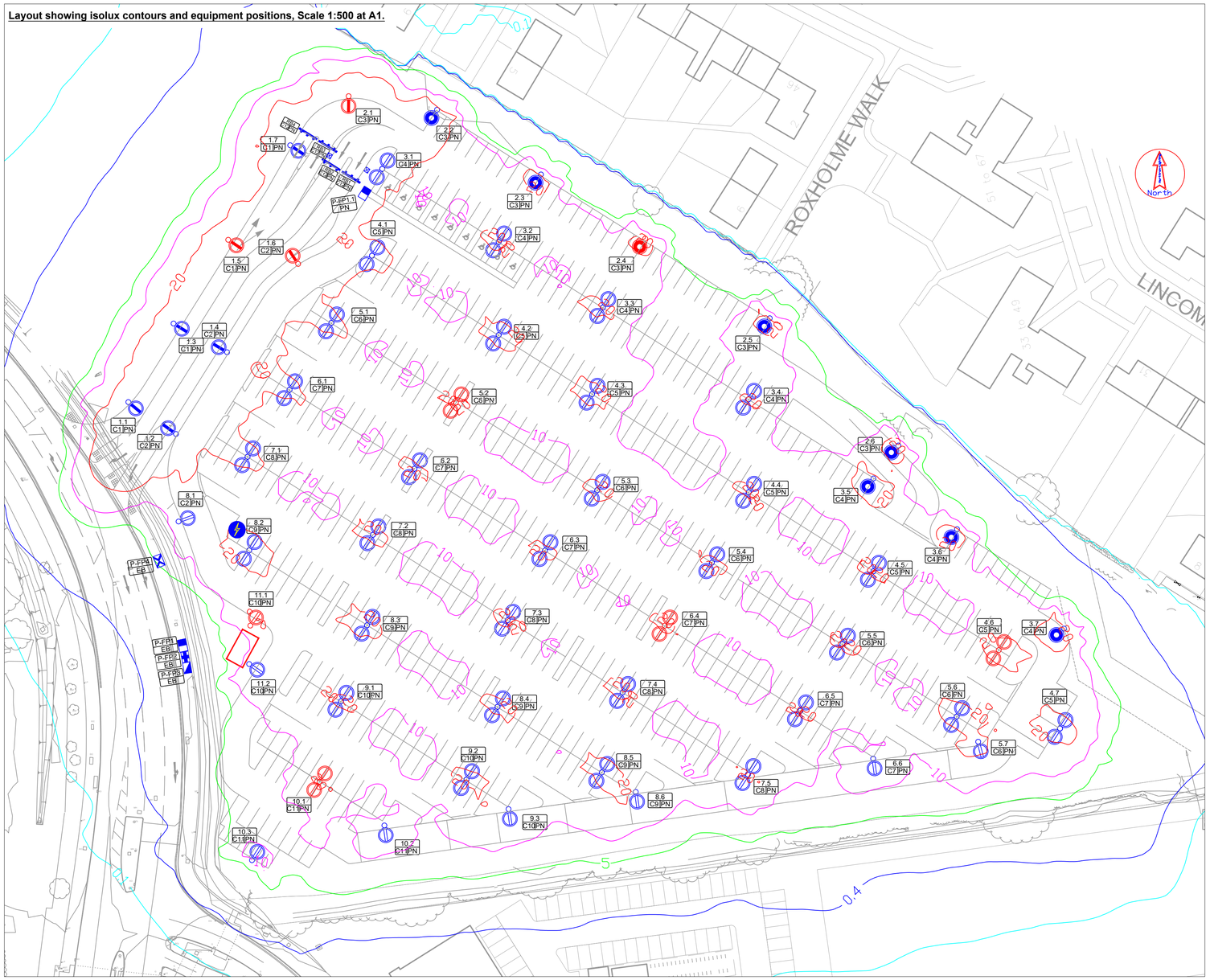
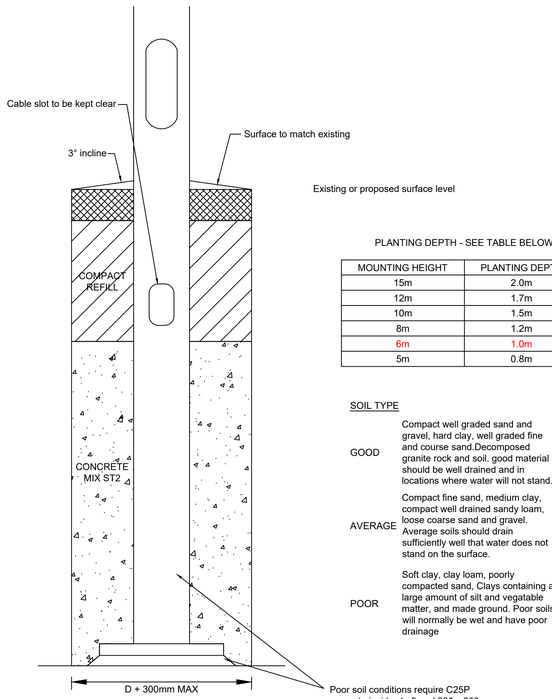
Layout showing isolux contours and equipment positions, Scale 1:500 at A1.



