

**CITY OF MERCED PROJECT NO. CP220061  
CHANGE ORDER NO. 3**

DATE: June 27, 2024

PROJECT NAME: Community Park 42

PROJECT LOCATION: Merced, California

CONTRACTOR: American Paving Company

ADDRESS: P.O. Box 27587, Fresno CA 93729

**REASON FOR CHANGE ORDER:**

Additional work to add 2 additional soccer fields, 2 basketball courts. Quantity adjustment for additional asphalt per the contract unit price. Add Musco Lights, and additional work.

**THE NUMBER OF WORKING DAYS WILL BE ADJUSTED AS FOLLOWS:** 35

**SKETCH ATTACHED:** Yes

**DESCRIPTION OF CHANGE:**

Quantity Adjustments

Item No	Item	Unit	Quantity	Unit Price	Amount
39	Concrete Flatwork (Site Finish 'A')	SF	-723	\$ 8.60	\$ (6,217.80)
49	Parking Lot Curbs - Vertical/Flush - (Site Feature '23')	LF	-46	\$ 20.00	\$ (920.00)
54	AC Dike	LF	-116	\$ 18.00	\$ (2,088.00)
69	ADA Ramp with Truncated Domes (Site Feature '18')	EA	-11	\$ 1,300.00	\$ (14,300.00)
94	1 Gallon Shrubs	EA	-18	\$ 19.40	\$ (349.20)

**Total for Quantity Adjustments: \$ (23,875.00)**

Extra Work

Item No	Item	Unit	Quantity	Unit Price	Amount
1	Chain Link Fence with concrete curb behind Soccer Goal(Site Feature '57')	LF	542	\$ 107.00	\$ 57,994.00
2	Field Marker Identification Signage (Site Feature '58')	EA	4	\$ 1,900.00	\$ 7,600.00
3	Bench (Site Feature '11')	EA	4	\$ 2,200.00	\$ 8,800.00
4	Soccer Goal and Net (Site Feature '16')	EA	4	\$ 6,800.00	\$ 27,200.00
5	Soil Preparation & Amendment	SF	226,609	\$ 0.23	\$ 52,120.07
6	Turf Hydroseed – Sports Field Blend	SF	226,609	\$ 1.15	\$ 260,600.35
7	1 Gallon Shrubs	EA	23	\$ 19.40	\$ 446.20
8	24" Box Trees	EA	20	\$ 448.00	\$ 8,960.00
9	Tree Root Barriers	LF	208	\$ 6.00	\$ 1,248.00
10	Landscape Maintenance Period (180 Days)	LS	1	\$ 15,000.00	\$ 15,000.00
11	Install Musco Lights (4 Soccer Fields)	LS	1	\$ 1,076,400.00	\$ 1,076,400.00
12	Dual Post Football Goal (Field 2,3 & 4) Price Adjustment	EA	6	\$ 11,000.00	\$ 66,000.00
13	Extra Work to Regrade Parking Lot, Move Irrigation & Demo Concrete Curb	LS	1	\$ 37,600.00	\$ 37,600.00
40	Asphalt Parking Lot with striping (Site Finish 'B')	SF	1420	\$ 2.10	\$ 2,982.00
102	B1 #102 FDR-C Process	SY	1538	\$ 19.25	\$ 29,606.50

**Total for Extra Work \$ 1,652,557.12**

**Total for Change Order No. 3 \$ 1,628,682.12**

<b>ORIGINAL CONTRACT AMOUNT:</b>	\$	5,800,580.70
<b>CHANGE ORDER #1 AMOUNT:</b>	\$	1,365,524.40
<b>CHANGE ORDER #2 AMOUNT:</b>	\$	1,532,539.00
<b>CHANGE ORDER #3 AMOUNT:</b>	\$	1,628,682.12
<b>TOTAL PROJECT COST TO DATE:</b>	\$	<u>10,327,326.22</u>

FUNDS/ACCOUNTS VERIFIED:  
CP220061 ARPA Prk&CS CON CIPImp-Lnd \$ 1,628,682.12


FINANCE OFFICE \_\_\_\_\_ DATE \_\_\_\_\_

ACCEPTED   
(CONTRACTOR) **Stephen J. Poindexter, President & CEO**


DATE: 7/2/24

RECOMMENDED   
(CITY ENGINEER)

DATE: 7/8/24

RECOMMENDED   
(PROJECT CHAMPION)

DATE: 7/9/24

APPROVED   
*As To Form* (CITY ATTORNEY)

DATE: 7/15/2024

AUTHORIZED \_\_\_\_\_  
(~~INTERIM~~ CITY MANAGER)

DATE: \_\_\_\_\_

ATTESTED \_\_\_\_\_  
(ASSISTANT/DEPUTY CITY CLERK)

DATE: \_\_\_\_\_

(SEAL)

BID ITEM DESCRIPTIONS

BID ITEM DESCRIPTIONS

The descriptions below are general descriptions and do not include estimated quantities. See plans and bid summary for estimated quantities. Estimated quantities are provided as a courtesy only. Actual numbers and quantities of symbols on plans prevail.

**Bid Item 1 - Chain Link Fence with concrete curb behind Soccer Goals (Site Feature '57'):**

The linear foot price bid for this item shall include all costs for purchase and installation of chain link fence panels, rails, posts, footings, concrete curb, and all hardware and fasteners in locations indicated on the Drawings. The item also includes labor, materials and all other work required by the Drawings and Specifications which is not specifically set forth in the Bid Form as a pay item.

**Bid Item 2 - Field Marker Identification Signage (Site Feature '58'):**

The unit price bid for this item shall include all costs for material purchase and installation of field location signage, and post and footing as indicated on the Drawings. The item also includes labor, materials and all other work required by the Drawings and Specifications which is not specifically set forth in the Bid Form as a pay item.

**Bid Item 3 - Bench (Site Feature '11'):**

The unit price bid for this item shall include all costs for purchase and installation of benches, mounting hardware and adhesive, per plan details and in locations as indicated on the Drawings. The item also includes labor, materials and all other work required by the Drawings and Specifications which is not specifically set forth in the Bid Form as a pay item.

**Bid Item 4 - Soccer Goal and Net (Site Feature '16'):**

The unit price bid for this item shall include all costs for purchase and installation of a dual soccer goal and net as indicated on the Drawings. The item also includes labor, materials and all other work required by the Drawings and Specifications which is not specifically set forth in the Bid Form as a pay item.

**Bid Item 5 - Soil Preparation & Amendment:**

The square foot price bid for this item shall include all costs for soil testing, purchase and installation of fertilizers, organic material and soil conditioners as indicated by soil laboratory tests (contractor responsibility) and as indicated on the Drawings and Specifications. The item also includes labor, materials and all other work required by the Drawings and Specifications which is not specifically set forth in the Bid Form as a pay item.

**Bid Item 6 - Turf Hydroseed- Sports Field Blend:**

The square foot price bid for this item shall include all costs for soil testing, purchase and installation of fertilizers, organic material and soil conditioners as indicated by soil laboratory tests (contractor responsibility), and turf hydroseed as indicated on the planting plans, details and specifications. The item also includes labor, materials and all other work required by the Drawings and Specifications which is not specifically set forth in the Bid Form as a pay item.

**Bid Item 7 - 1 Gallon Shrubs:**

The lump sum price bid for this item shall include all costs for purchase and installation of fertilizers, fertilizer packs, as indicated by soil laboratory tests (contractor responsibility), and purchase and installation of 1-gallon shrubs as indicated on the Drawings and Specifications. The item also includes labor, materials and all other work required by the Drawings and Specifications which is not specifically set forth in the Bid Form as a pay item.

**Bid Item 8 - 24" Box Trees:**

The unit price bid for this item shall include all costs for purchase and installation of fertilizers, fertilizer packs, as indicated by soil laboratory tests (contractor responsibility), stakes, tree ties, and purchase and installation of 24" box trees as indicated on the Drawings and Specifications. The item also includes labor, materials and all other work required by the Drawings and Specifications which is not specifically set forth in the Bid Form as a pay item.

**Bid Item 9 - Tree Root Barriers:**

The linear foot price bid for this item shall include all costs for purchase and installation of root barriers as indicated on planting plans and details. The item also includes labor, materials and all other work required by the Drawings and Specifications which is not specifically set forth in the Bid Form as a pay item.

**Bid Item 10 -Landscape Maintenance Period (180 Days):**

The lump sum price bid for this item shall include all costs for maintaining installed landscape areas for a period of 180 days as indicated on the Drawings as well as replacements for plants and equipment. The item also includes labor, materials and all other work required by the Drawings and Specifications which is not specifically set forth in the Bid Form as a pay item.

**Bid Item 11-Electrical with Musco Lights:**

The lump sum price bid for this item shall include all costs for purchase and installation of a fully functional electrical power and lighting system, Musco field lights, including switchboard, panels, transformers, grounding, conduits, pullboxes, conductors, light fixtures (including poles), devices and equipment as indicated on the Drawings and Specifications within Division 26. For light poles and structures listed as bid alternate within this contract, the bidder shall provide a N16 pullbox at the termination point/location as part of base bid. This item also includes labor, materials and all other work required by the Drawings and Specifications which is not specifically set forth in the Bid Form as a pay item.

END OF SECTION

315 North Thorne Avenue  
 PO Box 27587  
 Fresno, Ca 93729



Telephone: 559-268-9886  
 Fax: 559-268-2908

June 13, 2024

City of Merced  
 678 W. 18<sup>th</sup> Street  
 Merced, CA 95340

Attn: Joe Cardoso, PLS  
 Project: Community Park 42  
 Subject: PCO #5 – Revisions to Parking Lot & Curb Grades, & futsal court grades

Please find the below pricing. APC will provide all labor, equipment, materials, bonds, and incidentals to furnish and install the revisions to the parking lot, & grade changes at the curbs and futsal court.

