

ADDENDUM #1

FOR

HHI – ISLAND RECREATION CENTER ENHANCEMENT & EXPANSION

Town of Hilton Head Island Project Number: 2016-0014

FWA Project Number 2456.01

PREPARED BY:

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TO: ALL BID DOCUMENT HOLDERS

This addendum forms a part of the Contract Documents and modifies the original Project Manual. Acknowledge receipt of this addendum on bid proposal to be submitted to Owner.

I. ENCLOSURES

1. Alternate #3 – Field Lighting Specifications

II. PROJECT SPECIFICATION MANUAL

1. Insert “Alternate #3 – Field Lighting” at the end of the Project Specification Manual.
2. Section 00 1110 Request for Proposals, Page 3, Correct Section F.3.b. to read:

“A point is deducted for each \$10,000 over the low proposal price.”

III. QUESTIONS / CLARIFICATIONS

1. All steel subs must be AISC qualified. The AISC qualification cannot be waived.

END OF ADDENDUM #1

ALTERNATE #3 – FIELD LIGHTING
 Town of Hilton Head Island - Island Recreation Center
 Enhancement and Expansion Project Multi-Purpose Field Lighting

Specifications

The primary purpose of these specifications is to establish the design, quality, and performance standards and requirements for the new field lighting system for the Town of Hilton Head Island – Island Recreation Center Project “Alternate #3 - Provide and Install Field Lights and Associated Electrical Service”. The new system shall provide the light levels and design standards listed below.

I. Lighting Performance

The lighting system shall provide the following average constant or maintained light levels as specified in the chart below. The light levels shall be provided for the entire 25 years warranty period, based on up to 400 hours of use per year, and will be measured annually. The measured average illumination Constant & Maintained and Initial Light Levels shall be met in accordance to the IESNA Clarification to RP-6-01. An allowance of -10% is **not** allowed. Manufacturer shall provide computer models with the guaranteed light levels. Light levels shall be measured initially at the first 100 hours of operation.

Systems shall provide either “Constant Illumination”, achieved through automatic power adjustments used to implement the .65 Recoverable Light Loss Factor by the system in conjunction with the IES lumen maintenance control strategy, as published in the IESNA Lighting Handbook Reference and Application, Ninth Edition, page 27-2 and 27-3, or maintained light levels as a continuous depreciating light system. Systems not using the automatic power adjustments must be designed under the depreciating light guidelines.

Depreciating light systems shall use a Recoverable Light Loss Factor of 0.65, in addition to any tilt factor used for calculating both initial and maintained light levels, and scans for both initial and maintained light levels shall be submitted. The .65 Recoverable Light Loss Factor should allow for providing the maintained light levels to the end of the rated lamp life. Fixtures shall be metal halide and use nominally rated 1,500 watt lamps. The maximum initial lumen output that can be used for design is 155,000 lumens. Lamp cut sheets showing the rated output of the lamps, by the lamp manufacturer, for the normal operating tilt angles, must be provided.

Area of Lighting	Average Maintained Light Levels In Footcandles	Initial Light Levels for Depreciating Systems in Footcandles	Maximum to Minimum Horizontal Uniformity Ratio	Minimum Mounting Height Above Grade	Grid Points	Grid Spacing
Soccer Main Field Area – 225’ x 330’	30 Horizontal	46 Horizontal	2.0 to 1	70 ft.	88	30’ x 30’
3 – Youth Fields Extended Area 180’ x 360’	30 Horizontal	46 Horizontal	2.0 to 1	70 ft.	72	30’ x 30’

II. Environmental Light Control

Control of glare is important for the participants and neighbors. The system shall provide for control of glare and off site spill light. All light fixtures shall include both internal visors/segmented reflector panels, and external glare control visors on all fixtures.

The maximum horizontal spill light 150 ft. from the field shall be .25 Footcandles or less. The maximum vertical spill light 150 ft. from the field, with the light meter aimed at the brightest light source, shall be .75 Footcandles or less.

III. Energy Use & Energy Costs

The maximum average energy use of the lighting system including the lamp and ballast for the Town of Hilton Head Island – Island Recreation Center Field Lighting shall not exceed 45 kW.

Energy consumption and costs are important values. The following information shall be provided. The energy consumption and costs will be a consideration in determining the system that is in the best interest of the school district.

	Luminaire energy consumption	
	$\frac{\# \text{ luminaires} \times \# \text{ kW demand (including ballast usage) per luminaire} \times 12 \text{ cents/kWh rate} \times 300 \text{ annual usage hours} \times 25 \text{ years}}{}$	

IV. Guarantee & Warranty

25-Year Warranty: Each manufacturer shall supply a signed warranty covering the entire system for 25 years. Warranty shall guarantee light levels, lamp replacements, system energy consumption, control system, monitoring, maintenance and control services, spill light control and structural integrity. Manufacturer shall maintain specifically funded financial reserves to assure fulfillment of the warranty for the full term. Warranty may exclude fuses, storm damage, vandalism, abuse and unauthorized repairs or alterations.