Typical column installation details N.T.S



PLANTING DEPTH - SEE TABLE BELOW

MOUNTING HEIGHT	PLANTING DEPTH
15m	2.0m
12m	1.7m
10m	1.5m
8m	1.2m
6m	1.0m
5m	0.8m

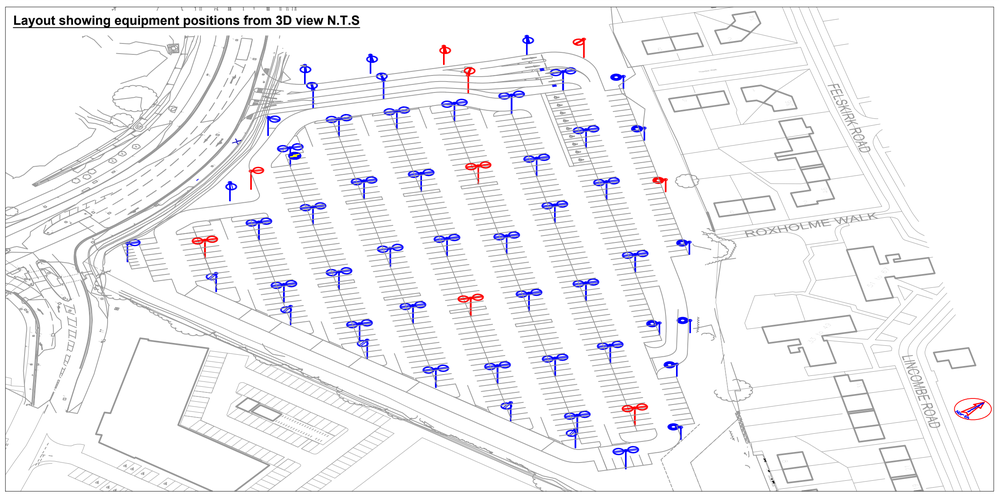
SOIL TYPE

GOOD	Compact well graded sand and gravel, hard clay, well graded fine and course sand.Decomposed granite rock and soil. good material should be well drained and in locations where water will not stand.
AVERAGE	Compact fine sand, medium clay, compact well drained sandy loam, loose coarse sand and gravel. Average soils should drain sufficiently well that water does not stand on the surface.
POOR	Soft clay, clay loam, poorly compacted sand, Clays containing a large amount of silt and vegatable matter, and made ground. Poor soils will normally be wet and have poor drainage

Poor soil conditions require C25P concrete inside shaft and 300 x 300 x 50 pc concrete slab and 25 sand bed

