



Pole / Fixture Summary

Pole ID	Pole Height	Fixture Qty	Lamp Type	Group
A1	70'	5	1500W MZ	A
A2	70'	5	1500W MZ	A
A3	60'	4	1500W MZ	B
A4	60'	4	1500W MZ	B
B1	80'	10	1500W MZ	A
B2	80'	10	1500W MZ	A
B3	70'	6	1500W MZ	B
B4	70'	6	1500W MZ	B
C1	80'	8	1500W MZ	A
C2	80'	8	1500W MZ	A
10		66		

MY PROJECT

Name:	Caiola Baseball Complex
Location:	Morrisville, PA

Calculation Grid Summary

Grid Name	Calculation Metric	Light Level			Uniformity		Groups	Fixture Qty	
		Type	Ave	Min	Max	Max/Min			Ave/Min
Baseball-1 (Infield)	Horizontal Illuminance	Constant	50.4	38	58	1.54	1.34	B	20
Baseball-1 (Outfield)	Horizontal Illuminance	Constant	30	19	45	2.35	1.57	B	20
Baseball (Infield)	Horizontal Illuminance	Constant	50.3	34	62	1.82	1.47	A	46
Baseball (Outfield)	Horizontal Illuminance	Constant	32.3	21	49	2.33	1.54	A	46
Oxford Valley Properties	Horizontal	Constant	0.02	0.01	0.04	5.34	2.92	A,B	66
Oxford Valley Properties	Max Vertical Illuminance Metric	Constant	0.15	0.07	0.23	3.58	2.26	A,B	66
Oxford Valley Road Spill	Horizontal	Constant	0.40	0.02	1.51	93.15	24.73	A,B	66
Oxford Valley Road Spill	Max Candela (by Fixture)	Constant	17490	6991	57718	8.26	2.50	A,B	66
Oxford Valley Road Spill	Max Vertical Illuminance Metric	Constant	0.91	0.14	2.86	19.91	6.31	A,B	66

Group Summary

Group	Description	Load	Fixture Qty
A	Baseball	71.94 kW	46
B	Baseball-1	31.28 kW	20



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ENGINEERED DESIGN

By:	A. Boersma
File # / Date:	179022_glare 06-Apr-16

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EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LAMP TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	A1-A2	70'	-	70'	1500W MZ	5	5	0
2	B1-B2	80'	-	80'	1500W MZ	10	10	0
2	C1-C2	80'	-	80'	1500W MZ	8	8	0
6	TOTALS					46	46	0