Manufacturer shall provide all preventative and spot maintenance, including parts and labor for 25 years from the date of equipment shipment. Individual lamp outages shall be repaired when the usage of the field is materially impacted. Owner agrees to check fuses in the event of a luminaire outage.

As a part of the warranty and service provided, in addition to spot lamp replacements as needed, the entire system shall be completely relamped with the fixture reflectors and lenses cleaned, and the manufacturer shall include the costs for the group relamping, including parts, labor and access equipment, based on an average use of up to 400 hours per year. Group relamping shall occur when the average light levels fall below the specified target light levels or at end of the rated lamp life, whichever occurs first.

For systems that do not use automatic power adjustments for a constant illumination, the relamp schedule shall be based on the lamp manufacturer's rated lamp life of 3,000 hours.

V. Lighting System Construction

The lighting system shall consist of the following:

- A. New hot dip galvanized steel poles, with minimum mounting heights as noted in chart above. The poles shall be either base plate, with connection to reinforced concrete anchor bolt foundations, connecting at least 18 inches above grade, or by slip fit connection to a reinforced concrete pole base at least 18 inches above ground. Due to corrosion concerns, direct buried steel poles, steel poles encased in concrete, or steel pole bases below grade will not be accepted. Concrete poles are not approved for this project.
- B. Galvanized tubular steel crossarm assembly for attachment to steel pole structures. All luminaires shall be constructed with a die-cast aluminum housing, or shall be double jacketed with a protective hull to protect the luminaire reflector system and photometrics.
- C. Manufacturer shall remote all ballasts, capacitors and supporting electrical equipment in aluminum enclosures with mounting starting about 10' above grade, to remove these components from the heat of the lamp and to remove their weight from the fixture and crossarm so aiming and light quality can be maintained. This also allows for easy diagnosis should a problem occur, without going to the top of the pole. The enclosures shall include the ballast, capacitor and separate fusing for each luminaire, with a separate circuit running up

the pole for each fixture. The safety disconnect per circuit for each pole structure will be located in the enclosure and installed by the manufacturer. The hubs and galvanized mounting brackets for the enclosures shall be welded to the pole prior to the hot dipped galvanization of the pole.

- D. Wire harnesses complete with an abrasion protection sleeve and strain relief.
- E. Controls and Monitoring Cabinet to provide on-off control and monitoring of the lighting system, constructed of NEMA Type 4 aluminum. The communication method shall be provided by the manufacturer. Cabinet shall contain custom configured contactor modules. Manual Off-On-Auto selector switches shall be provided.
- F. All components shall be designed and manufactured as a system. All luminaires, wire harnesses, ballast and other enclosures shall be factory assembled, aimed, wired and tested.
- G. All exposed components shall be constructed of corrosion resistant material and/or coated to help prevent corrosion. All exposed steel shall be hot dip galvanized per ASTM A123. All exposed hardware and fasteners shall be stainless steel of at least 18-8 grade, passivated and polymer coated to prevent possible galvanic corrosion to adjoining metals.
- H. Mounting hardware to attach lighting assemblies shall be hot-dip galvanized per ASTM 153. All exposed aluminum shall be powder coated with high performance polyester. All exterior reflective inserts shall be anodized, coated with a clear, high gloss, durable fluorocarbon, and protected from direct environmental exposure to prevent reflective degradation or corrosion. All wiring shall be enclosed within the cross arms, pole, conduit or electrical components enclosure.
- I. All structures shall be equipped with lightning protection meeting NFPA 780 standards. Lighting system shall provide integrated grounding in the concrete poles base, or the contractor shall supply and install a ground rod of not less than 5/8" in diameter and 8' in length, with a minimum of 10' embedment. Ground rod should be connected to the structure by a copper main down conductor with a minimum size of #2, and shall connect by exothermic welding.
- J. All system components shall be UL Listed for the appropriate application.

VI. Electrical

The new electrical system and circuits shall be installed per the project plans. The system shall include a new lighting contactor cabinet with Remote Control & Monitoring, which allows the owner and users with a security code to schedule on/off system operation via web site, phone, phone app or email for at least one year in advance. The manufacturer shall provide and maintain a two-way TCP/IP communication link and include the cost of the communications and control service for 25 years as a part of the initial bid. The system shall also monitor lighting performance and notify the manufacturer so appropriate maintenance can be scheduled.