Item	Description	QTY	U.M.	Unit Price	Total
	Project Manager Supervision - APC	5	DA	\$355.30	\$1,776.50
	Foremen Supervision - APC	5	DA	\$1,114.35	\$5,571.75
	Prime Bond - APC	1	LS	\$150.24	\$150.24
	Labor Escalation - APC	1	LS	\$319.65	\$319.65
	Overhead - APC	1	LS	\$2,556.01	\$2,556.01
	Profit – APC	1	LS	\$2,302.85	\$2,302.85
	Demo Concrete Curbs	1	LS	\$2,596.99	\$2,596.99
	Regrade Curbs, Parking lot, Drive Entrance, Futsal Court	1	LS	\$12,837.01	\$12,837.01
	Move Irrigation Conduit & Boxes in Parking Lot Planters (Fresno Landscape)	1	LS	\$7,000.00	\$7,000.00
	Re-Stake Drive Entrance & Planters (ESP)	1	LS	\$2,489.00	\$2,489.00
102	BI #102 FDR-C Process	1538	SY	\$19.25	\$29,606.50
40	Asphalt Parking Lot with striping (Site Finish 'B')	1420	SF	\$2.10	\$2,982.00
39	Concrete Flatwork (Site Finish 'A')	-723	SF	(\$8.60)	(\$6,217.80)
49	Parking Lot Curbs- Vertical/ Flush- (Site Feature '23')	-46	LF	(\$20.00)	(\$920.00)
54	AC Dike	-116	LF	(\$18.00)	(\$2,088.00)
94	1 Gallon Shrubs	-18	EA	(\$19.40)	(\$349.20)
				<b>Total</b>	<b>\$60,613.50</b>

APC will require an additional 5 working days be added to the contract duration in order to complete this work. Should you have any questions, please do not hesitate to contact us at (559) 268-9886.

American Paving Co.

*Chris Williams*

Chris Williams  
 Project Manager



NO. DATE	BY	REVISION
1	1/2/21	ISSUED FOR PERMITS
2	1/2/21	ISSUED FOR PERMITS
3	1/2/21	ISSUED FOR PERMITS
4	1/2/21	ISSUED FOR PERMITS
5	1/2/21	ISSUED FOR PERMITS
6	1/2/21	ISSUED FOR PERMITS
7	1/2/21	ISSUED FOR PERMITS
8	1/2/21	ISSUED FOR PERMITS
9	1/2/21	ISSUED FOR PERMITS
10	1/2/21	ISSUED FOR PERMITS

Underground Service Airt  
 TING DAYS  
 BEFORE  
 YOU DIG  
 Call Toll Free 1 (800) 227-2800

FOR INFORMATION AND REVIEW  
 ANY CHANGES TO THE ORIGINAL  
 DESIGN SHALL BE MADE BY THE  
 ENGINEER AND SHALL BE APPROVED  
 BY THE CITY ENGINEER. ANY  
 CHANGES MADE TO THE ORIGINAL  
 DESIGN SHALL BE APPROVED  
 BY THE CITY ENGINEER.



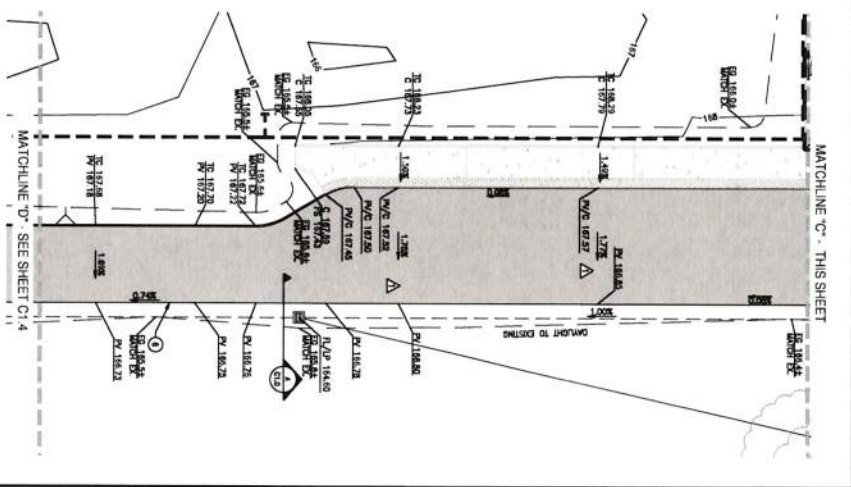
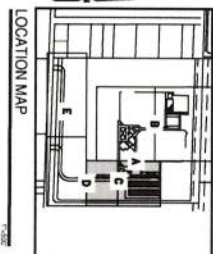
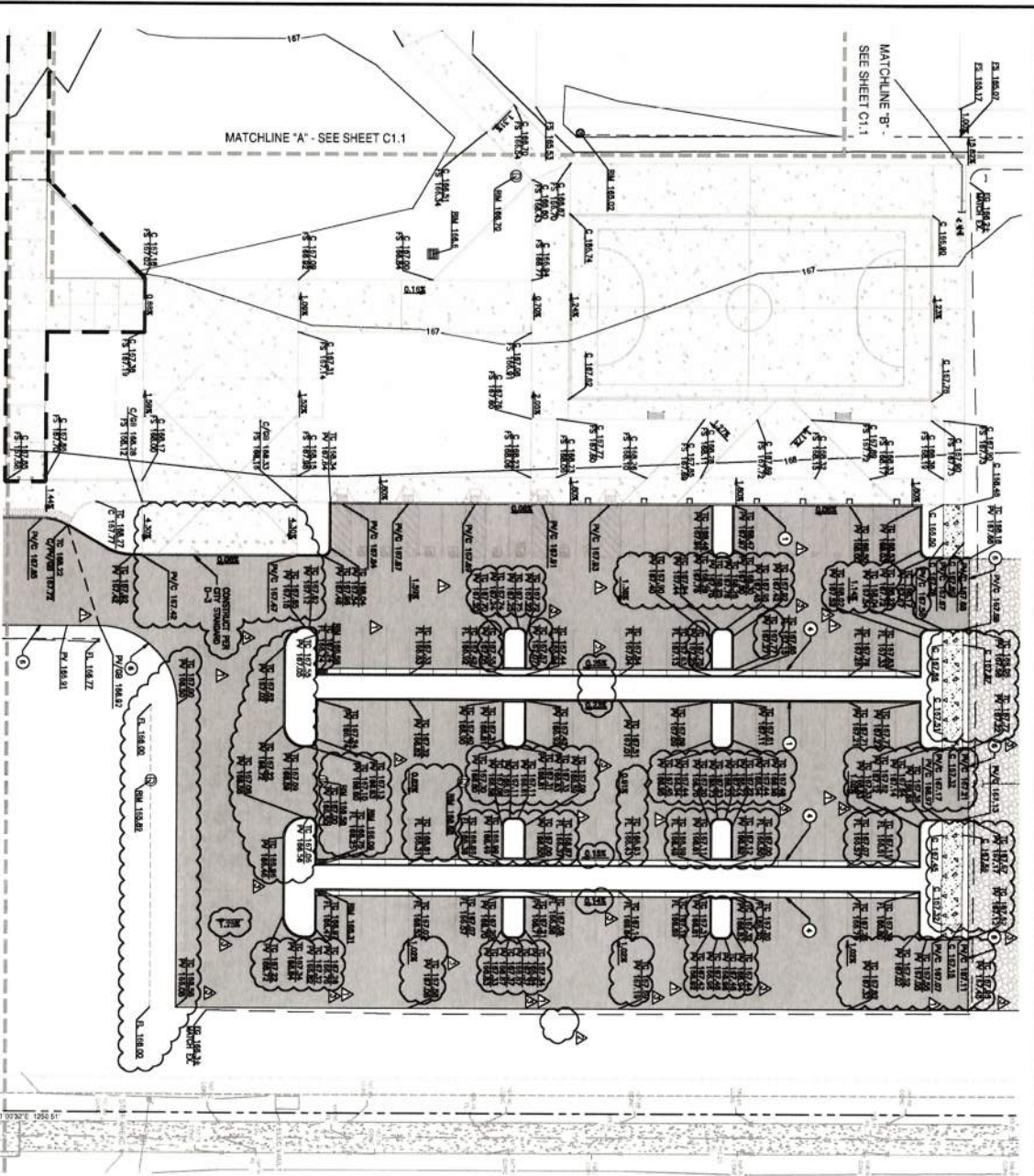
**City of Merced**  
 ENGINEERING  
 ENGINEERING PROJECTS AND STANDARDS  
 618 W. 12th Street  
 (209) 385-6444

**GRADING PLAN**

PROJECT# 122061  
 LANDSCAPE IMPROVEMENT PLANS  
 COMMUNITY PARK-42  
 BID SUBMITTAL

DATE: 07/17/2021  
 DRAWN BY: 07/17/2021  
 CHECK: AS SHOWN

Sheet  
**C1.3**  
 12 of 75



**O'DELL**  
 ENGINEERING

NO.	DATE	BY	REVISION MADE
1	5/2/2018	ES	REVISED PERMITS SET & CDMP MARKS

Underground Service Alert  
 TUG DIALS  
 BEFORE  
 YOU DIG  
 Call TUG Line 1 (800) 227-2800

NOTE: CONTRACTOR SHALL VERIFY ALL UTILITIES AND RECORD THE LOCATION AND DEPTH OF ALL UTILITIES TO AVOID DAMAGE TO EXISTING UTILITIES. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND RECORDS FOR ALL UTILITIES TO BE MAINTAINED OR MOVED.



