.1 Seed Protection

Protect from drying out and from contamination during delivery, on-site storage, and handling.

1.5.1.2 Sulfur Delivery

Deliver to the site in original, unopened containers bearing manufacturer's chemical analysis, name, trade name, trademark, and indication of conformance to state and federal laws. Instead of containers, fertilizer and sulfur may be furnished in bulk with certificate indicating the above information.

1.5.2 Storage

1.5.2.1 Seed, Fertilizer and Sulfur Storage

Store in cool, dry locations away from contaminants.

1.5.2.2 Topsoil

Prior to stockpiling topsoil, treat growing vegetation with application of appropriate specified non-selective herbicide. Clear and grub existing vegetation three to four weeks prior to stockpiling topsoil.

1.5.2.3 Handling

Do not drop or dump materials from vehicles.

1.6 TIME RESTRICTIONS AND PLANTING CONDITIONS

1.6.1 Restrictions

Do not plant when the ground is frozen, snow covered, muddy, or when air temperature exceeds 90 degrees Fahrenheit.

1.7 TIME LIMITATIONS

1.7.1 Seed

Apply seed within twenty four hours after seed bed preparation.

1.8 QUALITY ASSURANCE

1.8.1 Plant Tissue Sample Test

Submit reports for the test specified in DOA SSIR.

PART 2 - PRODUCTS

2.1 SEED

2.1.1 Classification

Provide state-certified seed of the latest season's crop delivered in original sealed packages, bearing producer's guaranteed analysis for percentages of mixtures, purity, germination, weedseed content, and inert material. Label in conformance with DOA FSA and applicable state seed laws. Wet, moldy, or otherwise damaged seed will be rejected. Field mixes will be acceptable when field mix is performed on site in the presence of the Contracting officer

2.1.2 Seed Mixture

As specified on drawings.

2.1.3 Time of Seeding

Turf grass seeding shall only be accomplished in the spring from Aril 1 through May 30 or in the Fall from August 15 through September 15. "Low water use grass" seeding shall only be accomplished in the spring from April 15 through June 1. If seeding is not accomplished during the "time of seeding" the Contractor shall accomplish the seeding at the "time of seeding" during the next calendar year. Extension of the Contract to meet the "time of seeding" shall be accomplished at no additional expense to the Owner.

2.2 TOPSOIL

2.2.1 Existing Soil

Modify existing soil to conform to the requirements specified in paragraph entitled "Composition."

2.2.2 Composition

Containing from 5 to 8 percent organic matter as determined by the topsoil composition tests of the Organic Carbon, 6A, Chemical Analysis Method described in DOA SSIR. Maximum particle size, 19 mm 3/4 inch, with maximum 3 percent retained on 6 mm 1/4 inch screen. Other components shall be within the following percentages:

Silt	25-50
Clay	10-30
Sand	20-35
pH	5 to 7.6
Soluble Salts	600 ppm maximum

2.3 pH ADJUSTERS

2.3.1 Sulfur

100 percent elemental.

2.4 SOIL CONDITIONERS

Provide singly or in combination as required to meet specified requirements for topsoil. Soil conditioners shall be nontoxic to plants.

2.4.1 Rotted Manure

Composted, horse or cattle manure containing maximum 25 percent by volume of straw, or other bedding materials. Manure shall be free of stones, sticks, and soil, viable weed seed, and other materials harmful to plants.

2.4.2 Composted Derivatives

Decomposed ground bark, or humus free of stones, sticks, and soil stabilized with nitrogen and having the following properties:

2.4.2.1 Particle Size

Minimum percent by weight passing:

4.75 mm	No. 4 mesh screen	95
2.36 mm	No. 8 mesh screen	80

2.4.2.2 Nitrogen Content

Minimum percent based on dry weight:

Fir or Pine Bark	1.0

2.5 FERTILIZER

2.5.1 Pre-Plant Fertilizer Mixture

Fertilizer mixtures not to exceed one percent granular dust and CID A-A-1909, as specified below.

2.5.1.1 Fertilizer "A"

Organic, granular fertilizer containing the following minimum percentages, by weight, of plant food nutrients:

40 percent available nitrogen
40 percent available phosphorus
20 percent available potassium
2.5 percent sulfur

2.6 SURFACE TOPDRESSING

Free from, noxious weeds, mold, and other deleterious materials.

2.6.1 Humus

95 percent decomposed vegetable matter and wood fiber with a particle size of 1/4 to 1/2 inch.

2.6.2 Straw

Stalks from oats, wheat, rye, barley, or rice. Furnish in air-dry condition and of proper consistency for placing with commercial mulch blowing equipment.

2.7 WATER

Source of water to be approved by Contracting officer, suitable quality for irrigation.