Class	Horizontal illuminance	
	E av in lux (minimum maintained)	Uo (minimum)
CE0	50	0.4
CE1	30	0.4
CE2	20	0.4
CE3	15	0.4
CE4	10	0.4
CE5	7.5	0.4

Layout showing equipment positions from 3D view N.T.S



Site overview N.T.S



Key

Proposed Street Lighting Equipment

Proposed Column Types:
Manufacturer: Aluvia
Material: Hot dip Galvanised Steel
Type: Tubular
Rust Protection: Glass Flake Epoxy
Other: 550W Tahoi Cut-out ; 1 Per column

Quantity: 63 **Type A:** Proposed 6m column
Quantity: 92 **Type B:** Proposed 4m column
Quantity: 08 **Type C:** Proposed 6m Base-Hinged column
Quantity: 01 **Type D:** Proposed 4m Base-Hinged column

Symbols shown in RED are the same lanterns as BLUE with a Raise and Lower column.
Columns show in Red must have support for CCTV capabilities.

Proposed Bracket Types:
Quantity: 34 **Type A:** Manufacturer: Valmont Stainton; Material: Galvanised steel; Type: Double Pole bracket (0.3m)
Quantity: 79 **Type B:** No Bracket

Proposed Lantern Types:
Manufacturer: Holophane; Model: VMAX; Tilt: 0 Degrees
Holophane VMAX (for illustrative purposes only)

Quantity: 85 **Type A:** Optic: VMX-2 LA164 V1 D4D4; Wattage: 27W; Lumen Output: 3,924lm; Ordering Code: VMX-2 LA164 V1 D4D4 WG27 IE'G'
Quantity: 08 **Type B:** Optic: VMX-2 LA164 V3 D4D4; Wattage: 122W; Lumen Output: 16,336lm; Ordering Code: VMX-2 LA164 V3 D4D4 WY22 IE'G'

Column: Type A; Lantern: Type A; Bracket: Type A
Column: Type A; Lantern: Type A; Bracket: Type B
Column: Type B; Lantern: Type B; Bracket: Type A
Column: Type B; Lantern: Type B; Bracket: Type B
Column: Type C; Lantern: Type A; Bracket: Type A
Column: Type C; Lantern: Type A; Bracket: Type B
Column: Type D; Lantern: Type A; Bracket: Type A
Column: Type D; Lantern: Type B; Bracket: Type B

Proposed Street Lighting Equipment (Other)

Quantity: 01 **Type A:** Manufacturer: Lucy Zodion; Order Code: THM0034668; Size Code: 14; External Dimensions: 1110x400x1294 (mm); Backboard Dimensions: 1080x1075 (mm); Supply In: 3 Phase DNO metered supply; Supply Out: BS-88 fuse protected cables
Quantity: 01 **Type B:** Manufacturer: Lucy Zodion; Order Code: THM0034666; Size Code: 08; External Dimensions: 600x250x836 (mm); Backboard Dimensions: 580x670 (mm); Supply In: Single Phase DNO metered supply; Supply Out: BS-88 fuse protected cables
Quantity: 01 **Type C:** Manufacturer: Lucy Zodion; Order Code: THM0024668; Size Code: 08; External Dimensions: 600x250x836 (mm); Backboard Dimensions: 580x670 (mm); Supply In: DNO unmetered supply; Supply Out: BS-88 fuse protected cables (BT / Fibre Cable Only)
Quantity: 01 **Type D:** Manufacturer: Lucy Zodion; Order Code: THM0024668; Size Code: 14; External Dimensions: 1110x400x1294 (mm); Backboard Dimensions: 1080x1075 (mm); Supply In: Single Phase DNO metered supply; Supply Out: BS-88 fuse protected cables

Proposed Equipment (Other)

Road crossing duct chamber 300x300 (mm)
Citronyx ANPR Camera with Raise and lower barrier; Wattage: 20W; Dimensions: 780mm x 260mm x 315mm (H x 66 x D)
APNR Cameras (Presumed 20W)
ROLEC EV car charging point 2.8kW in power (19.5A)

