Construction Specifications
for
Miccosukee Community Park
Sports Field Construction
Tallahassee, Florida

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SECTION 02050 - DEMOLITION

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Furnish all material, labor, tools, equipment, plant, appliances and services necessary to complete all demolition, modification and removal work required above and below grade as shown on the Drawings and specified herein. Examine the various Drawings, visit the site and determine the extent of the work, the extent of work affected therein and all conditions under which the work to is be performed.

1.02 RELATED WORK

A. Section 02210, Site Preparation and Earthwork

1.03 QUALITY ASSURANCE

A. Permits and Licenses: Obtain all necessary permits and licenses for performing the work and furnish a copy of same to the Engineer prior to commencing the work. Comply with the requirements of the permits.

B. Notices: Issue written notices of planned demolition to companies or local authorities owning utility conduit, wires or pipes running to or through the project site. Submit copies of said notices to the Engineer.

C. Utility Services: Notify utility companies or local authorities furnishing gas, water, electrical, telephone or sewer service to remove any equipment owned by them in structures to be demolished and to remove, disconnect, cap or plug their services to facilitate demolition.

1.04 DISPOSITION OF DEMOLISHED MATERIALS

A. Store salvaged materials designated as property of the Owner in areas designated by the Owner and promptly remove all other materials from the site.

PART 2 - PRODUCTS

Not Used

SECTION 02050 - DEMOLITION

PART 3 - EXECUTION

3.01 PREPARATION

A. Safety: Provide and maintain temporary safety barriers and other safety and security devices as necessary to protect the public and project personnel from injury due to demolition work. Protect from damage all existing work, equipment and improvements that are to remain and restore all damage caused by the demolition work at no cost to the Owner.

B. Salvage: Remove equipment, devices and materials to be salvaged with the minimum amount of damage and store on the site as directed by the Owner. Store salvaged equipment and materials which can be damaged by the weather in a weather-tight building or area on site. Remove from the site any salvaged items that are determined to be of no value to the Owner after removal and Owner's inspection.

3.02 PERFORMANCE

A. Concrete Slabs And Vaults: Remove concrete slabs, foundation walls and concrete vault walls and tops to a depth of not less than 24-inches below grade. Dewater and perforate concrete bottoms of vaults by breaking in the bottom with not less than a 6-inch diameter hole before backfilling and compacting. Remove and cap all piping in the vaults at the wall or as indicated on the Drawings.

B. Yard Piping And Valves: Remove all yard piping and valves which are in conflict with proposed work and are not to remain in service. Salvage the valves for the Owner and remove piping and fittings from the property. Either remove from the site at no extra cost to the Owner or cap the ends with suitable fittings and backfill all abandoned yard piping not in conflict with the proposed work.

D. Modifications:

1. Cut and remove existing work necessary for modifications and installation of new work with a minimum of damage to the work that is to remain. Repair or restore any damage done to existing facilities which are to remain at no cost to and to the satisfaction of the Owner.

2. Remove on a daily basis all debris created within facilities which are to remain in service during the modification work, and broom clean the floor at the end of each

day's operation. Do not subject plant operators to hazardous areas while performing their duties to maintain the plant in service.

3. Follow other specific instructions for the modification work given in other Sections of these Specifications and as shown on the Drawings.

3.03 CLEANUP

A. Clean site to a condition satisfactory to the Engineer, free from demolished materials, rubbish or debris. Grade site to meet adjacent contours and provide flow for surface drainage.

B. Restore items intended to remain that have been damaged by demolition work at no cost to the Owner.

C. Return all interrupted utility services to their pre-demolition state and disconnect temporary services, unless otherwise specified.

END OF SECTION

SECTION 02210 – SITE PREPARATION AND EARTHWORK

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Furnish all necessary labor, equipment, materials and transportation and perform all work necessary to clear the construction site and bring the site, including roads, drives, building sites, paved areas and open areas to the lines and grades shown on the drawings.

1.02 RELATED WORK

A. Section 02050, Demolition

1.03 REFERENCED STANDARDS AND TESTS

A. AASHTO T180 (ASTM D1557), Moisture-Density Relations of Soils Using a 10 lbs. Rammer and an 18 in. Drop.

B. AASHTO T191 (ASTM D1556), Density of Soils in Place by Sand-Cone Method.

C. AASHTO T238 (ASTM D2922), Density of Soils and Soil-Aggregates in Place by Nuclear Method.

D. AASHTO M 145 (ASTM D3282), Classification of Soils and Soil-Aggregate Mixtures for Highway Construction Purposes.

1.04 QUALITY ASSURANCE

A. Field Engineering: Provide the services of a Professional Land Surveyor registered in the State of Florida to establish all vertical and horizontal controls required for layout of the work and for preparation of a certified survey showing recorded finish elevations and dimensions upon completion of site preparation and earthwork.