MY PROJECT

Name: Caiola Baseball Complex
Location: Morrisville, PA

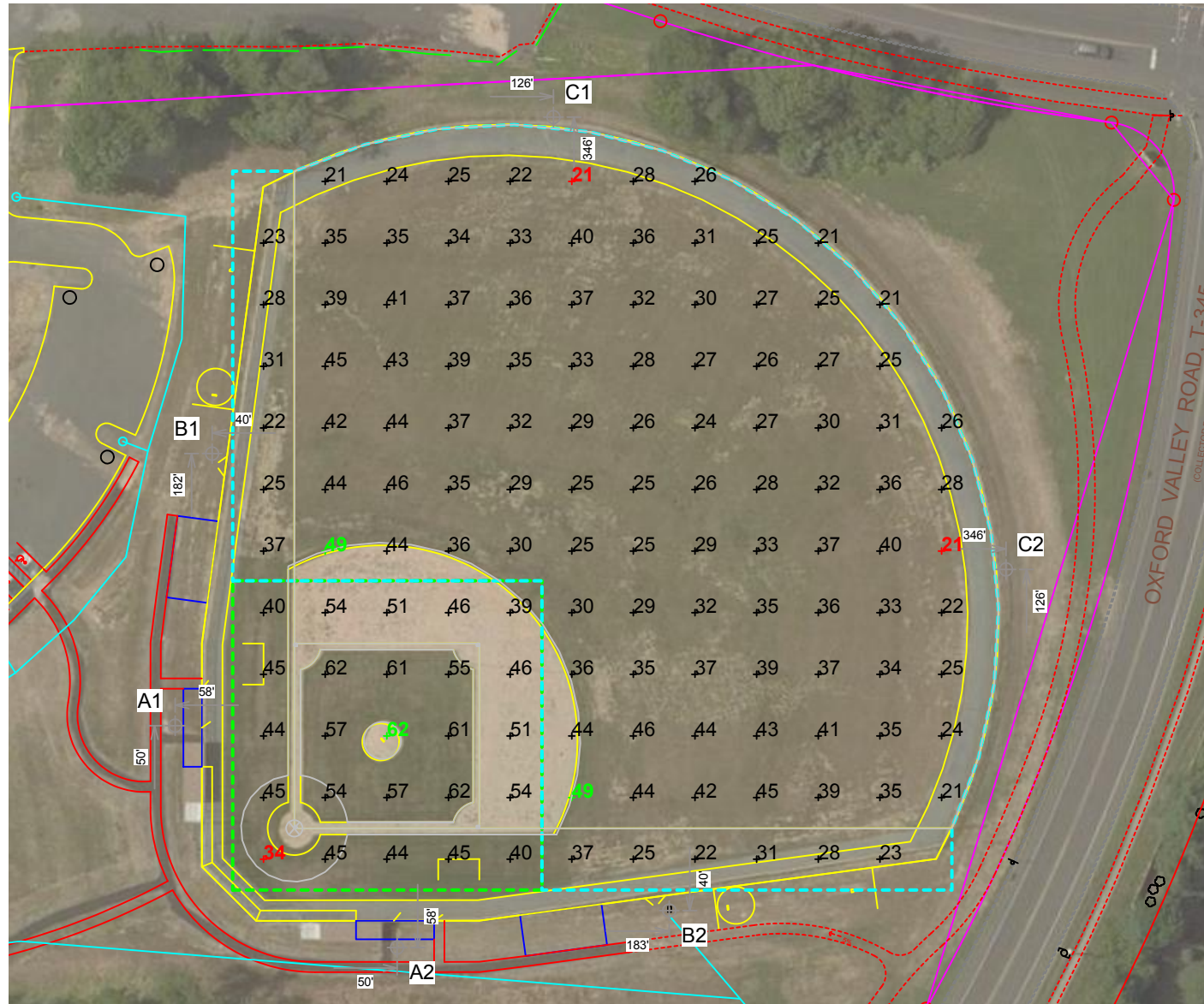
GRID SUMMARY

Name: Baseball
Size: 320'/385'/320' - basepath 90'
Spacing: 30.0' x 30.0'
Height: 3.0' above grade

CONSTANT ILLUMINATION

SUMMARY	HORIZONTAL FOOTCANDLES	
	Infield	Outfield
Guaranteed Average:	50	30
Scan Average:	50.25	32.27
Maximum:	62	49
Minimum:	34	21
Avg / Min:	1.47	1.54
Guaranteed Max / Min:	2	2.5
Max / Min:	1.82	2.33
UG (adjacent pts):	1.38	1.93
CU:	0.70	
No. of Points:	25	109

LUMINAIRE INFORMATION	
Luminaire Type:	Green Generation
Design Usage Hours:	5,000 hours
Design Lumens:	134,000
Avg Lamp Tilt Factor:	1.000
No. of Luminaires:	46
Avg KW:	71.94 (78.2 max)



Guaranteed Performance: The Guaranteed Average CONSTANT ILLUMINATION described above is guaranteed for the design usage hours of the system.

Field Measurements: Illumination measured in accordance with IESNA RP-6-15 and CIBSE LG4. Individual values may vary. See the Warranty document for details.