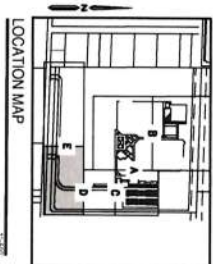
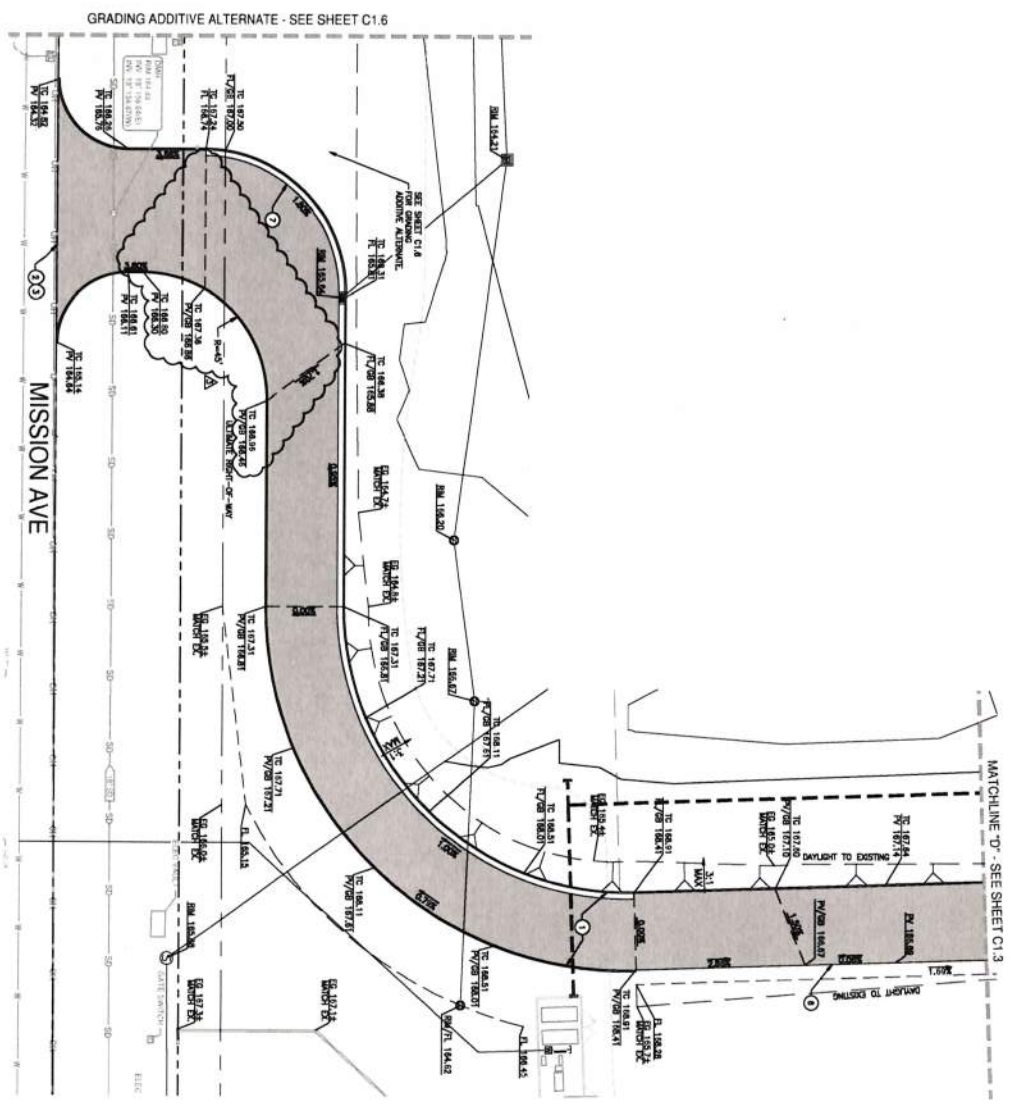
**City of Merced**  
 ENGINEERING  
 ENGINEERING CONSULTANTS AND ARCHITECTS  
 418 W. 9th Street  
 (209) 265-5444

**GRADING PLAN**

PROJECT# 122061  
 LANDSCAPE IMPROVEMENT PLANS  
 COMMUNITY PARK-42  
 BID SUBMITTAL

DESIGN: 5/17/2018  
 CHECK: 5/17/2018  
 DATE: 5/17/2018  
 SCALE: AS SHOWN

Sheet: **C1.4**  
 13 of 75



SCALE: 1"=20'

**ODELL**  
 ENGINEERING

315 North Thorne Avenue  
PO Box 27587  
Fresno, Ca 93729

# American Paving Co.

Telephone: 559-268-9886  
Fax: 559-268-2908

February 14, 2024

City of Merced  
678 W. 18<sup>th</sup> Street  
Merced, CA 95340

Attn: Joe Cardoso, PLS  
Project: Community Park 42  
Subject: PCO #4 – Musco field lighting package – R1

Please find the below pricing. APC will provide all labor, equipment, materials, bonds, and incidentals to furnish and install the Musco field lighting package. Including switchboard, panels, transformers, grounding, conduits, pull boxes, conductors, light fixtures (including poles), foundations, devices and equipment as indicated on the attached drawing.

Item	Description	QTY	U.M.	Unit Price	Total
1	Furnish and install Musco field lighting package	1	LS	\$1,076,400.00	\$1,076,400.00
<b>Total</b>					<b>\$1,076,400.00</b>

Please note that APC requires an executed change order by April 1<sup>st</sup> 2024 in order to guarantee this pricing. Pricing is subject to change after April 1<sup>st</sup> 2024.

APC will require an additional 30 working days be added to the contract duration in order to complete this work.

Should you have any questions, please do not hesitate to contact us at (559) 268-9886.

American Paving Co.

*Chris Williams*

Chris Williams  
Project Manager



## Portion of Bid Item 8 – Electrical with Musco Lights

### SECTION 26 56 68 SPORTS FIELD LIGHTING

#### **PART I - GENERAL**

##### **1.01 Related Documents**

Drawings and general provisions of the bid documents, including general and supplementary conditions apply to this section.

##### **1.02 Description of Work**

A. The Sports Lighting section includes:

1. Galvanized steel pole and luminaire mounting crossarms
2. LED Luminaires, with appropriate glare/spill light control
3. Remote driver enclosure
4. Pole Foundations
5. Control System

B. The purpose of this specification is to define the performance standards, product values and features, required manufacturer's service responsibilities, and design standards for City of Merced Park (CP42) in Merced, CA.

##### **1.03 Submittals**

- A. It has been predetermined that these project specifications are the minimum acceptable criteria for this project. Musco Sports Lighting LLC, Total Light Control – TLC for LED™ technology is the only pre-approved equipment supplier.
- B. Manufacturers requesting approval shall provide submittal information as per Section 1.03 D. Submittal information must be received 10 days prior to bid opening, approved manufacturers will be notified by addendum.
- C. Submit each item in this article according to the conditions of the contract and specification section. Any deviations to the specification require the manufacturer to list and describe in detail such deviations. Failure to provide this information shall be grounds for immediate rejection.
- D. Submittal information required:
  1. Light scans as per Section 1.04 of the specification.
  2. Spill scans as per Section 1.05 of the specification.
  3. Detailed warranty information as per Section 3.01 of the specification.
  4. Detail foundation design as described in Section 2.01
  5. Provide written information for the automated control system to include monitoring. Also provide examples of system reporting and access for numbers for personal contact to operate the system.
  6. The manufacturer must submit evidence in the form of a letter from a California Licensed structural engineer that the manufacturer has the ability to confirm to the California Title 24 structural design requirements. The manufacturer must provide five (5) similar pole submittal project reviews approved by the California Division of State Architecture's office in the past two (2) years. The examples are to include the D.S.A. file numbers.
  7. Lighting Manufacturer will supply certified photometric reports from Independent Testing Lab (ITL) or a Certified Lab along with an aiming angle summary for verification.

### 1.04 Sports Lighting Performance

- A. Illumination Levels and Design Factors: The illumination levels specified shall be based on light levels for 25 years. Light levels shall not drop below specified targeted lighting levels during the specified warranty period. Appropriate light loss factors shall be applied and submitted for the basis of design.

Area of Lighting	Light Levels	Uniformity	# of Points	Size of Area	Grid Spacing
Soccer Fields 1-3	30 footcandles	2.5:1	88	330' x 225'	30' x 30'

### 1.05 Spill And Glare Analysis

- A. Submitted spill/glare computer models shall depict the field test stations at **the property line**. The test stations shall be shown every 30' along the line with the field lights on. Bidder shall submit, as described below:
1. Horizontal footcandles: No single point shall exceed 2.5 footcandles. Models shall represent readings taken with the meter positioned horizontal 36 inches above grade.
  2. Vertical footcandles: No single point shall exceed 2.75 footcandles. Models shall represent readings taken with the test cell positioned 36 inches above grade and aimed at the brightest light source.
  3. Candela Readings: At 150' from the field line at 3' above grade, the max candela reading (by fixture) shall not exceed 9,100(candela). Readings taken with all fields illuminated.

#### B. MATERIALS

##### A. Pole Structural Steel

1. The pole shafts shall be high strength low alloy tapered tubular steel that is equal to current ASTM A595 standards, with galvanized coating inside and out. All connections of pole sections shall be by slip fitting the top section over the lower section by a length of at least 1.5 times the diameters.
2. Steel components of the poles shall be hot dip galvanized to current ASTM A-123. Steel portions of the pole shall be constructed such that all segments of the pole can be readily heated to like temperatures in commercially available galvanizing methods.
3. To avoid problems of galvanize adherence to differing steel alloys, all steel components used for the pole must be of the same type steel.
4. All exposed steel components of the pole shall be at least 18" above the surface of the ground to avoid exposure of the steel to the heavily moisture and oxygen laden air, both above and below the surface. There shall be a cap to cover the top of the pole so that rain will not enter the interior of the pole.
5. To avoid stress corrosion of the pole, there shall be no weld points of the steel portion of the pole within 18" of the ground. The pole shall be galvanized steel.
6. The poles for this project have been designed to withstand 95 mph winds based upon CBC-C standards. The premise of the wind speed criteria will be the 50 year mean recurrent isotach wind map. Applicable gust factors to be applied per code.

##### B. Foundation Design

1. The Manufacturer shall provide a stamped foundation design, prepared by a Structural Engineer, licensed in the State of California.