B. Water Pollution: Comply with the applicable provisions of the permits. Protect adjacent waterways from contamination and increased turbidity due to Contractor's operations by all means necessary, including the installation of silt or turbidity screens, filter blankets, temporary dikes and ditches, etc., and limit runoff water from disturbed areas as necessary to meet the requirements and

restrictions of the agencies having jurisdiction.

C. Fill Materials: Submit certifications that the fill materials furnished meet the specified requirements and standards.

D. Compaction: During the filling operation, and unless otherwise required by the Engineer, take at least one density test per 10,000 square feet in the proposed sports field area. If any test fails, rework and re-compact the area and retest, until satisfactory compaction meeting the specified requirements is achieved.

PART 2 - PRODUCTS

2.01 MATERIALS FOR FILLS WITHIN LIMITS PLAYING FIELDS

A. Suitable For Fills: Material classified as A-1, A-3 or A-2-4 under AASHTO M 145 (ASTM D3282), free from vegetation and organic material, and with not more than 10 percent by weight passing the No. 200 sieve.

B. Suitable For Placement In Water: Material classified as A-1 or A-3 under AASHTO M-145 (ASTM D 3282).

C. Unsuitable For Fills: Materials classified as A-2-5, A-2-6, A-2-7, A-4, A-5, A-6, A-7 and A-8 under AASHTO M 145 (ASTM D3282).

D. Select Material: Suitable material containing no pieces or rock fragments larger than will pass a 3-inch diameter ring.

PART 3 - EXECUTION

3.01 PREPARATION

A. Clearing:

1. Completely remove and dispose of all concrete, clay, artificial turf and gravel in the areas to be excavated.

3.02 PERFORMANCE

SECTION 02210 – SITE PREPARATION AND EARTHWORK

A. Excavation:

1. Perform excavation to the limits indicated on the plans or specified herein, including shaping and sloping and other work necessary in bringing the earthwork to the required grades, alignment and cross sections.

2. As far as practicable, use all suitable materials removed from the excavation in the formation of the subgrades. Remove unsuitable material to the required depth and replace it with suitable material to the satisfaction of the Engineer.

3. Dispose of excess excavated suitable material as directed by the Engineer and excess unsuitable excavated material outside the limits of the project.

4. In the event materials containing toxic substances, oil products or other pollutants are encountered during excavation, immediately cease operations and notify the Engineer. Proceed with the excavation only when so directed by the Engineer, using additional procedures and precautions, if any, as necessary to contain and dispose of the contaminated material in compliance with all applicable laws and regulations.

B. Fills:

1. Construct fills of suitable material placed in layers of not more than 8" inches in depth measured loose and rolled and/or vibrated with suitable equipment until compacted. Thickness of layers may be increased provided the equipment and methods used are proven by field density testing to be capable of compacting thicker layers to specified densities. Decrease layer thickness if equipment and methods used prove to be incapable of compacting layers to specified densities.

2. Place no material that will not pass through a 6-inch diameter ring within the top 12 inches of the surface of the completed fill, and none that will not pass through a 3-inch diameter ring within the top 4 inches of the completed fill. Do not use broken concrete or asphaltic pavement in fills.

3. Compact practice field sites to a density of not less than 85 percent of its maximum density as determined by AASHTO T 180 (ASTM D 1557), and fill within other areas to a density of not less than 90 percent.

4. Place and compact fills to within 0.1 foot of the required elevations and slope surfaces to drain as shown on the Drawings.

C. Subgrades:

1. Construct subgrades for baseball field area to conform to the grades, lines and cross sections shown on the Drawings, of uniform density, ready to receive the clay infield.

2. After the subgrade has been properly shaped, bring the surface to a firm, unyielding surface by rolling the entire area with an approved vibratory roller. Unless the subgrade material at the time of the rolling contains sufficient moisture to insure proper compaction, add water as directed before compacting. Allow subgrade material containing excess moisture, as determined by the Engineer, to dry to the proper consistency before being compacted.