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

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EQUIPMENT LIST FOR AREAS SHOWN

Pole			Luminaires					
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LAMP TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	A3-A4	60'	-	60'	1500W MZ	4	4	0
2	B3-B4	70'	-	70'	1500W MZ	6	6	0
4	TOTALS					20	20	0



MY PROJECT

Name: Caiola Baseball Complex
Location: Morrisville, PA

GRID SUMMARY

Name: Baseball-1
Size: 225'/240'/225' - basepath 70'
Spacing: 20.0' x 20.0'
Height: 3.0' above grade

CONSTANT ILLUMINATION

SUMMARY	HORIZONTAL FOOTCANDLES	
	Infield	Outfield
Guaranteed Average:	50	30
Scan Average:	50.37	30.03
Maximum:	58	45
Minimum:	38	19
Avg / Min:	1.34	1.57
Guaranteed Max / Min:	2	2.5
Max / Min:	1.54	2.35
UG (adjacent pts):	1.21	1.61
CU:	0.65	
No. of Points:	25	102

LUMINAIRE INFORMATION	
Luminaire Type:	Green Generation
Design Usage Hours:	5,000 hours
Design Lumens:	134,000
Avg Lamp Tilt Factor:	1.000
No. of Luminaires:	20
Avg KW:	31.28 (34.0 max)

Guaranteed Performance: The Guaranteed Average CONSTANT ILLUMINATION described above is guaranteed for the design usage hours of the system.

Field Measurements: Illumination measured in accordance with IESNA RP-6-15 and CIBSE LG4. Individual values may vary. See the Warranty document for details.

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

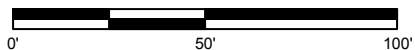
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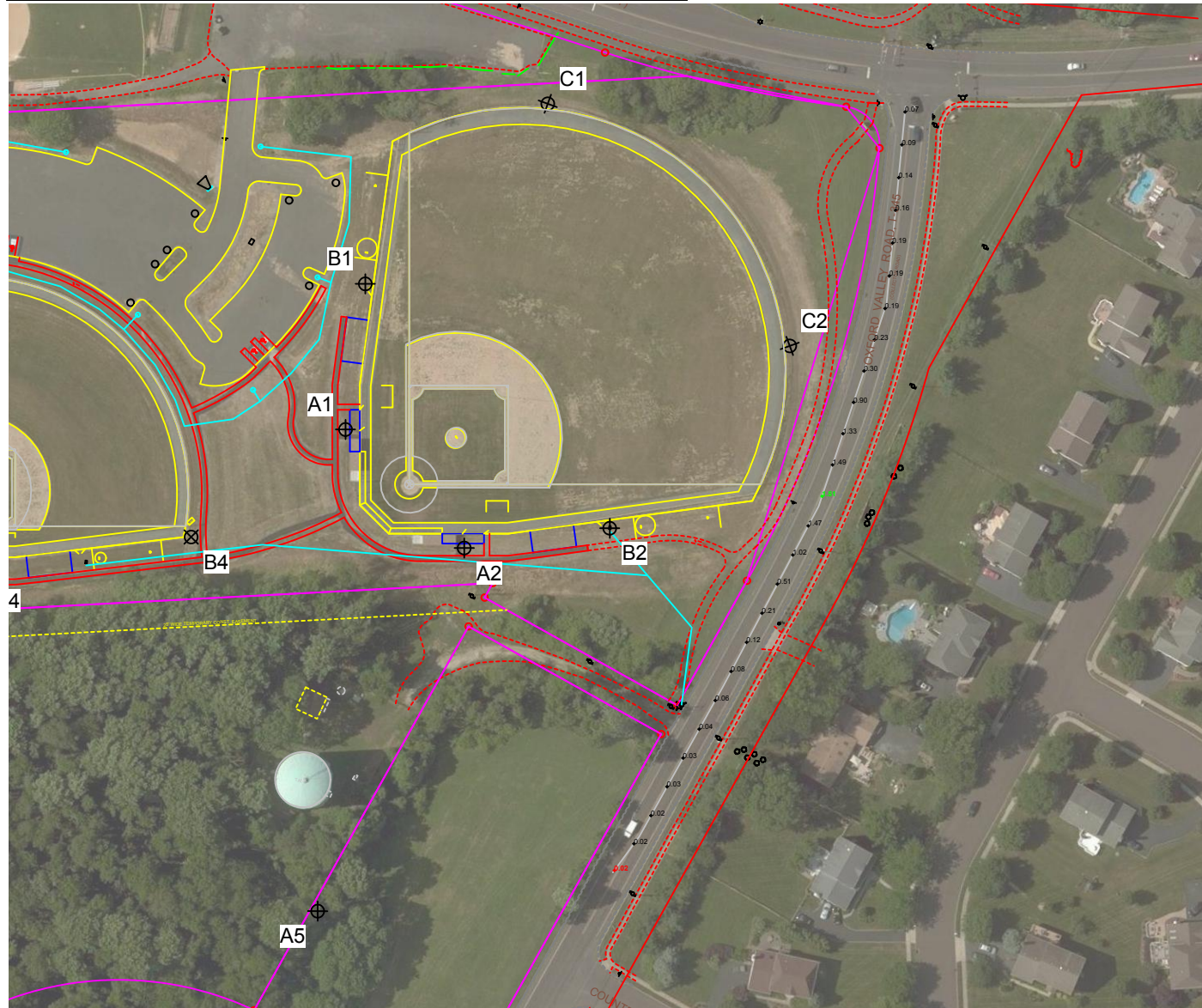
SCALE IN FEET 1 : 50



