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USACE / NAVFAC / AFCESA | **UFGS-02923 (May 2004)**

Preparing Activity: NAVFAC | **Supersedes UFGS-02923A (January 2001)**

UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMRL dated 25 June 2004
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DIVISION 02 - SITE CONSTRUCTION

SECTION 02923

SPRIGGING

05/04

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SECTION 02923

SPRIGGING
05/04

****
NOTE: This guide specification covers the requirements for sprigging.

Comments and suggestions on this guide specification are welcome and should be directed to the technical proponent of the specification. A listing of technical proponents, including their organization designation and telephone number, is on the Internet.

Recommended changes to a UFGS should be submitted as a Criteria Change Request (CCR).

Use of electronic communication is encouraged.

Brackets are used in the text to indicate designer choices or locations where text must be supplied by the designer.
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NOTE: This guide specification is intended for use where sprigging is required.

Comments and suggestions on this specification are welcome and should be directed to the technical proponent of the specification. A listing of the technical proponents, including their organization designation and telephone number, is on the Internet.

Recommended changes to a UFGS should be submitted as a Criteria Change Request (CCR).

Use of electronic communication is encouraged.

Brackets are used in the text to indicate designer choices or locations where text must be supplied by the designer.
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NOTE: The following information shall be shown on

the project drawings:

1. Clearly indicate all areas to be turfed and if more than one type of turf is specified, delineate areas for each type.

2. All draft turf specifications shall be submitted to the cognizant Landscape Architect/Natural Resources Specialist for review to ensure that the specifications are in accordance with environmental conditions peculiar to the project areas.

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PART 1 GENERAL

1.1 REFERENCES

****

NOTE: Issue (date) of references included in project specifications need not be more current than provided by the latest guide specification. Use of SpecsIntact automated reference checking is recommended for projects based on older guide specifications.

****

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

ASTM INTERNATIONAL (ASTM)

ASTM C 602	(1995a; R 2001) Agricultural Liming Materials
ASTM D 4427	(1992; R 2002e1) Peat Samples by Laboratory Testing
ASTM D 4972	(2001) pH of Soils

TURFGRASS PRODUCERS INTERNATIONAL (TPI)

TPI GSS	(1995) Guideline Specifications to Turfgrass Sodding

U.S. DEPARTMENT OF AGRICULTURE (USDA)

AMS Seed Act	(1940; R 1988; R 1998) Federal Seed Act
DOA SSIR 42	(1996) Soil Survey Investigation Report No. 42, Soil Survey Laboratory Methods Manual, Version 3.0

1.2 DEFINITIONS

1.2.1 Stand of Turf

95 percent ground cover of the established species.

1.3 RELATED REQUIREMENTS

[Section 02300 EARTHWORK], [Section 02811 IRRIGATION AND SPRINKLER SYSTEMS], [Section 02915 TRANSPLANTING EXTERIOR PLANTS], [Section 02921 SEEDING], [Section 02922 SODDING], [Section 02930 EXTERIOR PLANTS], and Section 02935 LANDSCAPE ESTABLISHMENT applies to this section for pesticide use and plant establishment requirements, with additions and modifications herein.

1.4 SUBMITTALS

****

NOTE: Submittals must be limited to those necessary for adequate quality control. The importance of an item in the project should be one of the primary factors in determining if a submittal for the item should be required.

A "G" following a submittal item indicates that the submittal requires Government approval. Some submittals are already marked with a "G". Only delete an existing "G" if the submittal item is not complex and can be reviewed through the Contractor's Quality Control system. Only add a "G" if the submittal is sufficiently important or complex in context of the project.

For submittals requiring Government approval on Army projects, a code of up to three characters within the submittal tags may be used following the "G" designation to indicate the approving authority. Codes for Army projects using the Resident Management System (RMS) are: "AE" for Architect-Engineer; "DO" for District Office (Engineering Division or other organization in the District Office); "AO" for Area Office; "RO" for Resident Office; and "PO" for Project Office. Codes following the "G" typically are not used for Navy projects.

Submittal items not designated with a "G" are considered as being for information only for Army projects and for Contractor Quality Control approval for Navy projects.

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Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are [for Contractor Quality Control approval.][for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government.] The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-03 Product Data

Wood cellulose fiber mulch

Fertilizer

Include physical characteristics, and recommendations.