2. The foundation design shall be based upon recommendations contained in the Geotechnical Report furnished by the Owner. If a Geotechnical Report is not provided by the Owner, the foundation design shall be based on soils that meet or exceed those of a Class 5 material as defined by the 2022 CBC Table 1806.2.

3. It is the contractor's responsibility to notify the owner of soil conditions other than the design criteria. The owner shall then be responsible and absorb the additional costs associated with: Providing engineered foundation embedment design by a registered engineer in the State of California for soils other than specified soil conditions. Additional materials required to achieve alternate foundation. No direct burial steel poles allowed.

4. Lightning Protection: Manufacturer shall provide integrated lightning grounding via concrete encased electrode grounding system as defined by NFPA 780 and be UL Listed per UL 96 and UL 96A. If grounding is not integrated into the structure, the Manufacturer 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 not less than 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.

C. LED Sports Lighting Fixtures:

The lens is permanently sealed to keep optics away from harmful environmental elements. Fixture is vented and filtered to adapt to environmental elements. Heat sink with a unique convective air cooling design with high thermal conductivity and corrosion resistant construction. Machine mounted surface for maximum heat transfer of diode assembly and maintains low LED junction temperature during high wattage operation. Custom high power diode package with a metal core printed circuit board. The light control visors are factory aimed. Controls and directs more light onto the field which reduced glare and spill and enhances the on-field playability. Fixture is powder coated gray.

D. Remote Electrical Enclosure:

Remote drivers and supporting electrical equipment shall be mounted approximately 10 feet above grade in aluminum enclosures. Drivers are remote for ease of installation and servicing. 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.

E. Wire Harness: Spiral wound, abrasion protection sleeve, strain relief, plug-in connections

F. Energy Consumption: The average kWh consumption for the entire facility shall not exceed 76.33kW for the lighting system.

G. Controls and Monitoring System:

1. Factory assembled lighting control cabinet (LCC) – The LCC shall be assembled and wired by a UL listed panel builder. The LCC shall contain Contactors, Monitoring and Control System and door mounted Manual off-on-auto selector switches. The LCC shall arrive at the job site ready to attach to an existing wall, switchgear, or a free standing enclosure.

a. Control Wire Terminations - The Control Wire Terminations shall include UL listed terminal blocks mounted on a DIN rail and 250 volt, 16 amp, touch safe type fuse holders.

b. The ECE shall be constructed of aluminum and shall be powder coated gray. The cabinet door shall utilize a lockable, 3 point latching assembly that provides a NEMA 4 rated seal.

- c. Contactor Modules – Contactors shall be UL listed for lighting applications. They shall be rated at full capacity, be electrically held, utilize a 120 volt coil and be rated for operation in a ambient temperature range from -40 degrees C to +70 degrees C.
  - d. Manual off-on-auto Selector Switches – For on site manual control, three position selector switches shall be factory mounted to the ECE door. The switches shall be keyed and maintain position, with make before break contacts. The switches shall be factory wired to control terminal blocks.
  - e. Warranty – The LCC shall be covered under the standard warranty for the accompanying lighting equipment.
- 2. Remote Monitoring System: System shall monitor lighting performance and notify manufacturer if individual luminaire outage is detected so that appropriate maintenance can be scheduled. The manufacturer shall notify the owner of outages within 24 hours, or the next business day. The controller shall determine switch position (manual or auto) and contactor status (open or closed). The Monitoring System shall be factory wired to control terminal blocks.
  - 3. Remote Lighting Control System: The Lighting Control System shall allow owners 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. Manufacturer 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 Light Control System shall be factory wired to control terminal blocks.

### **3.01 Warranty**

- A. 25-Year Warranty: Each manufacturer shall supply a signed warranty covering materials and labor for the entire system for 25 years from the date of shipment. Warranty shall specify light levels, system energy consumption, 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 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.

### **3.02 Field Technician**

- A. Manufacturer shall have available a local factory trained technician to provide project support including but not limited to: Lamp replacement, confirm luminaire, aiming points, troubleshoot, and educate customer maintenance personnel.

Lighting System

Pole / Fixture Summary						
Pole ID	Pole Height	Mag Height	Fixture Qty	Luminaire Type	Load	Circuit
S1-S4	70'	70'	3	TLC-LED-1500	4.23 kW	A
S5-S6-S8	70'	70'	3	TLC-LED-900	1.76 kW	A
				TLC-LED-1500	4.23 kW	B
S7	70'	70'	2	TLC-LED-900	1.76 kW	B
				TLC-LED-1200	1.17 kW	B
				TLC-LED-1500	4.23 kW	B
S9, S12	70'	70'	1	TLC-LED-900	0.88 kW	B
				TLC-LED-1500	4.23 kW	C
S10-S11	70'	70'	2	TLC-LED-900	1.76 kW	C
				TLC-LED-1500	4.23 kW	C
				TLC-LED-1500	4.23 kW	F
				TLC-LED-900	1.76 kW	C
S13-S14	70'	70'	2	TLC-LED-900	1.76 kW	F
				TLC-LED-1500	4.23 kW	F
				TLC-LED-900	1.76 kW	F
<b>F4</b>			<b>40</b>		<b>96.72 kW</b>	

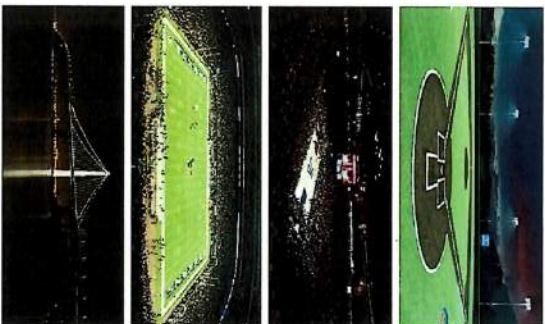
Circuit Summary			
Circuit	Description	Load	Fixture Qty
A	Soccer 1	23.96 kW	20
B	Soccer 2	24.25 kW	20
C	Soccer 3	23.96 kW	20
F	Soccer 4	23.96 kW	20

Fixture Type Summary							
Fixture	Source	Wattage	Lumens	LE9	LE9	LE9	Quantity
TLC-LED-900	LED STROK - 75 CRI	880W	104,000	>120,000	>120,000	>120,000	31
TLC-LED-1500	LED STROK - 75 CRI	1410W	181,000	>120,000	>120,000	>120,000	48
TLC-LED-1200	LED STROK - 75 CRI	1170W	150,000	>120,000	>120,000	>120,000	1

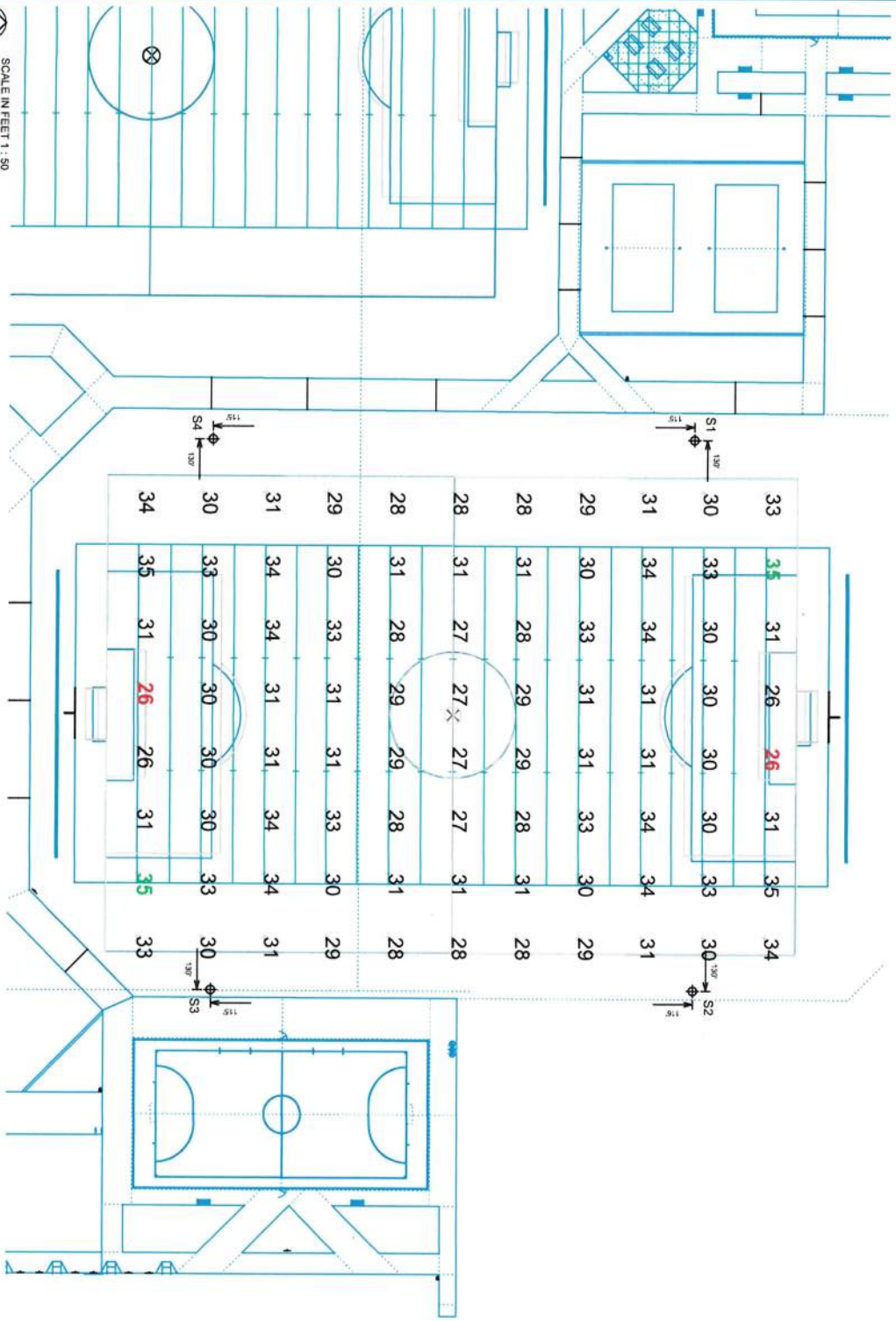
Single Luminaire Amperage Draw Chart						
Driver (48 min power factor)	Max Line Amperage Per Luminaire					
Single Phase Voltage	200 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)
TLC-LED-900	5.2	4.9	4.5	3.9	3.1	2.9
TLC-LED-1500	6.4	7.9	7.3	6.3	5.0	4.6
TLC-LED-1200	6.9	6.5	6.0	5.2	4.2	3.8

