

MATTAKESETT ST



DC-8

## Pembroke

RAYMOND AVE

500J-243

MRT

MR

14

1  
29  
NT

28  
NT

1



Pembroke Youth Baseball

Pembroke, MA

Lighting System

Pole / Fixture Summary						
Pole ID	Pole Height	Mtg Height	Fixture Qty	Luminaire Type	Load	Circuit
A1-A2	70'	70'	4	TLC-LED-1200	4.68 kW	A
		16'	1	TLC-BT-575	0.58 kW	A
B1-B2	80'	80'	6	TLC-LED-1500	8.58 kW	A
		16'	1	TLC-BT-575	0.58 kW	A
C1-C2	70'	70'	5	TLC-LED-1500	7.15 kW	A
		16'	1	TLC-BT-575	0.58 kW	A
6			36		44.27 kW	

Circuit Summary			
Circuit	Description	Load	Fixture Qty
A	Baseball	44.27 kW	36

Fixture Type Summary							
Type	Source	Wattage	Lumens	L90	L80	L70	Quantity
TLC-LED-1500	LED 5700K - 75 CRI	1430W	160,000	>120,000	>120,000	>120,000	22
TLC-LED-1200	LED 5700K - 75 CRI	1170W	136,000	>120,000	>120,000	>120,000	8
TLC-BT-575	LED 5700K - 75 CRI	575W	52,000	>120,000	>120,000	>120,000	6

Light Level Summary

Calculation Grid Summary								
Grid Name	Calculation Metric	Illumination					Circuits	Fixture Qty
		Ave	Min	Max	Max/Min	Ave/Min		
Baseball Spill (Cd)	Max Candela (by Fixture)	6831	1201	12906	10.75	5.69	A	36
Baseball Spill	Horizontal Illuminance	0.06	0.02	0.10	5.03	3.04	A	36
Baseball Spill	Max Vertical Illuminance Metric	0.19	0.06	0.29	4.83	3.19	A	36
Baseball (Infield)	Horizontal Illuminance	50.3	38	61	1.62	1.32	A	36
Baseball (Outfield)	Horizontal Illuminance	32.4	21	44	2.09	1.54	A	36

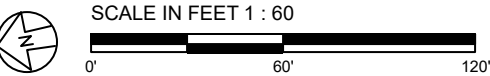
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EQUIPMENT LIST FOR AREAS SHOWN							
Pole				Luminaires			
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID
2	A1-A2	70'	-	15.5'	TLC-BT-575	1	1
				70'	TLC-LED-1200	4	4
2	B1-B2	80'	-	15.5'	TLC-BT-575	1	1
				80'	TLC-LED-1500	6	6
2	C1-C2	70'	-	15.5'	TLC-BT-575	1	1
				70'	TLC-LED-1500	5	5
6	TOTALS					36	36



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

Pembroke Youth Baseball

Pembroke, MA

GRID SUMMARY	
Name:	Baseball
Size:	Irregular 315' / 350' / 315'
Spacing:	30.0' x 30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY		
MAINTAINED HORIZONTAL FOOTCANDLES		
	Infield	Outfield
Guaranteed Average:	50	30
Scan Average:	50.29	32.36
Maximum:	61	44
Minimum:	38	21
Avg / Min:	1.32	1.54
Guaranteed Max / Min:	2	2.5
Max / Min:	1.62	2.09
UG (adjacent pts):	1.24	1.57
CU:	0.79	
No. of Points:	25	92
LUMINAIRE INFORMATION		
Applied Circuits:	A	
No. of Luminaires:	36	
Total Load:	44.27 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
2	A1-A2	70'	-	15.5'	TLC-BT-575	1	1
				70'	TLC-LED-1200	4	4
2	B1-B2	80'	-	15.5'	TLC-BT-575	1	1
				80'	TLC-LED-1500	6	6
2	C1-C2	70'	-	15.5'	TLC-BT-575	1	1
				70'	TLC-LED-1500	5	5
6	TOTALS					36	36





SCALE IN FEET 1 : 100



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

# Pembroke Youth Baseball

Pembroke, MA

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

ILLUMINATION SUMMARY	
HORIZONTAL FOOTCANDLES	
Scan Average:	Entire Grid 0.0607
Maximum:	0.10
Minimum:	0.02
No. of Points:	71
LUMINAIRE INFORMATION	
Applied Circuits:	A
No. of Luminaires:	36
Total Load:	44.27 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