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

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LAMP TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	A1-A2	70'	-	70'	1500W MZ	5	5	0
2	A3-A4	60'	-	60'	1500W MZ	4	4	0
2	B1-B2	80'	-	80'	1500W MZ	10	10	0
2	B3-B4	70'	-	70'	1500W MZ	6	6	0
2	C1-C2	80'	-	80'	1500W MZ	8	8	0
10	TOTALS					66	66	0



MY PROJECT

Name: **Caiola Baseball Complex**
 Location: **Morrisville, PA**

GRID SUMMARY

Name: **Oxford Valley Road Spill**
 Spacing: **30.0'**
 Height: **3.0' above grade**

CONSTANT ILLUMINATION

SUMMARY	HORIZONTAL FOOTCANDLES
	Entire Grid
Scan Average:	0.4005
Maximum:	1.51
Minimum:	0.02
No. of Points:	26
LUMINAIRE INFORMATION	
Luminaire Type:	Green Generation
Design Usage Hours:	5,000 hours
Design Lumens:	134,000
Avg Lamp Tilt Factor:	1.000
No. of Luminaires:	66
Avg KW:	103.22 (112.2 max)

Guaranteed Performance: The CONSTANT ILLUMINATION described above is guaranteed for the design usage hours of the system.

Field Measurements: Illumination measured in accordance with IESNA RP-6-15 and CIBSE LG4. Individual values may vary. See the Warranty document for details.

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 ballast 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	LAMP TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	A1-A2	70'	-	70'	1500W MZ	5	5	0
2	A3-A4	60'	-	60'	1500W MZ	4	4	0
2	B1-B2	80'	-	80'	1500W MZ	10	10	0
2	B3-B4	70'	-	70'	1500W MZ	6	6	0
2	C1-C2	80'	-	80'	1500W MZ	8	8	0
10	TOTALS					66	66	0



MY PROJECT

Name: **Caiola Baseball Complex**
 Location: **Morrisville, PA**

GRID SUMMARY

Name: **Oxford Valley Road Spill**
 Spacing: **30.0'**
 Height: **3.0' above grade**

CONSTANT ILLUMINATION

SUMMARY	MAX VERTICAL FOOTCANDLES
	Entire Grid
Scan Average:	0.9061
Maximum:	2.86
Minimum:	0.14
No. of Points:	26
LUMINAIRE INFORMATION	
Luminaire Type:	Green Generation
Design Usage Hours:	5,000 hours
Design Lumens:	134,000
Avg Lamp Tilt Factor:	1.000
No. of Luminaires:	66
Avg KW:	103.22 (112.2 max)

Guaranteed Performance: The CONSTANT ILLUMINATION described above is guaranteed for the design usage hours of the system.

