

Manchester City Football Academy Pitches 5,6,7

Manchester, North West

Lighting System

Pole / Fixture Summary						
Pole ID	Pole Height	Mtg Height	Fixture Qty	Luminaire Type	Load	Circuit
P8	24.4	24.4	4	TLC-LED-1500	5.64 kW	D
P10-P11	21.3	21.3	7	TLC-LED-1500	9.87 kW	A
P12	24.4	24.4	1	TLC-LED-1200	1.17 kW	A
		24.4	1	TLC-LED-1200	1.17 kW	B
		24.4	7	TLC-LED-1500	9.87 kW	A
		24.4	7	TLC-LED-1500	9.87 kW	B
P13	24.4	24.4	1	TLC-LED-1200	1.17 kW	B
		24.4	1	TLC-LED-1200	1.17 kW	A
		24.4	7	TLC-LED-1500	9.87 kW	B
		24.4	7	TLC-LED-1500	9.87 kW	A
P14	24.4	24.4	1	TLC-LED-1200	1.17 kW	C
		24.4	1	TLC-LED-1200	1.17 kW	B
		24.4	7	TLC-LED-1500	9.87 kW	C
		24.4	7	TLC-LED-1500	9.87 kW	B
		24.4	4	TLC-LED-1500	5.64 kW	D
P15	24.4	24.4	1	TLC-LED-1200	1.17 kW	B
		24.4	1	TLC-LED-1200	1.17 kW	C
		24.4	7	TLC-LED-1500	9.87 kW	B
		24.4	7	TLC-LED-1500	9.87 kW	C
P16-P17	21.3	21.3	7	TLC-LED-1500	9.87 kW	C
9			100		139.08 kW	

Circuit Summary			
Circuit	Description	Load	Fixture Qty
A	Pitch 5	41.82 kW	30
B	Pitch 6	44.16 kW	32
C	Pitch 7	41.82 kW	30
D	Training Area 1	11.28 kW	8

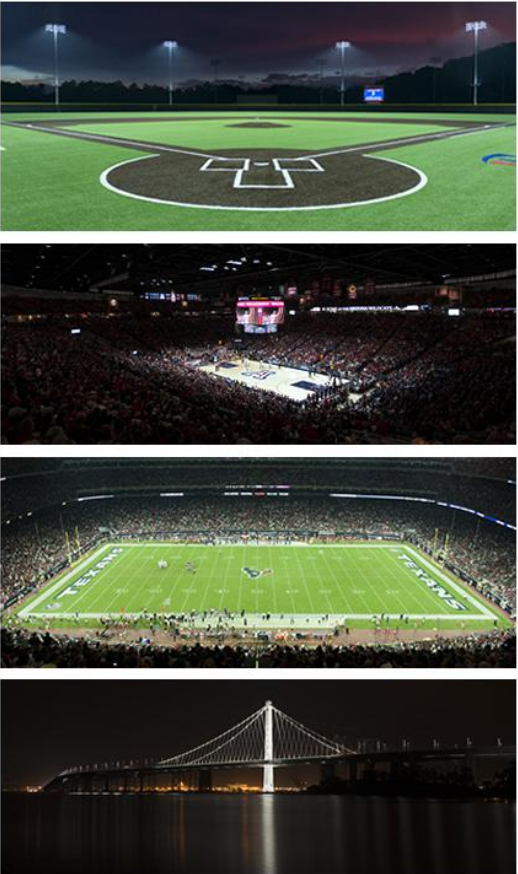
Fixture Type Summary							
Type	Source	Wattage	Lumens	L90	L80	L70	Quantity
TLC-LED-1500	LED 5700K - 75 CRI	1410W	181,000	>120,000	>120,000	>120,000	92
TLC-LED-1200	LED 5700K - 75 CRI	1170W	150,000	>120,000	>120,000	>120,000	8

Single Luminaire Amperage Draw Chart						
Driver (.90 min power factor)	Line Amperage Per Luminaire					
Single Phase Voltage	220 (50)	230 (50)	240 (50)	380 (50)	400 (50)	415 (50)
TLC-LED-1500	7.9	7.6	7.3	4.6	4.4	4.2
TLC-LED-1200	6.5	6.3	6.0	3.8	3.6	3.5

Light Level Summary

Calculation Grid Summary								
Grid Name	Calculation Metric	Illumination					Circuits	Fixture Qty
		Ave	Min	Max	Min/Max	Min/Ave		
01 MCFA Pitch 5	Horizontal Illuminance	522	435	679	0.64	0.83	A	30
02 MCFA Pitch 6	Horizontal Illuminance	529	436	641	0.68	0.82	B	32
03 MCFA Pitch 7	Horizontal Illuminance	522	457	624	0.73	0.88	C	30
04 Practice Area 1	Horizontal Illuminance	402	270	491	0.55	0.67	D	8
LTW	Horizontal	0.89	0	4.91	0.00	0.00	A,B,C,D,E,F,G,H,I	100
LTW	Max Vertical Illuminance Metric	2.01	0	9.37	0.00	0.00	A,B,C,D,E,F,G,H,I	100
Spill Blanket	Horizontal	100	0	1017	0.00	0.00	A,B,C,D,E,F,G,H,I	100
Spill Blanket	Max Vert Illuminance (by Light Bank)	137	0	1367	0.00	0.00	A,B,C,D,E,F,G,H,I	100