Contour Values	Contour colours
0.1 Lux	
0.4 Lux	
5.0 Lux	
10 Lux	
20 Lux	

Security hut - CCTV to be powered and monitored from here

Proposed column scheme numbering for proposed equipment
X.X= Proposed Column number
C1 = Proposed Circuit number
PN = Private Cable Network Connection
EB = DNO / IDNO connection
RB1 = Raising Barrier number

REV	DESCRIPTION	DATE	DRN	APP
F	Client comments added to drawing	18/11/20	SS	PDL
E	Feeder pillars relocated	26/10/20	SS	PDL
D	Client comments added to drawing	11/09/20	SS	PDL
C	Additional notes added to drawing	04/09/20	SS	PDL
B	Information revised	21/08/20	SS	PDL
A	Lantern & Ducting change	12/08/20	SS	PDL

DRAWING NO: 21555-D-01
REV: F

DRAWING STATUS: DESIGN

CLIENT: IronsideFarrar Environmental Consultants

PROJECT: Manchester Airport Car Park Private

TITLE: Proposed Lighting and Installation Design Layout

SCALE: AS INDICATED
DESIGNED BY: SS 30/06/20
SHEET NO: Sheet 1 of 2
APPROVED BY: PDL 16/07/20

Harttron
CONSULTATION, DESIGN & INSTALLATION
E. info@harttron.com
T. 01625 850855 F. 01625 850856

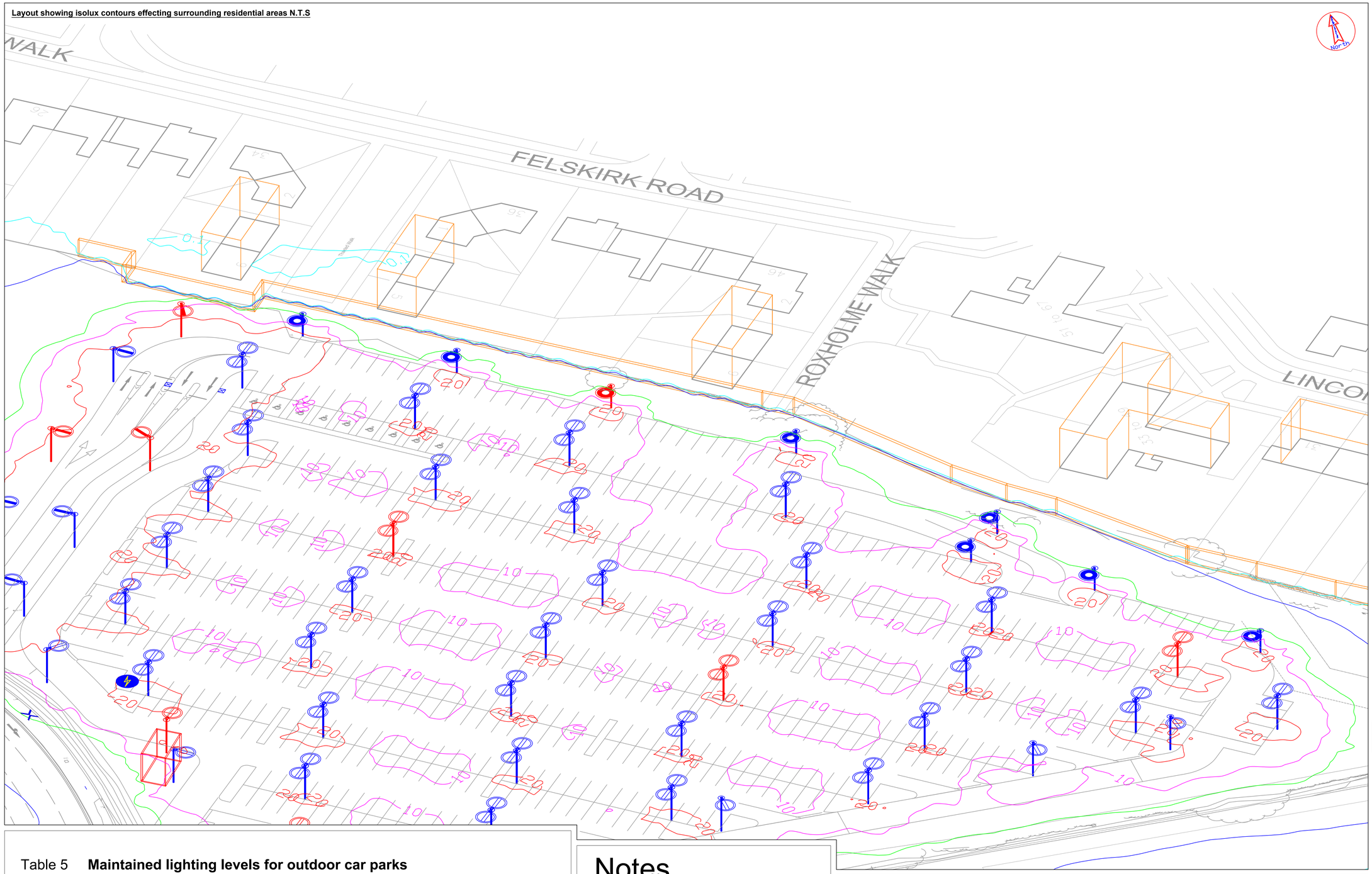
PROJECT: F:\Projects\IronsideFarrar\Manchester Airport Car Park\Drawings\Rev_F

