

Appendix B Stadium Lighting Report

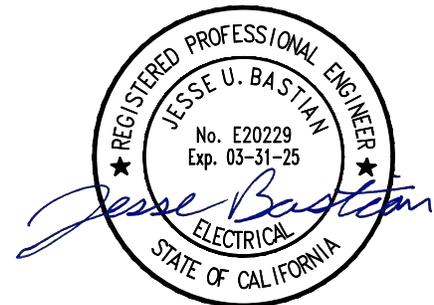


March 21, 2023



Jesuit High School Stadium Lighting Report

1200 Jacob Lane
Carmichael, CA 95608



Project Engineer:
Jesse Bastian, P.E.
License No.: E20229
MNE Project No.: 22256.21

Project Manager:
Stuart Lindsay

We plan and design your high-performance electrical environment

100 Howe Ave., Ste. 235N | Sacramento, CA 95825-8217 | Tel (916) 923-4400 | Fax (916) 923-4410

March 21, 2023
Jesuit High School, 1200 Jacob Lane, Carmichael, California
Stadium Lighting Report

Mr. Tim Murchison
Board Member
Jesuit High School
1200 Jacob Lane
Carmichael, CA 95608

Subject: Jesuit High School,
Carmichael, California
Stadium Lighting Report

Dear Mr. Murchison:

M. Neils Engineering, Inc. (MNE), in consultation with Musco Lighting, has prepared this stadium lighting conceptual design report to determine the contribution of light from a proposed stadium lighting system to adjacent properties.

Purpose of the Lighting Evaluation

- A. To report anticipated lighting levels at the adjacent property lines resulting from the proposed stadium lighting.
- B. To describe any impacts of the proposed stadium lighting on the adjacent properties, as related to existing community lighting guidelines.
- C. To describe measures used to mitigate any impacts of the Jesuit stadium lighting on the existing adjacent properties, as related to the existing community lighting guidelines.

Community/Industry Guidelines for Light Trespass

The new stadium lighting shall comply with the Sacramento County Lighting Standards Zoning Code which state in part:

- Lighting should enhance the architectural and site design concepts while being energy efficient. Architectural lighting is encouraged.
- Spillover lighting that is visible from outside the site should be avoided by orienting fixtures downward or shielding light.
- Energy efficient lighting shall be at levels that provide public safety and meet or exceed Zoning Code standards.
- Lighting should be LED lights or other acceptable high energy efficiency light, with automatic controls to dim lights after certain hours or when no one is present. Lighting shall be adequate to provide for a safe environment.

Industry sources are cited below as a reference point for the evaluation.

The Illuminating Engineering Society (IES), in its recommended practice *RP-33-14 Lighting for Exterior Environments* discusses light trespass, which may result from "unwanted light (high illuminance levels) or excessive brightness in the normal field of vision (nuisance glare)."

The topic of light trespass relates to light which is obtrusive off-site. The offending illumination is called obtrusive light. An example would be the typical "light shining in my window" complaint. Light trespass limits can be defined by using the backlight (B) rating limits outlined in the Joint IDA-IES Model Lighting Ordinance (MLO). Solutions to this issue include the following:

- As MLO describes, shielding the offending luminaire with an "opaque top and translucent or perforated sides designed to emit most light downward."

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- Turning off the light after curfew.
- In some cases, eliminating the light source if required.

Light trespass is frequently defined by the adjacent property receiving unwanted light (high illuminance levels).

The following general suggestions will help control light trespass problems:

- Inspect areas adjacent to the lighting design location to identify and consider any potential problems involving residences and topographical challenges such as a light higher on the hillside from the bedroom window.
- Select luminaires with tightly controlled light (candela) distributions.
- For non-shielded luminaires, use low light output (lumens) sources to minimize brightness.
- Contain light within the design area by carefully selecting, locating, mounting, and aiming the luminaires.

Since light trespass is extremely subjective, there is not a single set of values or limits that will work in every situation. Results may be affected by the personalities and desires of different individuals.

While these recommendations serve to reduce serious light trespass, their implementation is not a guarantee against objections. In some situations, such as a sports field in a small park closely surrounded by residences, no methods and/or combinations of lighting design, aiming, or control can provide for both safe play and satisfy some neighbors' desires for limited light trespass. Consensus solutions should be reached by all parties involved. Possible solutions could involve:

- Field locations.
- Curfews to restrict the hours of nighttime use.
- Glare abatement, or landscape screens.

Lighting Zones

Zoning is an industry accepted practice in which the amount of outdoor lighting that is acceptable is determined by how bright the surrounding conditions are and the ambient light levels sought by a community. The IES describes the technical basis of the differences in outdoor lighting zones as: human eyes adapt to darker surroundings and less light is required to properly see; whereas more light is needed to see as surrounding conditions get brighter.

Lighting Zone Definitions

Because identifying the appropriate outdoor lighting zone is a matter of judgment and consensus, there is no means of determining which zone is appropriate for a given area. The same type of lighting application may fall into different lighting zones in different jurisdictions or using different standards. As used in the Joint IDA-IES MLO, the lighting zones are defined with suggested uses as follows:

- **LZ0: No Ambient Light**

Areas where the natural environment could be seriously and adversely affected by small amounts of electric lighting at night. This includes biological cycles of flora and fauna, and human enjoyment and appreciation of the natural environment. The vision of human residents and users is adapted to the total darkness, and they do not expect to

see electric lighting. Human activity is sparse and is subordinate in importance to the natural environment. There is no expectation for electric lighting. Although some lighting is allowed, it is required to be controlled.

- **LZ1: Low Ambient Light**

Developed areas within a natural environment and areas of human activity that are inherently dark at night. Electric lighting at night could adversely affect the biological cycles of flora and fauna, or could interrupt the quiet, dark character of the area. The vision of human residents and users is adapted to the low light levels, and they do not expect to see electric lighting except where necessary to improve visibility and safety. In these limited areas, low light levels are appropriate. Lighting is expected to be non-continuous (i.e., pools of light rather than uniform lighting along a path or roadway). After curfew, both light levels and uniformity may be reduced in some areas.

- **LZ2: Moderate Ambient Light**

Areas of human activity (i.e., habitation, recreation and/or work) where electric lighting may be required for safety and convenience at night. The vision of human residents and users is adapted to moderate light levels, and they have moderate expectations of electric lighting. Lighting is expected to be non-continuous (e.g., pools of light at crosswalks or intersections, rather than uniform lighting along a path or street). After curfew, both light levels and uniformity may be reduced in some areas as activity levels decline.

- **LZ3: Moderately High Ambient Light**

Areas of human activity (i.e., habitation, recreation and/or work) where electric lighting may be continuous and required for safety and convenience at night. The vision of human residents and users is adapted to moderately high light levels, and they have moderate to high expectations of electric lighting. Lighting is expected to be continuous (e.g., lighting delivered fairly evenly along the length of a path or street). After curfew, both light levels and uniformity may be reduced in some areas as activity levels decline.

- **LZ4: High Ambient Light**

Areas of high levels of human activity at night including significant interaction among pedestrians and/or vehicles. The vision of humans when outside is typically adapted to moderate light levels. Lighting is continuous and is required for safety and convenience. Expectations for man-made lighting are high, both in terms of light levels and uniformity along pathways or streets. However, both light levels and uniformity may be reduced after curfew hours in some areas as activity levels decline.

The State of California Building Code (Title 24) began regulating outdoor lighting effective October 1, 2005. Although the Title 24 standards do not apply to sports lighting, they provide guidance relative to an understanding of the lighting environment. The lighting zone classifications contained in Title 24 are defined as follows:

TITLE 24, PART 6: TABLE 10-114-A LIGHTING ZONE CHARACTERS AND RULES FOR AMENDMENTS BY LOCAL JURISDICTIONS

Zone	Ambient Illumination	Statewide Default Location
LZ0	Very Low	Undeveloped areas of government-designated parks, recreation areas, and wildlife preserves.
LZ1	Low	Developed portion of government-designated parks, recreation areas, and wildlife preserves. Those that are wholly contained within a higher lighting zone may be considered by the local government as part of that lighting zone.
LZ2	Moderate	Rural areas, as defined by the 2010 U.S. Census.
LZ3	Moderately High	Urban areas, as defined by the 2010 U.S. Census.
LZ4	High	None.