EQUIPMENT LIST FOR AREAS SHOWN							
Pole				Luminaires			
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID
2	A1-A2	70'	-	15.5'	TLC-BT-575	1	1
				70'	TLC-LED-1200	4	4
2	B1-B2	80'	-	15.5'	TLC-BT-575	1	1
				80'	TLC-LED-1500	6	6
2	C1-C2	70'	-	15.5'	TLC-BT-575	1	1
				70'	TLC-LED-1500	5	5
6	TOTALS					36	36





SCALE IN FEET 1 : 100



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

## Pembroke Youth Baseball

Pembroke, MA

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

ILLUMINATION SUMMARY	
MAX VERTICAL FOOTCANDLES	
Scan Average:	Entire Grid 0.1915
Maximum:	0.29
Minimum:	0.06
No. of Points:	71
LUMINAIRE INFORMATION	
Applied Circuits:	A
No. of Luminaires:	36
Total Load:	44.27 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  $\pm 3\%$  nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



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### ILLUMINATION SUMMARY

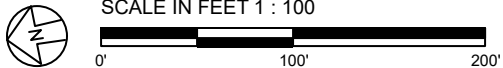


## EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	A1-A2	70'	-	15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1200	4	4	0
2	B1-B2	80'	-	15.5'	TLC-BT-575	1	1	0
				80'	TLC-LED-1500	6	6	0
2	C1-C2	70'	-	15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1500	5	5	0
6	TOTALS					36	36	0



SCALE IN FEET 1 : 100



Pole location(s)  $\oplus$  dimensions are relative  
to 0,0 reference point(s)  $\otimes$

## Pembroke Youth Baseball

**Pembroke, MA**

## GRID SUMMARY

<b>Name:</b>	<b>Baseball Spill (Cd)</b>
Spacing:	30.0'
Height:	5.0' above grade

## ILLUMINATION SUMMARY

CANDELA (PER FIXTURE)	
Scan Average:	Entire Grid 6831.0093
Maximum:	12905.68
Minimum:	1200.81
No. of Points:	71

## LUMINAIRE INFORMATION

Applied Circuits:	A
No. of Luminaires:	36
Total Load:	44.27 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  $\pm 3\%$  nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



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## ILLUMINATION SUMMARY





Pembroke Youth Baseball

Pembroke, MA

EQUIPMENT LAYOUT

INCLUDES:

· Baseball

**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

Pole				Luminaires		
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE
2	A1-A2	70'	-	15.5' 70'	TLC-BT-575 TLC-LED-1200	1 4
2	B1-B2	80'	-	15.5' 80'	TLC-BT-575 TLC-LED-1500	1 6
2	C1-C2	70'	-	15.5' 70'	TLC-BT-575 TLC-LED-1500	1 5
6	TOTALS					36

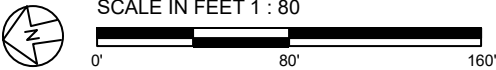
SINGLE LUMINAIRE AMPERAGE DRAW CHART

Ballast Specifications (.90 min power factor)	Line Amperage Per Luminaire (max draw)					
Single Phase Voltage	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	480 (60)
TLC-LED-1500	8.5	8.1	7.4	6.4	5.1	4.7
TLC-LED-1200	7.0	6.6	6.1	5.2	4.2	4.0
TLC-BT-575	3.4	3.2	2.9	2.5	2.0	1.8



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





# Control System Summary

## Project Specific Notes:

## Project Information

Project #: 149914  
Project Name: Pembroke Youth Baseball  
Date: 12/07/21  
Project Engineer: Tanner Lanphier  
Sales Representative: Mike Berry  
Control System Type: Control-Link™ Control and Monitoring System  
Communication Type: PowerLine-ST  
Scan: 149914 (A)  
Document ID: 149914P1V1-1207114839  
Distribution Panel Location or ID: Service 1  
Total # of Distribution Panel Locations for Project: 1  
Design Voltage/Hertz/Phase: 480/60/3  
Control Voltage: 120

