

Livonia Stevenson HS Football Relight

Livonia, MI

Lighting System

Pole/Fixture Summary						
Pole ID	Pole Height	Mtg Height	Fixture Qty	Luminaire Type	Load	Circuit
F1-F2	90'	90'	9	TLC-LED-1500	12.69 kW	A
		16'	1	TLC-RGB-U	0.43 kW	A
		16'	2	TLC-BT-575	1.15 kW	A
F3-F4	90'	90'	9	TLC-LED-1500	12.69 kW	A
		30'	1	TLC-RGB-U	0.43 kW	A
		30'	2	TLC-BT-575	1.15 kW	A
4			48		57.08 kW	

Circuit Summary			
Circuit	Description	Load	Fixture Qty
A	Football	57.08 kW	48

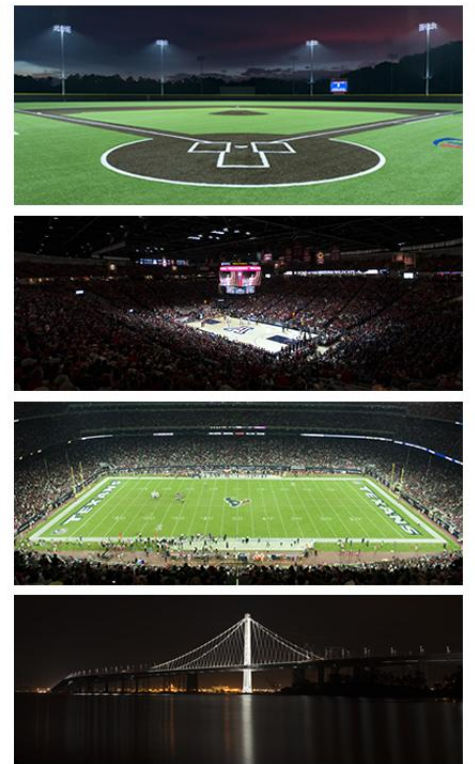
Fixture Type Summary							
Type	Source	Wattage	Lumens	L90	L80	L70	Quantity
TLC-BT-575	LED 5700K - 75 CRI	575W	52,000	>120,000	>120,000	>120,000	8
TLC-LED-1500	LED 5700K - 75 CRI	1410W	181,000	>120,000	>120,000	>120,000	36
TLC-RGB-U	RED-GREEN (Shown)-BLUE	430W	16,000	21,300	>36,300	>36,300	4

Single Luminaire Amperage Draw Chart							
Driver Specifications (.90 min power factor)	Line Amperage Per Luminaire (max draw)						
	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)	480 (60)
Single Phase Voltage	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)	480 (60)
TLC-BT-575	3.3	3.2	2.9	2.5	2.0	1.8	1.5
TLC-LED-1500	8.4	7.9	7.3	6.3	5.0	4.6	3.6
TLC-RGB-U	3.0	2.8	2.6	2.2	1.8	1.3	1.3

Light Level Summary

Calculation Grid Summary								
Grid Name	Calculation Metric	Illumination					Circuits	Fixture Qty
		Ave	Min	Max	Max/Min	Ave/Min		
Away Bleachers	Perpendicular	12.66	7	19	2.59	1.75	A	48
Football	Horizontal Illuminance	51.58	44	59	1.34	1.18	A	48
Home Bleachers	Perpendicular	14.05	3	28	11.10	5.57	A	48
Max Spill	Horizontal Illuminance	0.0280	0.00	0.06	16.205	7.944	A	48
Max Spill	Max Candela Metric	3901.0559	768.82	8873.89	11.542	5.074	A	48
Max Spill	Max Vertical Illuminance Metric	0.0859	0.01	0.16	13.253	7.042	A	48
Track	Horizontal Illuminance	28.86	6	56	9.92	5.11	A	48
Vert & Horz Spill	Horizontal Illuminance	0.0332	0.01	0.06	11.340	5.955	A	48
Vert & Horz Spill	Max Candela Metric	4805.7871	904.44	10594.85	11.714	5.314	A	48
Vert & Horz Spill	Max Vertical Illuminance Metric	0.1018	0.02	0.18	9.685	5.544	A	48