XREF DRAWINGS:

Date Plotted: 25/11/2020 8:19 AM

HARTTRON DESIGNS ARE THE PROPERTY OF HARTTRON LIMITED, COPIES IN PART OR WHOLE ARE NOT PERMITTED WITHOUT WRITTEN AUTHORISATION. (C) COPYRIGHT.

Layout showing isolux contours effecting surrounding residential areas N.T.S



Key

Proposed Street Lighting Equipment

Proposed Column Types:
Manufacturer: Lucy Zodion
Material: Hot dip Galvanised Steel
Type: Tubular
Finish Colour: Gloss Flake Epoxy
Other: 830B Tufcio Cut-out : 1 Per column

Quantity: 53 **Type A:** Proposed 6m column
Quantity: 57 **Type B:** Proposed 4m column
Quantity: 08 **Type C:** Proposed 6m Base-Hinged column
Quantity: 01 **Type D:** Proposed 4m Base-Hinged column

Symbols shown in RED are the same lanterns as BLUE with a Raise and Lower column.
Columns show in Red must have support for CCTV capabilities.

Proposed Bracket Types:

Quantity: 34 **Type A:**
Manufacturer: Valmont Stainton
Material: Galvanised steel
Type: Double Pole bracket (0.3m)

Quantity: 35 **Type B:** No Bracket

Proposed Lantern Types:
Manufacturer: Holophane
Finish: White
Tilt: 0 Degrees

Holophane VMAX
(for illustrative purposes only)

Quantity: 65 **Type A:**
Optic: VMX-2-LA044-V1-DI/D4
Finish: White
Lumen Output: 3.50klm
Photometry File: VMX-2-LA044-V1-DI/D4.IRG27.IES'

Quantity: 08 **Type B:**
Optic: VMX-2-LA164-V3-DI/D4
Finish: White
Lumen Output: 10.59klm
Photometry File: VMX-2-LA164-V3-DI/D4.W122.IES'

Quantity: 53 **Column:** Type A **Lantern:** Type A **Bracket:** Type A	Quantity: 57 **Column:** Type A **Lantern:** Type A **Bracket:** Type B	Quantity: 08 **Column:** Type B **Lantern:** Type A **Bracket:** Type B	Quantity: 01 **Column:** Type A **Lantern:** Type B **Bracket:** Type B
Quantity: 08 **Column:** Type C **Lantern:** Type A **Bracket:** Type A	Quantity: 00 **Column:** Type C **Lantern:** Type A **Bracket:** Type B	Quantity: 00 **Column:** Type D **Lantern:** Type A **Bracket:** Type B	Quantity: 00 **Column:** Type C **Lantern:** Type B **Bracket:** Type B