The Electric Power Research Institute (EPRI) commissioned a report *Light Trespass Research* by Ian Lewin, PhD, which presented the following recommended maximum illuminance levels for the environmental zones described (these are recommendations only, not standards):

- Zone E1 (intrinsically dark): 1 lux (0.1 footcandle)
- Zone E2 (low ambient brightness): 3 lux (0.3 footcandle)
- Zone E3 (medium ambient brightness): 8 lux (0.8 footcandle)
- Zone E4 (high ambient brightness): 15 lux (1.5 footcandle)

This report will evaluate a proposed Musco Light-Structure™ Lighting System to determine substantial compliance with the recommendations. Jesuit High School is evaluated for Environmental Zone E3, which corresponds to Lighting Zone LZ3 as defined in Title 24. See Appendix A, 2020 U.S. Census Map.

Background of Lighting Level Information

Typical lighting levels measured horizontally at ground level are:

- Clear, sunny daylight: 8,000-10,000 footcandle.
- Cloudy sky: 1,000-1,500 footcandle.
- Street lighting: from 1 to 2 footcandle.
- Moonlight: 0.03 footcandle

Because the human eye adjusts for a range of lighting level of one million to one, humans typically cannot accurately discern a difference of 50% in light level within a given range without the use of instrumentation.

Summary of Musco Calculations

Musco calculated predicted lighting levels. As requested, Musco calculated horizontal lighting levels at 3'-0" grade for the surrounding residential area including the residential property lines plan west of the ball field and the residential property lines plan south of the ball field along American River Drive (directions referenced from Musco's Illumination Summary drawings). Also calculated vertical light levels at 3'-0" above grade for the surrounding residential area property lines as noted above. The following results were obtained through Musco's calculations:

1. Calculated values along the plan west adjacent to the residential homes indicated no horizontal illuminance values more than 0.049 footcandle; none of the measurements exceeded 0.8 footcandle (Zone E3). At 3'-0" above grade, no vertical illuminance values exceeded 0.114 footcandle; none of the measurements exceeded 0.8 footcandle (Zone E3). Out of the vertical values:
 - 0% of values were above 0.15 footcandles.
 - 35% of values were between 0.05 - 0.14 footcandles.
 - 65% of values fell between 0.049 – 0.0 footcandles.
2. Calculated values along the residential property lines plan south of the ball field along American River Drive indicated no horizontal illuminance values in excess of 0.0 footcandle; none of the measurements exceeded 0.8 footcandle (Zone E3). At 3'-0" above grade, no vertical illuminance values exceeded 0.0 footcandle from the south; none of the measurements exceeded 0.8 (Zone E3). Out of the vertical values:
 - 100% of values fell below 0.049 footcandles.

Lighting Glare

Lighting glare is defined by the IES as "the sensation produced by luminances within the visual field that are sufficiently greater than the luminance to which the eyes are adapted to cause annoyance, discomfort, or loss in visual performance or visibility." In other words, glare is created by an excessively bright source of light which causes annoyance or discomfort. Jesuit High School has striven to have the new stadium lighting system be as glare free as possible. In line with that goal, Jesuit High School submitted the Musco lighting design to the International Dark Sky Association (IDA) for validation that it meets the criteria adopted IDA's Community Friendly Outdoor Sports Lighting program. This program's goal is:

- Minimize neighborhood lighting nuisance by greatly reducing local spill and glare.
- Manage high angle light pollution, thus dramatically decreasing off-site light trespass and sky glow.
- Mitigate neighborhood light pollution and sky glow, which will benefit the environment, the astronomy community, and others impacted by poorly designed outdoor sports facilities.
- Minimize lumen densities, thereby reducing energy consumption.

The IDA's findings are that this Musco lighting design is assigned a PASS rating. See Appendix B.

The Musco lighting design (see Appendix E) identifies the calculated brightness of the lights measured in candelas. See Appendix C for a visual example of glare in relation to candela.

Appendix D includes renderings of the proposed stadium lighting, showing the aerial view of the lighting and also the view from multiple locations surrounding the stadium.

Finally, Appendix E shows the photometric calculations for the proposed stadium lighting.

Conclusions:

1. Jesuit High School is in an area that is identified by the 2020 US Census Map as an urban area. Therefore, the lighting in that area would be subject to the requirements for Environmental Zone E3 (medium ambient brightness). The calculations provided by Musco for the proposed new Light-Structure™ lighting system meet the recommendations for Environmental Zone E3 (medium ambient brightness). Additionally, the calculations also meet the recommendations for Environmental Zone E2 (low ambient brightness).
2. The calculations provided by MUSCO for the proposed new Light-Structure™ lighting system easily meets the goals established by the International Dark Sky Association for the control of glare which would cause annoyance or discomfort.

Please contact me if you have any questions or comments regarding this report. Thank you for the opportunity to provide services.

Respectfully submitted,

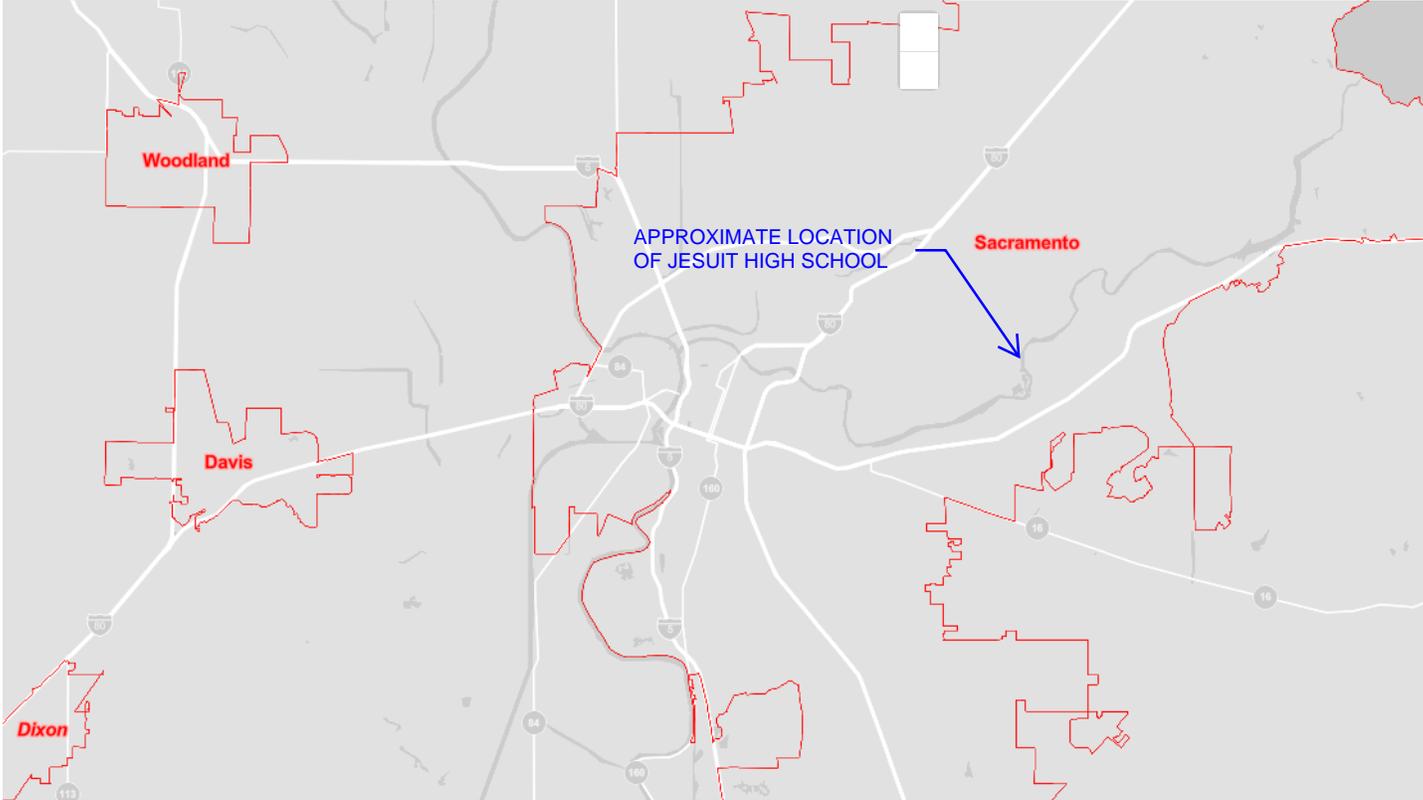
M. NEILS ENGINEERING, INC.

