# ATTACHMENT D

LIGHT ANALYSIS

# Roseville Soccer Complex Roseville,CA

#### **Lighting System**

Pole ID	Summary Pole Height	Mtg Height	Fixture Qty	Luminaire Type	Load	Circ	
S1	70'	70'	1	TLC-LED-1200	1,17 kW	A	
		70'	2	TLC-LED-1500	2.86 kW	A	
S2, S29	70'	70'	4	TLC-LED-1500	5.72 kW	A	
				TLC-LED-1200			
S3	70'	70' 70'	1 1	TLC-LED-1200	1.17 kW	В	
					1.17 kW	A	
		70'	2	TLC-LED-1500	2.86 kW	A	
		70'	2	TLC-LED-1500	2.86 kW	В	
S4, S27	70'	70'	4	TLC-LED-1500	5.72 kW	В	
S5	70'	70'	1	TLC-LED-1200	1.17 kW	С	
		70'	1	TLC-LED-1200	1.17 kW	В	
		70'	2	TLC-LED-1500	2.86 kW	В	
		70'	2	TLC-LED-1500	2.86 kW	С	
S6	70'	70'	4	TLC-LED-1500	5.72 kW	С	
S7	70'	70'	1	TLC-LED-1200	1.17 kW	D	
		70'	1	TLC-LED-1200	1.17 kW	С	
		70'	2	TLC-LED-1500	2.86 kW	C	
		70'	2	TLC-LED-1500	2.86 kW	D	
	701						
S8	70'	70'	4	TLC-LED-1500	5.72 kW	D	
S9	70'	70'	1	TLC-LED-1200	1.17 kW	Е	
		70'	1	TLC-LED-1200	1.17 kW	D	
		70'	2	TLC-LED-1500	2.86 kW	D	
		70'	2	TLC-LED-1500	2.86 kW	E	
S10	70'	70'	4	TLC-LED-1500	5.72 kW		
S11	70'	70'	1	TLC-LED-1200	1.17 kW	F	
		70'	1	TLC-LED-1200	1.17 kW	Е	
		70'	2	TLC-LED-1500	2.86 kW	Е	
		70'	2	TLC-LED-1500	2.86 kW	F	
S12, S19	70'	70'	4	TLC-LED-1500	5.72 kW	F	
S13	70'	70'	1	TLC-LED-1200	1.17 kW	G	
	10						
		70' 70'	2	TLC-LED-1200	1.17 kW	F F	
				TLC-LED-1500	2.86 kW		
		70'	2	TLC-LED-1500	2.86 kW	G	
S14, S17	70'	70'	4	TLC-LED-1500	5.72 kW	G	
S15	70'	70'	1	TLC-LED-1200	1.17 kW	G	
		70'	2	TLC-LED-1500	2.86 kW	G	
S16	70'	70'	3	TLC-LED-1500	4.29 kW	G	
S18	70'	70'	3	TLC-LED-1500	4.29 kW	G	
		70'	3	TLC-LED-1500	4.29 kW	F	
S20	70'	70'	3	TLC-LED-1500	4.29 kW	F	
		70'	3	TLC-LED-1500	4.29 kW	Е	
		70'	3	TLC-LED-1500	4.29 kW	J	
S21	70'	70'	4	TLC-LED-1500	5.72 kW	E	
<u></u>		70'	4	TLC-LED-1500	5.72 kW	J	
500	701						
S22	70'	70' 70'	3	TLC-LED-1500	4.29 kW	E	
			3	TLC-LED-1500	4.29 kW	D .	
		70'	3	TLC-LED-1500	4.29 kW	1	
		70'	3	TLC-LED-1500	4.29 kW	J	
S23	70'	70'	2	TLC-LED-1200	2.34 kW	I	
		70'	4	TLC-LED-1500	5.72 kW	D	
		70'	2	TLC-LED-1500	2.86 kW	1	
S24	70'	70'	3	TLC-LED-1500	4.29 kW	D	
		70'	3	TLC-LED-1500	4.29 kW	С	
		70'	3	TLC-LED-1500	4.29 kW	Н	
		70'	3	TLC-LED-1500	4.29 kW	1	