3. Compact subgrade, including cut and fill sections, to a density of not less than 85 percent of the maximum density as determined by the AASHTO T 180 (ASTM D 1557).

5. After the subgrade has been prepared, maintain it free of ruts, depressions and damage resulting from the hauling and handling of any material, equipment, tools, etc. Provide and maintain ditches or drains along the completed subgrade section to prevent damage by storm water.

END OF SECTION

SECTION 16010

ELECTRICAL GENERAL PROVISIONS

PART 1 - GENERAL

RELATED WORK:

The Contractor's attention is directed to the following Divisions of these specifications for related work that may require Division 16 compliance:

Division 1 - General Requirements
Division 2 - Site Work

DESCRIPTION OF WORK:

Furnish all labor, materials, equipment and incidentals required to complete all electrical work at the MICCOSUKEE COMMUNITY SPORTS FACILITY for Leon County, Florida as specified here and shown on the Contract Drawings.

The work scope includes electrical distribution, sports lighting, and controls.

The work, apparatus and materials furnished under these Specifications and accompanying Drawings shall include all items listed here and shown on the Drawings. Line voltage connections to equipment furnished as specified in other sections of these Specifications or shown on other than the Electrical Drawings shall be governed by this Division of the Specifications.

Each bidder or his authorized representatives shall visit the job site and carefully inspect the present conditions before preparing his bid. The submission of a bid will be considered evidence that such a visit and inspection was performed by the bidder and that he takes full responsibility for all factors governing his work.

It is the intent of these Specifications and Drawings that the electrical systems shall be complete, fully operational, and suitable in every way for the service required. Drawings are diagrammatic in nature and do not show in every detail all devices and incidental materials necessary to accomplish the intent. Therefore, the Contractor shall understand that such devices and incidental materials required shall be furnished at no cost to the Owner.

Electrical Contractor shall be responsible for coordination with the serving utility and for compliance with the requirements of the utility and the local jurisdiction.

SUBMITTALS:

Manufacturers' data in the form of "cut sheets" and engineering drawings shall be submitted to the Engineer on the equipment listed below and in other Sections of Division 16 before delivery to the work site. Review of the submittal by the Engineer is to check for general conformance to the design intent and shall not relieve the Contractor of the responsibility for the correctness of all dimensions and the correct fitting of all

parts of the work.

Circuit Breakers
Disconnect Switches
In-Ground Boxes
Sports Lighting Fixtures, Pole Tops, Ballast Boxes, Controls, and Foundation Plans
Lamps & Ballasts
Photometrics and Lighting Level Proposals
Transient Voltage Surge Suppressors

The manufacturers' names and catalog numbers shall be submitted for the following materials:

Conduit, Fittings, and Couplings
Boxes and Fittings

The submittal shall be thoroughly checked by the Contractor for accuracy and compliance with the contract requirements. Shop drawings and "cut sheets" shall bear the date checked and shall be accompanied by a statement by the Contractor that they have been checked for conformity to Specifications and Drawings. Shop submittals not so checked and noted will be returned without review.

CODES, INSPECTION AND FEES:

Division 16 work shall be in accordance with the latest edition of the following codes and ordinances:

The National Electrical Code (NFPA 70) 2008
The National Electrical Safety Code
The Life Safety Code (NFPA 101) 2004
Florida Building Code 2007
Serving Utility Company
State and Municipal

Contractor shall pay all fees for permits and inspections.

RECORD DRAWINGS:

At Job Close-out submit three (3) copies of the following:

Clean, complete and accurate sets of Record Drawings showing clearly deviations to the Contract Drawings.

Bound sets of Equipment Operation and Maintenance Instructions.

Test results required in other sections of this division.

GUARANTEES:

In addition to the guarantee of equipment by the manufacturer the Contractor shall also guarantee such equipment for a period of one (1) year from final acceptance by the Owner. The Contractor's one (1) year guarantee shall be for equipment, materials, and labor.

Additional guarantee requirements are listed in the Sports Lighting Section, 16540 of these specifications.

PART 2 - PRODUCTS

EQUIPMENT AND MATERIALS:

Furnish materials or equipment specified by manufacturer's names unless approval of other manufacturers is listed in addendum to these specifications.

The materials furnished shall be new, undamaged and packed in the original manufacturer's packing.

Equipment and materials shall at all times during construction be protected from mechanical and water damage. Equipment shall not be stored out-of-doors. Damaged materials and equipment shall be replaced by the Contractor at no cost to the Owner.