Stuart Lindsay
Project Manager

SKL: dmn

Selection Map

Select Identify Layer Year Basemap Boundaries Notes



LEGEND YEAR: 2020

Selected Geographies	0
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Styles

- State
- Urban Area (2010)

S0101 | 2010 ACS 1-Year Estimates Subject Tables | 3 mi



IDA Community Friendly Outdoor Sports Lighting

Lighting Performance Summary

Project: Jesuit High School Football
Location: Carmichael, CA
Curfew: 10:30pm
Submitted: 19 January 22 - 2:17 PM PST

Field: Football 1
Field type: Football - Class III
Environmental Zone: E2

Applicable Lighting Standard

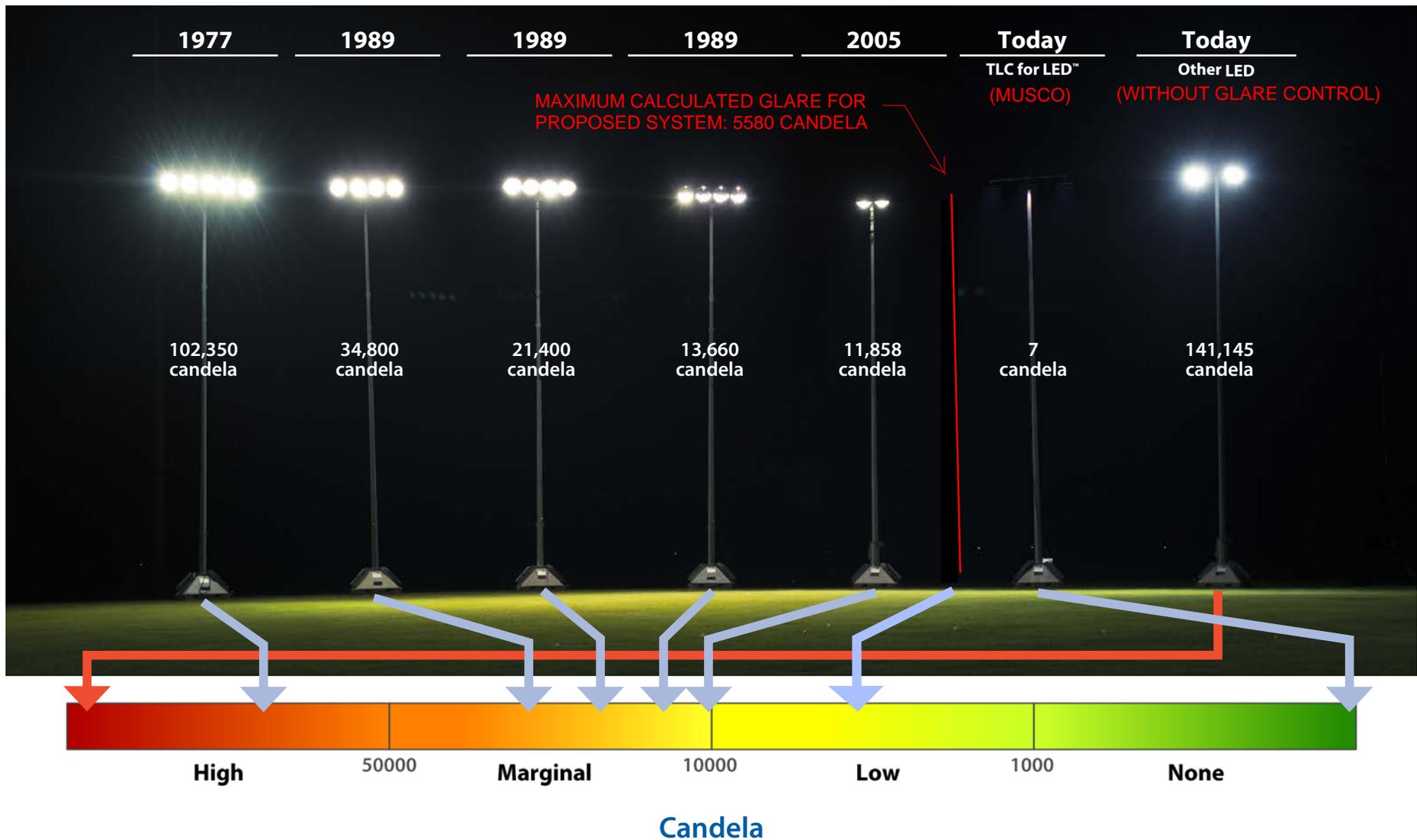
	Standard	Measured	Result
Meets IES or HS Standard	—	Yes	PASS

Applied BUG Analysis

	Standard	Measured	Result
Total Fixture Lumens	—	5,395,955 lumens	—
Backlight: Lumens	15% or less	3.55%	PASS
Backlight: Spill	2.0 lux or less	0.02 lux	PASS
Uplight: Lumens	8% or less	7.8%	PASS
Glare: Max Candela	1000 candela or less	155 candela	PASS
Glare: 80° - 90°	250 lumens	2 lumens	PASS

Lighting Performance Result

PASS



Candela values (single fixture) reported from photometric reports at 15° above the beam center.

Photographed at 100 ft (30 m) from field edge. Used equal parameters for: On-field light level per pole, Mounting height, Luminaire aiming angles, and Pole Distance from aiming point.

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Solutions for Lighting



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CONSULTANT

SHEET TITLE

PERSPECTIVE SITE MAP

PROJECT NAME

JESUIT HIGH SCHOOL STADIUM LIGHT IMPROVEMENTS

PROJECT ADDRESS

**1200 JACOB LN.
CARMICHAEL, CA
95608**

SUBMITTAL	DATE
100% SUBMITTAL	02/04/22

NO.	REVISIONS	DATE
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△		
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DRAWN BY: VERDE
CHECKED BY: CS

DATE ISSUED: 02/04/2022
SCALE: AS NOTED

PROJ. NO.: 1612100

SHEET NO.: **M1.12** OF SHEETS

PERSPECTIVE SITE MAP



PERSPECTIVE SITE MAP

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 PLOT DATE: 02-03-22 PLOTTED BY: station27