PART 3 - EXECUTION

3.1 PREPARATION

3.1.1 Extent of Work

Provide soil preparation, fertilizing, seeding and surface topdressing of all newly graded finished earth surfaces, unless indicated otherwise, and at all areas inside or outside the limits of construction that are disturbed by the Contractor's operations.

3.1.2 Soil Preparation: Turf

3.1.2.1 pH Adjuster Application Rates

Apply pH adjuster at rates as determined by laboratory soil analysis of the soils at the job site. For bidding purposes only apply at rates for the following:

Sulfur 20 pounds per 1000 square feet.

3.1.2.2 Soil Conditioner Application Rates

Apply soil conditioners at rates as determined by laboratory soil analysis of the soils at the job site. For bidding purposes only apply at rates for the following:

Rotted Manure 9.25 cubic yards per 1000 square feet.

3.1.2.3 Fertilizer Application Rates

Apply fertilizer at rates as determined by laboratory soil analysis of the soils at the job site. For bidding purposes only apply at rates for the following:

Organic Fertilizer 2.5 pounds per 1000 square feet.

3.1.3 Soil Preparation: Native Revegetation Mix

3.1.3.1 Revegetation

Areas shall be cleared and grubbed of all weeds and noxious annuals in advance of seed bed preparation. All debris shall be removed from the site. Areas to be seeded shall be raked or dragged to a smooth, even grade prior to ripping.

3.1.3.2 Seed Bed

Rip seed bed in two directions and plow with a 'plow disc' to a minimum of six (6) inches. The surface shall be soft enough to allow for crimping or tucking of mulch to a minimum depth of two (2) inches.

3.1.3.3 Tillage

Tillage shall be performed across the slope when practical. No work shall be done when the moisture content of the soil is unfavorable or the ground is otherwise in non-tillable condition.

3.1.3.4 Erosion

The extent of seed bed preparation shall not exceed the area on which the entire seeding operation can be applied to such prepared seed bed prior to any surfaces crusting or loss of seed due to erosion. If erosion or crusting occurs, the entire area affected shall be reworked beginning with seed bed preparation.

3.2 SEEDING

3.2.1 Seed Application Seasons and Conditions

Immediately before seeding, restore soil to proper grade and thoroughly moisten soil to a depth of 150 mm 6 inches. Do not seed when ground is muddy, frozen, snow covered, or in an unsatisfactory condition for seeding. If special conditions exist that may warrant a variance in the above seeding dates or conditions, submit a written request to the Contracting officer stating the special conditions and proposed variance. Apply seed within twenty four hours after seedbed preparation. Sow seed by approved sowing equipment. Sow one-half the seed in one direction, and sow remainder at right angles to the first sowing.

3.2.2 Seed Application Method

3.2.2.1 Turf: Broadcast and Drop Seeding

Use broadcast or drop seeders. Sow one-half the seed in one direction, and sow remainder at right angles to the first sowing. Cover seed uniformly to a maximum depth of 1/4 inch in clay soils and 1/2 inch in sandy soils by means of spike-tooth harrow, cultipacker, raking or other approved devices.

3.2.2.2 Revegetation Mix: Drill Seeding

Use grass seed drills. Drill seed uniformly to average depth of 1/2 inch.

3.2.3 Surface Topdressing

3.2.3.1 Turf

Spread humus over seed bed area to an even depth of 1/2 inch. Take precautionary measures to prevent topdressing materials from spilling onto pavements, utilities structures, or planter beds.

3.2.3.2 Revegetation Mix

a. Blow on straw mulch at a rate of 2 tons per acre. The straw shall be spread uniformly over the area or with a mechanical mulch spreader. Mulching will not be permitted when wind velocity exceeds 15 miles per hour.

b. Mulch shall be crimped or anchored by means of a crimper disk or "coulter type" machine with a spacing of no more than 8 inches between disks. Mulch shall be crimped to a minimum depth of 2 inches. Crimp alignment shall be generally in a north-south direction and in an east-west direction where possible to form a cross-hatch pattern. If shape, contour, or other physical limitation prevents the specified crimping alignment, the contractor may request to the Contracting Officer either hand crimping or serpentine ("S") curves. Crimp lines shall not align with prevailing winds.

3.2.4 Rolling (Turf Seeding Only)

Immediately after turf seeding, firm entire area except for slopes in excess of 3 to 1 with a roller not exceeding 90 pounds for each foot of roller width. If seeding is performed with cultipacker-type seeder, rolling may be eliminated.

3.2.5 Watering (Turf Seeding Only)

Start watering turf areas seeded as required by temperature and wind conditions. Apply water at a rate sufficient to insure thorough wetting of soil to a depth of 6 inches without run off. During the germination process, seed is to be kept actively growing and not allowed to dry out.

3.3 PROTECTION OF TURF AREAS

Immediately after turfing, protect area against traffic and other use.

END OF SECTION