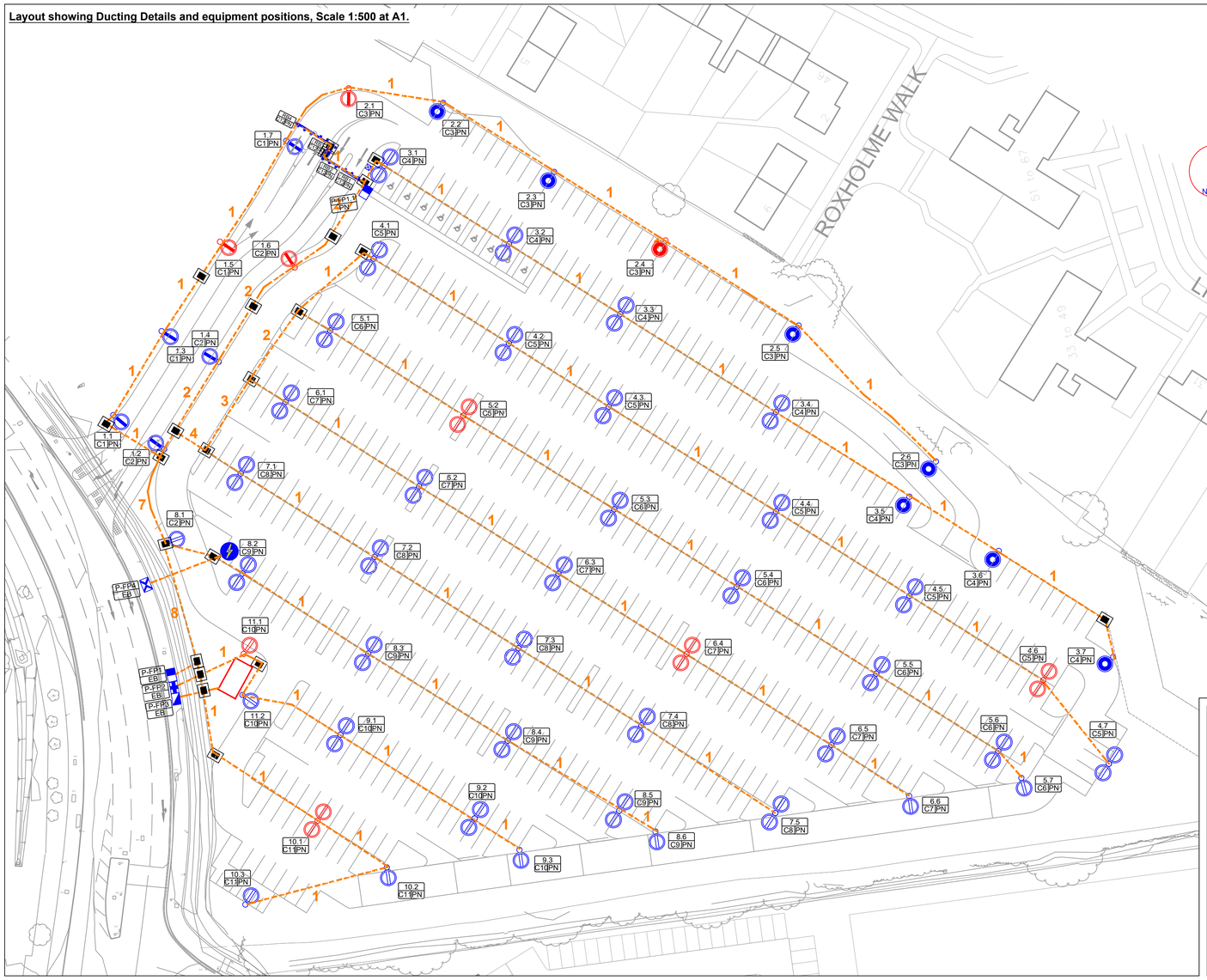
Proposed Street Lighting Equipment (Other)