## Equipment Listing

DESCRIPTION	APPROXIMATE SIZE
1. Control and Monitoring Cabinet	24 X 48
QTY	SIZE (AMPS)
Total Contactors	6 30 AMP
Total Off/On/Auto Switches:	1

## Materials Checklist

### Contractor/Customer Supplied:

- ☐ A dedicated control circuit must be supplied per distribution panel location
  - If the control voltage is NOT available, a control transformer is required
- ☐ Electrical distribution panel to provide overcurrent protection for circuits
  - HID rated or D-curve circuit breaker sized per full load amps on Circuit Summary by Zone Chart
- ☐ Wiring
  - See chart on page 2 for wiring requirements
  - Equipment grounding conductor and splices must be insulated (per circuit)
  - Lightning ground protection (per pole), if not Musco supplied
- ☐ Electrical conduit wireway system
  - Entrance hubs rated NEMA 4, must be die-cast zinc, PVC, or copper-free die-cast aluminum
- ☐ Mounting hardware for cabinets
- ☐ Breaker lock-on device to prevent unauthorized power interruption to control power and powerline connection (if present)
- ☐ Anti-corrosion compound to apply to ends of wire, if necessary

Call Control-Link Central™ operations center at 877/347-3319 to schedule activation of the control system upon completion of the installation.

Note: Activation may take up to 1 1/2 hours.

