

GUIDE SPECIFICATION

Supplier:

Graff's Turf

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SECTION 329210

HYBRID TURF SYSTEM

This guide specification has been prepared by Graff's Turf, in printed and electronic media, as an aid to specifiers in preparing written construction documents for a patented grass reinforcement system in which natural grass grows through a specially woven synthetic turf fabric. Applications include football, rugby, high wear areas, golf courses (tee's), landscaping, soil erosion protection, multifunctional uses areas.

The hybrid turf system can be purchased either as a turnkey installation where manufacturer grows turf at their facility and transports and installs at site or as a site grown system where only the synthetic turf is installed and the natural turf is grown-in by seeding/fertilizing/watering by the purchaser at the site.

XtraGrass provides for the following playing characteristics

- *Field stability is significantly enhanced by combining the strengths of synthetic and natural turf*
- *Increased hours of use on natural turf: up to 1,000 hours of play can be achieved with the correct maintenance program*
- *Open structure prevents compaction, which can be enhanced by additions in the lower root zone*
- *Allows for traditional turf management practices*
- *Excellent playability in poor weather conditions due to superior stability and water permeability*
- *Synthetic turf fibers have a green 'natural grass-like' appearance, and protect the root zone and grass plants*
- *Provide for a level and smooth surface*
- *Easy to replace parts of the field with new turf*

Edit entire master to suit project requirements. Modify or add items as necessary. Delete items which are not applicable. Words and sentences within brackets [_____] reflect a choice to be made regarding inclusion or exclusion of a particular item or statement.

This guide specification is written around the Construction Specifications Institute (CSI), Section Format standards references to section names and numbers are based on MasterFormat 2014.

Graff's Turf reserves the right to modify these guide specifications at any time.

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Hybrid turf system utilizing natural grass seed grown through a woven synthetic turf fabric.
- B. Related Requirements:
 - 1. Section 329113 "Soil Preparation"

1.3 REFERENCES

- A. ASTM D1335 - Standard Test Method for Tuft Bind of Pile Yarn Floor Coverings
- B. ASTM D3786 – Standard Test Method for Bursting Strength of Textile Fabrics
- C. ASTM D4355 – Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture and Heat in a Xenon Arc Type Apparatus
- D. ASTM D4533 – Standard Test Method for Trapezoid Tearing Strength of Geotextiles
- E. ASTM D4632 – Standard Test Method for Breaking Strength and Elongation of Textile Fabrics (Grab Test)
- F. ASTM D5034 - Standard Test Method for Breaking Strength and Elongation of Textile Fabrics (Grab Test)
- G. ASTM D5035 – Standard Test Method for Breaking Force and Elongation of Textile Fabrics (Strip Method)
- H. ASTM D5823 - Standard Test Method for Tuft Height of Pile Floor Coverings
- I. ASTM D5848 - Standard Test Method for Mass Per Unit Area of Pile Yarn Floor Coverings

1.4 DEFINITIONS

- A. Finish Grade: Elevation of finished surface of planting soil.
- B. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. Pesticides include insecticides, miticides, herbicides, fungicides, rodenticides, and molluscicides. They also include substances or mixtures intended for use as a plant regulator, defoliant, or desiccant.
- C. Pests: Living organisms that occur where they are not desired or that cause damage to plants, animals, or people. Pests include insects, mites, grubs, mollusks (snails and slugs), rodents (gophers, moles, and mice), unwanted plants (weeds), fungi, bacteria, and viruses.
- D. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth. See Section 329113 "Soil Preparation" and drawing designations for planting soils.
- E. Subgrade: The surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.

1.5 PREINSTALLATION MEETINGS

- A. Pre-installation Conference: Conduct conference at Project site.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For landscape and/or sod installer.
- B. Certification of each seed mixture for turfgrass sod. Include identification of source and name and telephone number of supplier.
- C. Product Certificates: For fertilizers, from manufacturer.
- D. Pesticides and Herbicides: Product label and manufacturer's application instructions specific to Project.

1.7 CLOSEOUT SUBMITTALS

- A. Maintenance Data: Recommended procedures to be established by supplier for maintenance of turf during a calendar year. Submit before expiration of required maintenance periods.