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(A) TOP VIEW



(B) ANGLE AERIAL PERSPECTIVE

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 www.VerdeDesign.com

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CONSULTANT

SHEET TITLE
STADIUM LIGHTING RENDER

PROJECT NAME
JESUIT HIGH SCHOOL STADIUM LIGHT IMPROVEMENTS

PROJECT ADDRESS
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95608**

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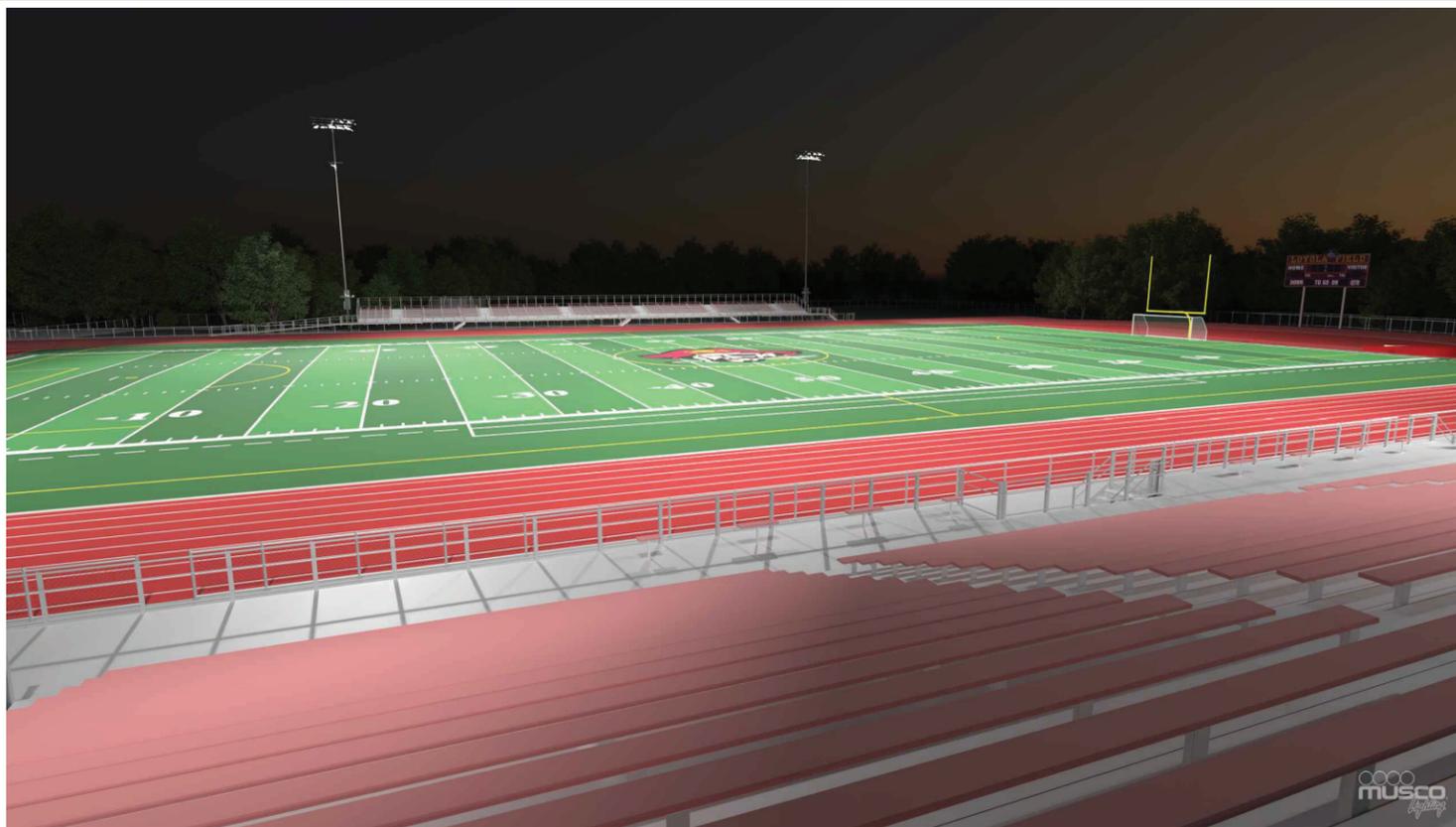
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STADIUM LIGHTING RENDER

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(C) VIEW FROM BLEACHERS



(D) VIEW FROM SCHOOL TOWARDS STADIUM (FROM BASEBALL FIELD)

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(E) VIEW FROM SCHOOL TOWARDS STADIUM



(F) VIEW FROM ADJACENT PROPERTIES TOWARD STADIUM - 1

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(G) VIEW FROM ADJACENT PROPERTIES TOWARD STADIUM - 2



(H) VIEW FROM ADJACENT PROPERTIES TOWARD STADIUM - 3


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SHEET NO.
M1.11 OF SHEETS

STADIUM LIGHTING RENDER



(I) VIEW FROM PICADILLY CIRCLE



(J) VIEW FROM AMERICAN RIVER PARKWAY

JESUIT HIGH SCHOOL STADIUM LIGHT IMPROVEMENTS - MUSCO LIGHTING

EQUIPMENT LIST FOR AREAS SHOWN								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
1	F1	100'	0'	100'	TLC-LED-900	10	10	0
				100'	TLC-LED-400	2*	0	2
				75'	TLC-LED-600	2	0	2
				35'	TLC-BT-575	2	2	0
				100'	TLC-LED-1200	2	2	0
1	F2	100'	0'	100'	TLC-LED-900	10	10	0
				100'	TLC-LED-400	2*	0	2
				75'	TLC-LED-600	2	0	2
				35'	TLC-BT-575	2	2	0
				100'	TLC-LED-1200	3	2	1
1	F3	90'	0'	90'	TLC-LED-900	6	6	0
				70'	TLC-LED-400	1	0	1
				15'	TLC-BT-575	2	2	0
				90'	TLC-LED-1200	6	5	1
				90'	TLC-LED-900	5	5	0
1	F4	90'	0'	70'	TLC-LED-400	1	0	1
				15'	TLC-BT-575	2	2	0
				90'	TLC-LED-900	6	6	0
				90'	TLC-LED-900	6	6	0
4	TOTALS					66	54	12

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

Jesuit High School Football

Carmichael, CA

GRID SUMMARY	
Name:	Track
Size:	Irregular
Spacing:	30.0' x 30.0'
Height:	3.0' above grade

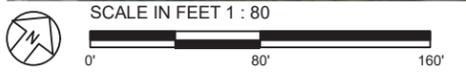
ILLUMINATION SUMMARY	
MAINTAINED HORIZONTAL FOOTCANDLES	
Entire Grid	
Scan Average:	16.4
Maximum:	44.2
Minimum:	0.3
Avg / Min:	52.29
Max / Min:	141.40
UG (adjacent pts):	0.00
CU:	0.14
No. of Points:	51
LUMINAIRE INFORMATION	
Applied Circuits:	A, C
No. of Luminaires:	54
Total Load:	49.46 kW

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 RP-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 driver and structures located within 3 feet (1m) of design locations.



Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

ENGINEERED DESIGN By: Bryce Miles · File #162585N · 09-Mar-23



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ILLUMINATION SUMMARY

EQUIPMENT LIST FOR AREAS SHOWN								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
1	F1	100'	-	100'	TLC-LED-900	10	10	0
				100'	TLC-LED-400	2*	0	2
				75'	TLC-LED-600	2	0	2
				35'	TLC-BT-575	2	2	0
				100'	TLC-LED-1200	2	2	0
1	F2	100'	-	100'	TLC-LED-900	10	10	0
				100'	TLC-LED-400	2*	0	2
				75'	TLC-LED-600	2	0	2
				35'	TLC-BT-575	2	2	0
				100'	TLC-LED-1200	3	2	1
1	F3	90'	-	90'	TLC-LED-900	6	6	0
				70'	TLC-LED-400	1	0	1
				15'	TLC-BT-575	2	2	0
				90'	TLC-LED-1200	6	5	1
				90'	TLC-LED-900	5	5	0
1	F4	90'	-	90'	TLC-LED-1200	5	0	1
				70'	TLC-LED-400	1	0	1
				15'	TLC-BT-575	2	2	0
				90'	TLC-LED-900	6	6	0
4	TOTALS					66	54	12

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

Jesuit High School Football

Carmichael, CA

GRID SUMMARY	
Name:	Football
Size:	360' x 160'
Spacing:	30.0' x 30.0'
Height:	3.0' above grade