From Hometown to Professional



EQUIPMENT LIST FOR AREAS SHOWN								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	P10-P11	21.34m	-	21.34m	TLC-LED-1500	7	7	0
1	P12	24.38m	0m	24.37m	TLC-LED-1200	2	1	1
1	P13	24.38m	0m	24.37m	TLC-LED-1500	14	7	7
				24.37m	TLC-LED-1500	14	7	7
				24.37m	TLC-LED-1200	2	1	1
4	TOTALS					46	30	16

Manchester City Football Academy Pitches 5,6,7
Manchester, North West

GRID SUMMARY	
Name:	01 MCFA Pitch 5
Size:	105.0m x 68.0m
Spacing:	10.0m x 9.0m
Height:	1.0m above grade

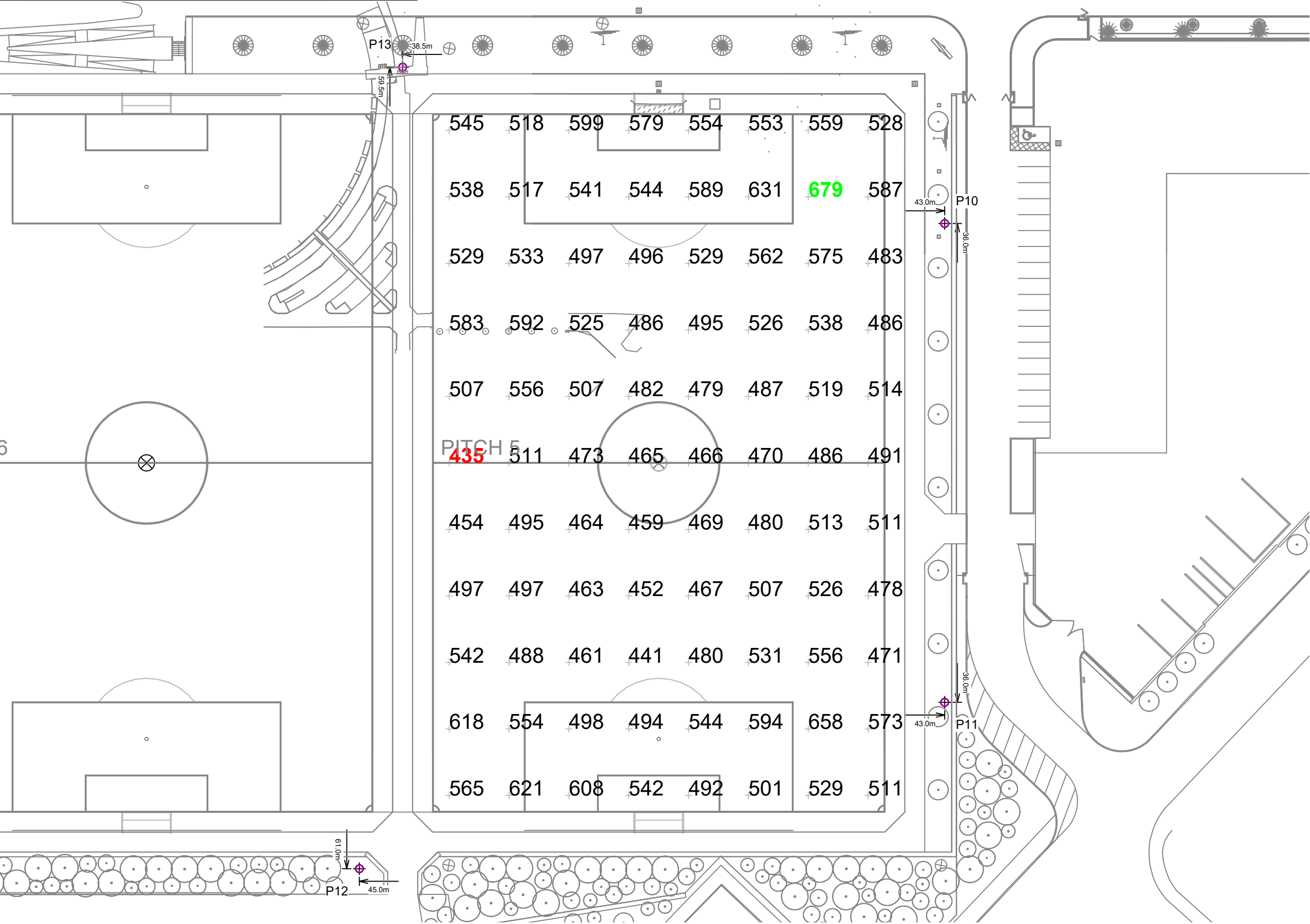
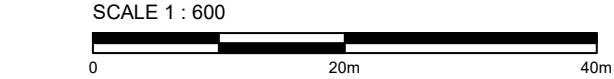
ILLUMINATION SUMMARY	
MAINTAINED HORIZONTAL LUX	
	Entire Grid
Guaranteed Average:	500
Scan Average:	522.15
Maximum:	679
Minimum:	435
Guaranteed Min / Avg:	0.6
Min / Avg:	0.83
Min / Max:	0.64
UG (adjacent pts):	1.24
CU:	0.76
No. of Points:	88
LUMINAIRE INFORMATION	
Applied Circuits:	A
No. of Luminaires:	30
Total Load:	41.82 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) ⊗