SD-06 Test Reports

****
NOTE: In states that require certification, adjust testing requirements to suit local conditions.
****

Topsoil composition tests (reports and recommendations).

SD-07 Certificates

State certification and approval for seed

[Nursery] [Sod farm] certification for sprigs. Indicate type of sprig in accordance with TPI GSS.

SD-08 Manufacturer's Instructions

Erosion Control Materials

1.5 DELIVERY, STORAGE, AND HANDLING

1.5.1 Delivery

1.5.1.1 Sprig Protection

****
NOTE: If sprigs are to be delivered in quantity over considerable distance, specify trucking in vans equipped with temperature control.
****

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

1.5.1.2 [Fertilizer] [Gypsum] [Sulfur] [Iron] [and] [Lime] 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] [gypsum] [sulphur] [iron] [and] [lime] may be furnished in bulk with certificate indicating the above information.

1.5.2 Storage

1.5.2.1 Sprig Storage

****
NOTE: Check with the local Agriculture County Extension Service Office to determine if specie used requires more water than is average for the geographical area.
****

Lightly sprinkle with water, cover with moist burlap, straw, or other approved covering; and protect from exposure to wind and direct sunlight until planted. Provide covering that will allow air to circulate so that

internal heat will not develop. Do not store longer than 24 hours. Do not store directly on concrete or bituminous surfaces.

1.5.2.2 Seed, [Fertilizer] [Gypsum] [Sulfur] [Iron] [and] [Lime] Storage

Store in cool, dry locations away from contaminants.

1.5.2.3 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.

1.5.2.4 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 [32] [____] degrees Celsius [90] [_____] degrees Fahrenheit.

1.7 TIME LIMITATIONS

1.7.1 Sprigging

Perform sprigging a maximum of twenty four hours after initial harvesting.

PART 2 PRODUCTS

2.1 SPRIGS

****
NOTE: The specific species and varieties used should be based on recommendations of the local Agriculture County Extension Service Office.
****

2.1.1 Classification

Healthy living stems, stolons, or rhizomes and attached roots of locally adapted grass without adhering soil, including two to three nodes and from 100 to 150 mm 4 to 6 inches long. Obtain from heavy, dense certified sod as classified in the TPI GSS. [Obtain sprigs from designated areas on the project site.] Provide sprigs which have been grown under climatic conditions similar to those in the locality of the project. Coordinate harvesting and planting operations to prevent exposure of sprigs to the sun for more than 30 minutes before covering and moistening. Sprigs containing weeds or other detrimental material or that are heat damaged will be rejected.

2.1.2 Composition

Botanical and Common Name	Percent
[_____]	[_____]

Botanical and Common Name	Percent

2.1.3 Planting Dates

Sow sprigs from [_____] to [_____] for warm season planting and from [_____] to [_____] for cool season planting.

2.2 SEED

****
NOTE: When applying seed over sprigs as a specified method of establishing sprigs, select the annual seed species to be installed. State-certified seed is more stringently monitored than State-approved seed; and therefore, more expensive.
****

2.2.1 Seed Classification

[State-certified] [State-approved] seed of the latest season's crop shall be provided in original sealed packages bearing the producer's guaranteed analysis for percentages of mixture, purity, germination, hard seed, weed seed content, and inert material. Labels shall be in conformance with AMS Seed Act and applicable state seed laws.

2.2.2 Temporary Seed Species Composition

Botanical Name	Common Name	Minimum Percent Pure Seed	Minimum Percent Germination	Maximum Percent Weed Seed
[_____]	[_____]	[_____]	[_____]	[_____]

2.3 TOPSOIL

****
NOTE: If topsoil properties are included in another section of Division 2, delete this paragraph and include a cross-reference to the appropriate section. Otherwise, select appropriate paragraphs on topsoil. Check with the local Agriculture County Extension Service Office for soil properties appropriate for the plant materials to be planted. Where suitable topsoil is available within limits of the work area, stripping and stockpiling of topsoil should be included in the applicable section of Division 2 of the specification. If suitable topsoil is not available within the limits of the work area, it should generally be the Contractor's option to either treat the soil of the graded areas with fertilizer and supplements so as to be conducive to turf establishment and maintenance, or to transport topsoil to the project site. Modify pH range for specified turf and geographical requirements.
****

2.3.1 On-Site Topsoil

Surface soil stripped and stockpiled on site and modified as necessary to meet the requirements specified for topsoil in paragraph entitled "Composition." When available topsoil shall be existing surface soil stripped and stockpiled on-site in accordance with Section [02300 EARTHWORK][02315N EXCAVATION AND FILL].