All electrical panels, enclosures, raceways, conduit, and boxes shall be fabricated of metal unless indicated otherwise.

EQUIPMENT AND MATERIALS STANDARDS:

The design and fabrication of electrical equipment and materials furnished under Division 16 shall comply with the latest edition and revisions of the following codes and standards:

The American National Standards Institute (ANSI)
The American Society of Mechanical Engineers (ASME)
The American Society for Testing and Materials (ASTM)
The Institute of Electrical and Electronic Engineers (IEEE)
The National Electrical Manufacturers Association (NEMA)
The Occupational Safety and Health Administration (OSHA)
The Underwriters Laboratories (UL)
The National Fire Protection Association (NFPA)
The National Electrical Code (NEC)

PART 3 - EXECUTION

SUPERVISION

The electrical work shall be supervised by a licensed journeyman or master electrician who shall be on the job site at all times while work is in progress.

Furnish a photocopy of the license of the person or persons who will supervise this project. If during the course of the job the supervisor is changed, submit a photocopy of the new supervisor's license.

EQUIPMENT IDENTIFICATION:

Engraved nameplates shall be of laminated plastic with black surface and white 1/8" high letters secured with stainless steel screws.

All major components of the distribution system shall have engraved nameplates.

All disconnect switches and control panels shall have engraved nameplates identifying the equipment served.

Panelboards shall have verified, updated typed directories with all loads indicated for each circuit.

CLEANING:

All equipment and boxes shall be thoroughly cleaned inside and outside at the completion of installation. Do not leave dirt and debris inside panelboard and equipment cabinets, device and junction boxes, etc.

EXCAVATION, TRENCHING AND BACKFILLING:

Perform all excavation, trenching, and directional boring to install raceways indicated on the drawings.

Excavated material not suitable for backfill shall be removed from the job site.

Insure that the bottom of trenches is uniform (without large rocks or lumps of dirt) which could damage the raceway or conductors. Backfill trenches with material that will compact readily. Compact backfill material, from bottom of excavation up, to 95% of surrounding undisturbed material.

Cover shall not be less than surrounding grade and no greater than 2" above surrounding grade.

***** END OF SECTION *****

SECTION 16110

RACEWAYS AND FITTINGS

PART 1 - GENERAL

SCOPE OF WORK:

Furnish and install complete raceway systems as indicated on the Drawings and as specified here.

APPLICATIONS:

All above grade exterior wiring shall be installed in galvanized steel conduit, and all embedded in concrete or below grade wiring shall be in Schedule 40 PVC conduit unless indicated otherwise on the drawings. Transitions from below grade through concrete shall be in long sweep galvanized steel 90's coated with a protective bituminous compound. All buried metallic conduit shall have minimum of two coats of bitumastic or have factory applied PVC coating.

All conduit of a given type shall be the product of one manufacturer and shall be manufactured in the United States.

PART 2 - PRODUCTS

RIGID CONDUIT AND FITTINGS:

Rigid steel conduit shall be hot-dipped galvanized conforming to the requirements of UL 6 and ANSI C80.1 standards.

Intermediate metal conduit shall conform to the requirements of UL 1242.

Fittings for rigid steel and IMC conduit shall be the threaded type manufactured by RACO, Steel City, or Thomas & Betts (T&B).

CONDUIT MOUNTING EQUIPMENT:

Hangers, beam clamps etc. shall be hot-dipped galvanized iron or steel. They shall be as manufactured by the Appleton Electric Co., Thomas and Betts Co., Unistrut Corp., or approved equal.

PART 3 - EXECUTION

INSTALLATION:

No conduit smaller than 3/4 inch electrical trade size shall be used in homeruns or multi-circuit uses, nor shall any have more than three 90 degree bends in any one run. Pull boxes shall be provided as required or

directed.

No wire shall be pulled until the conduit system is complete in all details.

The ends of all conduits shall be tightly plugged to exclude dust and moisture during construction. All empty conduits shall have a 200 lb. test pull cord installed.

All conduits shall be run at right angles to and parallel with the site features. Except at directional boring, no diagonal runs will be allowed. Bends in parallel conduit runs shall be concentric. All conduit shall be run perfectly straight and true.

Conduit terminating in sheet steel boxes shall have double locknuts and insulated bushings.

IMC and rigid steel conduits shall be installed using threaded fittings and couplings.

Set top of underground conduits a minimum of 24" below finish subgrade.