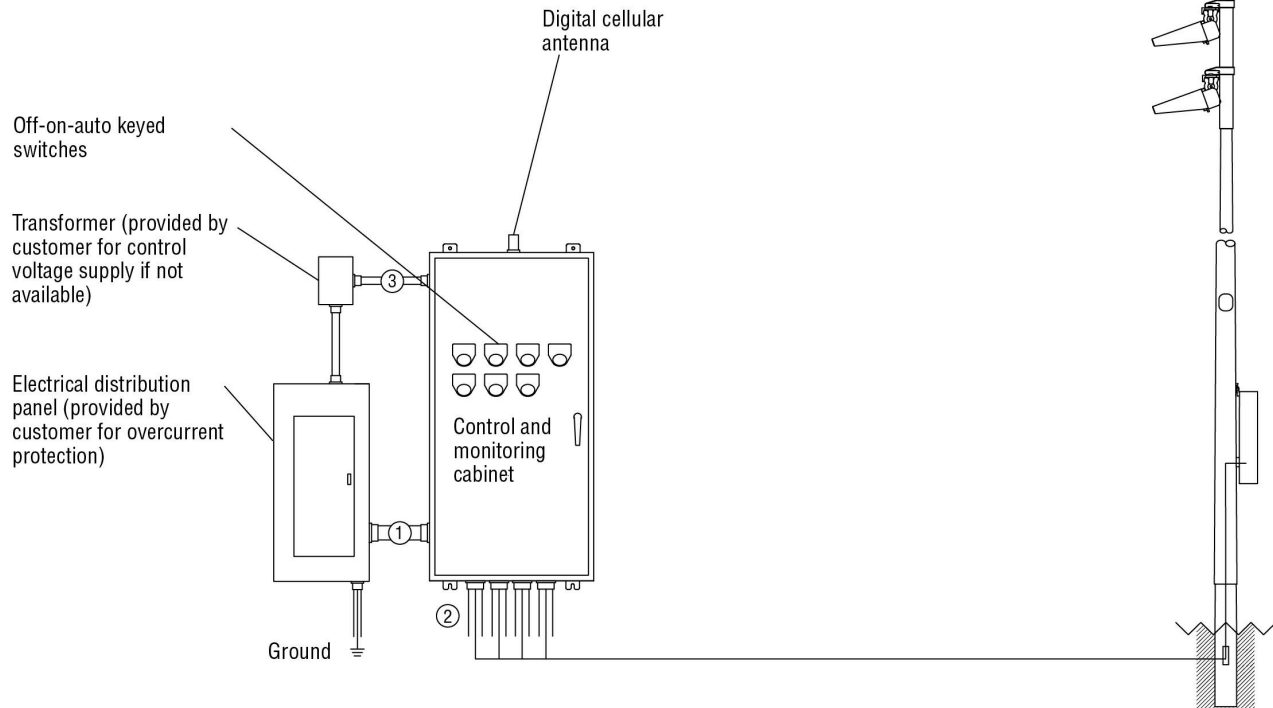
## IMPORTANT NOTES

1. Please confirm that the design voltage listed above is accurate for this facility. Design voltage/phase is defined as the voltage/phase being connected and utilized at each lighting pole's electrical components enclosure disconnect. Inaccurate design voltage/phase can result in additional costs and delays. Contact your Musco sales representative to confirm this item.
2. In a 3 phase design, all 3 phases are to be run to each pole. When a 3 phase design is used Musco's single phase luminaires come pre-wired to utilize all 3 phases across the entire facility.
3. One contactor is required for each pole. When a pole has multiple circuits, one contactor is required for each circuit. All contactors are 100% rated for the published continuous load. All contactors are 3 pole.
4. If the lighting system will be fed from more than one distribution location, additional equipment may be required. Contact your Musco sales representative.
5. A single control circuit must be supplied per control system.
6. Size overcurrent devices using the full load amps column of the Circuit Summary By Zone chart- Minimum power factor is 0.9.

NOTE: Refer to Installation Instructions for more details on equipment information and the installation requirements.



## Control•Link® Control and Monitoring System



Conduit ID	Description	# of Wires	Wire (AWG)	Conduit (in)	Max. Wire Length (ft)	MUSCO Supplied	Notes
1	Line power to contactors, and equipment grounding conductor	*A	*B	*C	N/A	No	A-E
2	Load power to lighting circuits, and equipment grounding conductor	*A	*B	*C	N/A	No	A-E
3	Control power (dedicated, 20A)	3	12	*C	N/A	No	C,E

\* Notes:

- A. See voltage and phasing per the notes on cover page.
- B. Calculate per load and voltage drop.
- C. All conduit diameters should be per code unless otherwise specified to allow for connector size.
- D. Equipment grounding conductor and any splices must be insulated.
- E. Refer to control and monitoring system installation instructions for more details on equipment information and the installation requirements.

IMPORTANT: Control wires (3) must be in separate conduit from line and load power wires (1, 2).

R60-100-00\_B





# Control System Summary

Pembroke Youth Baseball / 149914 - 149914 (A)  
Service 1 - Page 3 of 4

## SWITCHING SCHEDULE

<u>Field/Zone Description</u>	<u>Zones</u>
Baseball	1

CONTROL POWER CONSUMPTION	
120V Single Phase	
VA loading of Musco Supplied Equipment	INRUSH: 2043.0
	SEALED: 231.8

## CIRCUIT SUMMARY BY ZONE

POLE	CIRCUIT DESCRIPTION	# OF FIXTURES	# OF DRIVERS	*FULL LOAD AMPS	CONTACTOR SIZE (AMPS)	CONTACTOR ID	ZONE
A1	Baseball	5	5	9.1	30	C1	1
A2	Baseball	5	5	9.1	30	C2	1
B1	Baseball	7	7	14.1	30	C3	1
B2	Baseball	7	7	14.1	30	C4	1
C1	Baseball	6	6	12.8	30	C5	1
C2	Baseball	6	6	12.8	30	C6	1

\*Full Load Amps based on amps per driver.





# Control System Summary

Pembroke Youth Baseball / 149914 - 149914 (A)  
Service 1 - Page 4 of 4

PANEL SUMMARY						
CABINET #	CONTROL MODULE LOCATION	CONTACTOR ID	CIRCUIT DESCRIPTION	FULL LOAD AMPS	DISTRIBUTION PANEL ID (BY OTHERS)	CIRCUIT BREAKER POSITION (BY OTHERS)
1	1	C1	Pole A1	9.13		
1	1	C2	Pole A2	9.13		
1	1	C3	Pole B1	14.07		
1	1	C4	Pole B2	14.07		
1	1	C5	Pole C1	12.82		
1	1	C6	Pole C2	12.82		

ZONE SCHEDULE				
ZONE	SELECTOR SWITCH	ZONE DESCRIPTION	CIRCUIT DESCRIPTION	
			POLE ID	CONTACTOR ID
Zone 1	1	Baseball	A1	C1
			A2	C2
			B1	C3
			B2	C4
			C1	C5
			C2	C6