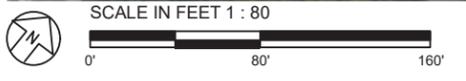
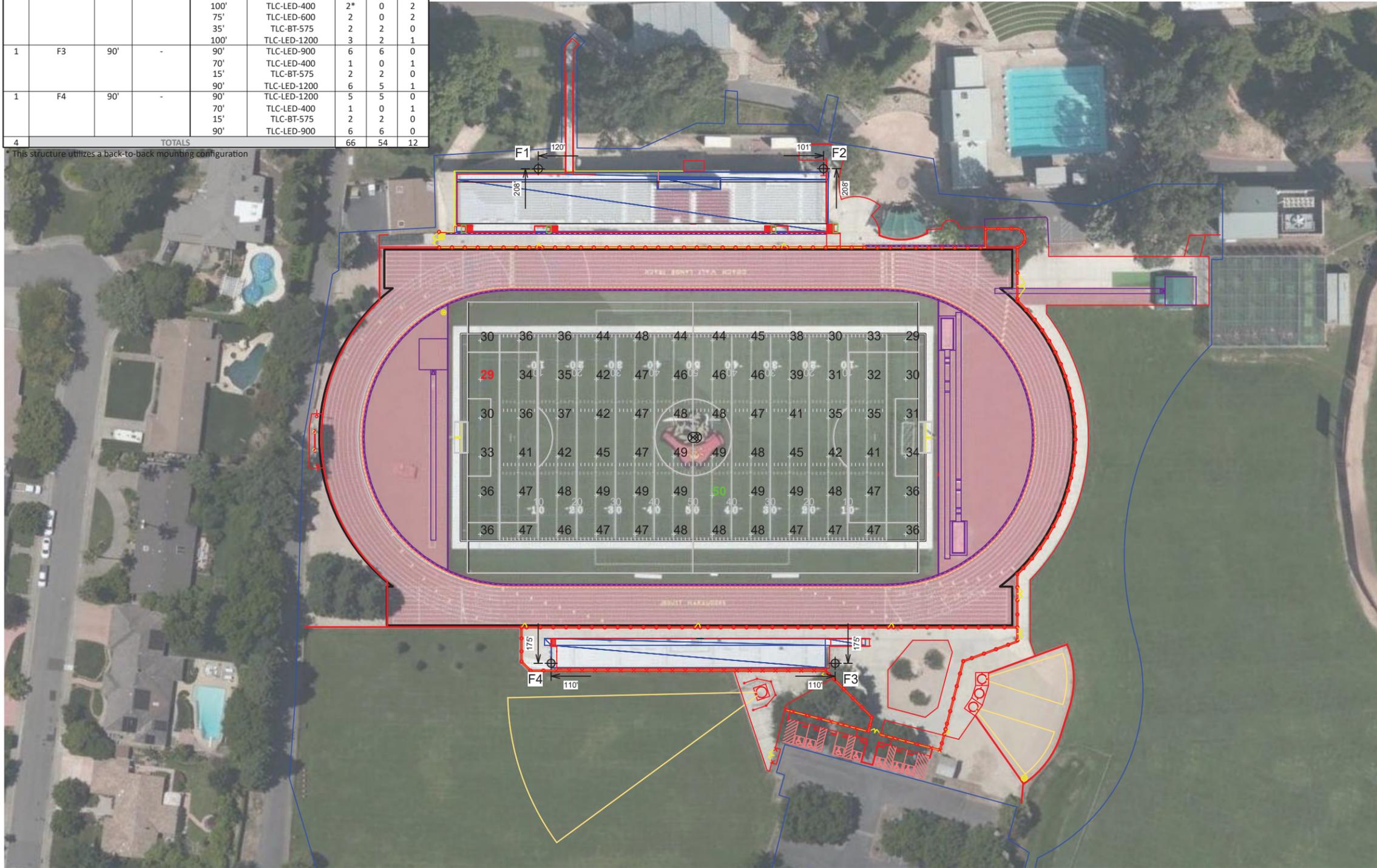
ILLUMINATION SUMMARY	
MAINTAINED HORIZONTAL FOOTCANDLES	
Entire Grid	
Guaranteed Average:	40
Scan Average:	41.8
Maximum:	49.5
Minimum:	29.1
Avg / Min:	1.44
Guaranteed Max / Min:	2
Max / Min:	1.70
UG (adjacent pts):	1.33
CU:	0.50
No. of Points:	72
LUMINAIRE INFORMATION	
Applied Circuits:	A
No. of Luminaires:	54
Total Load:	49.46 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 RP-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 driver 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

APPENDIX E

Jesuit High School Football

Carmichael, CA

EQUIPMENT LIST FOR AREAS SHOWN								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
1	F1	100'	0'	100'	TLC-LED-900	10	10	0
				100'	TLC-LED-400	2*	0	2
				75'	TLC-LED-600	2	0	2
				35'	TLC-BT-575	2	2	0
				100'	TLC-LED-1200	2	2	0
1	F2	100'	0'	100'	TLC-LED-900	10	10	0
				100'	TLC-LED-400	2*	0	2
				75'	TLC-LED-600	2	0	2
				35'	TLC-BT-575	2	2	0
				100'	TLC-LED-1200	3	2	1
1	F3	90'	0'	90'	TLC-LED-900	6	6	0
				70'	TLC-LED-400	1	0	1
				15'	TLC-BT-575	2	2	0
				90'	TLC-LED-1200	6	5	1
				90'	TLC-LED-900	5	5	0
1	F4	90'	0'	90'	TLC-LED-1200	5	5	0
				70'	TLC-LED-400	1	0	1
				15'	TLC-BT-575	2	2	0
				90'	TLC-LED-900	6	6	0
				TOTALS				

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

GRID SUMMARY	
Name:	Soccer
Size:	350' x 210'
Spacing:	30.0' x 30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY	
MAINTAINED HORIZONTAL FOOTCANDLES	
Entire Grid	
Guaranteed Average:	40
Scan Average:	41.4
Maximum:	49.5
Minimum:	27.8
Avg / Min:	1.49
Guaranteed Max / Min:	2
Max / Min:	1.78
UG (adjacent pts):	1.41
CU:	0.58
No. of Points:	84
LUMINAIRE INFORMATION	
Applied Circuits:	A
No. of Luminaires:	54
Total Load:	49.46 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 RP-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 driver 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

Jesuit High School Football

Carmichael, CA

GRID SUMMARY	
Name:	Surrounding - Blanket Grid
Size:	350' x 210'
Spacing:	30.0' x 30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY	
MAINTAINED HORIZONTAL FOOTCANDLES	
Entire Grid	
Scan Average:	1.7
Maximum:	49.8
Minimum:	0.0
Avg / Min:	-
Max / Min:	-
UG (adjacent pts):	236.88
CU:	0.91
No. of Points:	3465
LUMINAIRE INFORMATION	
Applied Circuits:	A
No. of Luminaires:	54
Total Load:	49.46 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 RP-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 driver and structures located within 3 feet (1m) of design locations.



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Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



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ILLUMINATION SUMMARY

EQUIPMENT LIST FOR AREAS SHOWN								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
1	F1	100'	-	100'	TLC-LED-900	10	0	10
				100'	TLC-LED-400	2*	2	0
				75'	TLC-LED-600	2	2	0
				35'	TLC-BT-575	2	0	2
				100'	TLC-LED-1200	2	0	2
1	F2	100'	-	100'	TLC-LED-900	10	0	10
				100'	TLC-LED-400	2*	2	0
				75'	TLC-LED-600	2	2	0
				35'	TLC-BT-575	2	0	2
				100'	TLC-LED-1200	3	1	2
1	F3	90'	-	90'	TLC-LED-900	6	0	6
				70'	TLC-LED-400	1	1	0
				15'	TLC-BT-575	2	0	2
				90'	TLC-LED-1200	6	1	5
				90'	TLC-LED-900	5	0	5
1	F4	90'	-	90'	TLC-LED-1200	5	0	5
				70'	TLC-LED-400	1	1	0
				15'	TLC-BT-575	2	0	2
				90'	TLC-LED-900	6	0	6
				TOTALS				

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

Jesuit High School Football

Carmichael, CA

GRID SUMMARY	
Name:	Home Bleachers
Spacing:	10.0' x 10.0'
Height:	6.4' above grade

ILLUMINATION SUMMARY	
MAINTAINED HORIZONTAL FOOTCANDLES	
Entire Grid	
Scan Average:	15.6
Maximum:	35.8
Minimum:	2.2
Avg / Min:	7.23
Max / Min:	16.63
UG (adjacent pts):	0.00
CU:	0.26
No. of Points:	135
LUMINAIRE INFORMATION	
Applied Circuits:	B
No. of Luminaires:	12
Total Load:	7.06 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 RP-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 driver 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