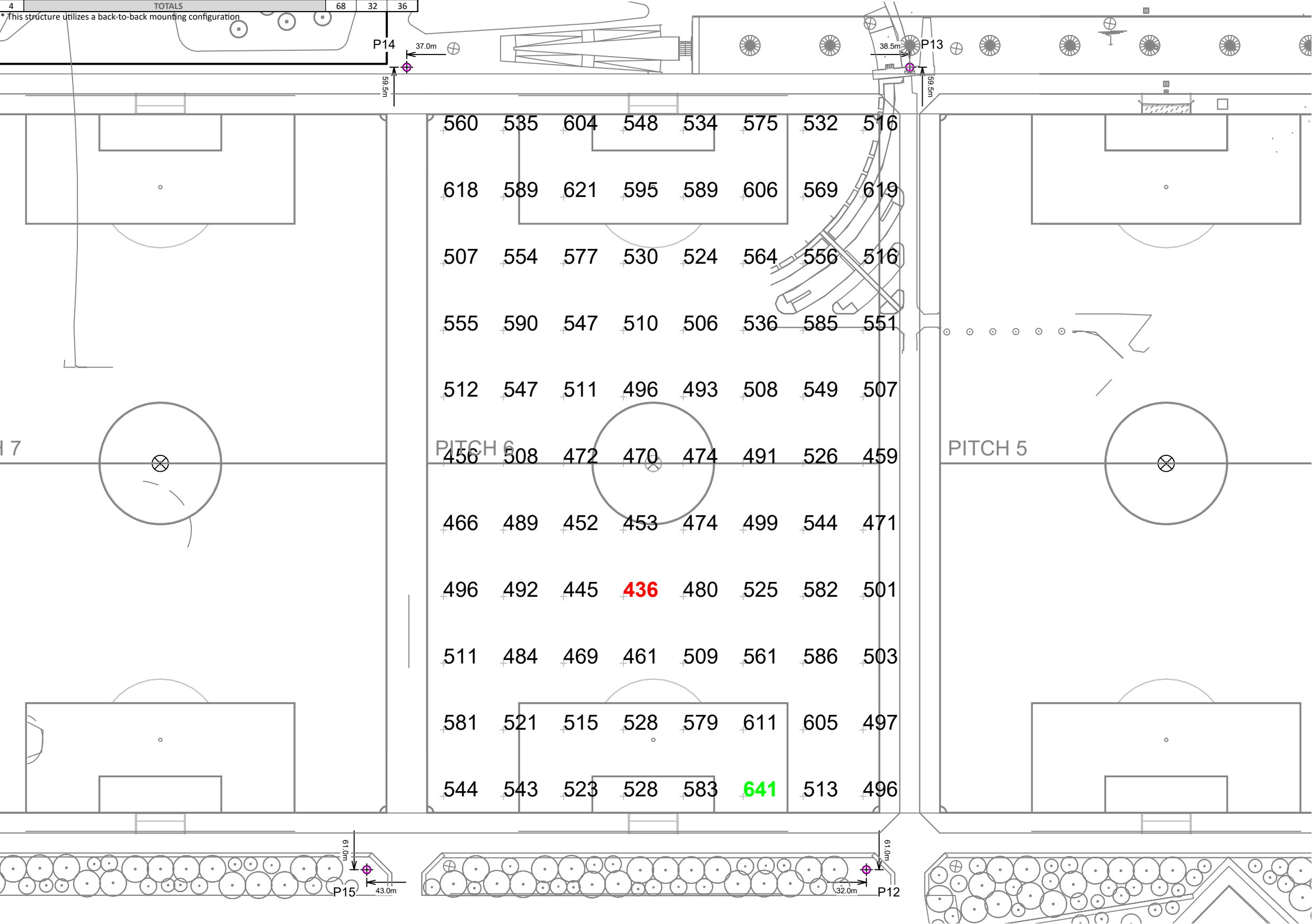


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ILLUMINATION SUMMARY

EQUIPMENT LIST FOR AREAS SHOWN							
Pole			Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID
2	P12, P15	24.38m	-	24.38m	TLC-LED-1200	2	1
				24.38m	TLC-LED-1500	14	7
1	P13	24.38m	-	24.38m	TLC-LED-1500	14	7
				24.38m	TLC-LED-1200	2	1
1	P14	24.38m	-	24.38m	TLC-LED-1500	14/4*	7
				24.38m	TLC-LED-1200	2	1
4	TOTALS					68	32

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



Manchester City Football Academy Pitches 5,6,7
Manchester, North West

GRID SUMMARY	
Name:	02 MCFA Pitch 6
Size:	105.0m x 68.0m
Spacing:	10.0m x 9.0m
Height:	1.0m above grade

ILLUMINATION SUMMARY	
MAINTAINED HORIZONTAL LUX	
	Entire Grid
Guaranteed Average:	500
Scan Average:	529.45
Maximum:	641
Minimum:	436
Guaranteed Min / Avg:	0.6
Min / Avg:	0.82
Min / Max:	0.68
UG (adjacent pts):	1.25
CU:	0.72
No. of Points:	88
LUMINAIRE INFORMATION	
Applied Circuits:	B
No. of Luminaires:	32
Total Load:	44.16 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.



