



**Request for Proposals**

**Addendum No. 02**

**New LED Lighting System**

**for**

**RSU No. 22**

March 26, 2018

To all Registered Bidders:

The following changes, additions, and/or deletions are hereby made a part of the Request for Proposals for the above noted project, fully and completed as if the same were fully contained therein. All other terms, conditions, and specifications of the original Request for Proposals remain unchanged.

1. *Clarification:* The LED lighting system contractor needs to be aware that the Owner will be replacing its existing synthetic turf field with a new synthetic turf field concurrently with the replacement of the lighting system.

The lighting contractor's may commence work onsite on June 1, 2018 with final completion on August 15, 2018.

The lighting contractor shall have access to the outside edge of the field adjacent to the existing retaining wall. Commencing from the retaining wall in an easterly direction towards the playing field, the Owner will allow a 30 foot wide strip to be utilized by the lighting contractor between June 1, 2018 and July 15, 2018 for installation of the lighting system.

The lighting contractor shall cooperate with the Owner's synthetic turf contractor for overlapping access requirements.

Please refer to the attached modified Request for Proposals for the revised commencement date.

2. *Question:* Would the Owner modify the requirements to allow for in lieu experience with other lighting systems (i.e. HID)?

*Answer:* The Owner will consider in lieu experience with other sports field lighting systems with appropriate documentation. Please refer to the attached modified Request for Proposals for the inclusion of this language.

3. *Question:* Would the Owner allow an alternate for the wiring to repurpose some of the wiring/conduit/trenching?

*Answer:* The Owner will accept the repurposing of existing conduit that will be utilized to protect and route electrical wiring for the LED lighting system as long as it is in an acceptable condition.

The Owner will not accept reutilizing the existing electrical wiring that runs from the 208 volt pedestal to the existing field lights.

4. *Question:* Would the Owner modify the requirements to allow for an alternative method of burying the steel poles than that outlined in Section 2.1 Sports Lighting System Construction Item 4.b.ii. "Direct bury steel poles which utilize the extended portion of the steel shaft for their foundation will not be accepted due to potential for internal and external corrosive reaction to the soils and long term performance concerns." ?

*Answer:* The Owner will accept alternative methods of burying the steel field lighting poles as long as the lighting contractor provides certification from the manufacturer verifying its resistance from corrosion and the warranty period.

Please refer to the attached modified Attachment A, Performance Based Specification for the inclusion of this language.

5. *Question:* Is the current system fully functional, no wiring problems of any sort

*Answer:* The existing field lighting system was functional during the soccer season in the Fall of 2017. The existing field lighting system has not been turned on during the winter months.

6. *Question:* Do you guys plan to run the new system on the current 480v?

*Answer:* As described in Addendum No. 1 dated March 20, 2018, this is a Design-Build RFP, and as such, the Contractor is responsible for determining the electrical power supply and conduit paths for the new LED lighting system. The Contractor shall be responsible for providing engineered drawings, stamped by a Maine registered Professional Engineer if required by the building and life safety codes and statutes of the State of Maine for all work related to the electrical distribution system supporting the new LED lighting system.

### **Other Changes to Request for Proposals**

The Owner has amended Question No. 2 on Addendum No. 1 dated March 20, 2018 to read as follows:

2. Question: Will the Contractor be responsible for removing all existing field wooden lighting poles, lighting fixtures, and electrical cables and conduits related to the field lighting poles?

Answer: The Contractor shall remove all existing lighting fixtures, electrical cables, and conduits related to the field lighting poles from the Owner's property.

The Contractor shall remove all existing wooden lighting poles and store the lighting poles on the Owner's property approximately 150 feet from the field adjacent to the facilities storage building.

*Attached is the modified Request for Proposals and Attachment A, Performance Based Specification that incorporate all changes from both Addendum No. 1 and Addendum No. 2 for clarity.*

- End of Addendum No. 02 -



RSU 22

**Request for Proposals  
for  
New LED Lighting System  
at  
RSU No. 22  
Hampden, Maine**

March 6, 2018



Camden, ME | Portland, ME | York, ME  
207.236.9970 | [www.cordjiacapitalprojects.com](http://www.cordjiacapitalprojects.com)

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**NOTICE TO LIGHTING CONTRACTORS**

**REQUEST FOR PROPOSALS**

Regional School Unit No. 22 ("RSU No. 22") is requesting proposals from Lighting Contractors ("Contractors") interested in providing services for the installation of a new LED lighting system as part of its Athletic Complex Renovation at Hampden Academy in Hampden, Maine.