Quantity: 01 **Type A:**
Manufacturer: Lucy Zodion
Order Code: THM0024668
Size Code: 14
External Dimensions: 1110x450x1294 (mm)
Backboard Dimensions: 930x475 (mm)
Supply In: 3 Phase DNO metered supply
Supply Out: BS-88 fuse protected cables

Quantity: 01 **Type B:**
Manufacturer: Lucy Zodion
Order Code: THM0024668
Size Code: 14
External Dimensions: 600x250x836 (mm)
Backboard Dimensions: 550x475 (mm)
Supply In: DNO unmetered supply
Supply Out: BS-88 fuse protected cables

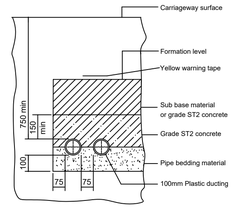
Quantity: 01 **Type C:**
Manufacturer: Lucy Zodion
Order Code: THM0024668
**

Layout showing Ducting Details and equipment positions, Scale 1:500 at A1.

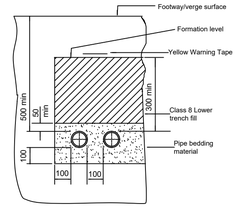


N.T.S

Type A
Ducts Laid Under Carriageway



Type B
Ducts Laid Under Footway and Verges

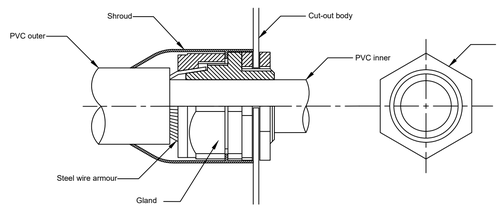


Notes

1. All dimensions are in millimeters unless otherwise stated.
2. All private street lighting ducts to be orange coloured polyethylene.
3. Pipe bedding material maximum aggregate size 2mm; eg washed sand.

N.T.S

BW Gland Assembly
(for use with multi-core SWA cable)



Notes

1. All wiring including component labelling to be in accordance with BS7671.

2. Prior to excavation works the installation contractor must be aware of underground services or hazards which may be encountered in the installation of the lighting system. Advice should be sought from the developers engineering representative.

3. The installation contractor must be aware of any overhead obstructions. Advice should be sought from the developers engineering representative.

Key

Proposed Street Lighting Equipment

Proposed Column Types:
Manufacturer: Abacus
Material: Hot dip Galvanised Steel
Type: Tubular
Rust Protection: Gloss Flake Epoxy
Other: BS88 Tufco Cutout - 1 Per column

Quantity: 53 **Type A:** Proposed 6m column
Quantity: 57 **Type B:** Proposed 4m column
Quantity: 05 **Type C:** Proposed 6m Base-Hinged column
Quantity: 01 **Type D:** Proposed 4m Base-Hinged column

Symbols shown in RED are the same lanterns as BLUE with a Raise and Lower column.
Columns show in Red must have support for CCTV capabilities.

Proposed Bracket Types:
Quantity: 14 **Type A:** **Manufacturer:** Valmont Stanton **Material:** Galvanised steel **Type:** Double Pole bracket (0.3m)
Quantity: 79 **Type B:** No Bracket

Proposed Lantern Types:
Manufacturer: Thirtyfame **Model:** VMX **Tilt:** 0 Degrees

Quantity: 65 **Type A:** **Optic:** VMX.2.LA044.V1.D4D4 **Lamp:** 4000K **Lumen Output:** 3.32klm **Photometry File:** VMX.2.LA044.V1.D4D4.W027.IES'
Quantity: 08 **Type B:** **Optic:** VMX.2.LA104.V3.D4D4 **Lamp:** 4000K **Lumen Output:** 16.58klm **Photometry File:** VMX.2.LA104.V3.D4D4.W122.IES'