1.8 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified landscape installer whose work has resulted in successful turf establishment.
 - 1. Experience: Five years' experience in sports field turf installation.
 - 2. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when work is in progress.
 - 3. Pesticide Applicator (if applicable): State licensed, commercial.
- B. Sod Supplier Qualifications: A qualified turfgrass supplier whose work and product has resulted in successful turf establishment.

1. Professional Membership: Sod supplier shall be a member in good standing with Turf Producers International and Sports Turf Managers Association.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Turfgrass sod must be harvested and transported when its moisture content is at 20 to 30 percent, measured at depth of harvest.
- B. Turfgrass sod shall be harvested, delivered and installed/transplanted within a period of 24 hours, unless a suitable preservation method is approved prior to delivery, including, but not limited to refrigeration at 40 degrees Fahrenheit. Turfgrass sod not transplanted within this period, or preserved by approved methods, shall be inspected and approved by Owner's representative prior to its installation..
- C. Bulk Materials:
 1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.
 2. Provide erosion-control measures to prevent erosion or displacement of bulk materials; discharge of soil-bearing water runoff; and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
 3. Accompany each delivery of bulk materials with appropriate certificates.

1.10 FIELD CONDITIONS

- A. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions.

PART 2 - PRODUCTS

2.1 HYBRID TURF SYSTEM

- A. Acceptable Supplier: Graff's Turf, 9809 N. Frontage Road I-76, Fort Morgan, CO 80701, authorized distributor of Xtragrass for AstroTurf in the continental USA.
- B. Synthetic Turf Fabric: XtraGrass by Greenfields.

1. XTRAGRASS50 V Technical Features
 - a. Authentic fibre combination of • V-shaped and oval fibres
 - b. Pre-formed woven synthetic turf with partially bio-gradable backing
 - c. Integrated hot melt coating
 - d. 100% recyclable, materials from the same product family (polypropylene/polyethylene)
 - e. Color: Olive Green and Field Green.
 - f. Testing Compliance:
 - 1) Turf Battery:
 - a) Average Pile Yarn Weight: 28.8 oz/s.y per ASTM D5848.
 - b) Average Total Weight: 33.6 oz/d/y/ per ASTM D5848
 - c) Secondary Backing Weight: 3.4 oz/s.y. per ASTM D5848.
 - d) Primary Backing Fibers: 10.9 oz/s.y. per ASTM D5848
 - e) Average Tuft Length: 2.07 inch per ASTM D5823
 - f) Tuft Bind: 13.3 lbs per ASTM D1335.
 - g) Grab Tear: 279.4 length; 313.5 oz width per ASTM D5034
 - 2) Breaking Strength and Elongation of Fibers (ASTM D4632).
 - 3) Bursting Strength of Textile Fabrics (ASTM D3786).
 - 4) Deterioration of Textiles (ASTM D4355).
 - 5) Breaking Force and Elongation of Textiles (ASTM D5035).
 - 6) Trapezoidal Tearing Strength (ASTM D4533).

2. Physical Measurements:

Fabric Type	Patented 1/1" woven sand filled synthetic grass carpet	
Pile content	100% polyethylene monofilament, U.V.- resistant, 62.400/16/12 dTex, 270 and 310/175microns	
Primary backing	Special woven fabric of polypropylene co-woven with biodegradable material, weight 400 gr/m ²	
Secondary backing	Polyolefin stripe coating	
Pile height	± 50 mm +/- 10%	2 inches +/- 10%
Total thickness	± 51 mm +/- 10%	2 inches +/- 10%
Stitch rate per 10cm(width)	± 4	1 stich per inch
Stitch rate per 10cm(length)	± 4 +/- 1	1 stich per inch

Face weight	± 1140 gr/m ² +/- 10%	2.5 lbs per 10.7 ft ²
Weight primary backing	± 400 gr/m ² +/- 10%	.88 lbs per 10.7 ft ²
Weight secondary backing	± 100 gr/m ² +/- 10%	.22 lbs per 10.7 ft ²
Total weight	± 1640 gr/m ² +/- 10%	3.61 lbs per 10.7 ft ²
Roll width	365 cm +/- 2 cm	12 ft
Roll length	As required	
Pile anchoring	± 30 N	
Water permeability	> 200 ltr/m ² /min (unfilled)	52.83 gal/107 ft ² / min
Color fastness	Xenon test: blue-scale>7, grey-scale>4	

Make selection in B below based on selected quality criteria. Include paragraphs C, D, and E for sod grown off site and transported to installation site.