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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
1	P14	24.38m	0m	24.37m	TLC-LED-1500	14/4*	7
				24.37m	TLC-LED-1200	2	1
1	P15	24.38m	0m	24.37m	TLC-LED-1200	2	1
				24.37m	TLC-LED-1500	14	7
2	P16-P17	21.34m	-	21.34m	TLC-LED-1500	7	7
4	TOTALS					50	30

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



Manchester City Football Academy Pitches 5,6,7
Manchester, North West

GRID SUMMARY	
Name:	03 MCFA Pitch 7
Size:	105.0m x 68.0m
Spacing:	10.0m x 9.0m
Height:	1.0m above grade

ILLUMINATION SUMMARY	
MAINTAINED HORIZONTAL LUX	
	Entire Grid
Guaranteed Average:	500
Scan Average:	521.95
Maximum:	624
Minimum:	457
Guaranteed Min / Avg:	0.6
Min / Avg:	0.88
Min / Max:	0.73
UG (adjacent pts):	1.30
CU:	0.76
No. of Points:	88
LUMINAIRE INFORMATION	
Applied Circuits:	C
No. of Luminaires:	30
Total Load:	41.82 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.

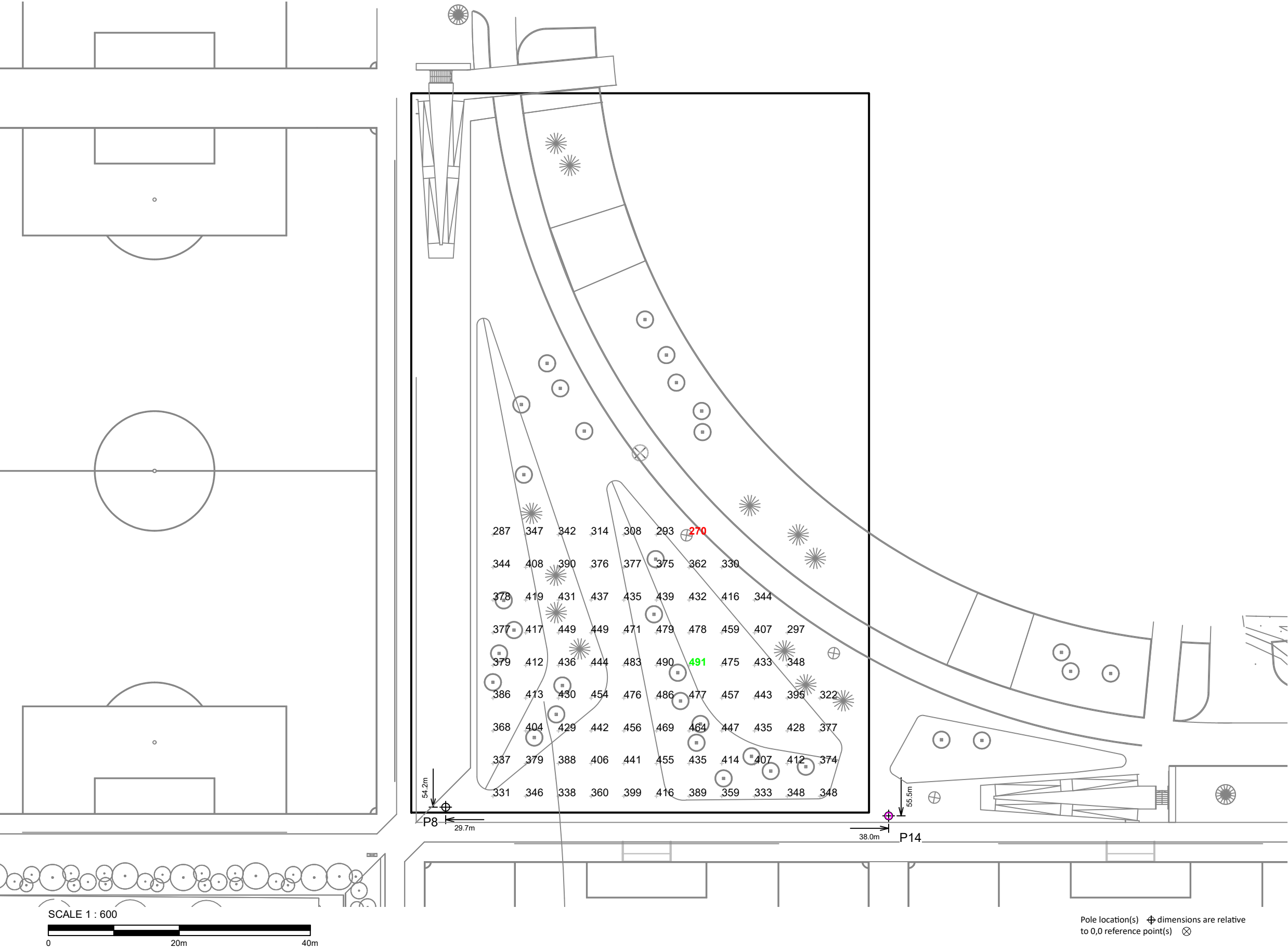