This Project consists of the removal of the existing field lighting, the purchase, installation, warranty, and maintenance of a new LED lighting system. RSU No. 22's intent is to award the contract on or about April 16, 2018 and installation is scheduled to commence onsite June ~~20~~ 01, 2018 with substantial completion on or before August 8, 2018.

RSU No. 22 will hold a non-mandatory site visit on March 19, 2018 at 2:30 p.m. EST at which time general issues associated with the Project and the RFP process will be discussed. RSU No. 22 will provide reasonable access to the Project site during the proposal preparation period to verify and evaluate existing condition. Should a proposer anticipate needing additional Project site access, it shall provide RSU No. 22's point of contact, Regan Nickels 207.862.3255, with no less than three days' notice and RSU No. 22 will endeavor to provide such access.

The detailed Request for Proposals may be accessed and downloaded at [www.rsu22.us](http://www.rsu22.us). Proposals must be received no later than 3:00 p.m. EST at the office of the Superintendent of Schools on April 3, 2018, at which time they will be read aloud. Proposals received after this time will not be accepted.

As bid security, proposals must be accompanied by a certified or cashier's check for 5% of the proposal or a satisfactory bid bond (Section 2-C1) in a similar amount.

The selected Contractor will be required to furnish a 100% contract performance bond and a 100% contract payment bond to cover the execution of the work which shall be in conformity with the form of bonds contained in Section 2-C of the specifications and for the contract amount.

RSU No. 22 reserves the right at its sole discretion to waive any informality or irregularity in any bid, to reject any and all bids, to award a bid wholly or in part, to call for re-bid, and to negotiate with any Submitter, if it is deemed to be in the best interest of RSU No. 22 to do so.

All completed proposals, submittals, and accessory documents should be mailed or delivered to:

Superintendent of Schools  
c/o Regan Nickels, Assistant Superintendent for Business and Operations  
RSU No. 22  
24 Main Street North  
Hampden, ME 04444

## **INTRODUCTION**

Regional School Unit No. 22 ("RSU No. 22") is requesting proposals from Lighting Contractors ("Contractors") interested in providing services for a new LED lighting system as part of its Athletic Complex Renovation at Hampden Academy in Hampden, Maine ("Project").

This Project consists of the removal of the existing field lighting and the purchase, installation, warranty, and maintenance of a new LED lighting system. Please refer to Attachment A for the Performed Based Specification for a comprehensive scope of work.

## **BIDDER REGISTRATION; QUESTIONS; AMENDMENT OF RFP**

Contractors interested in responding to this RFP are advised to register with RSU No. 22 in order to receive direct updates regarding the RFP. To register, send an email to rnickels@rsu22.us with the subject line "RSU No. 22 LED Lighting System RFP Registration."

Any questions regarding this RFP shall be submitted by email to rnickels@rsu22.us not later than March 23, 2018 at 2:00 p.m. EST. RSU No. 22, in its discretion, may respond to questions. All responses will include the original question and be distributed directly to registered parties by email and otherwise made publicly available. RSU No. 22 reserves the right to amend the RFP. Any responses to questions or amendments to the RFP will be issued not later than March 27, 2018.

## **PROPOSAL SUBMISSION**

Proposals must be received no later than 2:00 p.m. EST on April 3, 2018. Proposals received after this time will not be accepted. RSU No. 22 reserves the right to contract in the best interest of RSU No. 22, and to reject any and all bids at any time prior to award.

RSU No. 22 will consider only written proposals submitted in hard copy, and all responses to this RFP must be made in accordance with the specifications as set forth herein. Failure to adhere to any specifications contained herein may be cause for your proposal to be rejected.

Contractors shall submit five (5) paper copies and one (1) electronic copy on a thumb drive. Proposals must be sealed in a package marked with the name and address of the Contractor. RSU No. 22 will date stamp the package with the submission date and the submission time. In addition, the sealed package in which the proposal is submitted should be labeled "Athletic Complex Renovation: LED Lighting System Proposal". Facsimile responses will not be accepted.

