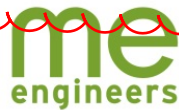




LED Sports Lighting RFP for M&T Bank Stadium

November 5, 2018

**Addendum No. 1 -
12/12/18
Partial RFP**





1.2. Existing Conditions

M&T Bank Stadium

The sports lighting system is the original lighting system installed in 1997. The existing Sports Lighting system is comprised of eight banks that have six hundred and forty-eight (648) 1500W normal metal halide luminaires. A portion of the total luminaires are 1500W emergency hot re-strike metal halide light fixtures. Two banks are located above each end zone of the field, while an additional two banks are located above each sideline. The existing bank general arrangement is as follows:

Bank ID	Mounting Height	Current Fixture Quantity	Power Provided By	Normal Ampacity Panelboards@ Rack	Housekeeping Circuits @ Rack	Emergency Ampacity @ Rack
A1	179'-10"	102	DPSLA	(2) 150A	(3) 20A Branch	(3) 20A Branch
A2	150'-0"	60	DPSLA	(1) 200A	(3) 20A Branch	(3) 20A Branch
B1	179'-10"	102	DPSLB	(2) 150A	(3) 20A Branch	(3) 20A Branch
B2	150'-0"	60	DPSLA	(1) 200A	(3) 20A Branch	(3) 20A Branch
C1	179'-10"	102	DPSLC	(2) 150A	(3) 20A Branch	(3) 20A Branch
C2	150'-0"	60	DPSLD	(1) 200A	(3) 20A Branch	(3) 20A Branch
D1	179'-10"	102	DPSLD	(2) 150A	(3) 20A Branch	(3) 20A Branch
D2	150'-0"	60	DPSLD	(1) 200A	(3) 20A Branch	(3) 20A Branch





system and night time field aiming. Additional time considerations may be accommodated with written justification and schedule for review and approval.

1.6. Luminaire Positioning

The location and height of the luminaires is essential in order to satisfy both the horizontal and vertical illumination requirements. The proposed luminaire and light rack locations shall remain in the current structural position. It is intended that the fixtures be arranged on the light racks to create a consistent look from the field of play. **The lighting arrays shall be linear, continuous and uninterrupted in appearance in both the side line and end zone racks (this shall include the glare zone area).** The proposal shall include a description proposed layouts meeting these requirements.

The luminaire provider shall evaluate the existing lighting positions, identify and designate distinct luminaire types including various beam luminaires, calculate glare ratings to players, patrons and camera positions to satisfy the lighting criteria specified herein.

Stadium Light Racks (linear light locations on all racks):





1.7. Proposed Sports Lighting Fixtures

Type	Lamp	Luminaire Description	Location	Manufacturer and Catalogue
Type SL1 – Field Lighting Luminaire	LED	LED Sports lighting luminaire with high power LEDs. Individual lensing for glare controlled optics. Heavy duty cast aluminum housing, cast aluminum driver housing, flicker free control gear, high power factor, energy conserving, stainless steel hardware, trunion mount with protractor base-plate, vertical adjustment aiming, safety cable, beam spreads and aiming as determined by the engineer's computer study of the stadium geometry for uniform lighting. Full DMX enabled and controlled for dynamic effects.	Racks	<p>Musco Lighting– LED TLC 1400 except in endzone use LED TLC 900</p> <p>Ephesus – Stadium Pro 1000. Provide internal black glare shield on all fixtures.</p> <p>GigaTera (KMW) – SUFA-A 800. Provide black internal optic louvers on all endzone fixtures.</p> <p>Carolina High Mast – UltraSpotLED R900 series. Provide black internal optic louvers on all endzone fixtures</p>
Type SL2 – Upper Seating Luminaire	LED	LED Upper seating lighting luminaire with high power LEDs. Individual lensing for glare controlled optics. Heavy duty cast aluminum housing, cast aluminum driver housing, flicker free control gear, high power factor, energy conserving, stainless steel hardware, trunion mount with protractor base-plate, vertical adjustment aiming, safety cable, beam spreads and aiming as determined by the engineer's computer study of the stadium geometry for uniform lighting. Full DMX enabled and controlled for dynamic effects.	Rack	<p>Musco Lighting TLC LED 600</p> <p>Ephesus – AllField with eyelid Glare shields</p> <p>GigaTera (KMW) – SUFA 400</p> <p>Carolina High Mast – UltraSpot R600 LED</p>