#### From Hometown to Professional











# Roseville Soccer Complex Roseville,CA

Pole ID	Pole Height	Mtg Height	Fixture Qty	Luminaire Type	Load	Circuit	
		70'	4	TLC-LED-1500	5.72 kW	Н	
S26	70'	70'	3	TLC-LED-1500	4.29 kW	С	
		70'	3	TLC-LED-1500	4.29 kW	В	
		70'	3	TLC-LED-1500	4.29 kW	Н	
S28	70'	70'	3	TLC-LED-1500	4.29 kW	В	
		70'	3	TLC-LED-1500	4.29 kW	Α	
S30	70'	70'	3	TLC-LED-1500	4.29 kW	Α	
S31	70'	70'	2	TLC-LED-1200	2.34 kW	Н	
		70'	2	TLC-LED-600	1.16 kW	Н	
S32	70'	70'	2	TLC-LED-1200	2.34 kW	Н	
		70'	2	TLC-LED-600	1.16 kW	Н	
		70'	4	TLC-LED-900	3.56 kW	Н	
S33	70'	70'	2	TLC-LED-1200	2.34 kW	I	
		70'	2	TLC-LED-1200	2.34 kW	Н	
		70'	2	TLC-LED-600	1.16 kW	Н	
		70'	2	TLC-LED-900	1.78 kW	1	
S34	70'	70'	2	TLC-LED-1200	2.34 kW	I	
		70'	6	TLC-LED-900	5.34 kW	I	
S35	70'	70'	2	TLC-LED-1200	2.34 kW	I	
		70'	2	TLC-LED-1500	2.86 kW	J	
		70'	2	TLC-LED-900	1.78 kW	I	
		70'	1	TLC-LED-900	0.89 kW	J	
S36	70'	70'	4	TLC-LED-1500	5.72 kW	J	
		70'	2	TLC-LED-900	1.78 kW	J	
S37	70'	70'	2	TLC-LED-1500	2.86 kW	J	
		70'	1	TLC-LED-900	0.89 kW	J	

#### From Hometown to Professional











# Roseville Soccer Complex Roseville,CA

Circuit Summ	ary		
Circuit	Description	Load	Fixture Qty
A	Soccer 1	28.08 kW	20
В	Soccer 2	28.08 kW	20
С	Soccer 3	28.08 kW	20
D	Soccer 4	28.08 kW	20
E	Soccer 5	28.08 kW	20
F	Soccer 6	28.08 kW	20
G	Soccer 7	28.08 kW	20
Н	Soccer 8	28.36 kW	26
I	Soccer 9	29.7 kW	26
J	Soccer 10	29.3 kW	22

	Fixture Type Summary							
	Туре	Source	Wattage	Lumens	L90	L80	L70	Quantity
ı	TLC-LED-1500	LED 5700K - 75 CRI	1430W	160,000	>120,000	>120,000	>120,000	162
ı	TLC-LED-1200	LED 5700K - 75 CRI	1170W	136,000	>120,000	>120,000	>120,000	28
ı	TLC-LED-600	LED 5700K - 75 CRI	580W	65,600	>120,000	>120,000	>120,000	6
ı	TLC-LED-900	LED 5700K - 75 CRI	890W	89,600	>120,000	>120,000	>120,000	18