Light Level Summary

Calculation Grid Summary										
Grid Name	Calculation Metric			Illumination			Grids			Fixture Qty
Property Line Spill	Horizontal	Max Candela (by Fixture)	Max Vertical Illuminance Metric	Avg	Min	Max	Max/Min	Avg/Min	Grids	Fixture Qty
Property Line Spill	0	0	0.05	0.00					A,B,C,D,E,F	80
Property Line Spill	321	0	3734	0.00					A,B,C,D,E,F	80
Property Line Spill	0.01	0	0.12	0.00					A,B,C,D,E,F	80
Soccer 1	Horizontal Illuminance		30.6	26	35	1.36			A	20
Soccer 2	Horizontal Illuminance		30.7	23	36	1.54			B	20
Soccer 3	Horizontal Illuminance		30.8	25	37	1.52			C	20
Soccer 4	Horizontal Illuminance		30.3	23	35	1.54			F	20



EQUIPMENT LIST FOR AREAS SHOWN									
QTY	LOCATION	SIZE	GAUGE	WATTAGE	WATTAGE	LUMEN TYPE	QTY / FOOT	FOOT	FOOT
4	31/34	70"	70"	70"	70"	TLC LED 1500	3	3	0
						TLC LED 900	20	20	0
TOTALS									0



SCALE IN FEET 1 : 50  
 0 50 100'

ENGINEERED DESIGN By: Aaron Rose · File #218073C · 06-Feb-24

### City of Merced Park

Merced, CA

#### GRID SUMMARY

Name: Soccer 1  
 Height: 30'0" x 35'0"  
 Spacing: 30'0" x 30'0"  
 Height: 3.0' above grade

#### LUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

Entire Grid	
Guaranteed Average:	30
Scan Average:	30.59
Maximum:	35
Minimum:	26
Avg. / Min:	1.19
Guaranteed Max / Min:	1.35
Max / Min:	1.36
UG (adjacent psi):	1.20
CU:	0.82
No. of Points:	88
LUMINAIRE INFORMATION	
Applied Circuits:	A
No. of Luminaires:	20
Total Load:	23.96 kW

**Guaranteed Performance:** The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.35 foot depreciation factor.

**Field Measurements:** Individual field measurements may vary from computer calculated predictions and should be taken in accordance with IESNA pp 6-15.

**Electrical System Requirements:** Refer to Ampereage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

**Installation Requirements:** Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design location.

Pole locations (♦) dimensions are relative to 0.0 reference point(s) (⊗)

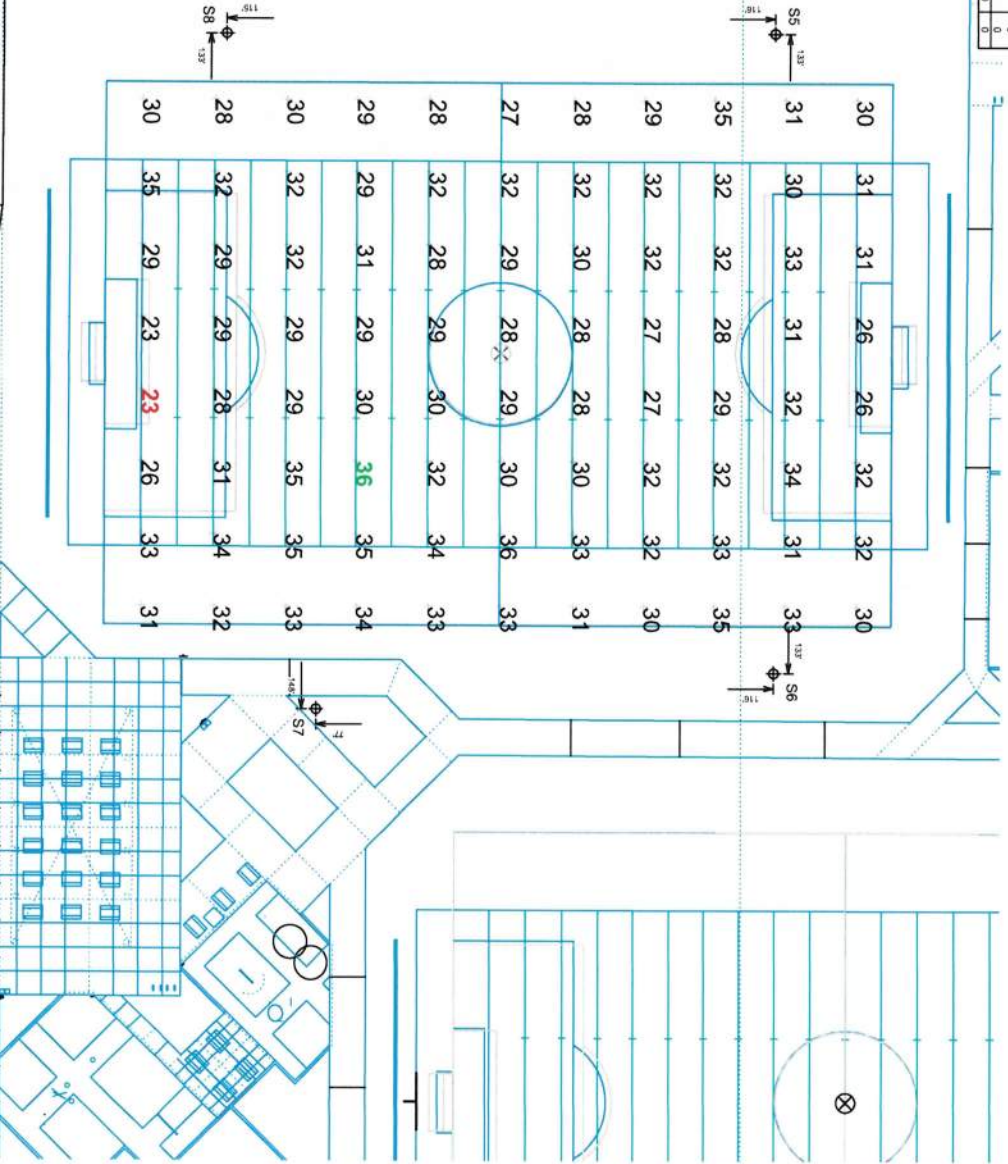
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**ILLUMINATION SUMMARY**

EQUIPMENT LIST FOR AREAS SHOWN

GRT	Pole		HEIGHT	LUMINAIRE TYPE	GRT 1	GRT 2
	SIZE	LOCATION				
2	SS-36	70'	70'	TLC-LED-900	2	0
1	S7	70'	70'	TLC-LED-1500	3	0
1	S8	70'	70'	TLC-LED-1200	1	0
4	S8	70'	70'	TLC-LED-900	3	0
TOTALS					20	0



City of Merced Park

Merced, CA

GRID SUMMARY

Name: Soccer 2  
 Size: 300' x 225'  
 Spacing: 30.0' x 30.0'  
 Height: 3.0' above grade

LUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES  
 Entire Grid  
 Guaranteed Average: 30  
 Scan Average: 30.70  
 Maximum: 36  
 Minimum: 23  
 Avg / Min: 1.32  
 Guaranteed Max / Min: 2.3  
 Max / Min: 1.54  
 UG (adjacent pts): 1.24  
 CU: 0.80  
 No. of Points: 88  
 LUMINAIRE INFORMATION  
 Applied Circuits: 8  
 No. of Luminaires: 20  
 Total Load: 24.25 kW

Guaranteed performance: The ILLUMINATION described above is guaranteed under Musco Warranty document and includes a 0.95 dirt depreciation factor.  
 Field Measurements: Individual field measurements may vary from computer-generated predictions and should be taken in accordance with IEEE/AIAP 6-15.  
 Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.  
 Installation Requirements: Results assume ± 3% nominal voltage at line side of the tower and structures located within 3 feet (1m) of design locations.