1.8. Lighting Control System

Provide a complete and stand-alone DMX addressable system for the sports lighting and seating bowl lighting system for the stadium. This contractor/manufacturer shall provide a new 'Sports Lighting Control' system that will run independently of the existing building control system but have the ability to receive scene signals from the MircoLite building control system as well as input commands from the Scoreboard control dashboard. It is envisioned that this system would send 'ON' and 'OFF' triggers to the sports lighting show controller for specific scene recalls. The control system shall have a minimum of 20 graphic screens that can be field programmable. The new 'Sports Lighting Control' system shall operate and control all of the new LED sports light



fixtures specified herein including the sports lights, egress/concert, and infill/work lights. All of the new light fixture drivers shall be connected via DMX XLR cable or Category 5E control wiring in conduit. Fiber cable and conduit may be used to connect the network/gateway control boxes. The control system shall have an ETC Mosaic Show Controller, web server (remote access), and Rio music adaptor. The system shall also provide **three LCD or touch screen (two 18iinch and one 10iinch)** control location that is the interface and control of the new LED lighting. The control location shall be in the existing Scoreboard Control Room, **Groundskeeper (Service Level – Quad C)** and Engineering Office (Service Level – Quad C) and should have network access over the Stadium IT network for authorized users. The use of a “Lighting Control Integrator (LCI)” for final programming shall be included. The LCI is an important component to the success of project and having full integration of the current theatrical software during games.

As part of the commissioning procedures, the manufacturer shall train the owner's representatives in the operation of the system. The manufacturer shall attend all training sessions in person. A minimum of 40 hours of on-site training shall be provided. The manufacturer shall attend and provide technical support for the first of each type of event.

Technical Support: The manufacturer shall supply telephone support at no additional cost to the owner for the duration of the warranty period.

Replacement components and response period: The manufacturer shall be able to ship replacement parts within 24 hours for any component that fails during the warranty period.

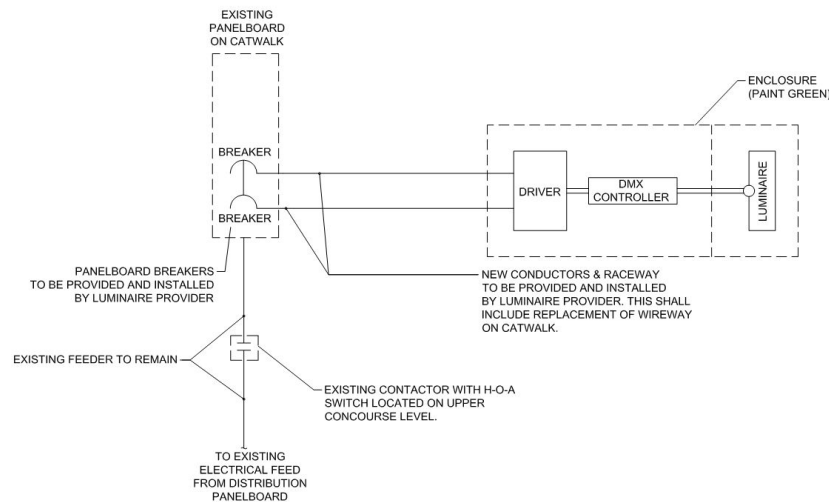
Lighting Control Scenes - At a minimum the following new scenes will be included in the cost of the system:

- Football
- Football 30%
- Football 50%
- Full Lighting
- Introduction
- Intermission
- Concert Infill 180-degree stage
- Concert Infill 360-degree stage
- Concert infill Half House
- Maintenance Full
- Maintenance Lower
- Maintenance Upper
- Blackout
- Chasing Lights
- Random Flashing Lights
- Flashing Lights
- Five spare zones to be determined in the future with the MSA and the Ravens

In addition, the new Sports Lighting Control system shall have a DMX loss detection kit and UL924 emergency bypass detection kit for the emergency powered luminaires and data bus. Refer to 'Typical Luminaire Wiring Diagram' below for more information. **The existing control to the contactors shall interface with the new sports lighting control system and the existing Microlite system.**



Typical Luminaire Wiring Diagram



1.9. Installation of System

The luminaire provider shall provide a complete turn-key installation of the field sports lighting system. This shall include as a minimum the following:

- Demolition of existing sports lighting system
- Fixture Erection and Installation of Fixtures on the Catwalk
- Bowl Emergency and Maintenance Lighting
- Electrical Conductors & Raceways to Panelboard
- Installation & Programming of the Lighting Control System
- Commissioning of the Sports Lighting to Meet the Criteria outline herein.
- Installation Meeting Local and State Codes
- Permit Requirements (no city building permits required but all others will be required such as street closures for cranes, etc.)

The Luminaire provider shall provide a turnkey solution that includes the structural light racks, structural connections and complete electrical installation as described herein. All raceway conduits to be of size and be installed according to NEC. The minimum conduit size for branch circuits is $\frac{3}{4}$ " and 1" for feeders. Rigid conduit, intermediate metal conduit or electrical metallic tubing as permitted by NEC. Flexible metal conduit to be used only for final connection to equipment with maximum length 6 feet.

Panel Locations

M&T Bank Stadium - The main switchgear distributes 13,200V to substations located throughout the stadium. These distributed substations reduce the voltage from 13,200V to 480V/277Y. At four quadrant located substation locations an 800A distribution panel is tapped off the secondary side of the substation transformer. The distribution to the rack mounted panels is as follows:

- Quadrant A distribution panel DPSLA located on Press Level has (2) 150A breakers and (2) 200A breakers which serve the (2) 150A panels in Rack A1, the (1) 200A panel in Rack A2, and the (1) 200A panel in Rack B2 respectively.