#### **Light Level Summary**

Grid Name	Calculation Metric			Illumination			Circuits	Fixture Q
Grid Name	Calculation Metric	Ave	Min	Max	Max/Min	Ave/Min	Circuits	FIXIUIE Q
150ft IDA Spill	Horizontal	0.02	0	0.08	0.00		A,B,C,D,E, F,G,H,I,J	214
150ft IDA Spill	Max Candela (by Fixture)	1557	0	16894	0.00		A,B,C,D,E, F,G,H,I,J	214
150ft IDA Spill	Max Vertical Illuminance Metric	0.04	0	0.21	0.00		A,B,C,D,E, F,G,H,I,J	214
East Road Spill - Across Road	Horizontal	0.01	0	0.02	44.08		A,B,C,D,E, F,G,H,I,J	214
East Road Spill - Across Road	Max Candela (by Fixture)	1198	156	2935	18.87	7.70	A,B,C,D,E, F,G,H,I,J	214
East Road Spill - Across Road	Max Vertical Illuminance Metric	0.03	0	0.07	32.02		A,B,C,D,E, F,G,H,I,J	214
East Road Spill	Horizontal	0.12	0	0.27	133.53		A,B,C,D,E, F,G,H,I,J	214
East Road Spill	Max Candela (by Fixture)	5167	441	10199	23.14	11.72	A,B,C,D,E, F,G,H,I,J	214
East Road Spill	Max Vertical Illuminance Metric	0.23	0.01	0.51	67.81	22.60	A,B,C,D,E, F,G,H,I,J	214
Soccer 10	Horizontal Illuminance	31.1	27	35	1.33	1.15	A,J	42
Soccer 1	Horizontal Illuminance	31.7	26	36	1.39	1.22	Α	20
Soccer 2	Horizontal Illuminance	32.1	25	37	1.49	1.28	В	20
Soccer 3	Horizontal Illuminance	31.9	24	39	1.66	1.33	С	20
Soccer 4	Horizontal Illuminance	32.4	25	38	1.51	1.30	D	20
Soccer 5	Horizontal Illuminance	32.1	26	36	1.41	1.24	E	20
Soccer 6	Horizontal Illuminance	31.8	25	37	1.46	1.27	F	20
Soccer 7	Horizontal Illuminance	31.8	26	37	1.42	1.22	B,G	40
Soccer 8	Horizontal Illuminance	30.9	26	36	1.42	1.19	A,H	46
Soccer 9	Horizontal Illuminance	31.5	25	38	1.50	1.26	C,I	46
West Road Spill - Across Road	Horizontal	0	0	0	0.00		A,B,C,D,E, F,G,H,I,J	214
Nest Road Spill - Across Road	Max Candela (by Fixture)	7.37	0	165	0.00		A,B,C,D,E, F,G,H,I,J	214
Nest Road Spill - Across Road	Max Vertical Illuminance Metric	0	0	0	0.00		A,B,C,D,E, F,G,H,I,J	214
West Road Spill Horizontal		0.11	0	1.09	0.00		A,B,C,D,E, F,G,H,I,J	214
West Road Spill	Max Candela (by Fixture)	1106	0	5712	0.00		A,B,C,D,E, F,G,H,I,J	214
IGINETER DESIGN By:	BrycevMilesticailna.#i21534ஆம்c 05-M	lay-224	0	1.36	0.00		A,B,C,D,E, F,G,H,I,J	214

#### From Hometown to Professional











#### **EQUIPMENT LIST FOR AREAS SHOWN** LOCATION SIZE 70' TLC-LED-1500 S2, S29 S3 70' TLC-LED-1500 TLC-LED-1200 70' 70' TLC-LED-1500 TLC-LED-1500 TLC-LED-1500 70' S30 \_33 30 33 33 33 33 30 35 \_\_\_35\_ 35 34 35 35 33 31 33 32 32 33 31 31 33 29 28 30 29 29 29 29 \_30< 28 29 29 28 31 29 32 35 30 31 \_\_\_32 32 32 33 \_33 30 32 34 34 34 34 35 35 35 33 30 S30 192' S28 S29 193' SCALE IN FEET 1:60 to 0,0 reference point(s) $\otimes$