Pole location(s) ⚡ dimensions are relative to 0.0 reference point(s) ⊗

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ILLUMINATION SUMMARY



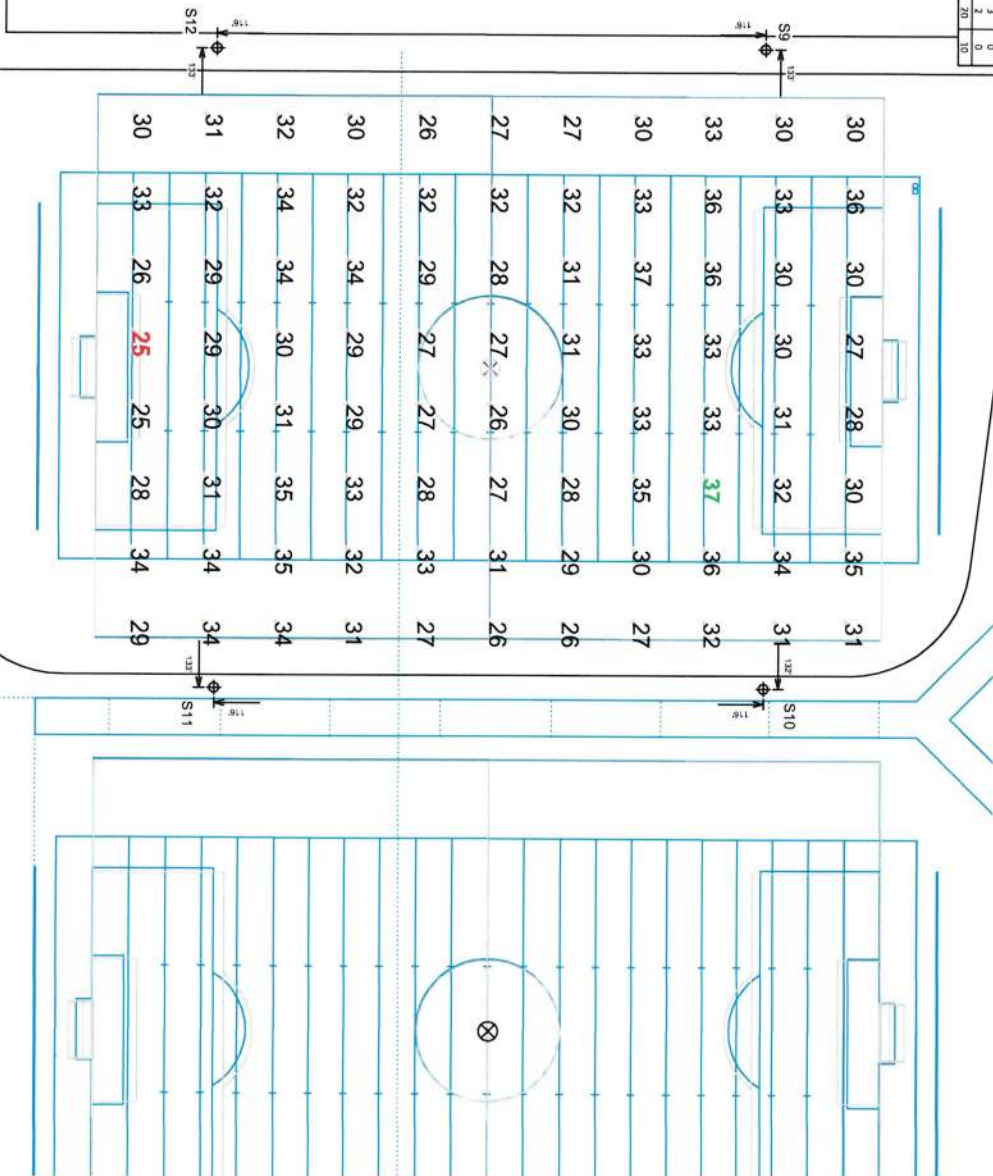
SCALE IN FEET 1 : 50

ENGINEERED DESIGN By: Aaron Rose · File #218073C · 06-Feb-24

**EQUIPMENT LIST FOR AREAS SHOWN**

QTY	LOCATION	Pole		LUMINAIR		QTY /	HS	SHIELD
		USE	GRADE ELEVATION	HEIGHT	TIC LED 1500			
1	S9	70'	70'	70'	TIC LED 1500	3	1	0
1	S10	70'	70'	70'	TIC LED 1500	2/2*	2	2
1	S11	70'	70'	70'	TIC LED 1500	3/1*	3	3
1	S12	70'	70'	70'	TIC LED 1500	2/2*	2	2
<b>TOTALS</b>						2	2	0
<b>TOTALS</b>						30	20	10

\* This structure utilizes a back-to-back mounting configuration



SCALE IN FEET 1 : 50  
ENGINEERED DESIGN By: Aaron Rose · File #218073C · 06-Feb-24

**City of Merced Park**  
Merced, CA

**GRID SUMMARY**  
Name: Soccer 3  
Size: 330' x 225'  
Spacing: 30.0' x 30.0'  
Height: 3.0' above grade

**ILLUMINATION SUMMARY**

MAINTAINED HORIZONTAL FOOTCANDLES

<b>Guaranteed Average:</b>	30
Scan Average:	30.84
Maximum:	37
Minimum:	25
Avg / Min:	1.26
<b>Guaranteed Max / Min:</b>	2.5
Max / Min:	1.52
UG (adjacent pts):	1.24
No. of Points:	0.83
LUMINAIRE INFORMATION	
Applied Circuits:	6
No. of Luminaires:	23.96 kW
Total Load:	23.96 kW

**Guaranteed Performance:** The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.  
**Field Measurements:** Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA sp-6-15.  
**Electrical System Requirements:** Refer to Ampereage Order Chart for the "Musco Control System Summary" for electrical sizing.  
**Installation Requirements:** Results assume = 3% nominal voltage at line side of the tower and structures located within 3 feet (1m) of design locations.

see location(s) ⬠ dimensions are relative to 0.0 reference point(s) ⊗

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ILLUMINATION SUMMARY

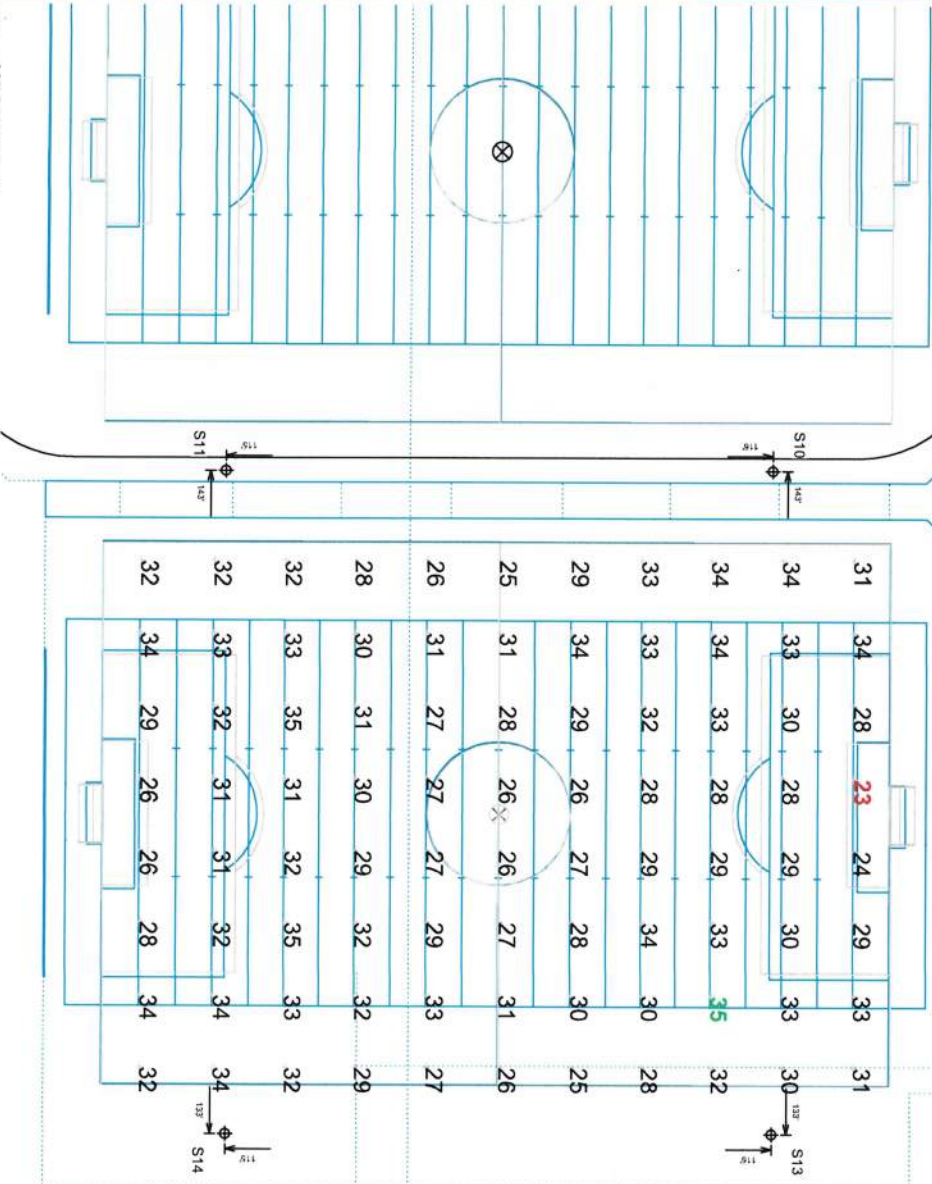
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**EQUIPMENT LIST FOR AREAS SHOWN**

QTY	LOCATION	POIN. SIZE	GRADE ELEVATION	HEIGHT	LUMINAIRE TYPE	QTY	QTY	QTY	QTY
1	S10	70"	70"	70"	TLC-LED 900	2/22"	2	2	2
1	S11	70"	70"	70"	TLC-LED 1500	8/24"	3	3	3
1	S13	70"	70"	70"	TLC-LED 1500	8/24"	3	3	3
1	S14	70"	70"	70"	TLC-LED 900	2/22"	2	2	2
<b>TOTALS</b>									
						30	30	30	30

\* This structure utilizes a back-to-back mounting configuration



SCALE IN FEET 1 : 50  
0 50 100'

ENGINEERED DESIGN By: Aaron Rose · File #218073C · 06-Feb-24

**City of Merced Park**

Merced, CA

**GRID SUMMARY**

Name:	Soccer 4
Size:	30.0' x 10.0'
Spacing:	3.0' above grade
Height:	3.0' above grade

**LUMINATION SUMMARY**

MAINTAINED HORIZONTAL FOOTCANDLES

Entire Grid	30
Guaranteed Average:	30.27
Scan Average:	35
Maximum:	23
Minimum:	1.32
Avg. / Min.:	1.32
Guaranteed Max. / Min.:	2.3
Max. / Min.:	1.54
UG (adjacent pts):	1.23
CU:	0.81
No. of Points:	88
Applied Circuits:	F
No. of Luminaires:	20
Total Load:	23.96 kW

**Guaranteed Performance:** The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.35 ball depreciation factor.

**Field Measurements:** Individual field measurements may vary from computer calculated predictions and should be taken in accordance with IESNA 90-6-15.