EQUIPMENT LIST FOR AREAS SHOWN								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
1	F1	100'	-	100'	TLC-LED-900	10	0	10
				100'	TLC-LED-400	2*	2	0
				75'	TLC-LED-600	2	2	0
				35'	TLC-BT-575	2	0	2
				100'	TLC-LED-1200	2	0	2
1	F2	100'	-	100'	TLC-LED-900	10	0	10
				100'	TLC-LED-400	2*	2	0
				75'	TLC-LED-600	2	2	0
				35'	TLC-BT-575	2	0	2
				100'	TLC-LED-1200	3	1	2
1	F3	90'	-	90'	TLC-LED-900	6	0	6
				70'	TLC-LED-400	1	1	0
				15'	TLC-BT-575	2	0	2
				90'	TLC-LED-1200	6	1	5
				90'	TLC-LED-900	5	0	5
1	F4	90'	-	70'	TLC-LED-400	1	1	0
				15'	TLC-BT-575	2	0	2
				90'	TLC-LED-900	6	0	6
				TOTALS		66	12	54

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

Jesuit High School Football

Carmichael, CA

GRID SUMMARY	
Name:	Away Bleachers
Spacing:	10.0' x 10.0'
Height:	3.2' above grade

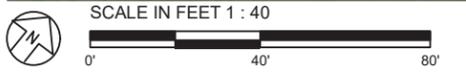
ILLUMINATION SUMMARY	
MAINTAINED HORIZONTAL FOOTCANDLES	
Entire Grid	
Scan Average:	7.4
Maximum:	11.8
Minimum:	0.4
Avg / Min:	16.57
Max / Min:	26.36
UG (adjacent pts):	0.00
CU:	0.06
No. of Points:	67
LUMINAIRE INFORMATION	
Applied Circuits:	B
No. of Luminaires:	12
Total Load:	7.06 kW

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 RP-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 driver 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

Jesuit High School Football

Carmichael, CA

GRID SUMMARY	
Name:	Blanket Grid
Spacing:	10.0' x 10.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY	
MAINTAINED HORIZONTAL FOOTCANDLES	
Entire Grid	
Scan Average:	3.9
Maximum:	13.2
Minimum:	0.2
Avg / Min:	22.17
Max / Min:	74.88
UG (adjacent pts):	2.34
CU:	0.20
No. of Points:	424
LUMINAIRE INFORMATION	
Applied Circuits:	B
No. of Luminaires:	12
Total Load:	7.06 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 RP-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 driver and structures located within 3 feet (1m) of design locations.



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ILLUMINATION SUMMARY

EQUIPMENT LIST FOR AREAS SHOWN								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
1	F1	100'	0'	100'	TLC-LED-900	10	10	0
				100'	TLC-LED-400	2*	0	2
				75'	TLC-LED-600	2	0	2
				35'	TLC-BT-575	2	2	0
				100'	TLC-LED-1200	2	2	0
1	F2	100'	0'	100'	TLC-LED-900	10	10	0
				100'	TLC-LED-400	2*	0	2
				75'	TLC-LED-600	2	0	2
				35'	TLC-BT-575	2	2	0
				100'	TLC-LED-1200	3	2	1
1	F3	90'	0'	90'	TLC-LED-900	6	6	0
				70'	TLC-LED-400	1	0	1
				15'	TLC-BT-575	2	2	0
				90'	TLC-LED-1200	6	5	1
				90'	TLC-LED-900	5	5	0
1	F4	90'	0'	70'	TLC-LED-400	1	0	1
				15'	TLC-BT-575	2	2	0
				90'	TLC-LED-900	6	6	0
				TOTALS				

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



Jesuit High School Football

Carmichael, CA

GRID SUMMARY	
Name:	Track Spill
Spacing:	30.0'
Height:	6.0' above grade

ILLUMINATION SUMMARY	
HORIZONTAL FOOTCANDLES	
Scan Average:	Entire Grid 0.000
Maximum:	0.001
Minimum:	0.000
No. of Points:	82
LUMINAIRE INFORMATION	
Applied Circuits:	A
No. of Luminaires:	54
Total Load:	49.46 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 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 driver and structures located within 3 feet (1m) of design locations.



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Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



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ILLUMINATION SUMMARY

EQUIPMENT LIST FOR AREAS SHOWN								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
1	F1	100'	0'	100'	TLC-LED-900	10	10	0
				100'	TLC-LED-400	2*	0	2
				75'	TLC-LED-600	2	0	2
				35'	TLC-BT-575	2	2	0
				100'	TLC-LED-1200	2	2	0
1	F2	100'	0'	100'	TLC-LED-900	10	10	0
				100'	TLC-LED-400	2*	0	2
				75'	TLC-LED-600	2	0	2
				35'	TLC-BT-575	2	2	0
				100'	TLC-LED-1200	3	2	1
1	F3	90'	0'	90'	TLC-LED-900	6	6	0
				70'	TLC-LED-400	1	0	1
				15'	TLC-BT-575	2	2	0
				90'	TLC-LED-1200	6	5	1
				90'	TLC-LED-900	5	5	0
1	F4	90'	0'	70'	TLC-LED-400	1	0	1
				15'	TLC-BT-575	2	2	0
				90'	TLC-LED-900	6	6	0
				TOTALS				

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



Jesuit High School Football

Carmichael, CA

GRID SUMMARY	
Name:	Track Spill
Spacing:	30.0'
Height:	6.0' above grade

ILLUMINATION SUMMARY	
MAX VERTICAL FOOTCANDLES	
Scan Average:	Entire Grid 0.001
Maximum:	0.004
Minimum:	0.000
No. of Points:	82
LUMINAIRE INFORMATION	
Applied Circuits:	A
No. of Luminaires:	54
Total Load:	49.46 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 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 driver and structures located within 3 feet (1m) of design locations.



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Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



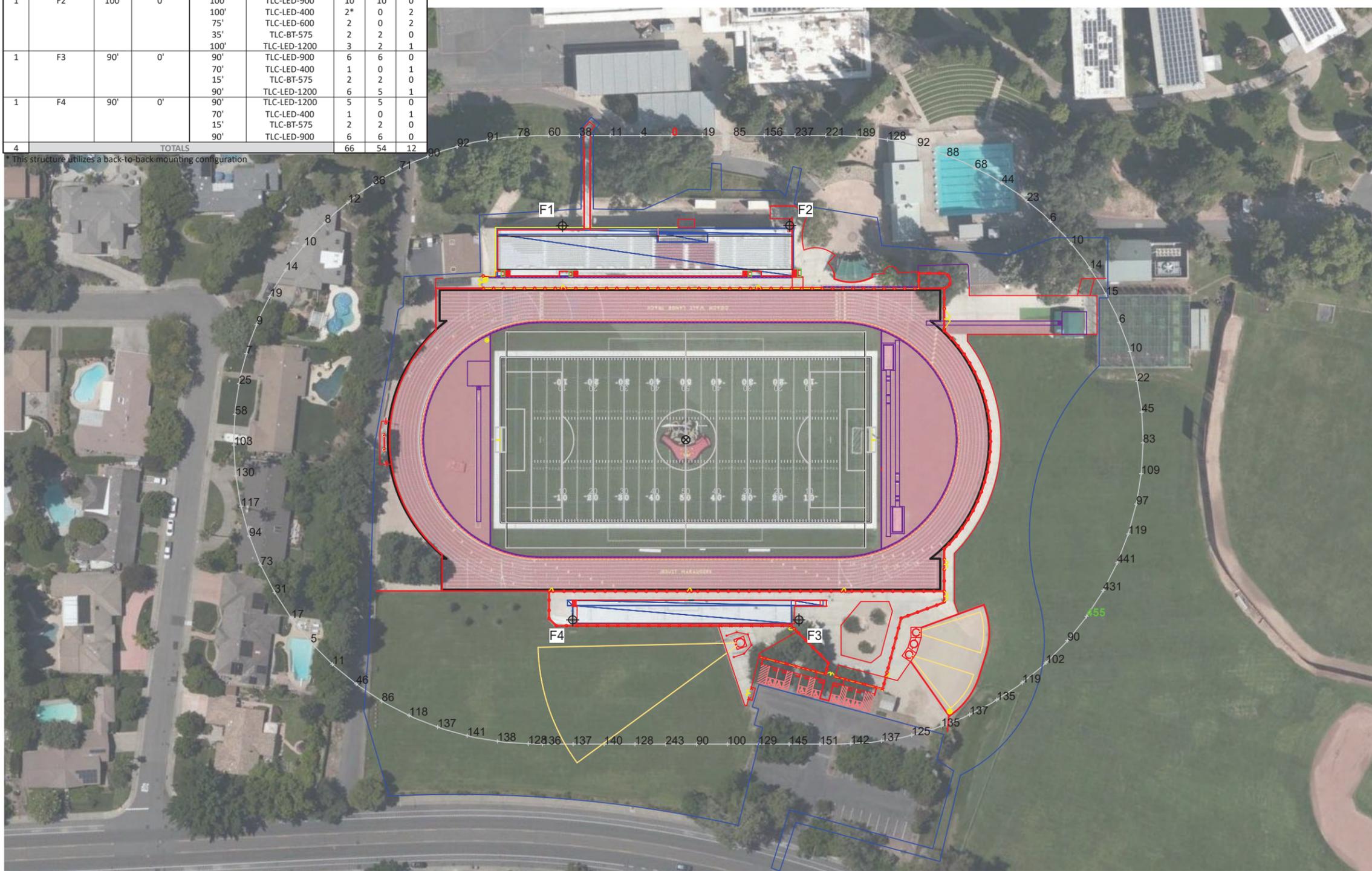
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ILLUMINATION SUMMARY