***** END OF SECTION *****

SECTION 16120

WIRES AND CABLES

PART 1: - GENERAL

SCOPE OF WORK:

Furnish, install and test all wire, cable, and appurtenances as shown on the Drawings and as hereinafter specified. Metering conductor shall be by others.

APPLICATIONS:

Wire for lighting and single power circuits shall be type THHN.

Single conductor wire for control, indication and metering shall be type THHN No. 14 AWG, stranded.

Ground wires shall be Green and Neutrals shall be White or Gray. Green and White shall be used for these purposes only.

Color coding of all ungrounded service, feeder, and branch circuits conductors shall be required according to the following convention:

120/240 Volt, 3 phase: black, red, and blue

MINIMUM SIZES:

Except for control and signal leads, no wire smaller than No. 12 AWG shall be used.

PART 2: - PRODUCTS

MATERIALS:

Wires and cables shall be of annealed, 98% conductivity, soft drawn copper unless indicated otherwise on the Drawings or in these Specifications.

All conductors No. 8 AWG and larger sizes shall be stranded; smaller sizes shall be solid.

WIRE AND CABLE MARKERS:

Wire and cable markers shall be "Omni-Grip" as manufactured by W.H. Brady Co., or equal.

INSTALLATION:

All conductors shall be carefully handled to avoid kinks or damage to insulation.

All wires, cables and each conductor of multi-conductor cables shall be uniquely identified at each end by color or with wire and cable markers. Lighting and receptacle wiring shall be distinctly differentiated and junction boxes marked.

Lubrications shall be used, if required, to facilitate wire pulling. Lubricants shall be U.L. approved for use with the insulation specified.

***** END OF SECTION *****

SECTION 16130

BOXES

PART 1 - GENERAL

SCOPE OF WORK:

Furnish and install all pull, in-ground junction boxes indicated on the Drawings and as specified herein.

APPLICATIONS:

Provide boxes of the minimum size herein specified or as required. If a larger box is required, refer to Article 370 of the NEC.

PART 2 - PRODUCTS

OUTLET BOXES:

Receptacle boxes and their enclosures shall be the waterproof, impact resistant types with gasketed and hinged covers.

INGROUND BOXES:

Inground pull and junction boxes shall be composite types with engraved service identification covers with stainless steel fasteners. Box configurations, entries, bottom, etc., shall be as per individual application. Boxes shall be as manufactured by Quazite (Composolite) Inc.

***** END OF SECTION *****

SECTION 16170

DISCONNECT SWITCHES

PART 1 - GENERAL

SCOPE OF WORK:

Furnish and install all circuit disconnects (safety switches) indicated on the Drawings and as specified herein.

APPLICATIONS:

Provide fused or non-fused disconnects as indicated or as required for the application.

The disconnect switches on this project shall be NEMA 3R, lockable types.

PART 2 - PRODUCTS

GENERAL:

Disconnect switches shall be NEMA 3R type HD (Heavy Duty) and UL listed.

Switches shall have switch blades fully visible in the "OFF" position when the door is open.

Switches shall be quick-make, quick-break such that, the operation of the contacts (blades) shall not be capable of being restrained by the operation of the operating handle after the closing or opening action has been initiated.

The operating handle shall be an integral part of the switch's box and not the switch's door.

Provisions for padlocking the switch in the "OFF" and "ON" positions with at least three (3) locks shall be provided.

Switches shall have interlock to prevent the unauthorized opening of the door when the handle is in the "ON" position.

The handle position shall clearly indicate whether the switch is "ON" or "OFF".

CONSTRUCTION:

Enclosures shall have a gray baked enamel finish, electrodeposited on cleaned, phosphatized steel.

NEMA 3R enclosures shall be manufactured from galvanized steel.

RATINGS:

Fusible disconnects shall be volt rated depending on the service voltage.

Fusible disconnects shall be furnished with Class R fuses of the indicated Ampere rating (up to 600 Amps) and be equipped with rejection clips.

Fusible disconnects shall be UL listed for 200,000 RMS symmetrical ampere short circuit current when equipped with Class R or Class L fuses.

Lugs shall be front removable and be UL listed for aluminum or copper conductors at 60°C or 75°C.

PART 3 - EXECUTION

INSTALLATION:

Disconnects shall be labeled according to Section 16010. Label as to equipment served and feed source.

***** END OF SECTION *****

SECTION 16450 - GROUNDING

PART 1 - GENERAL

SCOPE OF WORK:

The work required under this section of the specifications consists of the installation of the grounding system components to ensure continuous ground for the project. Provide all materials required for the grounding system under this section of the specifications.