All completed proposals, submittals, and accessory documents should be mailed or delivered to:

Superintendent of Schools  
c/o Regan Nickels, Assistant Superintendent for Business and Operations  
RSU No. 22  
24 Main Street North  
Hampden, ME 04444

Responsive written proposals shall contain the information required below:

1. Cost
  - a. Completion of Section 2-B1, Proposal Form for Contractors (Attachment D)
  - b. A payment schedule.
2. Product
  - a. Submit all required product data that is identified in the technical specifications, plus additional information as appropriate including specific data produced by the Contractor illustrating performance of the product for the various program elements required herein.
  - b. Submit a project reference for each product proposed, including the name of the owner and facility, description of the product installation including size and value, date installed, name and title of project contact, and current phone number or email address.
3. Experience
  - a. Describe your firm's history.
  - b. Identify your firm's principal office location(s), include information identifying annual volume, financial/bonding capabilities.
  - c. Identify your firm's/team's experience with LED lighting systems or other sports field lighting systems.
  - d. Identify the firm's success in installing LED lighting systems or other sports field lighting systems in the Northeast with similar requirements and schedule.
4. Key Personnel for the Project
  - a. Provide an organizational chart (by name and title as available) for implementing and managing the Project, including the responsibilities of each individual and their availability and show the lines of authority within the overall organization.
  - b. Identify your proposed key personnel and their specific experience with LED lighting system installations or other sports field lighting systems of this size.
  - c. Identify their role and success in constructing projects with similar requirements and schedules.
  - d. Provide the names, addresses and phone numbers of three client project owners to be used as a reference for each of the key personnel, as well as the contact information (including email) for each key person identified.
5. Coordination and Management Techniques
  - a. Describe your firm's approach to the management and administration of onsite construction activities to address coordination of scheduling and performing the work related to installing the LED lighting system (i.e., quality control, shipping, staging, and logistics with regard to supply, storage, and handling of products and equipment to perform work).
  - b. Demonstrate an understanding of RSU No. 22's need to maintain work areas and to continue to use adjacent buildings and parking areas concurrent with construction activity.
  - c. Identify construction activity required to maintain safe user access to continued operation of the adjacent spaces.
6. Testing
  - a. Provide LM79, ISTMT, and LM80 by NVLAP accredited testing laboratory approved by the ODE or DLC.

### **PROPOSAL EVALUATION PROCESS**

RSU No. 22 reserves the right at its sole discretion to waive any informality or irregularity in any bid, to reject any and all bids, to award a bid wholly or in part, to call for re-bid, and to negotiate with any Contractor, if it is deemed to be in the best interest of RSU No. 22 to do so.

As part of the evaluation process, the Contractor may be required to attend one or more meetings with RSU No. 22 for the purpose of clarifying materials/products, services and pricing, and may be required to appear at a RSU No. 22 School Board meeting.

The selection process may include requests for additional information from individual Contractors regarding the proposed materials, products, scope of services, pricing and product specifications.

The selected Contractor will be required to enter into a standard School services agreement, Section 2-E, (included in Attachment D) that includes project specifications, including insurances, performance measures, hold harmless and other risk related matters identified by RSU No. 22.

### **GENERAL REQUIREMENTS**

Any bids that propose a project that does not conform to the specifications may be rejected as nonresponsive.

### **RELATED DOCUMENTS**

Drawings and general provisions of the Contract, including General and Supplementary Conditions, apply to this section.

### **SCOPE OF WORK**

Please refer to Attachment A for the Performed Based Specification for a comprehensive scope of work.

### **SUBMITTALS**

Prior to order of materials, the Contractor shall submit the following:

1. Product warranty.
2. Details on construction, especially any details that may deviate from plans and specifications.

Prior to Final Acceptance, refer to Section on Other Equipment, Turnover Materials, and Training for additional Submittals required.

### **QUALITY ASSURANCE**

#### Contractor's Experience

1. Experience in installing LED lighting systems or other sports field lighting systems in the United States for at least the past five (5) years for stadium caliber sports fields.
2. Must have installed at least ~~twenty five (25)~~ ten (10) LED lighting systems or other sports field lighting systems for a minimum field size of 70,000 square feet each, in the United States that meets the specifications as included in this RFP, that have been in play for a minimum of three years.

3. The Lighting Contractor shall have a representative on-site who has overseen the installation of at least ~~twenty-five (25)~~ ten (10) LED lighting systems or other sports field lighting systems. This representative shall supervise the installation of this Project and certify the installation and warranty compliance.
4. The Lighting Contractor must have certified and exclusive crews and may not use outside, independent contractors for the installation.
5. Lighting Contractor shall provide competent workmen skilled in this specific type of installation as included in the RFP.
6. Lighting Contractor shall identify and provide the name of a single point of contact person within its company for this project, beginning with the bid process through construction administration and project close-out.
- ~~6-7.~~ Lighting Contractor shall coordinate all bid documents, submittals, shop drawings, schedules, and warranty and close-out efforts internally and shall not rely on the School Representative to coordinate with multiple parties. Failure to do so could result in a time and materials charge from the School or School's representative for additional coordination.