2.3.2 Off-Site Topsoil

Conform to requirements specified in paragraph entitled "Composition." Additional topsoil shall be [furnished by the Contractor] [obtained from topsoil borrow areas indicated].

2.3.3 Composition

Containing from 5 to 10 percent organic matter as determined by the topsoil composition tests of the Organic Carbon, 6A, Chemical Analysis Method described in DOA SSIR 42. Maximum particle size, 19 mm 3/4 inch, with maximum 3 percent retained on 6 mm 1/4 inch screen. The pH shall be tested in accordance with ASTM D 4972. Topsoil shall be free of sticks, stones, roots, and other debris and objectionable materials. Other components shall conform to the following limits:

Silt	[25-50][7 to 17][_____] percent
Clay	[10-30][4 to 12][_____] percent
Sand	[20-35][70 to 82][_____] percent
pH	[5.5 to 7.0][_____]
Soluble Salts	[600] [_____] ppm maximum

2.4 pH ADJUSTERS AND SOIL CONDITIONERS

****
NOTE: Prior to including these provisions in project specifications, perform tests of on-site topsoil to determine its suitability and the possible need of pH adjusters or soil conditioners.
****

Add conditioners to topsoil as required to bring into compliance with "composition" standard for topsoil as specified herein.

2.4.1 Lime

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NOTE: Use ASTM C 602 calcium carbonate equivalent (C.C.E.) as specified in Table 1: for burnt lime, C.C.E. shall not be less than 140 percent; for hydrated lime, C.C.E. shall not be less than 110 percent; and for limestone, C.C.E. shall not be less than 80 percent.
****

Commercial grade [hydrate] [or] [burnt] limestone containing a calcium carbonate equivalent (C.C.E.) as specified in ASTM C 602 of not less than [_____] percent.

2.4.2 Aluminum Sulfate

Commercial grade.

2.4.3 Sulfur

100 percent elemental

2.4.4 Iron

100 percent elemental

2.4.5 Peat

Natural product of [peat moss] derived from a freshwater site and conforming to [ASTM D 4427] [as modified herein]. Shred and granulate peat to pass a 12.5 mm 1/2 inch mesh screen and condition in storage pile for minimum 6 months after excavation.

2.4.6 Sand

Clean and free of materials harmful to plants.

2.4.7 Perlite

Horticultural grade.

2.4.8 Composted Derivatives

Ground bark, nitrolized sawdust, humus or other green wood waste material free of stones, sticks, and soil stabilized with nitrogen and having the following properties:

2.4.8.1 Particle Size

Minimum percent by weight passing:

4.75 mmNo. 4 mesh screen	95
2.36 mmNo. 8 mesh screen	80

2.4.8.2 Nitrogen Content

Minimum percent based on dry weight:

Fir Sawdust	0.7
Fir or Pine Bark	1.0

2.4.9 Gypsum

Coarsely ground gypsum comprised of calcium sulfate dihydrate 91 percent, calcium 22 percent, sulfur 17 percent; minimum 96 percent passing through 850 micrometers 20 mesh screen, 100 percent passing thru 970 micrometers 16 mesh screen.

2.4.10 Calcined Clay

Calcined clay shall be granular particles produced from montmorillonite clay calcined to a minimum temperature of 650 degrees C. 1200 degrees F. Gradation: A minimum 90 percent shall pass a 2.36 mm No. 8 sieve; a

minimum 99 percent shall be retained on a 0.250 mm No. 60 sieve; and a maximum 2 percent shall pass a 0.150 mm No. 100 sieve. Bulk density: A maximum 640 kilogram per cubic meter 40 pounds per cubic foot.