**Electrical System Requirements:** Refer to Amp/Range Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

**Installation Requirements:** Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

Pipe locations (ϕ) dimensions are relative to 0.0 reference point(s) ⊗

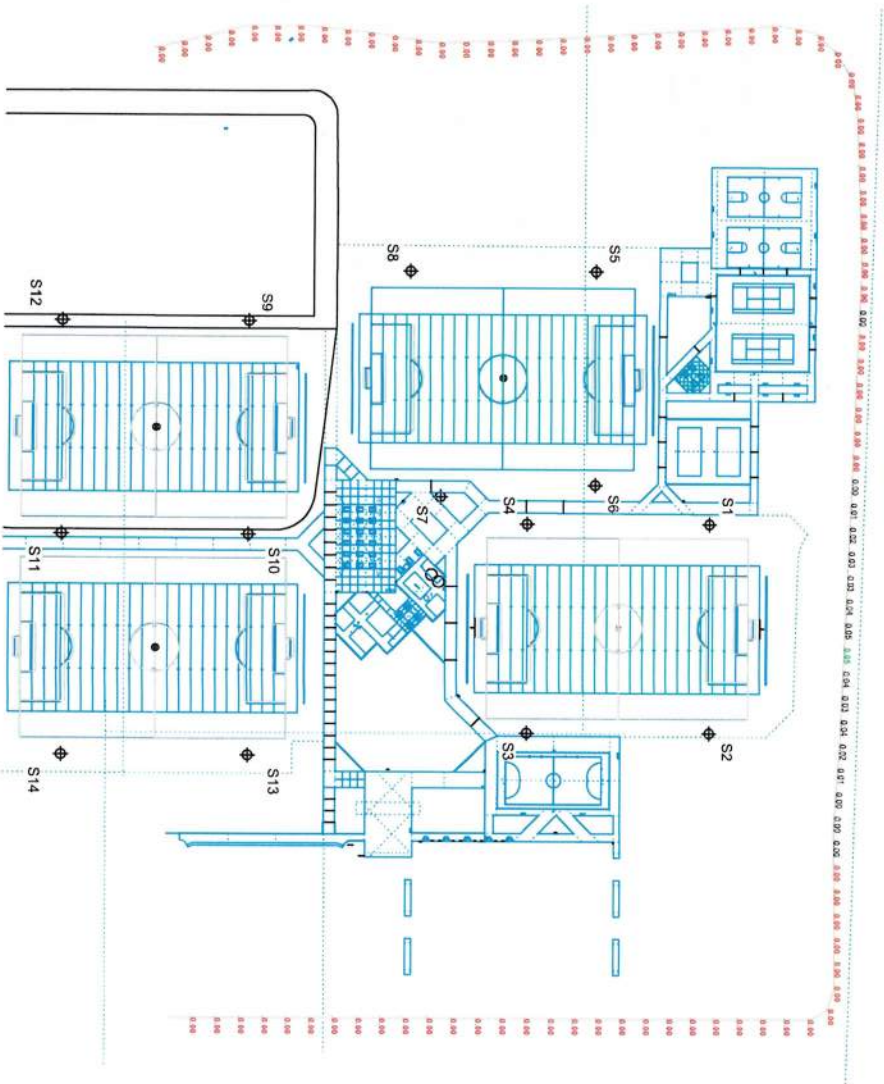
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ILLUMINATION SUMMARY

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**EQUIPMENT LIST FOR AREAS SHOWN**

QTY	LOCATION	SIZE	RANGE	MONITORING	WARRANTY	TYPE	QTY	TEST	QTY
			ELEVATION				POLE	OTHER	
7	S1-S4, S6	70"	-	70"	TIC-LED-900	2	2	0	0
1	S1-S3, S7	70"	-	70"	TIC-LED-1500	3	3	0	0
1	S10	70"	-	70"	TIC-LED-1200	1	1	0	0
1	S11	70"	-	70"	TIC-LED-900	2/2*	4	0	0
4	S14	70"	-	70"	TIC-LED-900	2/2*	4	0	0
				<b>TOTALS</b>		<b>80</b>		<b>0</b>	

\* This structure utilizes a mast to best mounting configuration



Pole location(s) ⬤ dimensions are relative to 0.0' reference point(s) ⊗

**City of Merced Park**

Merced, CA

**GRID SUMMARY**

Name: Property Line Spill  
Spacing: 30.0'  
Height: 3.0' above grade

**LUMINATION SUMMARY**

HORIZONTAL FOOTCANTLES

Scan Average: 0.0037  
Maximum: 0.05  
Minimum: 0.00  
No. of Points: 97

**LUMINAIRE INFORMATION**

Applied Circuits: A, B, C, D, E, F  
No. of Luminaires: 80  
Total Load: 96.13 kW

**Guaranteed Performance:** The ILLUMINATION described above is guaranteed per your Musco Warranty document.

**Field Measurements:** Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

**Electrical System Requirements:** Refer to Ampereage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

**Installation Requirements:** Results assume a 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design location.



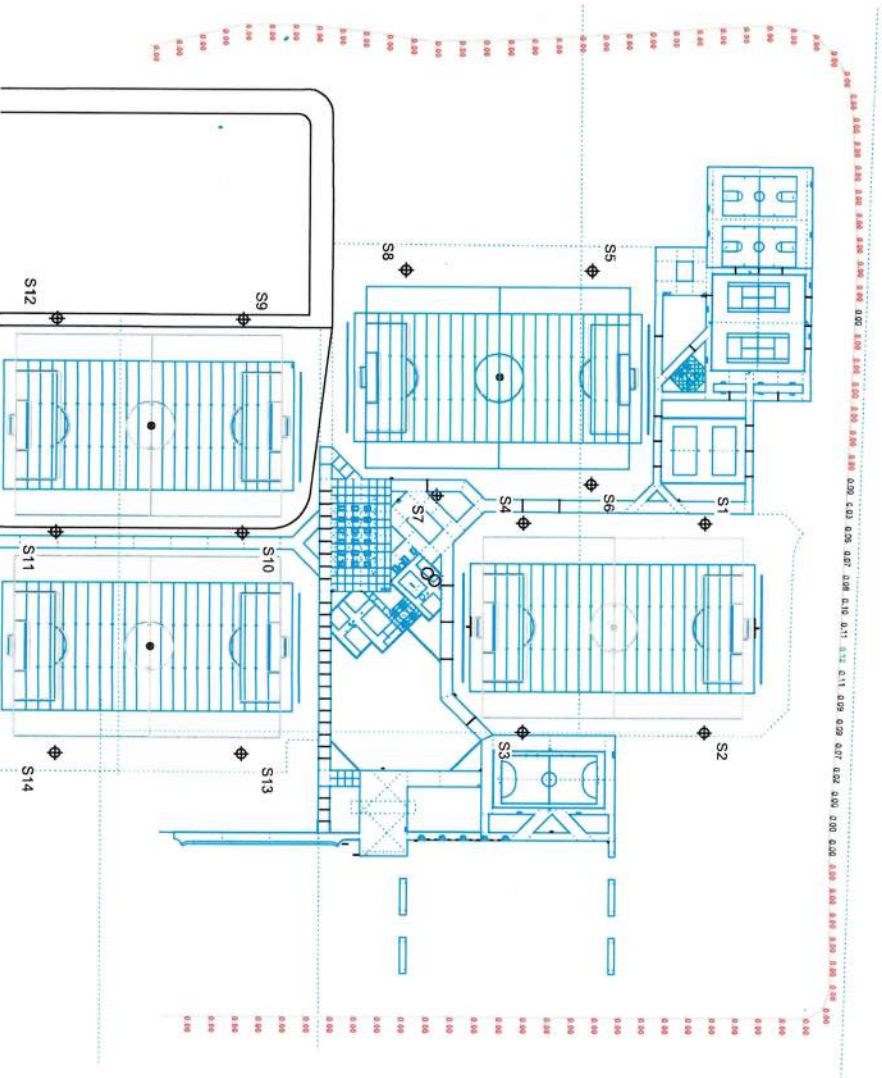
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**ILLUMINATION SUMMARY**

**EQUIPMENT LIST FOR AREAS SHOWN**

Qty	Location	Size	Grade	Mounting Height	Luminaire	Qty	Line	Grid
7	S1, S4, S8	70"	70"	70"	TLC-LTD-900	3	1	0
	S12, S13	70"	70"	70"	TLC-LTD-1500	3	1	0
1	S7	70"	70"	70"	TLC-LTD-1500	3	1	0
1	S10	70"	70"	70"	TLC-LTD-1200	1	1	0
1	S11	70"	70"	70"	TLC-LTD-900	2.75*	1	0
					TLC-LTD-1500	3.0*	6	0
					TLC-LTD-1500	3.0*	6	0
					TLC-LTD-900	2.75*	4	0
4	S14	70"	70"	70"	TLC-LTD-900	2	2	0
	S5, S6, S9	70"	70"	70"	TLC-LTD-1500	2	2	0
<b>14</b>	<b>TOTAL</b>					<b>30</b>	<b>30</b>	<b>0</b>

\* This structure utilizes a ballast to best mounting configuration



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**City of Merced Park**  
Merced, CA

**GRID SUMMARY**  
Name: Property Line Spill  
Spacing: 30.0'  
Height: 3.0' above grade

**LUMINAIRE INFORMATION**  
MAX VERTICAL FOOTCANDLES  
Scan Average: 0.0099  
Maximum: 0.12  
Minimum: 0.00  
No. of Points: 97  
Applied Circuits: A, B, C, D, E, F  
No. of Luminaires: 80  
Total Load: 96.13 kW

**Guaranteed Performance:** The ILLUMINATION described above is guaranteed per our Musco Warranty document.  
**Field Measurements:** Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA 97-65-15.  
**Electrical System Requirements:** Refer to Ampereage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.  
**Installation Requirements:** Results assume a 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design location.