RSU No. 22 reserves the right to request the addition of a bonded warranty to the specified scope of the work at a cost to be negotiated with the low bidder. Said cost shall be the direct cost of the insurance policy only and shall exclude any markup from the Contractor.

#### SCHEDULE

The Contractor shall complete all work on the LED lighting system in accordance with the following project schedule, and in compliance with manufacturing procurement times as mutually agreed upon and identified in final contract negotiations.

1. Award contract: April 16, 2018
2. Commence work: June ~~20 01~~, 2018
3. Substantial completion: August 8, 2018
4. Final completion: August 15, 2018

The Contractor shall be afforded unencumbered access through the construction site to reach the area of installation.

#### PRODUCTS

Please refer to Attachment A for the Performed Based Specification for a comprehensive scope of work.

#### EXECUTION

##### GENERAL

The installation shall be performed in full compliance with approved shop drawings.

##### INSTALLATION

The Contractor shall thoroughly inspect all materials delivered to the site both for quality and quantity to assure that the entire installation shall have sufficient materials to maintain the schedule.

The Contractor shall provide an adequate size trash dumpster on site during the duration of the project. The trash container shall not be allowed to overflow and shall be dumped regularly. Demolished materials and trash shall not be placed on the ground around or about the trash dumpster. The Owner's Representative shall determine the location of the trash dumpster. RSU No. 22's trash containers shall not be used for disposal.

#### CLEAN UP

Contractor shall provide the labor, supplies and equipment as necessary for final cleaning of surfaces and installed items.

All usable remnants of new material shall become the property of RSU No. 22.

The Contractor shall keep the area clean throughout the project and clear of debris, utilizing a job site dumpster.

The surface and project site shall be cleaned as necessary to leave the work area in a clean, immaculate condition ready for immediate occupancy and use by RSU No. 22.

#### **OTHER EQUIPMENT, TURNOVER MATERIALS, AND TRAINING**

##### TURNOVER MATERIALS TO BE PROVIDED

Contractor shall provide the following prior to final acceptance by RSU No. 22:

1. The manufacturer's written warranty for the Project, per the minimum requirements identified in this specification section. The Contractor shall submit manufacturer's written warranty and ensure that forms have been completed in School's name and registered with manufacturer and insurance carrier. Evidence acceptable to School confirming that the third party insurance policy, non-cancelable and pre-paid, is in effect covering this installation, and underwritten by a Best "A" rated insurance carrier. Evidence acceptable to School that insurance carrier conforms to all insurance requirements set forth in this Performance Based Specification and that each policy is in full force and premiums paid.
2. Three (3) copies of maintenance manuals and a thumb-drive, which will include all necessary instructions for the proper care and preventive maintenance of the LED lighting system.
3. Project record documents.

##### RSU NO. 22 TRAINING TO BE PROVIDED

Contractor shall provide a minimum two (2) hour field training to RSU No. 22 on how to operate and care for the LED lighting system.

**ATTACHMENTS**

Attachment A – Performance Based Specification for the Removal of the Existing Field Lighting and the Purchase, Installation, Warranty, and Maintenance of a New LED Lighting System for RSU No. 22 Hampden, Maine dated March 6, 2018

Attachment B – Approximate Light Pole Location as prepared by Atlantic Resource Consultants dated March 1, 2018

Attachment C – Geotechnical Report as prepared by Summit Geoengineering Services dated March 1, 2018

Attachment D – State of Maine Division 00 – Procurement and Contracting Requirements

Section 1.

1-A Instructions to Bidders

Section 2.

2A Notice to Contractors

2B-1 Proposal for General Contractor

2-C1 Bid Bond for General Contractor

2-C2 Performance Bond for General Contractor

2-C3 Payment Bond for General Contractor

2-E General Contractor Agreement

Section 3.

3-A State of Maine Standard General Conditions

**Attachment A**  
**Performance Based Specification for the Removal of the**  
**Existing Field Lighting and the Purchase, Installation,**  
**Warranty, and Maintenance of a New LED Lighting System for RSU No. 22**  
**Hampden, Maine dated March 6, 2018**

**Attachment B**  
**Approximate Light Pole Location as prepared by Atlantic Resource Consultants**  
**dated March 1, 2018**

**Attachment C**  
**Geotechnical Report as prepared by Summit Geoengineering Services**  
**dated March 1, 2018**

**Attachment D**  
**State of Maine Division 00 – Procurement and Contracting Requirements**



**Performance Based Specification  
For the Removal of the Existing Field Lighting and the Purchase, Installation,  
Warranty, and Maintenance of a New LED Lighting System for RSU No. 22  
Hampden, Maine**