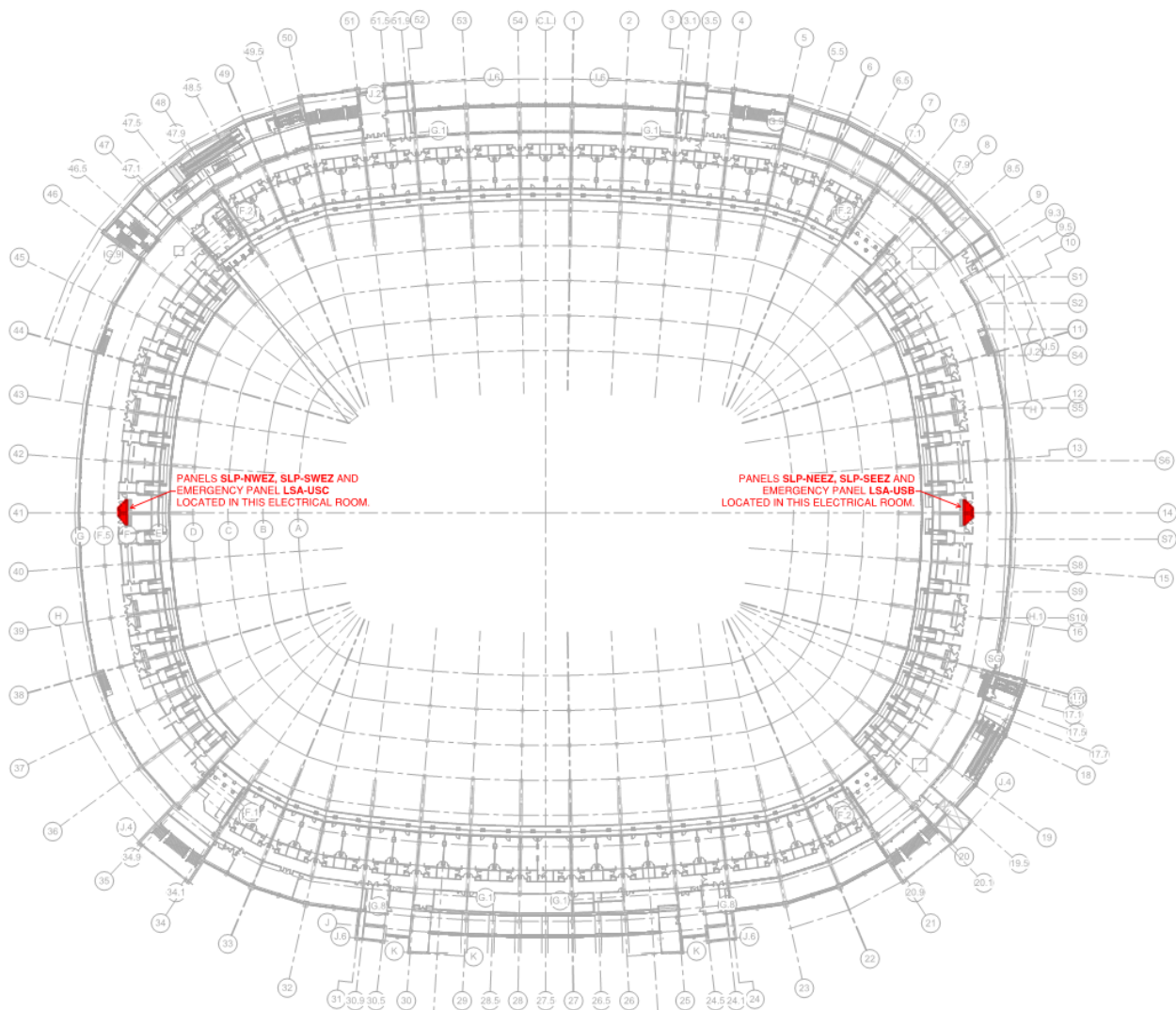


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- Quadrant B distribution panel DPSLB located on Press Level has (2) 150A breakers which serve the (2) 150A panels in Rack B1.
- Quadrant C distribution panel DPSLC located on Press Level has (2) 150A breakers which serve the (2) 150A panels in Rack C1.
- Quadrant D distribution panel DPSLD located on Press Level has (2) 150A breakers and (2) 200A breakers which serve the (2) 150A panels in Rack D1, the (1) 200A panel in Rack D2, and the (1) 200A panel in Rack C2 respectively.
- The existing contactors and by-pass switch for panelboards are located on Upper Concourse for sideline light racks and Upper Suite Level for endzone light racks. See below for more information.

It is anticipated that the luminaire provider can re-use all existing panelboards, however, new branch breakers and branch wiring shall be provided for the new LED lighting system. Any modifications or changes shall be noted within your submitted proposal.

Plan Drawing of Panel Locations:



Upper Suite Level, Normal and Emergency