EQUIPMENT LIST FOR AREAS SHOWN									
Pole				Luminaires					
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS	
1	F1	100'	0'	100'	TLC-LED-900	10	10	0	
				100'	TLC-LED-400	2*	0	2	
				75'	TLC-LED-600	2	0	2	
				35'	TLC-BT-575	2	2	0	
				100'	TLC-LED-1200	2	2	0	
1	F2	100'	0'	100'	TLC-LED-900	10	10	0	
				100'	TLC-LED-400	2*	0	2	
				75'	TLC-LED-600	2	0	2	
				35'	TLC-BT-575	2	2	0	
				100'	TLC-LED-1200	3	2	1	
1	F3	90'	0'	90'	TLC-LED-900	6	6	0	
				70'	TLC-LED-400	1	0	1	
				15'	TLC-BT-575	2	2	0	
				90'	TLC-LED-1200	6	5	1	
				90'	TLC-LED-900	5	5	0	
1	F4	90'	0'	70'	TLC-LED-400	1	0	1	
				15'	TLC-BT-575	2	2	0	
				90'	TLC-LED-900	6	6	0	
				90'	TLC-LED-900	6	6	0	
4	TOTALS						66	54	12

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



Jesuit High School Football

Carmichael, CA

GRID SUMMARY	
Name:	Track Spill
Spacing:	30.0'
Height:	6.0' above grade

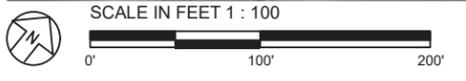
ILLUMINATION SUMMARY	
CANDELA (PER FIXTURE)	
Scan Average:	Entire Grid
Maximum:	95.639
Minimum:	455.369
No. of Points:	0.027
LUMINAIRE INFORMATION	
Applied Circuits:	A
No. of Luminaires:	54
Total Load:	49.46 kW

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 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 driver and structures located within 3 feet (1m) of design locations.



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Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



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ILLUMINATION SUMMARY

Jesuit High School Football

Carmichael, CA

GRID SUMMARY	
Name:	Property Spill - FB & Egress
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY	
HORIZONTAL FOOTCANDLES	
Scan Average:	Entire Grid 0.009
Maximum:	0.056
Minimum:	0.000
No. of Points:	53
LUMINAIRE INFORMATION	
Applied Circuits:	A, B
No. of Luminaires:	66
Total Load:	56.52 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 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 driver and structures located within 3 feet (1m) of design locations.



SCALE IN FEET 1 : 120
 0' 120' 240'
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Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



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ILLUMINATION SUMMARY

Jesuit High School Football

Carmichael, CA

GRID SUMMARY	
Name:	Property Spill - FB & Egress
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY	
MAX VERTICAL FOOTCANDLES	
Scan Average:	Entire Grid 0.021
Maximum:	0.131
Minimum:	0.000
No. of Points:	53
LUMINAIRE INFORMATION	
Applied Circuits:	A, B
No. of Luminaires:	66
Total Load:	56.52 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 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 driver and structures located within 3 feet (1m) of design locations.



SCALE IN FEET 1 : 120
 0' 120' 240'
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Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



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ILLUMINATION SUMMARY

Jesuit High School Football

Carmichael, CA

GRID SUMMARY	
Name:	Property Spill - FB & Egress
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY	
CANDELA (PER FIXTURE)	
Scan Average:	Entire Grid 774.526
Maximum:	5579.789
Minimum:	39.656
No. of Points:	53
LUMINAIRE INFORMATION	
Applied Circuits:	A, B
No. of Luminaires:	66
Total Load:	56.52 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 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 driver and structures located within 3 feet (1m) of design locations.



ENGINEERED DESIGN By: Bryce Miles · File #162585N · 09-Mar-23

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



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ILLUMINATION SUMMARY

Jesuit High School Football

Carmichael, CA

GRID SUMMARY	
Name:	Picadilly Cir. Spill
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY	
HORIZONTAL FOOTCANDLES	
Scan Average:	Entire Grid 0.000
Maximum:	0.000
Minimum:	0.000
No. of Points:	33
LUMINAIRE INFORMATION	
Applied Circuits:	A
No. of Luminaires:	54
Total Load:	49.46 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 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 driver and structures located within 3 feet (1m) of design locations.



SCALE IN FEET 1 : 200

ENGINEERED DESIGN By: Bryce Miles · File #162585N · 09-Mar-23

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



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ILLUMINATION SUMMARY

Jesuit High School Football

Carmichael, CA

GRID SUMMARY	
Name:	Picadilly Cir. Spill
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY	
MAX VERTICAL FOOTCANDLES	
Scan Average:	Entire Grid 0.000
Maximum:	0.000
Minimum:	0.000
No. of Points:	33
LUMINAIRE INFORMATION	
Applied Circuits:	A
No. of Luminaires:	54
Total Load:	49.46 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.

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SCALE IN FEET 1 : 200

ENGINEERED DESIGN By: Bryce Miles · File #162585N · 09-Mar-23

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



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ILLUMINATION SUMMARY

Jesuit High School Football

Carmichael, CA

GRID SUMMARY	
Name:	Picadilly Cir. Spill
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY	
CANDELA (PER FIXTURE)	
Scan Average:	Entire Grid 3.879
Maximum:	35.118
Minimum:	0.000
No. of Points:	33
LUMINAIRE INFORMATION	
Applied Circuits:	A
No. of Luminaires:	54
Total Load:	49.46 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 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 driver and structures located within 3 feet (1m) of design locations.



SCALE IN FEET 1 : 200
 0' 200' 400'
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Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



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ILLUMINATION SUMMARY

Jesuit High School Football

Carmichael, CA

GRID SUMMARY	
Name:	Gordon Lane Spill
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY	
HORIZONTAL FOOTCANDLES	
Scan Average:	Entire Grid 0.000
Maximum:	0.000
Minimum:	0.000
No. of Points:	87
LUMINAIRE INFORMATION	
Applied Circuits:	A
No. of Luminaires:	54
Total Load:	49.46 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 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 driver and structures located within 3 feet (1m) of design locations.



SCALE IN FEET 1 : 200

 ENGINEERED DESIGN By: Bryce Miles · File #162585N · 09-Mar-23

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



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ILLUMINATION SUMMARY

Jesuit High School Football

Carmichael, CA

GRID SUMMARY	
Name:	Gordon Lane Spill
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY	
MAX VERTICAL FOOTCANDLES	
Scan Average:	Entire Grid 0.000
Maximum:	0.000
Minimum:	0.000
No. of Points:	87
LUMINAIRE INFORMATION	
Applied Circuits:	A
No. of Luminaires:	54
Total Load:	49.46 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 Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

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SCALE IN FEET 1 : 200

ENGINEERED DESIGN By: Bryce Miles · File #162585N · 09-Mar-23

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



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ILLUMINATION SUMMARY

Jesuit High School Football

Carmichael, CA

GRID SUMMARY	
Name:	Gordon Lane Spill
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY	
CANDELA (PER FIXTURE)	
Scan Average:	Entire Grid
Maximum:	4.278
Minimum:	22.268
No. of Points:	0.000
	87
LUMINAIRE INFORMATION	
Applied Circuits:	A
No. of Luminaires:	54
Total Load:	49.46 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.