March 6, 2018

**PROJECT DESCRIPTION**

The Project consists of the removal of the existing field lighting and complete installation of a new LED lighting system at Hampden Academy for Regional Owner Unit No. 22 (“Owner”). Scope shall be inclusive of the following elements:

1. Remove existing athletic field lighting system. The existing system includes ~~four (4)~~ five (5) wood lighting poles and luminaires. The existing power cabling will be disconnected and capped appropriately for reuse.
2. Provide and install new engineered field lighting system. The new system consists of the following elements:
  - a. Substructure: Provide engineered drawings stamped by a professional engineer licensed in the State of Maine for new light pole foundation system. Procure and install foundations systems for new light poles.
  - b. Light Poles: Procure and install a minimum of four (4) new galvanized steel light poles.
  - c. Luminaires: Procure and install LED luminaires capable of providing an average horizontal illuminances level of 30 (base bid) / 50 (alternate) footcandles (minimum); coefficient of variation of 0.21 or less; uniformity ratio  $E_{max}/E_{min}$  of 1.5:1.0 or less; and a glare rating less than or equal to 50 for players on the field within the player’s primary view angle.

**SPECIFICATIONS**

**PART 1 – GENERAL**

**1.1 SUMMARY**

1. Work covered by this section of the specifications shall conform to the contract documents, engineering plans as well as state and local codes.
2. The purpose of these specifications is to define the lighting system performance and design standards for the Athletic Field using an LED Lighting source. The manufacturer / contractor shall supply lighting equipment to meet or exceed the standards set forth in these specifications.
3. The sports lighting will be for the following venues:
  - a. Football, field hockey, soccer, and softball.
4. The primary goals of this sports lighting project are:
  - a. Guaranteed Light Levels: Selection of appropriate light levels impact the safety of the players and the enjoyment of spectators. Therefore light levels are guaranteed to not drop below specified target values for ~~a period of 25 years~~ the warranty period.
  - b. Environmental Light Control: It is the primary goal of this project to minimize glare to the players, spectators and neighbors. The LED design should provide better control than a good HID design.

- c. Life-cycle Cost: In order to reduce the operating budget, the preferred lighting system shall be energy efficient and cost effective to operate. All maintenance costs shall be eliminated for the duration of the warranty.
- d. Control and Monitoring: To allow for optimized use of labor resources and avoid unneeded operation of the facility, the Owner requires a remote on/off control system for the lighting system. ~~Fields should be proactively monitored to detect luminaire outages over a 25-year life cycle. All communication and monitoring costs for 25-year period shall be included in the bid.~~

**1.2 LIGHTING PERFORMANCE**

- 1. The new LED lighting system design and layout shall be in conformance with the latest IES recommended procedures and ANSI/IES RP-6.
- 2. Confirm to the regulatory requirements of ANSI/NFPA 70.
- 3. Illumination Levels and Design Factors: Playing surfaces shall be lit to an average target illumination level and uniformity as specified in the chart below. Lighting calculations shall be developed and field measurements taken on the grid spacing with the minimum number of grid points specified below. Appropriate light loss factors shall be applied and submitted for the basis of design. Average illumination level shall be measured in accordance with the IESNA LM-5-04 (IESNA Guide for Photometric Measurements of Area and Sports Lighting Installations). Illumination levels shall not to drop below desired target values in accordance to IES RP-6-15, Page 2, Maintained Average Illuminance and shall be guaranteed for the full warranty period.

Area of Lighting	Average Target Illumination Levels	Maximum to Minimum Uniformity Ratio	Grid Points	Grid Spacing
Athletic Field	30 (base bid) / 50 (alternate) footcandles	1:5:1.0 (Max/Min)	117	30'x30'

A glare rating less than or equal to 50 for players on the field within the player’s primary view angle.

- 4. Hours of usage  
Designs shall be based on the following hours of usage

Area of Lighting	Annual Usage Hours	10 year Usage Hours
Athletic Field	300	3,000

- 5. Color: The lighting system shall have a minimum color temperature of 5700K and a CRI of 65+.
- 6. Mounting Heights: To ensure proper aiming angles for reduced glare and to provide better playability, minimum mounting heights shall be 80 feet. Higher mounting heights may be required based on photometric report and ability to ensure the top of the field angle is a minimum is 10 degrees below horizontal.