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ILLUMINATION SUMMARY

EQUIPMENT LIST FOR AREAS SHOWN								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
1	P8	24.38m	-	24.38m	TLC-LED-1500	4	4	0
1	P14	24.38m	0m	24.37m	TLC-LED-1500	14/4*	4	14
				24.37m	TLC-LED-1200	2	0	2
2	TOTALS					24	8	16

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



Manchester City Football Academy Pitches 5,6,7
Manchester, North West

GRID SUMMARY	
Name:	04 Practice Area 1
Size:	70.0m x 110.0m
Spacing:	5.0m x 5.0m
Height:	1.0m above grade

ILLUMINATION SUMMARY	
MAINTAINED HORIZONTAL LUX	
Entire Grid	
Scan Average:	402.28
Maximum:	491
Minimum:	270
Min / Avg:	0.67
Min / Max:	0.55
UG (adjacent pts):	1.37
CU:	0.60
No. of Points:	88
LUMINAIRE INFORMATION	
Applied Circuits:	D
No. of Luminaires:	8
Total Load:	11.28 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.

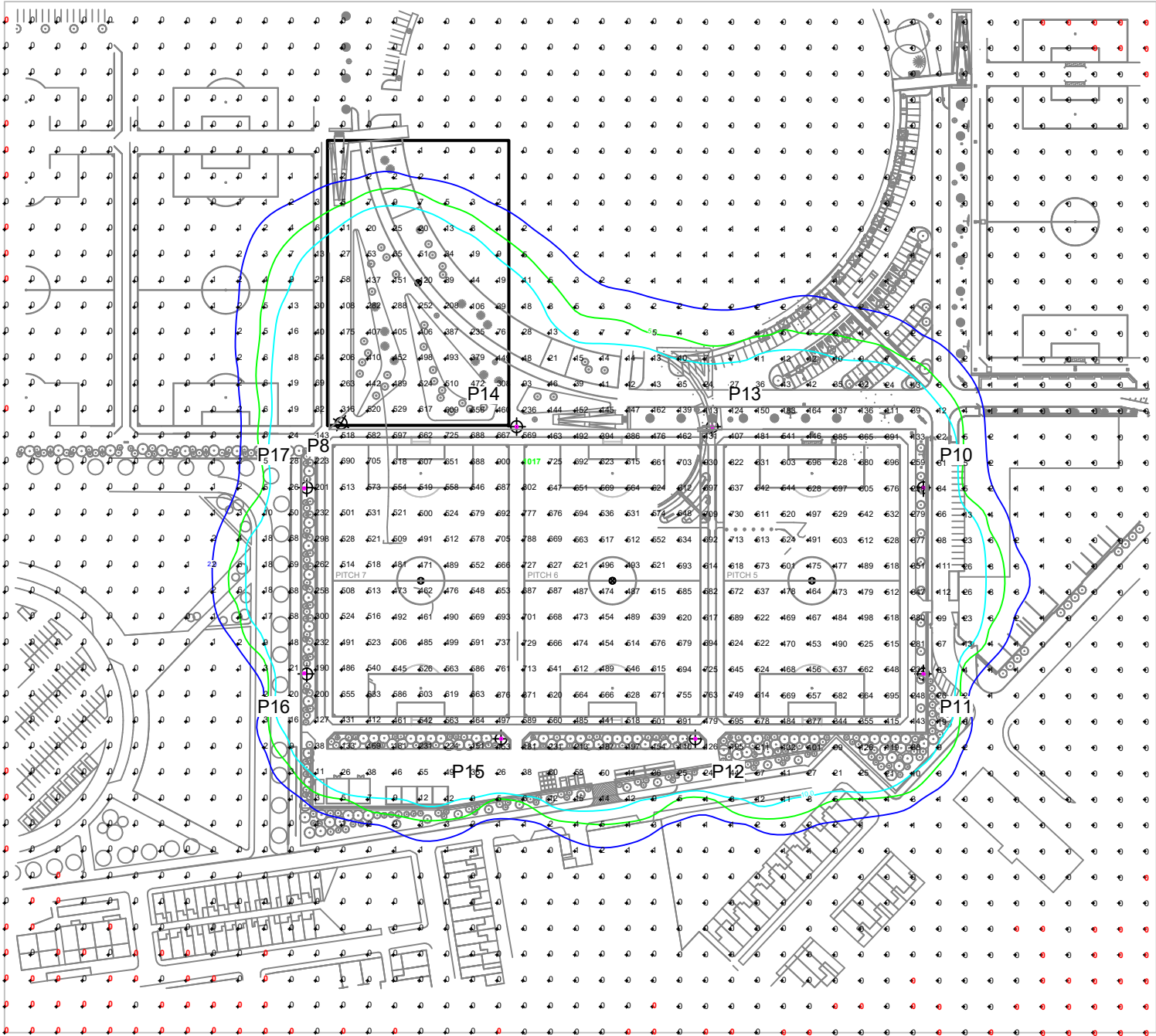
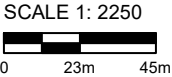