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Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

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ILLUMINATION SUMMARY

Jesuit High School Football

Carmichael, CA

GRID SUMMARY	
Name:	Jacob Lane Spill
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY	
HORIZONTAL FOOTCANDLES	
Scan Average:	Entire Grid 0.000
Maximum:	0.000
Minimum:	0.000
No. of Points:	69
LUMINAIRE INFORMATION	
Applied Circuits:	A
No. of Luminaires:	54
Total Load:	49.46 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 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 driver and structures located within 3 feet (1m) of design locations.



SCALE IN FEET 1 : 200

ENGINEERED DESIGN By: Bryce Miles · File #162585N · 09-Mar-23

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



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ILLUMINATION SUMMARY

Jesuit High School Football

Carmichael, CA

GRID SUMMARY	
Name:	Jacob Lane Spill
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY	
MAX VERTICAL FOOTCANDLES	
Scan Average:	Entire Grid 0.000
Maximum:	0.000
Minimum:	0.000
No. of Points:	69
LUMINAIRE INFORMATION	
Applied Circuits:	A
No. of Luminaires:	54
Total Load:	49.46 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 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 driver and structures located within 3 feet (1m) of design locations.



ENGINEERED DESIGN By: Bryce Miles · File #162585N · 09-Mar-23

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



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ILLUMINATION SUMMARY

Jesuit High School Football

Carmichael, CA

GRID SUMMARY	
Name:	Jacob Lane Spill
Spacing:	30.0'
Height:	3.0' above grade

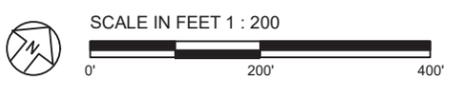
ILLUMINATION SUMMARY	
CANDELA (PER FIXTURE)	
Scan Average:	Entire Grid 2.100
Maximum:	43.557
Minimum:	0.000
No. of Points:	69
LUMINAIRE INFORMATION	
Applied Circuits:	A
No. of Luminaires:	54
Total Load:	49.46 kW

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 Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

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ILLUMINATION SUMMARY

Jesuit High School Football

Carmichael, CA

GRID SUMMARY	
Name:	Jacob Lane Property Backyard Spill
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY	
HORIZONTAL FOOTCANDLES	
Scan Average:	Entire Grid 0.000
Maximum:	0.000
Minimum:	0.000
No. of Points:	34
LUMINAIRE INFORMATION	
Applied Circuits:	A
No. of Luminaires:	54
Total Load:	49.46 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 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 driver and structures located within 3 feet (1m) of design locations.



SCALE IN FEET 1 : 200

ENGINEERED DESIGN By: Bryce Miles · File #162585N · 09-Mar-23

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



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ILLUMINATION SUMMARY

Jesuit High School Football

Carmichael, CA

GRID SUMMARY	
Name:	Jacob Lane Property Backyard Spill
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY	
MAX VERTICAL FOOTCANDLES	
Scan Average:	Entire Grid 0.000
Maximum:	0.000
Minimum:	0.000
No. of Points:	34
LUMINAIRE INFORMATION	
Applied Circuits:	A
No. of Luminaires:	54
Total Load:	49.46 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 Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

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SCALE IN FEET 1 : 200

 ENGINEERED DESIGN By: Bryce Miles · File #162585N · 09-Mar-23

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



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ILLUMINATION SUMMARY

Jesuit High School Football

Carmichael, CA

GRID SUMMARY	
Name:	Jacob Lane Property Backyard Spill
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY	
CANDELA (PER FIXTURE)	
Scan Average:	Entire Grid 2.436
Maximum:	21.502
Minimum:	0.000
No. of Points:	34
LUMINAIRE INFORMATION	
Applied Circuits:	A
No. of Luminaires:	54
Total Load:	49.46 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 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 driver and structures located within 3 feet (1m) of design locations.



SCALE IN FEET 1 : 200
 0' 200' 400'
 ENGINEERED DESIGN By: Bryce Miles · File #162585N · 09-Mar-23

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



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ILLUMINATION SUMMARY

Jesuit High School Football

Carmichael, CA

GRID SUMMARY	
Name:	Property Spill - FB Only
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY	
HORIZONTAL FOOTCANDLES	
Scan Average:	Entire Grid 0.009
Maximum:	0.056
Minimum:	0.000
No. of Points:	53
LUMINAIRE INFORMATION	
Applied Circuits:	A
No. of Luminaires:	54
Total Load:	49.46 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 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 driver and structures located within 3 feet (1m) of design locations.



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ILLUMINATION SUMMARY

Jesuit High School Football

Carmichael, CA

GRID SUMMARY	
Name:	Property Spill - FB Only
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY	
MAX VERTICAL FOOTCANDLES	
Scan Average:	Entire Grid 0.021
Maximum:	0.131
Minimum:	0.000
No. of Points:	53
LUMINAIRE INFORMATION	
Applied Circuits:	A
No. of Luminaires:	54
Total Load:	49.46 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 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 driver and structures located within 3 feet (1m) of design locations.



SCALE IN FEET 1 : 120
 0' 120' 240'
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Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



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ILLUMINATION SUMMARY

Jesuit High School Football

Carmichael, CA

GRID SUMMARY	
Name:	Property Spill - FB Only
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY	
CANDELA (PER FIXTURE)	
Scan Average:	Entire Grid
Maximum:	5567.221
Minimum:	39.589
No. of Points:	53
LUMINAIRE INFORMATION	
Applied Circuits:	A
No. of Luminaires:	54
Total Load:	49.46 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 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 driver and structures located within 3 feet (1m) of design locations.



SCALE IN FEET 1 : 120
 0' 120' 240'
ENGINEERED DESIGN By: Bryce Miles · File #162585N · 09-Mar-23

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



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ILLUMINATION SUMMARY

Jesuit High School Football

Carmichael, CA

EQUIPMENT LAYOUT

INCLUDES:

- Football
- Soccer
- Track

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 driver and structures located within 3 feet (1m) of design locations.

EQUIPMENT LIST FOR AREAS SHOWN

QTY	LOCATION	CLASS	GRADE ELEVATION	MOUNTING HEIGHT	Luminaires		QTY / POLE
					LUMINAIRE TYPE		
1	F1	LSS100C	-	100'	TLC-LED-900	10	
				100'	TLC-LED-400	2*	
				75'	TLC-LED-600	2	
				35'	TLC-BT-575	2	
				100'	TLC-LED-1200	2	
1	F2	LSS100C	-	100'	TLC-LED-900	10	
				100'	TLC-LED-400	2*	
				75'	TLC-LED-600	2	
				35'	TLC-BT-575	2	
				100'	TLC-LED-1200	3	
1	F3	LSS90B	-	90'	TLC-LED-900	6	
				70'	TLC-LED-400	1	
				15'	TLC-BT-575	2	
				90'	TLC-LED-1200	6	
1	F4	LSS90B	-	90'	TLC-LED-1200	5	
				70'	TLC-LED-400	1	
				15'	TLC-BT-575	2	
				90'	TLC-LED-900	6	
TOTALS							66

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

SINGLE LUMINAIRE AMPERAGE DRAW CHART

Driver (.90 min power factor)	Line Amperage Per Luminaire (max draw)						
	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)	480 (60)
TLC-LED-400	2.3	2.2	2.0	1.7	1.4	1.3	1.0
TLC-LED-1200	7.0	6.6	6.1	5.2	4.2	4.0	3.0
TLC-BT-575	3.4	3.2	2.9	2.5	2.0	1.8	1.5
TLC-LED-900	5.3	5.0	4.6	4.0	3.2	2.9	2.3
TLC-LED-600	3.4	3.2	3.0	2.6	2.0	1.9	1.5



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EQUIPMENT LAYOUT