**1.3 ENVIRONMENTAL LIGHT CONTROL**

- 1. Light Control Luminaires: All luminaires shall utilize spill light and glare control devices including, but not limited to, internal shields, louvers and external shields. No symmetrical beam patterns are accepted.
- 2. Spill Scans: Spill scans must be submitted indicating the amount of horizontal and vertical footcandles along the specified lines. Light levels shall be taken at 30-foot intervals along the boundary line of the field. Readings shall be taken with the meter orientation at both horizontal and aimed towards the most intense

bank of lights. Illumination level shall be measured in accordance with the IESNA LM-5-04 after 1 hour warm up.

3. The first page of a photometric report for all luminaire types proposed showing horizontal and vertical axial candle power shall be provided to demonstrate the capability of achieving the specified performance. Reports shall be certified by a qualified independent testing laboratory with a minimum of five years' experience or by a manufacturer's laboratory with a current accreditation under the National Voluntary Laboratory Accreditation Program for Energy Efficient Lighting Products. A summary of the horizontal and vertical aiming angles for each luminaire shall be included with the photometric report.

#### 1.4 LIFE-CYCLE COSTS

1. Contractor shall submit a 25-year life cycle cost calculation as outlined in the required submittal information.
- ~~2. Preventative and Spot Maintenance: Contractor shall provide all preventative and spot maintenance, including parts and labor for 25 years from the date of equipment shipment. Individual outages shall be repaired when the usage of any field is materially impacted. Owner agrees to check fuses in the event of a luminaire outage.~~

### PART 2 – PRODUCT

#### 2.1 SPORTS LIGHTING SYSTEM CONSTRUCTION

1. It is required that Structural Drawings for the new lighting system be provided to the Owner for review prior to procurement of material. The drawings shall include pole structural calculations and foundation design showing foundation shape, depth backfill requirements, rebar and anchor bolts (if required). Pole base reaction forces shall be shown on the foundation drawing along with soil bearing pressures. The drawings shall be approved and stamped by a licensed Professional Engineer in the State of Maine.
2. Manufacturing Requirements: All components shall be designed and manufactured as a system. All luminaires, wire harnesses, drivers and other enclosures shall be factory assembled, aimed, wired and tested.
3. Durability: All exposed components shall be constructed of corrosion resistant material and/or coated to help prevent corrosion. All exposed carbon steel shall be hot dip galvanized per ASTM A123. All exposed aluminum shall be powder coated with high performance polyester or anodized. All exterior reflective inserts shall be anodized, coated, and protected from direct environmental exposure to prevent reflective degradation or corrosion. All exposed hardware and fasteners shall be stainless steel of 18-8 grade or better, passivated and coated with aluminum-based thermosetting epoxy resin for protection against corrosion and stress corrosion cracking. Structural fasteners may be carbon steel and galvanized meeting ASTM A153 and ISO/EN 1461 (for hot dipped galvanizing), or ASTM B695 (for mechanical galvanizing). All wiring shall be enclosed within the cross-arms, pole, or electrical components enclosure.
4. System Description: Lighting system shall consist of the following:
  - a. Galvanized steel poles and cross-arm assembly.
  - b. Non-approved pole technology:
    - i. Square static cast concrete poles will not be accepted.
    - ii. Direct bury steel poles which utilize the extended portion of the steel shaft for their foundation will not be accepted due to potential for internal and external corrosive reaction to the soils and long term performance concerns. The Owner will accept alternative methods of burying the steel field lighting poles as long as the lighting contractor provides certification from the manufacturer verifying its resistance from corrosion and the warranty period.

- c. Contractor will supply all drivers and supporting electrical equipment
  - i. Remote drivers and supporting electrical equipment shall be mounted approximately 10 feet above grade in aluminum enclosures. The enclosures shall be touch-safe and include drivers and fusing with indicator lights on fuses to notify when a fuse is to be replaced for each luminaire. Disconnect per circuit for each pole structure will be located in the enclosure.
  - ii. Alternate: Integral drivers mounted at the top of the pole will require a pole mounted enclosure approximately 10 feet above grade. The enclosure shall include a disconnect per circuit and surge protection.
- d. Contractor shall provide surge protection at the pole equal to or greater than 40 kA for each line to ground (Common Mode) as recommended by IEEE C62.41.2\_2002.
- e. Wire harness complete with an abrasion protection sleeve, strain relief and plug-in connections for fast, trouble-free installation.
- f. All luminaires, visors, and cross-arm assemblies shall withstand ~~150 mph winds and maintain luminaire aiming alignment.~~ wind loads as calculated by ASCE 7-05 as well as any Building Code adopted by the municipality or the State of Maine.
- g. Control cabinet to provide remote on-off control and monitoring of the lighting system. See Section 2.4 for further details.
- h. Contractor shall provide lightning grounding as defined by NFPA 780 and be UL Listed per UL 96 and UL 96A.
  - i. Integrated grounding via concrete encased electrode grounding system.
  - ii. If grounding is not integrated into the structure, the Contractor shall supply grounding electrodes, copper down conductors, and exothermic weld kits. Electrodes and conductors shall be sized as required by NFPA 780. The grounding electrode shall be minimum size of 5/8 inch diameter and 8 feet long, with a minimum of 10 feet embedment. Grounding electrode shall be connected to the structure by a grounding electrode conductor with a minimum size of 2 AWG for poles with 75 feet mounting height or less, and 2/0 AWG for poles with more than 75 feet mounting height.
- i. Safety: All system components shall be UL listed for the appropriate application.