2.5 FERTILIZER

****
NOTE: Check with the local Agriculture County Extension Service Office for recommended fertilizer mixture for local conditions.
****

2.5.1 Granular Fertilizer

[Organic][synthetic], granular controlled release fertilizer containing the following minimum percentages, by weight, of plant food nutrients:

[_____] percent available nitrogen
[_____] percent available phosphorus
[_____] percent available potassium
[_____] percent sulfur
[[_____] percent iron]

2.5.2 Hydrosprigging Fertilizer

Controlled release fertilizer, to use with hydrosprigging and composed of pills coated with plastic resin to provide a continuous release of nutrients for at least 6 months and containing the following minimum percentages, by weight, of plant food nutrients.

[_____] percent available nitrogen
[_____] percent available phosphorus
[_____] percent available potassium
[[_____] percent sulfur]
[[_____] percent iron]

2.6 MULCH

****
NOTE: Check with the local Agriculture County Extension Service Office to determine choice of mulch most suitable for the project area. Specify only one type of mulch.
****

Mulch shall be free from noxious weeds, mold, and other deleterious materials.

2.6.1 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. Straw shall contrain no fertile seed.

2.6.2 Hay

Air-dry condition and of proper consistency for placing with commercial mulch blowing equipment. Hay shall be sterile, containing no fertile seed.

2.6.3 Wood Cellulose Fiber Mulch

****
NOTE: Wood cellulose fiber mulches have been successful on level areas or on slopes with slight grades where sufficient moisture is present to obtain a quick germination of grass seed. The material should be hydraulically applied at the following rates: Areas up to and including 3 to 1 slopes, at the rate of 1,120 kg per 10,000 sq. m 1,000 pounds per acre; areas steeper than 3 to 1 at the rate of 1,568 kg per 10,000 sq. m 1,400 pounds per acre. It should not be specified for slopes 2 to 1 or greater in areas where drought may prevent germination of the seed or where runoff from heavy rains may cut gullies through the fiber mulch. In these areas use erosion control materials such as specified in paragraph entitled "Erosion Control Material."
****

Use recovered materials of either paper-based (100 percent) or wood-based (100 percent) hydraulic mulch. Processed to contain no growth or germination-inhibiting factors and dyed an appropriate color to facilitate visual metering of materials application. Composition on air-dry weight basis: 9 to 15 percent moisture, pH range from 5.5 to 8.2 [_____]. Use with hydraulic application of grass [seed] and fertilizer.

2.7 WATER

****
NOTE: When water is Government furnished, locate the source. Recycled or reclaimed irrigation water may be available through a tertiary treatment plant on or off site. It is preferred that this type of water be used for irrigation whenever possible. Check project specific conditions.

Unless otherwise directed, water shall be the responsibility of the Contractor. Water source shall be potable or non-potable. If non-potable edit specification accordingly. Source of water shall be approved by the Contracting Officer and shall be of suitable quality for irrigation, containing no elements toxic to plant life.

Coordinate information presented here with Section 01500, "Temporary Facilities and Controls."
****

Source of water shall be approved by Contracting Officer and of suitable quality for irrigation containing no element toxic to plant life.

2.8 EROSION CONTROL MATERIALS

****
NOTE: Provide all erosion and sediment control measures in Section 01561N, "Erosion and Sediment Control" for Navy instead of here if used for

project. The Contractor may propose other types of erosion control material, based on site conditions.
****

Erosion control material shall conform to the following:

[2.8.1 Erosion Control Blanket

Blanket shall be machine produced mat of wood excelsior formed from a web of interlocking wood fibers; covered on one side with either knitted straw blanket-like mat construction; covered with biodegradable plastic mesh; or interwoven biodegradable thread, plastic netting, or twisted kraft paper cord netting.

][2.8.2 Erosion Control Fabric

Fabric shall be knitted construction of polypropylene yarn with uniform mesh openings 19 to 25 mm 3/4 to 1 inch square with strips of biodegradable paper. Filler paper strips shall have a minimum life of 6 months.

][2.8.3 Erosion Control Net

Net shall be heavy, twisted jute mesh, weighing approximately 605 grams per meter 1.22 pounds per linear yard and 1200 mm 4 feet wide with mesh openings of approximately 25 mm 1 inch square.

][2.8.4 Hydrophilic Colloids

Hydrophilic colloids shall be physiologically harmless to plant and animal life without phytotoxic agents. Colloids shall be naturally occurring, silicate powder based, and shall form a water insoluble membrane after curing. Colloids shall resist mold growth.