**ENGINEERED DESIGN** By: Bryce Miles · File #215342C · 05-May-22

## Roseville Soccer Complex

Roseville,CA

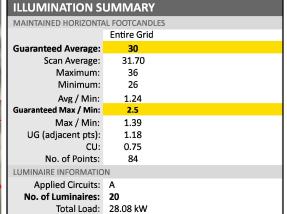
 GRID SUMMARY

 Name:
 Soccer 1

 Size:
 360' x 210'

 Spacing:
 30.0' x 30.0'

 Height:
 3.0' above grade



**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.

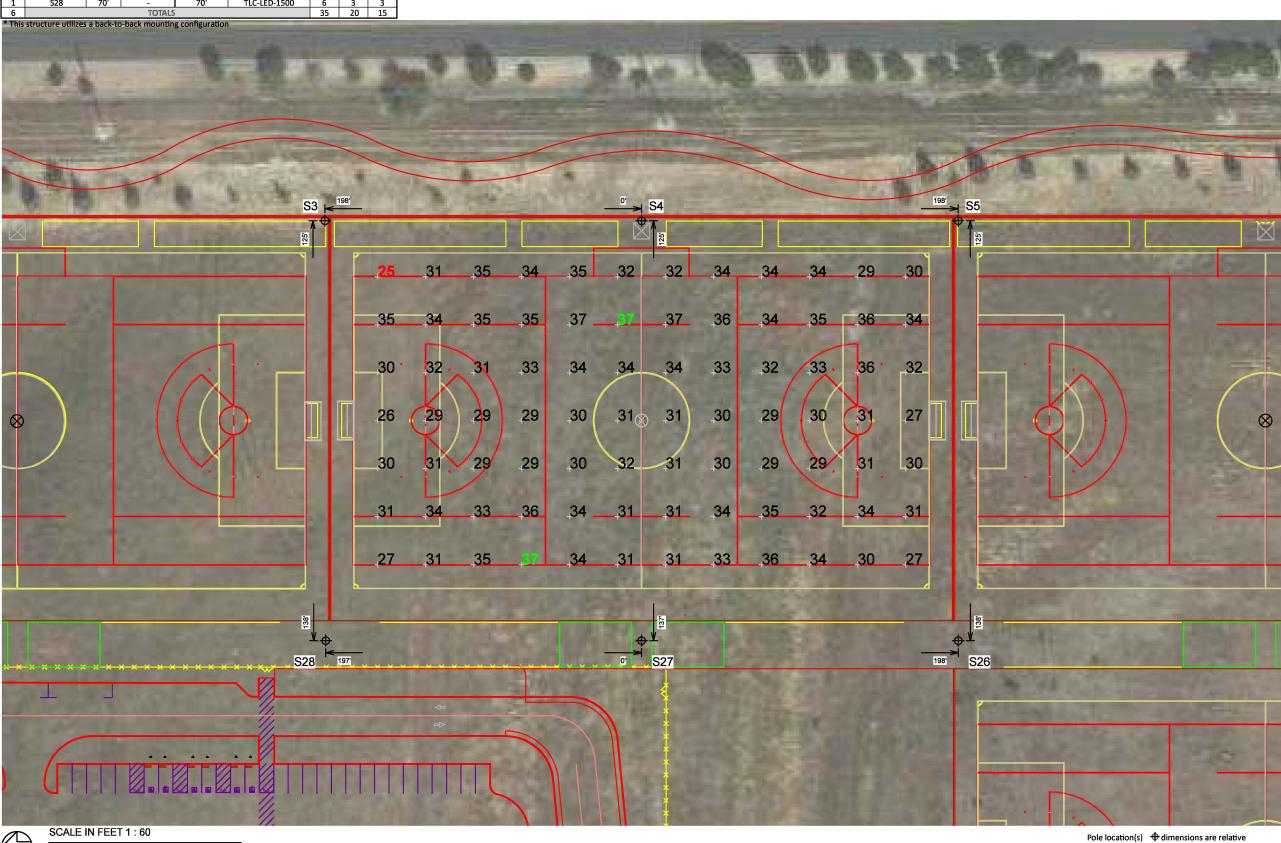
**Electrical System Requirements:** Refer to Amperage Draw Chart and/or the "**Musco Control System Summary**" for electrical sizing.