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ILLUMINATION SUMMARY

EQUIPMENT LIST FOR AREAS SHOWN							
Pole				Luminaires			
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID
1	P8	24.38m	-	24.38m	TLC-LED-1500	4	4
2	P10-P11	21.34m	0m	21.33m	TLC-LED-1500	7	7
2	P12, P15	24.38m	0m	24.37m	TLC-LED-1200	2	2
				24.37m	TLC-LED-1500	14	14
1	P13	24.38m	0m	24.37m	TLC-LED-1500	14	14
				24.37m	TLC-LED-1200	2	2
1	P14	24.38m	0m	24.37m	TLC-LED-1500	14/4*	18
				24.37m	TLC-LED-1200	2	2
2	P16-P17	21.34m	-	21.34m	TLC-LED-1500	7	7
9	TOTALS					100	100

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



GRID SUMMARY	
Name:	Spill Blanket
Spacing:	10.0m x 10.0m
Height:	1.0m above grade

ILLUMINATION SUMMARY	
MAINTAINED HORIZONTAL LUX	
Entire Grid	
Scan Average:	100.06
Maximum:	1017
Minimum:	0
Min / Avg:	0.00
Min / Max:	0.00
UG (adjacent pts):	50.09
CU:	0.99
No. of Points:	1800
LUMINAIRE INFORMATION	
Applied Circuits:	A, B, C, D, E, F, G, H, I
No. of Luminaires:	100
Total Load:	139.08 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.

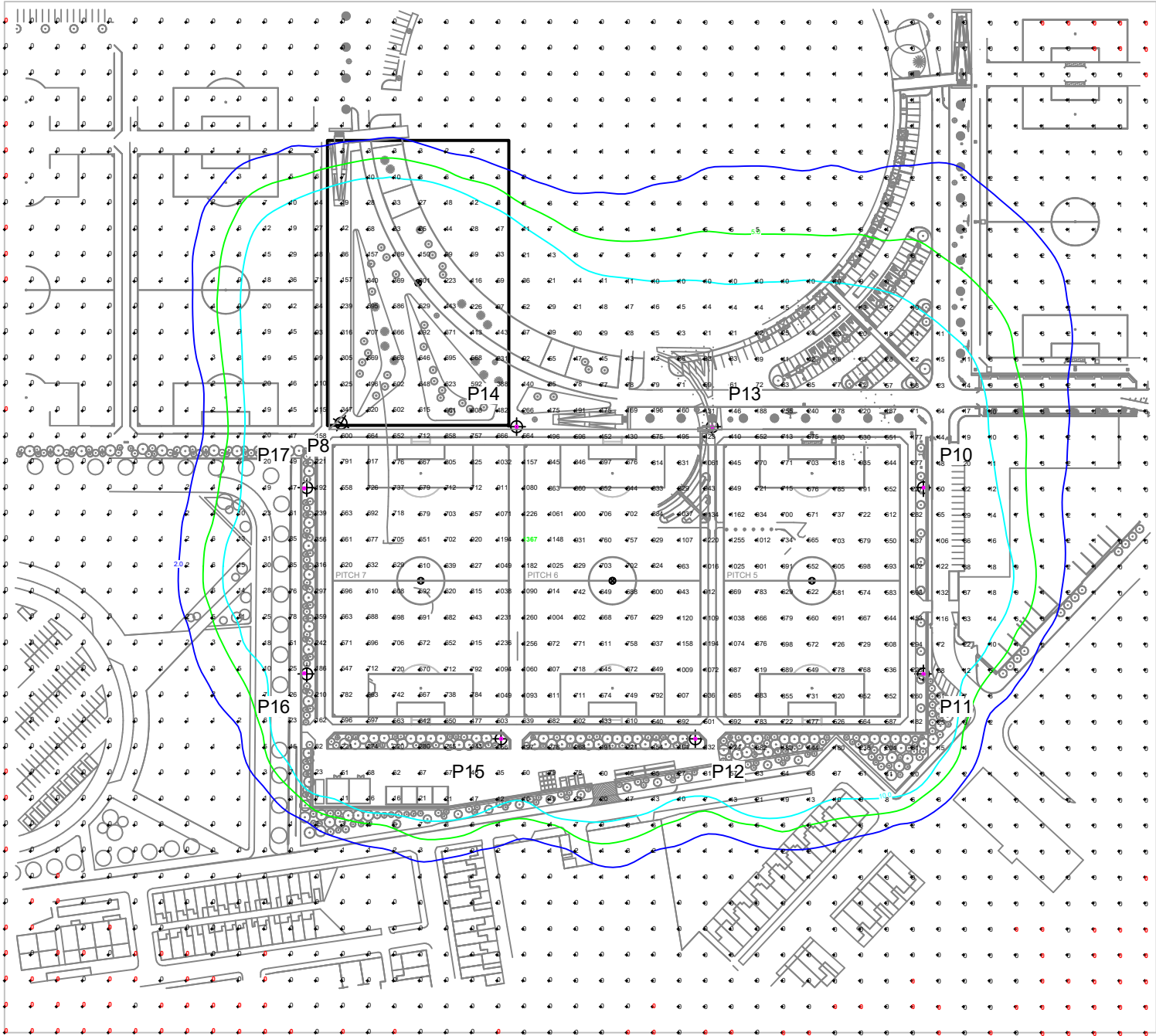
Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