## 2.2 ELECTRICAL

1. Electric Power Requirements for the Sports Lighting Equipment:
  - a. Electric power: 480 or 280 Volt, 3 Phase, or performance based.
  - b. Maximum total voltage drop: Voltage drop to the disconnect switch located on the poles shall not exceed three (3) percent of the rated voltage.
2. ~~Energy Consumption: The kW consumption for the field lighting system shall be 66.7 kW.~~

## 2.3 STRUCTURAL PARAMETERS

1. Wind Loads: Wind loads shall be based on the 2009 International Building Code. Wind loads to be calculated using ASCE 7-05, ~~a design wind speed of 90, exposure category C and wind importance factor of II.~~ as well as any Building Code adopted by the municipality or the State of Maine.
2. Pole Structural Design: The stress analysis and safety factor of the poles shall conform to 2009 AASHTO Standard Specification for Structural Supports for Highway Signs, Luminaires, and Traffic Signals (LTS-5).
3. Foundation Design: The foundation design shall be based on soil parameters as outlined in the geotechnical report as prepared by Summit Geoengineering Services dated March 1, 2018 (included as Attachment C).
4. Foundation Drawings: Project specific foundation drawings stamped by a registered engineer in the state where the project is located are required. The foundation drawings must list the moment, shear (horizontal) force, and axial (vertical) force at ground level for each pole. These drawings must be submitted at time of bid to allow for accurate pricing.

## 2.4 CONTROLS

1. Instant On/Off Capabilities: System shall provide for instant on/off of luminaires.
2. Lighting contactor cabinet(s) constructed of NEMA Type 4 aluminum, designed for easy installation with contactors, labeled to match field diagrams and electrical design. Manual off-on-auto selector switches shall be provided.
3. Remote Lighting Control System: System shall allow Owner and users with a security code to schedule on/off system operation via a web site, phone, fax or email up to ten years in advance. Contractor shall provide and maintain a two-way TCP/IP communication link. Trained staff shall be available 24/7 to provide scheduling support and assist with reporting needs.

The Owner may assign various security levels to schedulers by function and/or fields. This function must be flexible to allow a range of privileges such as full scheduling capabilities for all fields to only having permission to execute "early off" commands by phone. Scheduling tool shall be capable of setting curfew limits.

Controller shall accept and store 7-day schedules, be protected against memory loss during power outages, and shall reboot once power is regained and execute any commands that would have occurred during outage.

4. Remote Monitoring System: System shall monitor lighting performance and notify Contractor if individual luminaire outage is detected so that appropriate maintenance can be scheduled. The controller shall determine switch position (manual or auto) and contactor status (open or closed).
5. Management Tools: Contractor shall provide a web based database and dashboard tool of actual field usage and provide reports by facility and user group. Dashboard shall also show current status of luminaire outages, control operation and service. Mobile application will be provided suitable for IOS, Android and Blackberry devices.

Hours of Usage: Contractor shall provide a means of tracking actual hours of usage for the field lighting system that is readily accessible to the Owner.

- a. Cumulative hours: shall be tracked to show the total hours used by the facility
  - b. Report hours saved by using early off and push buttons by users.
6. Communication Costs: Contractor shall include communication costs for operating the controls and monitoring system for a period of 25 years.

## PART 3 – EXECUTION

### 3.1 SOIL QUALITY CONTROL

1. It shall be the Contractor's responsibility to notify the Owner if soil conditions exist other than those on which the foundation design is based, or if the soil cannot be readily excavated. Contractor may issue a change order request / estimate for the Owner's approval / payment for additional costs associated with:
  - a. Providing engineered foundation embedment design by a registered engineer in the State of Maine for soils other than specified soil conditions;
  - b. Additional materials required to achieve alternate foundation;
  - c. Excavation and removal of materials other than normal soils, such as rock, caliche, etc.