- C. Turfgrass Sod: **[Certified] [Approved] [Number 1 Quality/Premium, including limitations on thatch, weeds, diseases, nematodes, and insects] [Commercial Grade]**. Turfgrass sod shall be machine cut immediately below synthetic backing, plus or minus 0.2 inch (5 mm), at the time of cutting. Measurement for thickness shall exclude top growth and thatch. Furnish viable sod of uniform density, color, and texture that is strongly rooted and capable of vigorous growth and development when planted.
- D. Turfgrass sod shall be machine cut immediately below synthetic backing, plus or minus 0.2 inch (5 mm), at the time of cutting. Measurement for thickness shall exclude top growth and thatch. Furnish viable sod of uniform density, color, and texture that is strongly rooted and capable of vigorous growth and development when planted.
- E. Before harvesting, the turfgrass shall be mowed uniformly heights as follows:
 - 1. 0.625 to 2 inches (16 to 51 mm) on cool season grasses (i.e., bluegrass, rye and fescue).
 - 2. 0.5 to 1.50 inches (13 to 40 mm) on warm season grasses

Make selections in paragraph F based on exposure.

- F. Turfgrass Species: Sod of grass species as follows, with not less than 85 percent germination, not less than 95 percent pure seed, and not more than 0.5 percent weed seed:
 - 1. **[Cool Climate Applications: [Bluegrass] [Fescue] [Rye].]**
 - 2. **[Warm Climate Applications: Bermuda grass]**

2.2 FERTILIZERS

- A. Fertilizer: Granular, pelleted, or liquid/flowable fertilizer:
 - 1. Composition: 20 percent nitrogen, 20 percent phosphorous, 10 percent potassium, and 3 percent iron, by weight.

2.3 PESTICIDES

- A. General: Pesticide, registered and approved by the EPA, acceptable to authorities having jurisdiction, and of type recommended by manufacturer for each specific problem and as required for Project conditions and application. Do not use restricted pesticides unless authorized in writing by authorities having jurisdiction.
- B. Pre-Emergent Herbicide (Selective and Nonselective): Effective for controlling the germination or growth of weeds within planted areas at the soil level directly below the mulch layer, following label instructions.
- C. Post-Emergent Herbicide (Selective and Nonselective): Effective for controlling weed growth that has already germinated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas to be planted for compliance with requirements and other conditions affecting installation and performance of the Work.
 - 1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a planting area.
 - 2. Suspend planting operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
 - 3. Uniformly moisten excessively dry soil that is not workable or which is dusty.

- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed by Architect and replace with new planting soil.
- D. Sprinkler schematic should be captured with measurement and locations of all heads and valve box cover and any other irrigation that must be accessible. Heads should be installed to grade and the proper riser height to account for the 1.5" of sand that will be top-dressed. Then the head is removed and a capped sleeve is put in place. Sleeves are marked with flags.

3.2 PREPARATION

- A. Protect structures; utilities; sidewalks; pavements; and other facilities, trees, shrubs, and plantings from damage caused by planting operations.
 - 1. Protect grade stakes set by others until directed to remove them.
- B. Product can be installed over surfaces with drainage or without drainage installed.
- C. If drainage is installed in a field, the playing surface shall be laser graded to a flat field. If no drainage is installed, the field must be laser leveled with a 1%+ percent grade.