RELATED WORK:

Coordinate installation of grounding system with all work required under Division 16.

APPLICATION:

Equipment grounding conductors shall be used to establish grounding of the entire system.

Equipment grounding shall not be by metallic raceway alone. Table 250-122 of the NEC shall be used to size equipment grounding conductors.

PART 2 - PRODUCTS

GROUNDING ELECTRODE CONDUCTOR CONNECTIONS:

Conductor connections shall be by UL approved corrosion resistant clamps.

EQUIPMENT GROUNDING CONDUCTORS:

Equipment grounding conductors shall be green with THW, THWN, THHN, or XHHN insulation (See Section 16120 - Wires and Cables).

PART 3 - EXECUTION

INSTALLATION:

Ground all non-current carrying metal parts of the electrical system to provide a low impedance path for ground fault current. All systems requiring grounding shall be tied to common grounding point.

The neutral conductor(s) of the incoming electrical service shall be grounded to the ground rod system and structural mounting steel using Table 250-66 of the NEC for conductor sizing. Grounding conductors shall be run in rigid non-metallic conduit.

Grounding conductors shall be attached to equipment with a bolt or sheet metal screw used for no other purpose. Use crimp on spade lugs for stranded conductor.

***** END OF SECTION *****

MICCOSUKEE COMMUNITY PARK FIELD CONSTRUCTION SCOPE OF WORK AND SPECIFICATIONS FOR SPORTS FIELD CONTRACTORS (SFC)

Scope of Work

Part 1. General

The Prime Contractor shall select a specialty Sports Field Contractor (SFC) based on qualifications cited below. The general outline of the work and qualifications are as follows:

1.01 Work Included

The specialty (SFC) contractor shall be fully responsible for

A. Laser Grading of subgrade, rootzone mix and final surfaces for sod and subgrade and clay in infield
B. Construct Fully Automated Irrigation System.
C. Furnish and Installation of USGA Rootzone Mix at Playing Field Areas.
D. Furnish and Installation of Pre-Plant Lime, Fertilizer and Amendments as per Laboratory Requirements.
E. Furnish and Installation of Blue Tag Certified Wide-Roll Tifway 419 Turfgrass Sod **"Sand Based".**
F. Monitoring of Initial Grow-In of Sod for one week.
G. Provision of Written Site Specific Maintenance Instructions for after Initial Grow-In.

1.02 Qualifications

A. SFC shall have on staff a full time sports field superintendent with at least 10 years experience in the on-site supervision of natural turf sports fields. This superintendent shall be on-site full time at all times during the construction of the sports fields.

B. SFC shall do all laser grading, rootzone mix, sand installation, blending, roto-tilling, and wide roll sod installation with his own crew of experienced and skilled employees and shall not use subcontractors for this work.

C. SFC shall own his own equipment such as dual slope, hydraulically activated laser grading equipment, Rotadairon or Blecavator reverse tine tiller, laser guided trencher, Land Pride or Harley Power Rake and wide-roll sod laying machines.

D. SFC shall use a USGA Accredited Testing Lab with over 20 years experience testing rootzone mix, sand, and gravel for natural turf sand profile sports fields. SFC shall pay for all USGA sampling and testing cost

Specifications

Topsoil/ Rootzone Mix

Part 1- General

1.01 Description

A. Provide all labor, material, services and equipment necessary to completely furnish and install the root zone/soil work as specified.

1.02 Related Work

A. Section 02940 Sodding

1.03 Referenced Standards

A. USGA

1.04 Submittals

A. Test reports shall be provided for gradation, infiltration rate, total porosity, capillary porosity, non capillary porosity and ph.
B. Testing of Rootzone mix and Gravel
C. Test results shall be provided by an accredited USGA testing laboratory. All costs for sampling and testing shall be included in the rootzone price.

Materials

2.01. Rootzone Mix

A. The rootzone mix shall consist of a four-inch layer of USGA coarse/medium silica sand blended three inches of existing soil for a sports turf rootzone mix with physical and performance characteristics as specified below.