Field Measurements: Illumination measured in accordance with IESNA RP-6-15 and CIBSE LG4. Individual values may vary. See the Warranty document for details.

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

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SCALE IN FEET 1 : 150



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	MOUNTING HEIGHT	LAMP TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	A1-A2	70'	-	70'	1500W MZ	5	5	0
2	A3-A4	60'	-	60'	1500W MZ	4	4	0
2	B1-B2	80'	-	80'	1500W MZ	10	10	0
2	B3-B4	70'	-	70'	1500W MZ	6	6	0
2	C1-C2	80'	-	80'	1500W MZ	8	8	0
10	TOTALS					66	66	0



MY PROJECT

Name: Caiola Baseball Complex
Location: Morrisville, PA

GRID SUMMARY

Name: Oxford Valley Properties
Spacing: 30.0'
Height: 3.0' above grade

CONSTANT ILLUMINATION

SUMMARY	HORIZONTAL FOOTCANDLES
	Entire Grid
Scan Average:	0.0194
Maximum:	0.04
Minimum:	0.01
No. of Points:	32
LUMINAIRE INFORMATION	
Luminaire Type:	Green Generation
Design Usage Hours:	5,000 hours
Design Lumens:	134,000
Avg Lamp Tilt Factor:	1.000
No. of Luminaires:	66
Avg KW:	103.22 (112.2 max)

Guaranteed Performance: The CONSTANT ILLUMINATION described above is guaranteed for the design usage hours of the system.

Field Measurements: Illumination measured in accordance with IESNA RP-6-15 and CIBSE LG4. Individual values may vary. See the Warranty document for details.

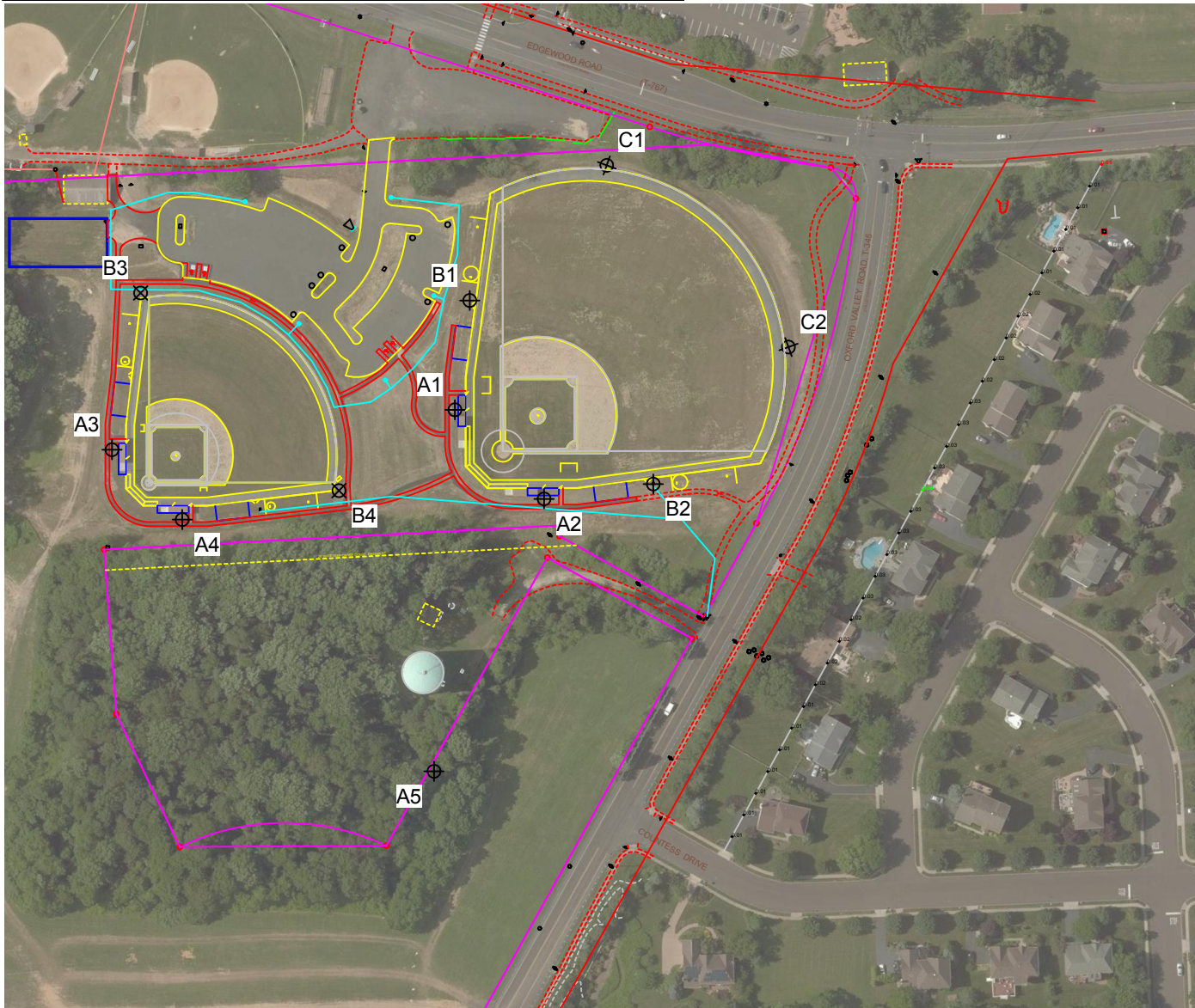
Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