### 3.2 DELIVERY TIMING

1. Delivery Timing Equipment On-Site: The equipment must be on-site 6 to 8 weeks from receipt of approved submittals and receipt of complete order information.

### 3.3 FIELD QUALITY CONTROL

1. Illumination Measurements: 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 LM-5-04.
2. Field Light Level Accountability
  - a. Light levels are guaranteed not to fall below the target maintained light levels for the entire warranty period ~~of 25 Years.~~
  - b. The Contractor shall be responsible for an additional inspection one year from the date of commissioning of the lighting system and ~~will utilize the Owner's light meter~~ in the presence of the Owner.
  - c. The Contractor will be held responsible for any and all changes needed to bring these fields back to compliance for light levels and uniformities. Contractor will be held responsible for any damage to the fields during these repairs.
3. Correcting Non-Conformance: If, in the opinion of the Owner or his appointed Representative, the actual performance levels including footcandles and uniformity ratios are not in conformance with the requirements of the performance specifications and submitted information, the Contractor shall be required to make adjustments to meet specifications and satisfy Owner.

### 3.4 WARRANTY AND GUARANTEE

1. Equipment: The Contractor shall warrant the lighting system (excluding fuses and lamps) to be free from defects in materials and workmanship for a period of ten years starting from the date of shipment.
2. Two Years Labor: The Contractor shall provide labor and materials for a period of two years to replace defective parts or repair defects in workmanship or, at its election, to pay the reasonable cost of labor for such repairs. For the remainder of the warranty period, replacement materials shall be provided at no charge. Labor costs shall be the Owner's expense.
3. Lamps: Lamps are warranted not to fail for two years from the date of shipment. Lamps which fail during the first year of the warranty period shall be replaced and installed at no cost to the Owner. Lamps which fail during the second year of the warranty period shall be replaced by the manufacturer, but installation shall be the Owner's responsibility. Lamps damaged by physical trauma or electrical surges are not covered by this warranty.
4. Alignment: The Contractor warrants accurate alignment of the luminaires on the luminaire assembly for a period of ten years starting from the date of shipment.
5. ~~25 Year Warranty: Each Contractor shall supply a signed warranty covering the entire system for 25 years from the date of shipment. Warranty shall guarantee specified light levels.~~ Contractor shall maintain specifically-funded financial reserves to assure fulfillment of the warranty for the full term. Warranty does not cover weather conditions events such as lightning or hail damage, improper installation, vandalism or abuse, unauthorized repairs or alterations, or product made by other manufacturers.
6. Maintenance: Contractor shall monitor the performance of the lighting system, including on/off status, hours of usage and luminaire outage for 25 years from the date of equipment shipment. Parts and labor shall be covered such that individual luminaire outages will be repaired when the usage of any field is materially impacted. Owner agrees to check fuses in the event of a luminaire outage.

### 3.5 FINAL CLEAN

1. Upon installation of the LED lighting system, remove immediately all surplus materials, rubbish and equipment associated with or used in the performance of this work. Surfaces, recesses, enclosures, etc., shall be cleaned as necessary to leave the work area in a clean, immaculate condition, ready for immediate occupancy and use by the Owner.
2. Clean electrical parts to remove conductive and deleterious materials.

3. Remove dirt and debris from enclosures.
4. Clean finishes and touch up damage.
5. All usable remnants of new material shall become the property of the Owner.

### **3.6 TURNOVER MATERIALS**

1. Contractor shall provide the following prior to final acceptance by the Owner:
  - a. The manufacturer's written warranty for the Project, per the minimum requirements identified in this specification section. The Contractor shall submit manufacturer's written warranty and ensure that forms have been completed in Owner's name and registered with manufacturer and insurance carrier. Evidence acceptable to Owner confirming that the third party insurance policy, non-cancelable and pre-paid, is in effect covering this installation, and underwritten by a Best "A" rated insurance carrier. Evidence acceptable to Owner that insurance carrier conforms to all insurance requirements set forth in this Performance Based Specification and that each policy is in full force and premiums paid.
  - b. Three (3) copies of maintenance manuals and a thumb-drive, which will include all necessary instructions for the proper care and preventive maintenance of the LED lighting system.
  - c. Project record documents.
  - d. Lighting Contractor shall provide a minimum two (2) hours training to the Owner on how to care for the LED lighting system.