1. Particle Size Distribution for the Rootzone Mix:

Fraction size Name	Sieve Size (mm)	Allowable Range % Retained
Gravel	2.00	Equal to or Less Than 3%
Very Coarse	1.00-2.00	7% to 10%
Coarse and Medium	**0.50-1.00 / 0.25- 0.50**	**Minimum of 60% Coarse Medium Combined**
Fine	0.15-0.25	20% Maximum
Very Fine	0.05-0.15	5% Maximum

Silt	0.002-0.05	5% Maximum
Clay	<0.002	3% Maximum

2. Physical Performance Requirements for the Rootzone Mix:

Test	Allowable Ranges
Infiltration Rate per Lab Test Results	8 to 15 inches/hour
Total Porosity	35 – 55%
Capillary Porosity	15 – 25%
Non-Capillary Porosity	15 – 30%

B. PH of the root zone mix shall be 6.0 to 6.5.

Part 3 – Execution

3.01 Inspection

A. Examine the area to receive soil preparation and assure that the initial grading by the site contractor is correct and true to the plans.
B. Do not proceed with the soil preparation until any necessary corrective actions are completed.

3.01 Site Preparation

A. Grading: The Site Contractor shall laser grade all field areas to within a tolerance of plus or minus 0.25 inches with automatically controlled laser guided equipment and a dual slope actuated soil plane. SFC shall laser grade all field areas to within a tolerance of plus or minus ¼ inch with automatically controlled laser-guided equipment with a dual slope hydraulic actuated soil plane. Equipment shall be pulled with tractors with high-flotation turf tires. SFC shall own his own equipment and provide proof of calibration of laser equipment.
B. All areas shall be maintained in a true and even condition. All areas shall be positively drained to existing drainage structure and properly compacted to prevent the formation of depressions where water will stand. All undulations and irregularities in the surface resulting from tillage, grading or application of soil amendments not meeting the required tolerances shall be leveled prior to initiating planting of the Tifway 419 sod.
C. After placing four inches of silica sand, The FFC shall rototill the area to mix three inches of existing soil using a reverse tine tiller for a total root zone depth of seven inches. The root zone area will then be fine graded with turf equipment to the grades shown on the grading plan.
D. SFC shall incorporate lime fertilizer and amendments as per laboratory requirements and apply a final float finish and do all preparation to the surface to receive sod.

End of Section

Section 02940
Tiftway 419 Sodding

Part 1- General

1.01 DESCRIPTION

A. The work specified in this section consists of the establishing of a stand of grass, within the areas indicated on the Drawings, by the furnishing and placing of grass sod, watering and maintaining the grassed areas to assure a healthy stand of grass. It is the intent of this specification that damaged areas are to be replaced in kind, with sod to be used for all maintained field areas.

1.02 RELATED WORK and References

A. Section 02920: Topsoil
B. ASPA (American Sod Producers Association) Guidelines to Sodding
C. FS O-F-241 Fertilizers, Mixed, Commercial

1.03 Submittals/Quality Assurance

A. SFC shall submit Blue Tag certification of Tifway 419 sand based wide roll sod including location of sod source
B. SFC shall submit certification that the sod is fire ant free.

1.04 Delivery Storage and Protection

A. Deliver sod in rolls. Protect exposed roots from dehydration.
B. All sod delivered to the site, shall be laid within eight (8) hours.

Part 2- Materials

2.01 Tifway 419 Sod

A. SFC shall be Blue Tag Certified Tifway 419 sand based wide roll sod.
B. Sod: Minimum age of 18 months, with root development that will support its own weight without tearing.
C. All sod delivered to the site, shall be laid within eight (8) hours.
D. Sod shall contain no weed of any type.
E. Sod shall be free from fungus, vermin and other diseases.
F. Sod shall have been mowed no more than 4 days before being cut.
G. Sod shall be over seeded at the sod farm with a blended perennial rye grass at a rate of eight to ten pounds per thousand square feet suitable for the Tallahassee area.

2.02. Installation

A. Tifway 419 sand based sod shall be installed using special wide-roll installation equipment. SFC shall roll the sod after installation with a double-drum smooth 3-5 ton steel roller to ensure full contact between the sod and the rootzone surface over the entire soccer field.
B. Hauling of wide roll sod from trucks to the sod laying equipment shall be done with low ground pressure (less than 5 psi) Multi-Terrain track equipment with rubber treads.
C. The setting of pieces shall be staggered in such a manner as to avoid continuous seams.
D. Sod shall be moist and placed on a moist earth bed.
E. Begin irrigation and grow-in program immediately.

2.03 Grow-In

A. SFC shall do the initial grow-in for one week until sod is smooth, uniform and knitted down at the playing field areas. This shall include fertilization, monitoring irrigation, herbicides, pesticides, fungicides and laboratory testing.