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

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SCALE IN FEET 1 : 200



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

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LAMP TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	A1-A2	70'	-	70'	1500W MZ	5	5	0
2	A3-A4	60'	-	60'	1500W MZ	4	4	0
2	B1-B2	80'	-	80'	1500W MZ	10	10	0
2	B3-B4	70'	-	70'	1500W MZ	6	6	0
2	C1-C2	80'	-	80'	1500W MZ	8	8	0
10	TOTALS					66	66	0



MY PROJECT

Name: Caiola Baseball Complex
Location: Morrisville, PA

GRID SUMMARY

Name: Oxford Valley Properties
Spacing: 30.0'
Height: 3.0' above grade

CONSTANT ILLUMINATION

SUMMARY	MAX VERTICAL FOOTCANDLES
	Entire Grid
Scan Average:	0.1479
Maximum:	0.23
Minimum:	0.07
No. of Points:	32
LUMINAIRE INFORMATION	
Luminaire Type:	Green Generation
Design Usage Hours:	5,000 hours
Design Lumens:	134,000
Avg Lamp Tilt Factor:	1.000
No. of Luminaires:	66
Avg KW:	103.22 (112.2 max)

Guaranteed Performance: The CONSTANT ILLUMINATION described above is guaranteed for the design usage hours of the system.

Field Measurements: Illumination measured in accordance with IESNA RP-6-15 and CIBSE LG4. Individual values may vary. See the Warranty document for details.