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							
Pole				Luminaires			
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID
1	P8	24.38m	-	24.38m	TLC-LED-1500	4	4
2	P10-P11	21.34m	0m	21.33m	TLC-LED-1500	7	7
2	P12, P15	24.38m	0m	24.37m	TLC-LED-1200	2	2
				24.37m	TLC-LED-1500	14	14
1	P13	24.38m	0m	24.37m	TLC-LED-1500	14	14
				24.37m	TLC-LED-1200	2	2
1	P14	24.38m	0m	24.37m	TLC-LED-1500	14/4*	18
				24.37m	TLC-LED-1200	2	2
2	P16-P17	21.34m	-	21.34m	TLC-LED-1500	7	7
9	TOTALS					100	100

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



SCALE 1: 2250
0 23m 45m

ENGINEERED DESIGN By: C.Castaneda · File #203262E · 20-Jul-23

Manchester City Football Academy Pitches 5,6,7
Manchester, North West

GRID SUMMARY	
Name:	Spill Blanket
Spacing:	10.0m x 10.0m
Height:	1.0m above grade

ILLUMINATION SUMMARY	
MAINTAINED MAX VERTICAL LUX	
Entire Grid	
Scan Average:	137.19
Maximum:	1367
Minimum:	0
Min / Avg:	0.00
Min / Max:	0.00
UG (adjacent pts):	138.07
CU:	0.99
No. of Points:	1800
LUMINAIRE INFORMATION	
Applied Circuits:	A, B, C, D, E, F, G, H, I
No. of Luminaires:	100
Total Load:	139.08 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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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	P8	24.38m	-	24.38m	TLC-LED-1500	4	4	0
2	P10-P11	21.34m	0m	21.33m	TLC-LED-1500	7	7	0
2	P12, P15	24.38m	0m	24.37m	TLC-LED-1200	2	2	0
				24.37m	TLC-LED-1500	14	14	0
1	P13	24.38m	0m	24.37m	TLC-LED-1500	14	14	0
				24.37m	TLC-LED-1200	2	2	0
1	P14	24.38m	0m	24.37m	TLC-LED-1500	14/4*	18	0
				24.37m	TLC-LED-1200	2	2	0
2	P16-P17	21.34m	-	21.34m	TLC-LED-1500	7	7	0
9	TOTALS					100	100	0

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



Manchester City Football Academy Pitches 5,6,7
Manchester, North West

GRID SUMMARY	
Name:	LTW
Spacing:	10.0m
Height:	1.5m above grade

ILLUMINATION SUMMARY	
HORIZONTAL LUX	
Scan Average:	Entire Grid 0.8889
Maximum:	4.91
Minimum:	0.00
No. of Points:	34
LUMINAIRE INFORMATION	
Applied Circuits:	A, B, C, D, E, F, G, H, I
No. of Luminaires:	100
Total Load:	139.08 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

EQUIPMENT LIST FOR AREAS SHOWN								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
1	P8	24.38m	-	24.38m	TLC-LED-1500	4	4	0
2	P10-P11	21.34m	0m	21.33m	TLC-LED-1500	7	7	0
2	P12, P15	24.38m	0m	24.37m	TLC-LED-1200	2	2	0
				24.37m	TLC-LED-1500	14	14	0
1	P13	24.38m	0m	24.37m	TLC-LED-1500	14	14	0
				24.37m	TLC-LED-1200	2	2	0
1	P14	24.38m	0m	24.37m	TLC-LED-1500	14/4*	18	0
				24.37m	TLC-LED-1200	2	2	0
2	P16-P17	21.34m	-	21.34m	TLC-LED-1500	7	7	0
9	TOTALS					100	100	0

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



Manchester City Football Academy Pitches 5,6,7
Manchester, North West

GRID SUMMARY	
Name:	LTW
Spacing:	10.0m
Height:	1.5m above grade

ILLUMINATION SUMMARY	
MAX VERTICAL LUX	
Scan Average:	Entire Grid 2.0089
Maximum:	9.37
Minimum:	0.00
No. of Points:	34
LUMINAIRE INFORMATION	
Applied Circuits:	A, B, C, D, E, F, G, H, I
No. of Luminaires:	100
Total Load:	139.08 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 LAYOUT

INCLUDES:

- MCFA Pitch 5
- MCFA Pitch 6
- MCFA Pitch 7
- Practice Area 1

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.