]2.8.5 Erosion Control Material Anchors

Erosion control anchors shall be as recommended by the manufacturer.

PART 3 EXECUTION

3.1 PREPARATION

3.1.1 EXTENT OF WORK

Provide soil preparation (including soil conditioners), fertilizing, and sprigging,[temporary seeding] 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

****
NOTE: Choose one of the following options
****

****
NOTE: Elevation of subgrade will vary depending upon the needs for additional topsoil, sod, or other treatment.
****

Provide 102 mm4 inches of [off-site topsoil][on-site topsoil][existing soil] to meet indicated finish grade. After areas have been brought to indicated finish grade, incorporate [fertilizer] [pH adjusters] [soil conditioners] into soil a minimum depth of [100] [_____] mm [4] [_____] inches by disking, harrowing, tilling or other method approved by the Contracting Officer. Remove debris and stones larger than 19 mm 3/4 inch in any dimension remaining on the surface after finish grading. Correct irregularities in finish surfaces to eliminate depressions. Protect finished topsoil areas from damage by vehicular or pedestrian traffic.

[3.1.2.1 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:

[Lime [[_____] kg per square meter[_____] pounds per acre] [[_____] kg per 100 square meters[_____] pounds per 1000 square feet.]]

[Sulfur [[_____] kg per square meter[_____] pounds per acre] [[_____] kg per 100 square meters[_____] pounds per 1000 square feet.]]

[Iron [[_____] kg per square meter[_____] pounds per acre] [[_____] kg per 100 square meters[_____] pounds per 1000 square feet.]]

[Aluminum Sulfate [[_____] kg per square meter[_____] pounds per acre] [[_____] kg per 100 square meters[_____] pounds per 1000 square feet.]]

[Peat [[_____] cubic meters per square meter[_____] cubic yard per acre] [[_____] cubic meters per 100 square meters[_____] cubic yards per 1000 square feet.]]

[Sand [[_____] cubic meters per square meter[_____] cubic yard per acre] [[_____] cubic meters per 100 square meters[_____] cubic yards per 1000 square feet.]]

[Perlite [[_____] cubic meters per square meter[_____] cubic yard per acre] [[_____] cubic meters per 100 square meters[_____] cubic yards per 1000 square feet.]]

[Compost Derivatives [[_____] cubic meters per square meter[_____] cubic yard per acre] [[_____] cubic meters per 100 square meters [_____] cubic yards per 1000 square feet.]]

[Calcined Clay [[_____] cubic meters per square meter[_____] cubic yard per acre] [[_____] cubic meters per 100 square meters[_____] cubic yards per 1000 square feet.]]

[Gypsum [[_____] cubic meters per square meter[_____] cubic yard per acre] [[_____] cubic meters per 100 square meters[_____] cubic yards per 1000 square feet.]]

][3.1.2.2 Fertilizer Application Rates

****

NOTE: Check with the local Agriculture County

Extension Service and specify amounts applicable for the project area. Two fertilizer applications may be required when hydroseeding with wood fiber mulch.

****

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 Granular Fertilizer [[_____] kg per square meter[_____] pounds per acre] [[_____] kg per 100 square meters[_____] pounds per 1000 square feet.]]

[Hydrosprigging Fertilizer [[_____] kg per square meter[_____] pounds per acre] [[_____] kg per 100 square meters[_____] pounds per 1000 square feet.]]

]3.2 SPRIGGING INSTALLATION

****

NOTE: Allow the Contractor sprig installation options when installing areas larger than 1 acre. Define lawn areas and field areas on the drawings.

****

Prior to installing sprigs, any previously prepared surface compacted or damaged shall be reworked to meet the requirements of paragraph SOIL PREPARATION. Areas shall be sprigged as indicated.

3.2.1 Installing Sprigs

The sprigging method shall be [Broadcast Sprigging] [Hydroplanting] [Row Sprigging] [applying seed-over-sprigs]. Sprigging procedure shall ensure even coverage.

3.2.1.1 Broadcast Sprigging

Sprigs shall be broadcast uniformly by hand, with mechanical equipment, or other approved method. Sprigs shall be planted to provide a minimum number of 30 viable sprigs per square meter 25 viable sprigs per square yard. The distance between individual sprigs shall be a maximum 300 mm 12 inch space. Sprigs shall be forced into the soil to a minimum 25 mm 1 inch depth by disk-rolling, pressing with steel matting, or other approved method.