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



#### **EQUIPMENT LIST FOR AREAS SHOWN** TLC-LED-1500 TLC-LED-1500 4 4 0 TLC-LED-1500 6/3\* 3 6 S4, S27 S26 70' 70' 70' TLC-LED-1500 S28

**ENGINEERED DESIGN** By: Bryce Miles · File #215342C · 05-May-22



## **Roseville Soccer Complex**

Roseville,CA

**GRID SUMMARY** Name: Soccer 2 Size: 360' x 210' Spacing: 30.0' x 30.0' Height: 3.0' above grade

**ILLUMINATION SUMMARY** MAINTAINED HORIZONTAL FOOTCANDLES **Entire Grid Guaranteed Average:** Scan Average: 32.11 Maximum: 37 25 Minimum: Avg / Min: 1.29 Guaranteed Max / Min: Max / Min: 1.49 1.40 UG (adjacent pts): CU: No. of Points: UMINAIRE INFORMATION Applied Circuits: B No. of Luminaires: 20 Total Load: 28.08 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.



to 0,0 reference point(s)  $\otimes$ 

#### **EQUIPMENT LIST FOR AREAS SHOWN** LOCATION SIZE 70' TLC-LED-1500 TLC-LED-1500 4 4 0 TLC-LED-1500 6/6\* 3 9 TLC-LED-1500 4/4\* 4 4 TLC-LED-1500 6/3\* 3 6 70' S24 70' 70' 70' This structure utilizes a back-to-back mounting cor 30 32 30 29 31 30 30 31 29 30 32 30 35 36 35 36 35 34 33 28 31 35 34 35 31 30 . 30 32 25 26 28 32 30 26 25 29 28 32 28 29 \_35 37 \_\_\_35 \_\_35 \_\_37 34 35 <u>35 34 33 33 35</u> 39 35 33 33 34 35 S26 S25 193' S24 SCALE IN FEET 1:60 to 0,0 reference point(s) $\otimes$

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# **Roseville Soccer Complex**

Roseville,CA

**GRID SUMMARY** Name: Soccer 3 Size: 360' x 210' Spacing: 30.0' x 30.0' Height: 3.0' above grade

**ILLUMINATION SUMMARY** MAINTAINED HORIZONTAL FOOTCANDLES **Entire Grid Guaranteed Average:** Scan Average: 31.92 Maximum: 39 24 Minimum: Avg / Min: 1.35 Guaranteed Max / Min: 2.5 Max / Min: 1.66 1.32 UG (adjacent pts): CU: No. of Points: UMINAIRE INFORMATION Applied Circuits: C No. of Luminaires: 20 Total Load: 28.08 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.



#### **EQUIPMENT LIST FOR AREAS SHOWN** LOCATION SIZE 70' TLC-LED-1500 70' 70' TLC-LED-1500 TLC-LED-1500 70' 6/6\* 3 9 2\* 0 2 4/2\* 4 2 S22, S24 70' S23 TLC-LED-1200 70' 70' 70' TLC-LED-1500 48 20 28 This structure utilizes a back-to-back mounting configuration

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#### 35 37 38 35 33 31 34 30 36 32 32 36 31 30 27 25 28 30 32 32 33 32 30 28 33 33 31 32 35 36 35 36 30 30 32 36 32 30 30 S24 198' S22 SCALE IN FEET 1:60 Pole location(s) $\bigoplus$ dimensions are relative

### **Roseville Soccer Complex**

Roseville,CA

GRID SUMMARY Name: Soccer 4 Size: 360' x 210' Spacing: 30.0' x 30.0' Height: 3.0' above grade