From Hometown to Professional



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Equipment List For Areas Shown

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
2	F1-F2	90'	-	90'	TLC-LED-1500	9	9	0
				15.5'	TLC-BT-575	2	2	0
				15.5'	TLC-RGB-U	1	1	0
2	F3-F4	90'	-	90'	TLC-LED-1500	9	9	0
				30'	TLC-BT-575	2	2	0
				30'	TLC-RGB-U	1	1	0
4	Totals					48	48	0

*Above Grade level relative to the field



Livonia Stevenson HS Football Relight

Livonia, MI

Grid Summary	
Name	Football
Size	360' x 160'
Spacing	30.0' x 30.0'
Height	3.0' above grade

Illumination Summary	
MAINTAINED HORIZONTAL FOOTCANDLES	
Scan Average	51.58
Maximum	59
Minimum	44
Avg/Min	1.18
Max/Min	1.34
UG (adjacent pts)	1.25
CU	0.47
No. of Points	72
LUMINAIRE INFORMATION	
Applied Circuits	A
No. of Luminaires	48
Total Load	57.08 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.

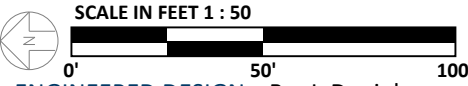
Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

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

ILLUMINATION SUMMARY

Equipment List For Areas Shown								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
2	F1-F2	90'	-	90'	TLC-LED-1500	9	9	0
				15.5'	TLC-BT-575	2	2	0
				15.5'	TLC-RGB-U	1	1	0
2	F3-F4	90'	-	90'	TLC-LED-1500	9	9	0
				30'	TLC-BT-575	2	2	0
				30'	TLC-RGB-U	1	1	0
4	Totals					48	48	0

*Above Grade level relative to the field



Livonia Stevenson HS Football Relight

Livonia, MI

Grid Summary	
Name Track	
Size	Irregular
Spacing	30.0' x 30.0'
Height	3.0' above grade

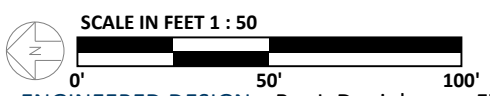
Illumination Summary	
MAINTAINED HORIZONTAL FOOTCANDLES	
Scan Average	28.86
Maximum	56
Minimum	6
Avg/Min	5.11
Max/Min	9.92
UG (adjacent pts)	0.00
CU	0.16
No. of Points	44
LUMINAIRE INFORMATION	
Applied Circuits	A
No. of Luminaires	48
Total Load	57.08 kW

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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	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
2	F1-F2	90'	-	90'	TLC-LED-1500	9	9	0
				15.5'	TLC-BT-575	2	2	0
				15.5'	TLC-RGB-U	1	1	0
2	F3-F4	90'	-	90'	TLC-LED-1500	9	9	0
				30'	TLC-BT-575	2	2	0
				30'	TLC-RGB-U	1	1	0
4	Totals					48	48	0

*Above Grade level relative to the field

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Grid Summary	
Name	Home Bleachers
Spacing	10.0' x 10.0'

Illumination Summary	
MAINTAINED VERTICAL FOOTCANDLES- 64" TALL	
Entire Grid	
Scan Average	14.05
Maximum	28
Minimum	3
Avg/Min	5.57
Max/Min	11.10
UG (adjacent pts)	2.21
CU	0.02
No. of Points	95
LUMINAIRE INFORMATION	
Applied Circuits	A
No. of Luminaires	48
Total Load	57.08 kW

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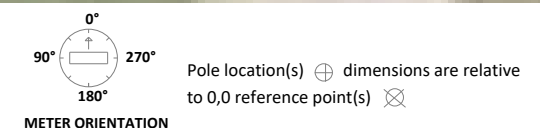
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SCALE IN FEET 1 : 20
 0' 20' 40'
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ILLUMINATION SUMMARY