VII. Enhanced Corrosion Protection

Enhanced corrosion protection package: Due to the potentially corrosive environment for this project, manufacturers must provide documentation that their products meet the following enhanced requirements in addition to the standard durability protection specified above:

- Exposed carbon steel horizontal surfaces on the crossarm assembly shall be galvanized to a five (5) mil minimum average thickness.
- Exposed die cast aluminum components shall be Type II anodized per MIL-STD-8625 and coated with high performance polyester.
- Exposed extruded aluminum components shall be Type II anodized per MIL-STD-8625 and coated with high performance polyester.

VIII. Structural Design, Soil Conditions & Foundations

Poles, crossarms & attachments design stresses, and wind loading, shall be designed based on 140 MPH wind zone, per IBC 2012, Exposure B. The foundation designs shall be based on soils report if provided, or in lieu thereof, that meet or exceed those of a Class 5 material as defined by 2006 IBC. Foundation designs showing the foundation diameter, depth, and amount of concrete shall be provided. Minimum foundation depth shall be 14 ft.

IX. Installation & Field Protection

It is the responsibility of the contractor to protect the field from damage during the installation.

X. Timing

The lighting system shall be on site within 45 days of award of the notice to proceed.

XI. Testing & Field Quality Control

Upon substantial completion of the project and in the presence of the Contractor, Project Engineer, Owner's Representative and Manufacturer's Representative, illumination measurements shall be taken and verified. The illumination measurements shall be conducted in accordance with IESNA RP-6-01, Annex B.

XI. Approved System

Basis-of-Design: The Light Structure Green System from Musco Sports Lighting, LLC;
www.musco.com.

Other manufacturers will be considered based on their ability to meet the minimum standards as established by the Musco product.

SUBMITTAL INFORMATION

Design Submittal Data Checklist and Certification

All items listed below are mandatory, shall comply with the specification.

Included	Tab	Item	Description
	A	Letter/ Checklist	Listing of all information being submitted must be included on the table of contents. List the name of the manufacturer's local representative and his/her phone number. Signed submittal checklist to be included.
	B	On Field Lighting Design	Lighting design drawing(s) showing: a. Project Name, date, file number, prepared by, and other pertinent data b. Outline of fields, as well as pole locations referenced to center of each lighted area. Illuminance levels at grid spacing specified c. Pole height, number of fixtures per pole, as well as luminaire information including wattage, lumens and optics d. Height of meter above court surface e. Summary table showing the number and spacing of grid points; average, minimum and maximum illuminance levels in foot candles (fc); uniformity including maximum to minimum ratio, coefficient of variance and uniformity gradient; number of luminaires, total kilowatts, average tilt factor; light loss factor. f. Constant illumination light level scans or both initial and maintained light level scans using a maximum 0.65 Recoverable Light Loss Factor to calculate maintained values, for systems that do not provide automatic power adjustments for constant illumination.
	C	Foundation Drawings	Manufacturer shall provide designs showing the auger size, hole depth and amount of concrete backfill.
	D	Fixture Cut Sheet Showing Glare Control	Provide a fixture cut sheet showing both the internal louvers/visors/segmented reflector and external visors to be used on this project.
	E	Energy Cost Calculation	Document the energy costs for operating the luminaires based on the parameters provided of 300 hours per year and \$.12 per kWh. All costs should be based on 25 Years.
	F	Control and Monitoring	Manufacturer shall provide written definition and schematics for automated control system including monitoring. They will also provide examples of system reporting and access for numbers for personal contact to operate the system.
	G	Electrical Distribution Plans	Contractor shall certify compliance with the project electrical plans.
	H	Performance Guarantee	Provide performance guarantee including a written commitment to undertake all corrections required to meet the performance requirements noted in these specifications at no expense to the owner. Light levels must be guaranteed per specification for 25 years.
	I	Warranty	Provide written warranty information including all terms and conditions.
	J	Group Relamping Schedule	Provide the group relamping schedule per the specifications for 25 years based on 400 hours of use per year. Relamp schedule shall be based on the constant light lamp rating, or 70% of the lamp manufacturer's rated lamp life for depreciating systems.
	K	Project References	Manufacturer to provide a list of 10 project references of similar projects using the remote ballast glare control system being proposed.
	L	Product Information	Complete set of product brochures for all components, including a complete parts list and UL Listings.

	M	Non-Compliance	Manufacturer shall list all items that do not comply with the specifications.
	N	Compliance	Manufacturer shall sign off that all requirements of the specifications have been met and that the manufacturer will be responsible for any future costs incurred to bring their equipment into compliance for all items not meeting specifications and not listed in item M – Non-Compliance

Manufacturer: _____

Signature: _____

Contact Name: _____

Date: ____/____/____