**ILLUMINATION SUMMARY** MAINTAINED HORIZONTAL FOOTCANDLES **Entire Grid** Guaranteed Average: Scan Average: 32.40 Maximum: 38 25 Minimum: Avg / Min: 1.29 Guaranteed Max / Min: 2.5 Max / Min: 1.51 UG (adjacent pts): 1.18 CU: 0.78 No. of Points: 84 UMINAIRE INFORMATION Applied Circuits: D No. of Luminaires: 20 Total Load: 28.08 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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to 0,0 reference point(s)  $\otimes$ 

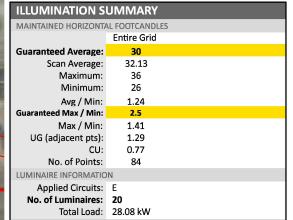
**ILLUMINATION SUMMARY** 

# | Company | Comp

# Roseville Soccer Complex

Roseville,CA

Rame: Soccer 5
Size: 360' x 210'
Spacing: 30.0' x 30.0'
Height: 3.0' above grade



**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)  $\bigoplus$  dimensions are relative to 0,0 reference point(s)  $\bigotimes$ 



#### 

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#### \* This structure utilizes a back-to-back mounting configuration 198' S13 S11 198' o S12 30 33 35 36 33 33 36 35 33 33 31 33 28 32 29 28 29 32 31 30 30 30 30 29 30 30 26 31 32 32 32 31 29 32 35 31 \_32\_ <u>31 34 34 32 31 34 31 32 34</u> S20 S19 198' S18 SCALE IN FEET 1:60 Pole location(s) $\bigoplus$ dimensions are relative

## Roseville Soccer Complex

Roseville,CA

Rame: Soccer 6
Size: 360' x 210'
Spacing: 30.0' x 30.0'
Height: 3.0' above grade

#### **ILLUMINATION SUMMARY** MAINTAINED HORIZONTAL FOOTCANDLES **Entire Grid Guaranteed Average:** 31.83 Scan Average: Maximum: 37 25 Minimum: Avg / Min: 1.25 Guaranteed Max / Min: Max / Min: 1.46 1.21 UG (adjacent pts): CU: No. of Points: UMINAIRE INFORMATION Applied Circuits: F No. of Luminaires: 20 Total Load: 28.08 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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to 0,0 reference point(s)  $\otimes$ 

#### **EQUIPMENT LIST FOR AREAS SHOWN** LOCATION SIZE S3, S5, S13 70' TLC-LED-1500 TLC-LED-1200 70' 70' TLC-LED-1500 \$16 \$17, \$27 TLC-LED-1500 TLC-LED-1500 70' 70' S4, S14 S18 TLC-LED-1500 TLC-LED-1500 6/3\* 3 6 70' 70' TLC-LED-1500 \* This structure utilizes a back-to-back mounting configuration S13 S14 S15 192' 192' 36 33 28 29 29 29 34 31 36 34 35 33 33 32 32 31 32 33 31 31 33 31 30 32 28 27 28 29 30 30 30 30 30 29 33 33 32 29 28 36 35 35 36 \_\_\_34 \_33\_ 35 \_\_32 33 36 36 32 31 31 30 29 S18 192' S17 192' S16 SCALE IN FEET 1:60 to 0,0 reference point(s) $\otimes$

**ENGINEERED DESIGN** By: Bryce Miles · File #215342C · 05-May-22

**Roseville Soccer Complex** 

Roseville,CA

**GRID SUMMARY** Name: Soccer 7 Size: 360' x 210' Spacing: 30.0' x 30.0' Height: 3.0' above grade

**ILLUMINATION SUMMARY** MAINTAINED HORIZONTAL FOOTCANDLES **Entire Grid Guaranteed Average:** Scan Average: 31.79 Maximum: 37 Minimum: 26 Avg / Min: 1.22 Guaranteed Max / Min: 2.5 Max / Min: 1.42 UG (adjacent pts): 1.21 CU: 0.38 No. of Points: LUMINAIRE INFORMATION Applied Circuits: B, G No. of Luminaires: 40 Total Load: 56.16 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.