2.04 Consultation

A. SFC shall provide unlimited consultation by telephone, fax or e-mail for a period of one year after the initial grow-in period. This will include four site inspection visits at times requested by owner.

2.05 Replacement

A. Contractor shall guarantee all sod work up until the end of the maintenance period. Contractor shall replace any defective or distressed grass materials at no additional cost to the owner. During the guarantee period, it shall be the SFC's responsibility to immediately replace any dead material.

End of Section

Section 02795
Infield Clay Areas

Part 1- General

1.01 DESCRIPTION

A. The work specified in this section consists of the furnishing and installing the infield clay area, pitcher's mound and infield conditioner as indicated on the Construction Drawings.

1.02 Submittals/Quality Assurance

A. Sports Field Contactor shall submit soil samples with laboratory tests showing mechanical analysis of infield mix for owner's and engineer's approval.

Part 2- Products

2.01 Materials and Equipment

A. Clay material shall be in accordance with ASTM F21070-7 for skinned infield mix material and shall have the following particle size recommendations: 100% passing a 4.75 mm (No. 4) sieve, 0-15% gravel (retained on a 2mm sieve) and a minimum of 60% sand with 19-40% passing a 53mm (N0. 270) sieve which is the silt and clay fraction.
B. Mound and batter's box clays shall be Mound Clay from Southern Athletic Fields, Turface or approved equal.
C. Infield Conditioner shall be Turface Athletics Pro League or approved equal.

2.02. Installation

A. Place 6" of infield clay and laser grade to the grades shown on the contract plans.
B. After leveling the skinned area, nail drag surface to a depth of 1 ½", apply ½" of soil conditioner and nail drag to incorporate conditioner into infield clay.
C. Install pitcher's mound as recommended by the manufacturer or supplier.

End of Section

Section 02441
Field Underdrain

Part 1- General

1.01 Description

A. The work included in this section includes of furnishing all labor equipment and materials necessary for the installation of the sports field drainage shown on the contract documents.

1.02 Referenced Standards

A. AASHTO M252: Corrugated Polyethylene Drainage Tubing
B. ASTM F405 Corrugated Polyethylene (PE) Pipe and Fittings

1.03 Submittals

A. General: Submit manufacturers brochures, technical data, design calculations, drawings, samples of material to be used and the method of installation in sufficient detail to demonstrate that the finished product will meet all quality and properties for the performance of the under drain system.

Part 2- Materials

2.01 Materials

A. The piping shall be dual wall perforated HDPE ADS N12 pipe or approved equal.
B. The trench shall be lined with Mirifi 140 N geotextile fabric or approved equal.
C. Pipe trench shall be filled with washed #57 granite.

Part 3- Execution

3.01Preparation

A. Pipe trench: The trench shall be excavated carefully to such a depth as required to permit the filter material and pipe to be placed in accordance with the details to be shown on the Contract Drawings.
B. Sheeting: bracing and shoring: The Contractor shall furnish, place, maintain sheet piling underpinning or other approved bracing and shoring materials which may be required to support the sides of the excavation and prevent failure of the trench wall, which in any way may delay construction, endanger personnel, damage public or private property. All such work shall be in accordance with the governing specifications and payment shall be incidental to the bid price.

3.02Installation

A. Placing Filter Fabric:
   1. Areas where the filter fabric is to be placed shall be reasonably smooth and free of projections which could damage the filter material.
   2. The material shall line the bottom and sides of the trench and shall overlap one foot on top of stone. The fabric shall be placed in such a manner that no bridging effect occurs and no place shall there be voids between the fabric and the surrounding trench

B. Laying Pipe: All underdrain pipe shall be carefully laid in conformity with the lines and grades specified in the drawings and in accordance with these specifications, unless otherwise specified on the drawings or in the general requirements.

C. Placing Filter Material: After the pipe has been laid and approved by the Engineer, the filter material (#57 crushed granite- aggregate) shall be placed and compacted for the full width of the trench, in layers not exceeding 6-inches in thickness, to a depth shown on the drawings. Special care shall be taken during this process so as not to damage or displace the pipe and filter fabric.

D. Backfill above Underdrain Pipe: After backfilling underdrain, the backfill of granular base material may begin. Contractor shall use caution in placing the 2 ½" layer of granular base as not to damage or destroy the filter fabric. Any damaged or destroyed fabric shall be replaced / repaired as directed by the Engineer.

End of Section