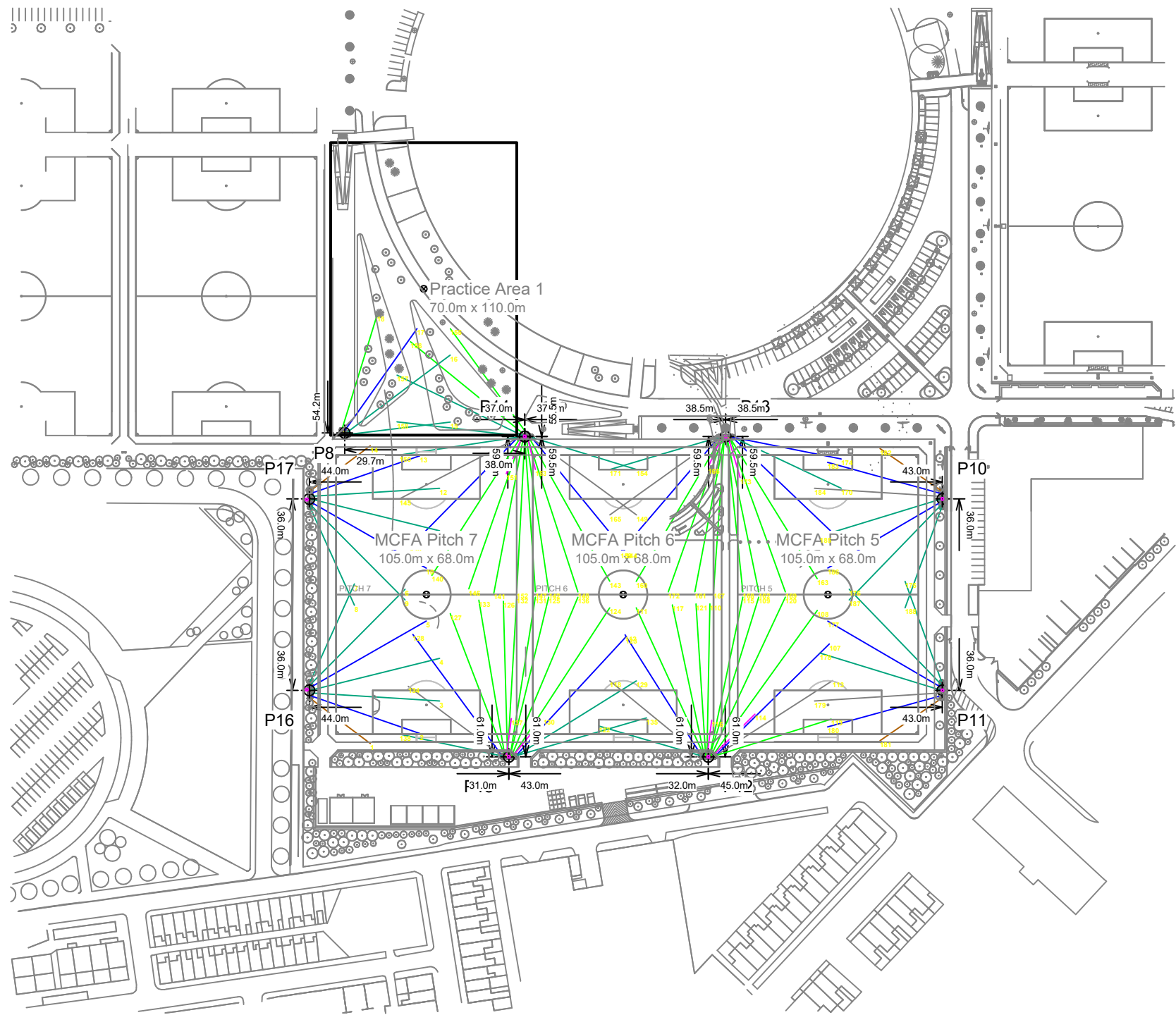
EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires		
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE
1	P8	24.38m	-	24.38m	TLC-LED-1500	4
2	P10-P11	21.34m	-	21.34m	TLC-LED-1500	7
2	P12, P15	24.38m	-	24.38m	TLC-LED-1200	2
				24.38m	TLC-LED-1500	14
1	P13	24.38m	-	24.38m	TLC-LED-1500	14
				24.38m	TLC-LED-1200	2
1	P14	24.38m	-	24.38m	TLC-LED-1500	14/4*
				24.38m	TLC-LED-1200	2
2	P16-P17	21.34m	-	21.34m	TLC-LED-1500	7
9	TOTALS					100

* 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)				
	220	230	240	380	400
Single Phase Voltage	(50)	(50)	(50)	(50)	(50)
TLC-LED-1500	7.9	7.6	7.3	4.6	4.4
TLC-LED-1200	6.5	6.3	6.0	3.8	3.6



SCALE 1 : 2000



ENGINEERED DESIGN By: C.Castaneda · File #203262E · 20-Jul-23

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



We Make It Happen®

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