3.3 INSTALLATION

- A. Deliver to the jobsite in large rolls wrapped in plastic by means of a flatbed truck or van. Rolls may be stacked until ready for use.
- B. Roll out using similar equipment used in Synthetic turf installation. Lay rolls face-to-face or fiber-to-fiber and sew using a bag stitch method with a bag stitch machine. The remaining tails are to be trimmed and removed after the sewing is complete and before the next section is flipped and stretched, maintaining a straight line.
- C. Edges and ends of the field shall be anchored with large pins and stretched after each panel is flipped and before the next section is sewn. These will stay in place until after the sanding and seeding process is in place.
- D. Sand Topdressing:
 - 1. The fibers are 2" long. At maximum a 1.5" topdressing of sand shall be infilled to prepare for seed. If less sand is applied on the initial install, this will allow for one or two topdressings in the future which is advantageous. Regardless, .5" of fibers must be showing for a successful install.
 - 2. Use USGA sand. The sand must be dry. Sand that has moisture in it will not spread or drag well.
 - 3. The sanding process is slow. Keeping the fibers standing up is the critical goal. Adding too much sand at a time will cause fibers to lay over and bury them. Only 1/8" of a sand should be added at a time and broomed in between each "topdressing" of sand.
 - 4. As needed, intersecting slits of 8 inches to 10 inches (making an "X") may be made in the XtraGrass material to access capped sleeves of the sprinkler system. Remove sleeves and install sprinkler heads and verify height of head. Work sand back around sprinkler head by hand, taking care to keep fibers standing up.
- E. Seeding:
 - 1. Seeding should be done in different two directions: across the rows and diagonal but not ever with the rows.
 - 2. After germination the field may require hand seeding or sprigging for areas that are thin or bare, taking extra care around sprinkler heads where wash-outs may occur.

3.4 TURF MAINTENANCE

- A. General: Maintain and establish turf by watering, fertilizing, weeding, mowing, trimming, replanting, and performing other operations as required to establish healthy, viable turf. Roll, regrade, and replant bare or eroded areas and re-mulch to produce a uniformly smooth turf. Provide materials and installation the same as those used in the original installation.
 - 1. Fill in as necessary soil subsidence that may occur because of settling or other processes. Replace materials and turf damaged or lost in areas of subsidence.
 - 2. Apply treatments as required to keep turf and soil free of pests and pathogens or disease. Use integrated pest management practices whenever possible to minimize the use of pesticides and reduce hazards.
- B. Watering:
 - 1. Schedule watering to prevent wilting, puddling, erosion, and displacement of seed or mulch. Lay out temporary watering system to avoid walking over muddy or newly planted areas.
 - 2. Water turf with fine spray at a recommended ET rate.
- C. Mow turf as soon as top growth is tall enough to cut. Repeat mowing to maintain specified height without cutting more than one-third of grass height. Remove no more than one-third of grass-leaf growth in initial or subsequent mowing. Do not delay mowing until grass blades bend over and become matted. Do not mow when grass is wet. Schedule initial and subsequent mowing to maintain the following grass height:

1. Mow Bermuda grass to a height of 0.5 to 1.5 inches (38 mm).
 2. Mow Perennial ryegrass and fescue to a height of 0.625 - 2.0 inches (16-50 mm).
- D. Turf Post-fertilization: Apply slow-release fertilizer after initial mowing and when grass is dry.
1. Use fertilizer that provides actual nitrogen of at least 1 lb/1000 sq. ft. (0.45 kg/92.9 sq. m) to turf area.
- 3.5 PESTICIDE APPLICATION
- A. Apply pesticides and other chemical products and biological control agents according to requirements of authorities having jurisdiction and manufacturer's written recommendations.
- 3.6 CLEANUP AND PROTECTION
- A. Promptly remove soil and debris created by turf work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.
 - B. Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris, and legally dispose of them off.
 - C. Erect temporary fencing or barricades and warning signs as required to protect newly planted areas from traffic. Maintain fencing and barricades throughout initial maintenance period and remove after plantings are established.
 - D. Remove non-degradable erosion-control measures after grass establishment period.
- 3.7 MAINTENANCE SERVICE
- A. Turf Maintenance Service: Provide full maintenance by skilled employees. Maintain as required in "Turf Maintenance" Article. Begin maintenance immediately after each area is planted and continue until acceptable turf is established, but for not less than the following periods:
 1. Sodded Turf: 30 days from date of Substantial Completion.

END OF SECTION