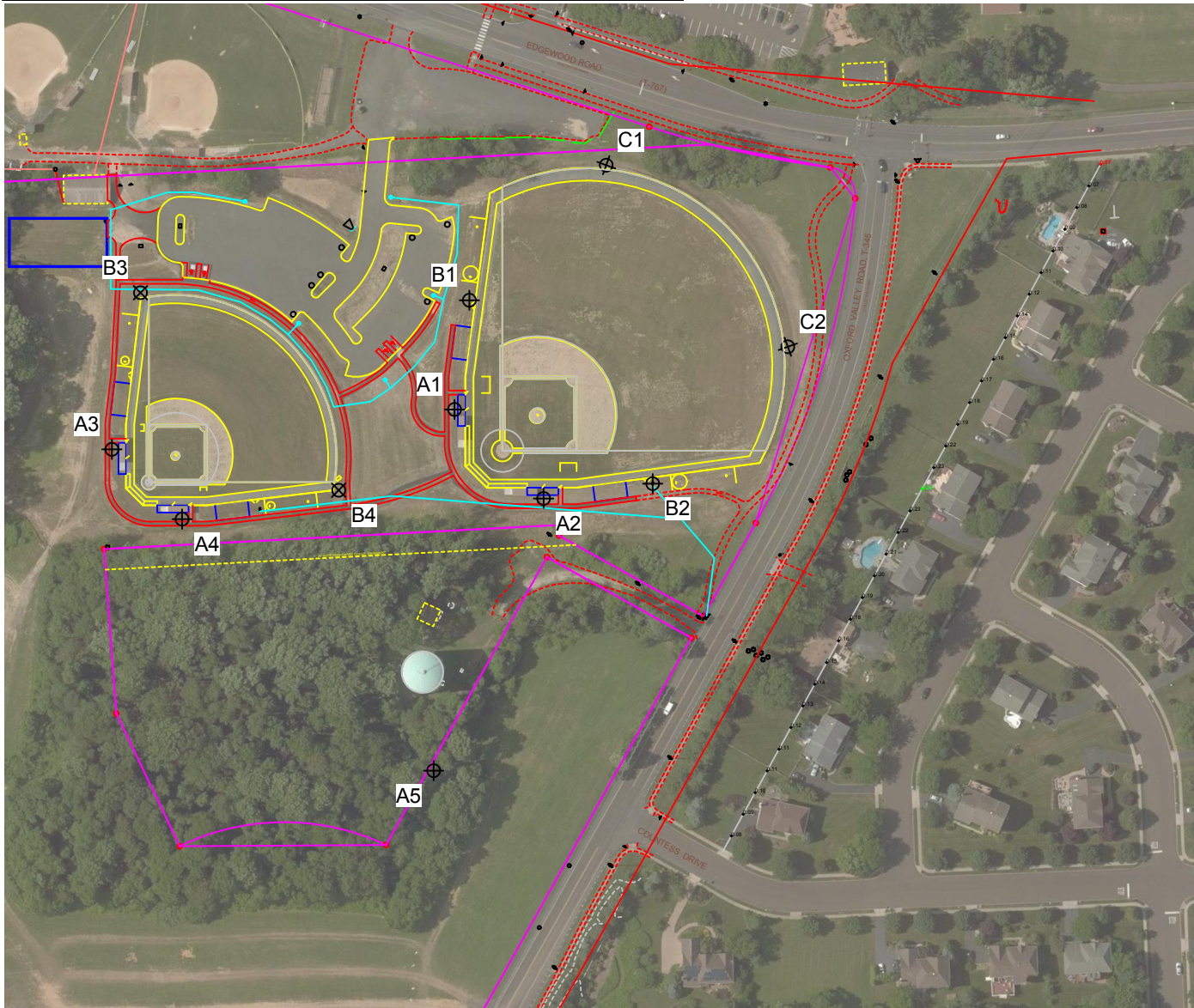
Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

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

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SCALE IN FEET 1 : 200



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



MY PROJECT

Name: Caiola Baseball Complex
 Location: Morrisville, PA

EQUIPMENT LAYOUT

INCLUDES:

- Baseball
- Baseball-1

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

EQUIPMENT LIST FOR AREAS SHOWN

QTY	LOCATION	POLE SIZE	GRADE ELEVATION	Luminaires		
				MOUNTING HEIGHT	LAMP TYPE	QTY / POLE
2	A1-A2	70'	-	70'	1500W MZ	5
2	A3-A4	60'	-	60'	1500W MZ	4
1	A5	60'	-			
2	B1-B2	80'	-	80'	1500W MZ	10
2	B3-B4	70'	-	70'	1500W MZ	6
2	C1-C2	80'	-	80'	1500W MZ	8
11	TOTALS					66