Equipment List For Areas Shown								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
2	F1-F2	90'	-	90'	TLC-LED-1500	9	9	0
				15.5'	TLC-BT-575	2	2	0
				15.5'	TLC-RGB-U	1	1	0
2	F3-F4	90'	-	90'	TLC-LED-1500	9	9	0
				30'	TLC-BT-575	2	2	0
				30'	TLC-RGB-U	1	1	0
4	Totals					48	48	0

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Livonia Stevenson HS Football Relight

Livonia, MI

Grid Summary	
Name	Away Bleachers
Spacing	10.0' x 10.0'

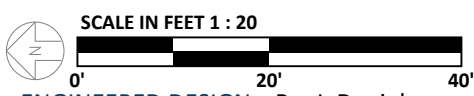
Illumination Summary	
MAINTAINED VERTICAL FOOTCANDLES: -72" TIRL	
Entire Grid	
Scan Average	12.66
Maximum	19
Minimum	7
Avg/Min	1.75
Max/Min	2.59
UG (adjacent pts)	1.38
CU	0.01
No. of Points	38
LUMINAIRE INFORMATION	
Applied Circuits	A
No. of Luminaires	48
Total Load	57.08 kW

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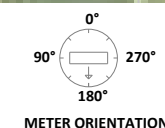
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Grid Summary	
Name	Max Spill
Spacing	30.0' x 30.0'
Height	5.0' above grade

Illumination Summary	
MAINTAINED CANDELA (PER FIXTURE)	
Entire Grid	3901.0559
Scan Average	3901.0559
Maximum	8873.89
Minimum	768.82
CU	0.00
No. of Points	81
LUMINAIRE INFORMATION	
Applied Circuits	A
No. of Luminaires	48
Total Load	57.08 kW

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SCALE IN FEET 1 : 100
 0' 100' 200'
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ILLUMINATION SUMMARY

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Grid Summary	
Name	Vert & Horz Spill
Spacing	30.0' x 30.0'
Height	3.0' above grade

Illumination Summary	
	MAINTAINED HORIZONTAL FOOTCANDLES
	Entire Grid
Scan Average	0.0332
Maximum	0.06
Minimum	0.01
CU	0.00
No. of Points	81
LUMINAIRE INFORMATION	
Applied Circuits	A
No. of Luminaires	48
Total Load	57.08 kW

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SCALE IN FEET 1 : 100
 0' 100' 200'
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ILLUMINATION SUMMARY

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Livonia, MI

Grid Summary	
Name	Vert & Horz Spill
Spacing	30.0' x 30.0'
Height	3.0' above grade

Illumination Summary	
MAINTAINED MAX VERTICAL FOOTCANDLES	
Entire Grid	0.1018
Scan Average	0.1018
Maximum	0.18
Minimum	0.02
CU	0.00
No. of Points	81
LUMINAIRE INFORMATION	
Applied Circuits	A
No. of Luminaires	48
Total Load	57.08 kW

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ILLUMINATION SUMMARY

Livonia Stevenson HS Football Relight

Livonia, MI

Equipment Layout

INCLUDES:
 · Football
 · Track

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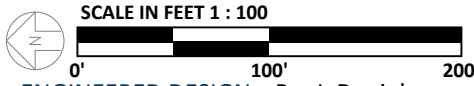
Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

Equipment List For Areas Shown

QTY	LOCATION	Pole		Luminaires		
		SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE
2	F1-F2	90'	-	90'	TLC-LED-1500	9
				15.5'	TLC-BT-575	2
2	F3-F4	90'	-	90'	TLC-LED-1500	9
				30'	TLC-BT-575	2
4	Totals			30'	TLC-RGB-U	1
				48		

Single Luminaire Amperage Draw Chart

Driver Specifications (.90 min power factor)	Line Amperage Per Luminaire (max draw)						
	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)	480 (60)
Single Phase Voltage	3.3	3.2	2.9	2.5	2.0	1.8	1.5
TLC-BT-575	8.4	7.9	7.3	6.3	5.0	4.6	3.6
TLC-LED-1500	3.0	2.8	2.6	2.2	1.8	1.3	1.3



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EQUIPMENT LAYOUT