3.2.1.2 Hydroplanting

Sprigs shall be mixed with water and uniformly applied under pressure over the entire area. Sprigs shall be covered by distributing a topdressing uniformly and evenly to a minimum 25 mm 1 inch depth. Topdressing shall conform to the paragraph TOPSOIL.

3.2.1.3 Row Sprigging

Sprigs shall be planted in rows spaced a maximum of 300 mm 12 inches apart and to a minimum 25 mm 1 inch depth, with mechanical sprig planter or other methods. Sprigs shall be placed in the rows a maximum 150 mm 6 inch distance apart.

3.2.2 Mulching

3.2.2.1 Hay or Straw Mulch

Hay or straw mulch shall be spread uniformly at the rate of 0.75 metric tons per hectare 2 tons per acre. Mulch shall be spread by hand, blower-type mulch spreader, or other approved method. Mulching shall be started on the windward side of relatively flat areas or on the upper part of steep slopes, and continued uniformly until the area is covered. The mulch shall not be bunched or clumped. Sunlight shall not be completely excluded from penetrating to the ground surface. All areas installed with seed shall be mulched on the same day as the seeding. Mulch shall be anchored immediately following spreading.

3.2.2.2 Mechanical Anchor

Mechanical anchor shall be a V-type-wheel land packer; a scalloped-disk land packer designed to force mulch into the soil surface; or other suitable equipment.

3.2.2.3 Wood Cellulose Fiber, Paper Fiber and Recycled Paper

Wood cellulose fiber, paper fiber, or recycled paper shall be applied as part of the hydroseeding operation. The mulch shall be mixed and applied in accordance with the manufacturer's recommendations.

[3.2.3 Applying Seed Over Sprigs

Seed shall be applied using either [broadcast] [or] [hydroseeding] equipment and methods. Seeding procedure shall ensure even coverage. Gravity feed applicators, which drop seed directly from a hopper onto the prepared soil, shall not be used.

[3.2.3.1 Broadcast Seeding

Seed shall be uniformly broadcast at the rate of [_____] kilograms per hectare pounds per 1000 square feet using broadcast seeders. Half the total rate of seed application shall be broadcast in 1 direction, with the remainder of the seed rate broadcast at 90 degrees from the first direction. Seed shall be covered to a minimum 6 mm 1/4 inch depth by disk harrow, steel mat drag, cultipacker, or other approved device. Seed shall be broadcast and covered prior to sprigging operation.

][3.2.3.2 Hydroseeding

Seed shall be mixed to ensure broadcast at the rate of [_____] kilograms per hectare pounds per 1000 square feet. Seed and fertilizer shall be added to water and thoroughly mixed at the rates specified. The maximum time period for the seed to be held in the slurry shall be 24 hours. [Wood cellulose fiber mulch and tackifier shall be added at the rates recommended by the manufacturer after the seed, fertilizer, and water have been thoroughly mixed to produce a homogeneous slurry.] Slurry shall be uniformly applied under pressure over the entire area. The hydroseeded area shall not be rolled.

]]3.2.4 Rolling

The entire area shall be firmed with a roller not exceeding 130 kilograms per meter 90 pounds per foot roller width. Slopes over a maximum

3-horizontal-to-1 vertical shall not be rolled.

3.2.5 Finishing

A minimum 25 percent of the installed sprigs shall extend above the ground surface upon completion of the sprigging operation.

3.2.6 Erosion Control Material

Install in accordance with manufacturer's instructions, where indicated or as directed by the Contracting Officer.

3.2.7 Watering Sprigs

Watering shall be started immediately after completing each day of sprigging. Water shall be applied at a rate sufficient to ensure moist soil conditions to a minimum 25 mm 1 inch depth. Run-off, puddling, and wilting shall be prevented. Unless otherwise directed, watering trucks shall not be driven over turf areas. Watering of other adjacent areas or plant material shall be prevented.

3.3 PROTECTION OF TURF AREAS

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

3.4 RESTORATION

Restore to original condition existing turf areas which have been damaged during turf installation operations. Keep clean at all times at least one paved pedestrian access route and one paved vehicular access route to each building. Clean other paving when work in adjacent areas is complete.

-- End of Section --