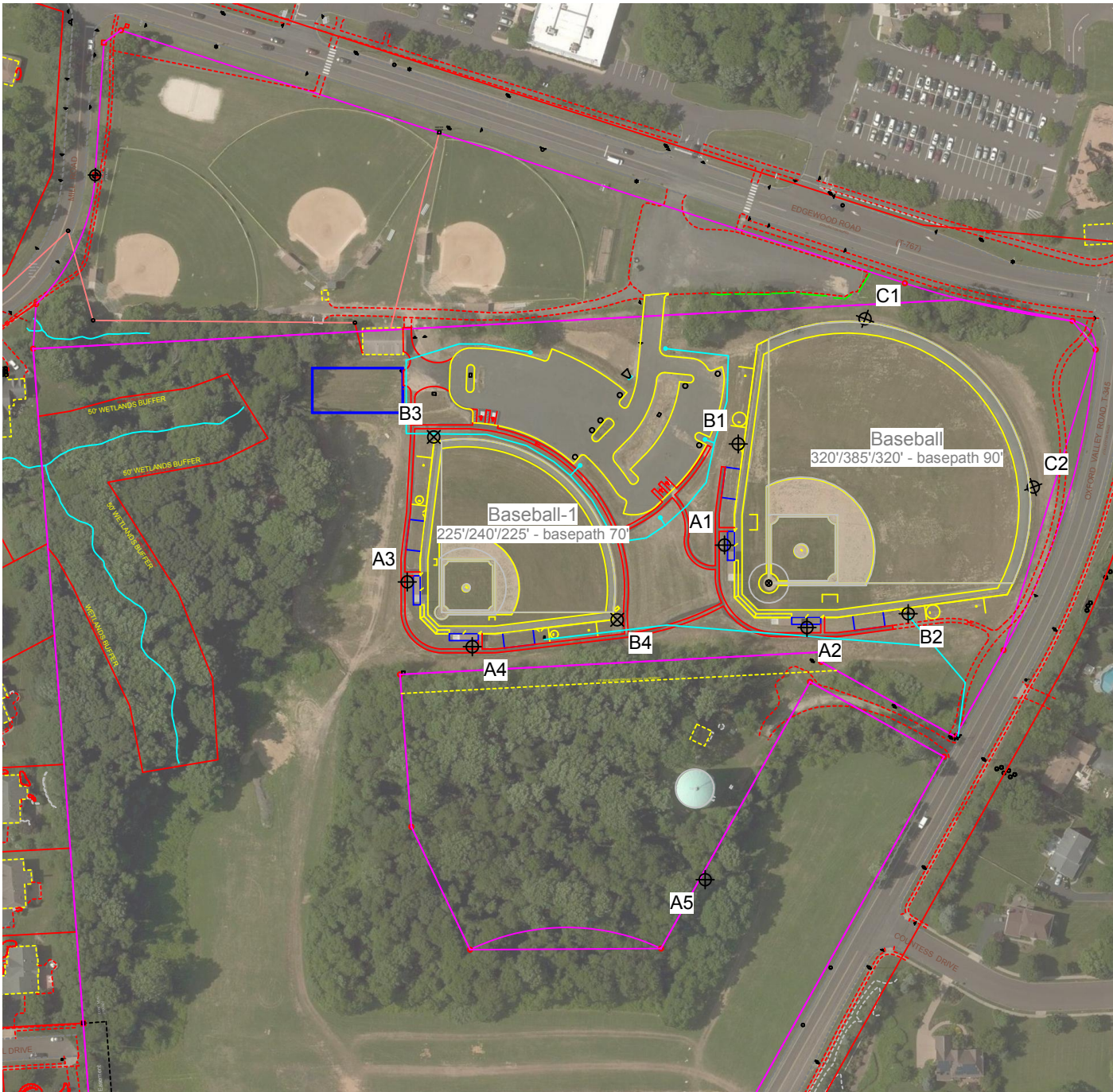
SINGLE LUMINAIRE AMPERAGE DRAW CHART

Ballast 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)
1500 watt MZ	8.6	8.3	7.5	6.5	5.1	4.7	3.7

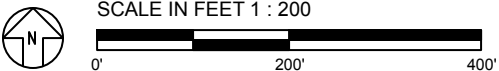
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