Pole location(s) ⬤ dimensions are relative to 0.0' reference point(s) ⊗

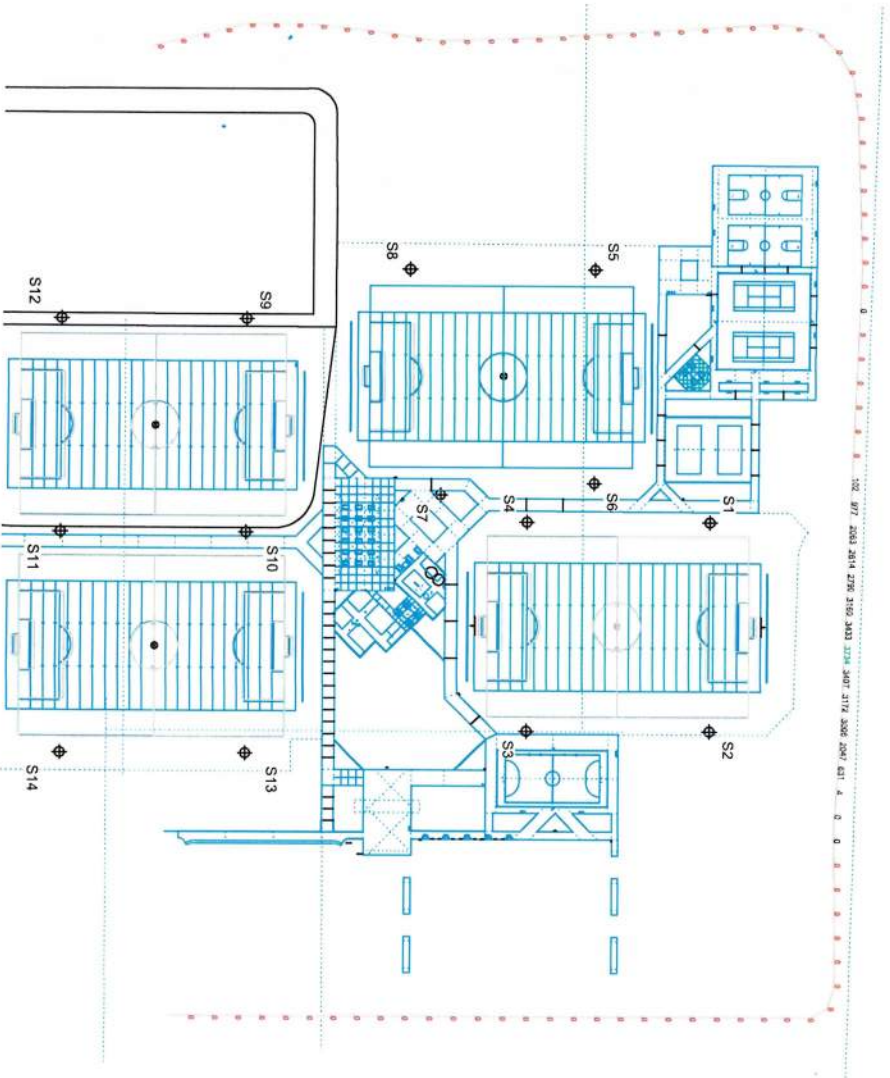
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**ILLUMINATION SUMMARY**

EQUIPMENT LIST FOR AREAS SHOWN

QTY	LOCATION	FLOOR	BASE	GRADE	ELEVATION	MOUNTING HEIGHT	LUMINAIR		QTY	HIGH	QTY	HIGH			
							TYPE	SIZE					QTY	QTY	
7	S1 S4 S5	70'	-	-	70'	TIC-LED 1500	3	3	0	0	0	0			
1	S12 S13	70'	-	-	70'	TIC-LED 1500	3	3	0	0	0	0			
1	S7	70'	-	-	70'	TIC-LED 1200	1	1	0	0	0	0			
1	S10	70'	-	-	70'	TIC-LED 900	2/2*	4	0	0	0	0			
1	S11	70'	-	-	70'	TIC-LED 1500	3/3*	6	0	0	0	0			
4	S14	70'	-	-	70'	TIC-LED 900	2/2*	8	0	0	0	0			
4	S5-S6, S9	70'	-	-	70'	TIC-LED 1500	3/3*	12	0	0	0	0			
TOTALS															
14												80	0	0	0

\* This structure utilizes a hard-to-hard mounting configuration



Roof location(s) ⬤ dimension size relative to 0.0' reference point(s) ⓧ

City of Merced Park

Merced, CA

**GRID SUMMARY**

Name:	Property Line Spill
Spacing:	30.0'
Height:	3.0' above grade

**ILLUMINATION SUMMARY**

CANDIELA (PER FIXTURE)

Entire Grid	321,0423
Maximum:	3733,76
Minimum:	0,00
No. of Points:	97

LUMINAIRE INFORMATION

Applied Circuits: A, B, C, D, E, F

No. of Luminaires: 80

Total Load: 96,13 kW

**Guaranteed Performance:** The ILLUMINATION described above is guaranteed per your Musco Warranty document.

**Field Measurements:** Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

**Electrical System Requirements:** Refer to Amperege Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

**Installation Requirements:** Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design location.

**ILLUMINATION SUMMARY**

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SCALE IN FEET 1 : 150

0 150' 300'

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**City of Merced Park**  
Merced, CA

**EQUIPMENT LAYOUT**

**INCLUDES:**

- Sector 1
- Sector 2
- Sector 3
- Sector 4

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume a 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

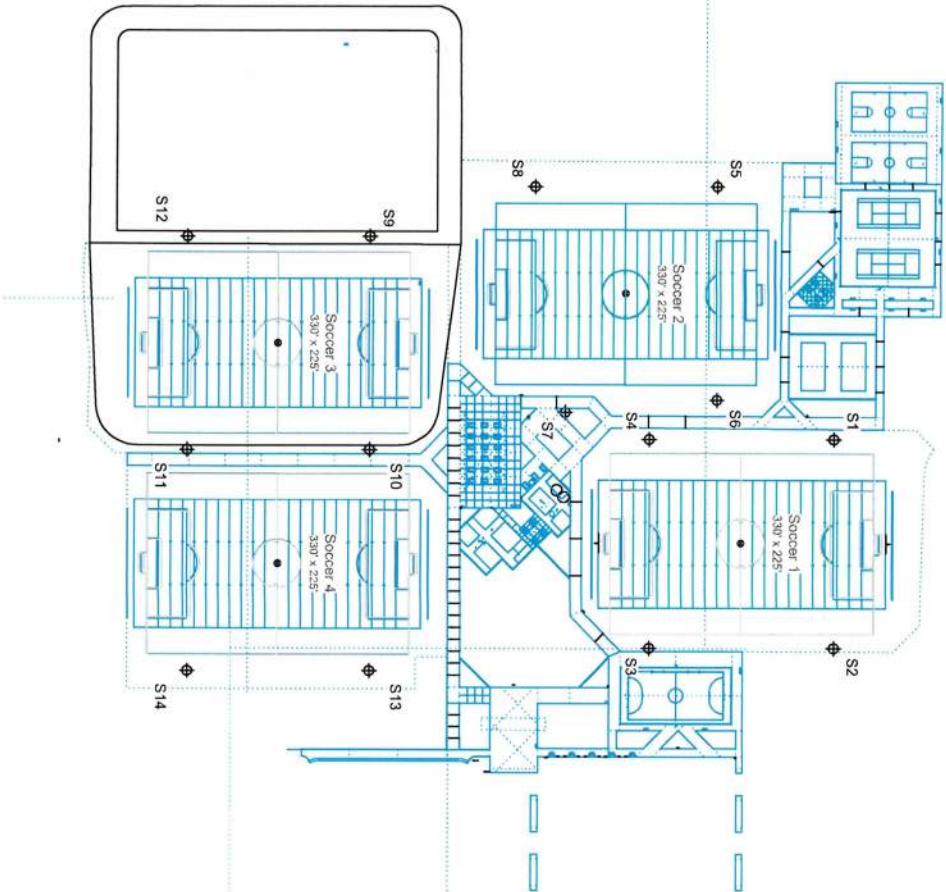
**EQUIPMENT LIST FOR AREAS SHOWN**

DRY	LOCATION	SIZE	SOAK	HEIGHT	MONITORING	TYPE	LUMEN/FOOT	QTY
7	S1 S4 S38	7'0"	-	7'0"	TTC-LED-900	TYPE	1200	2
1	S2 S213	7'0"	-	7'0"	TTC-LED-1500	TYPE	1500	3
1	S7	7'0"	-	7'0"	TTC-LED-1200	TYPE	1200	1
1	S10	7'0"	-	7'0"	TTC-LED-900	TYPE	900	1
1	S11	7'0"	-	7'0"	TTC-LED-1500	TYPE	1500	3/2*
4	S14	7'0"	-	7'0"	TTC-LED-900	TYPE	900	2/2*
4	S5 S46 S9	7'0"	-	7'0"	TTC-LED-900	TYPE	900	2
14					TTC-LED-1500	TYPE	1500	3
<b>TOTALS</b>								
80								

\* This structure unless a back to back mounting configuration

**SINGLE LUMINAIRE AVERAGE DRIVE CURRENT**

Line Voltage (V)	Line Amperage (A)	Line Amperage (A)	Line Amperage (A)	Line Amperage (A)	Line Amperage (A)	Line Amperage (A)	Line Amperage (A)
Single Phase Voltage	308	320	340	372	347	380	480
TTC-LED-900	5.2	4.9	4.5	3.9	3.1	2.9	2.3
TTC-LED-1500	8.4	7.9	7.3	6.3	5.0	4.6	3.6
TTC-LED-1200	6.9	6.5	6.0	5.2	4.2	3.8	3.0



Pole location(s) ⚡ dimensions are relative to 0.0 reference point(s) ⊗



SCALE IN FEET 1 : 150  
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**EQUIPMENT LAYOUT**