Column: Type A Lantern: Type A Bracket: Type A — 14
Column: Type A Lantern: Type A Bracket: Type B — 65
Column: Type B Lantern: Type A Bracket: Type B — 08
Column: Type A Lantern: Type B Bracket: Type B — 79
Column: Type C Lantern: Type A Bracket: Type A — 01
Column: Type C Lantern: Type A Bracket: Type B — 04
Column: Type D Lantern: Type A Bracket: Type B — 01
Column: Type C Lantern: Type B Bracket: Type B — 01

Proposed Street Lighting Equipment (Other)

Type A: Quantity: 01 — **Manufacturer:** Lucy Zodion **Order Code:** TH8002/4668 **Size Code:** 14 **External Dimensions:** 1110x630x1294 (mm) **Backboard Dimensions:** 1350x1075 (mm) **Supply In:** 1 Phase DNO metered supply **Supply Out:** BS-88 fuse protected cables

Type B: Quantity: 01 — **Manufacturer:** Lucy Zodion **Order Code:** TH8002/4666 **Size Code:** 08 **External Dimensions:** 600x250x836 (mm) **Backboard Dimensions:** 500x675 (mm) **Supply In:** DNO unmetered supply **Supply Out:** BS-88 fuse protected cables

Type C: Quantity: 01 — **Manufacturer:** Lucy Zodion **Order Code:** TH8002/4658 **Size Code:** 08 **External Dimensions:** 600x250x836 (mm) **Backboard Dimensions:** 500x675 (mm) **Supply In:** DNO unmetered supply **Supply Out:** BS-88 fuse protected cables **(BT / Fibre Cable Only)**

Type D: Quantity: 1 — **Manufacturer:** Lucy Zodion **Order Code:** TH8002/4666 **Size Code:** 14 **External Dimensions:** 1110x630x1294 (mm) **Backboard Dimensions:** 1350x1075 (mm) **Supply In:** 1 Phase DNO metered supply **Supply Out:** BS-88 fuse protected cables

Proposed Equipment (Other)

Road crossing duct: chamber 300x300 (mm) — 02
CCtv/anpr: ANPR Camera with Raise and lower barrier **Type:** Boom **Dimensions:** 780mm x 260mm x 315mm (H x W x D) — 04
APNR Cameras (Presumed 20W)
ROLEC EV car charging point 3.6kW in power (19.5A) — 01
100mm MDPE Ducting
100mm DNO MDPE Ducting (Indicative only)*

* DNO Ducting to have no duct chambers allocated - DNO supplier does not accept chambers

100mm orange MDPE Duct at 750mm across highway / car parks and 450mm cover in footway / service strip. Preferred number of ducts shown on drawing.

Number of ducts required

An indication of how many ducts must be installed is given on this drawing however it is the responsibility of the installation contractor to ensure that there are a sufficient number of ducts layed for 11kv cable per 11kv duct.

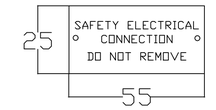
Security hut - CCTV to be powered and monitored from here

Proposed column scheme numbering for proposed equipment

1.1= Proposed Column number
C1 = Proposed Circuit number
PN = Private Cable Network Connection
EB = DNO / IDNO connection
RB1 = Raising Barrier number

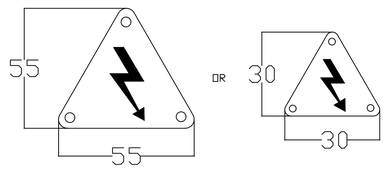
Column numbering is only indicative and may be subject to change upon installation of equipment

LABEL 'D'



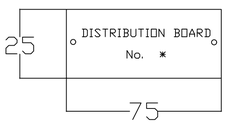
Label shall have 4mm black lettering on a white background and fixed using brass nuts, bolts and nylon washers

LABEL 'A'



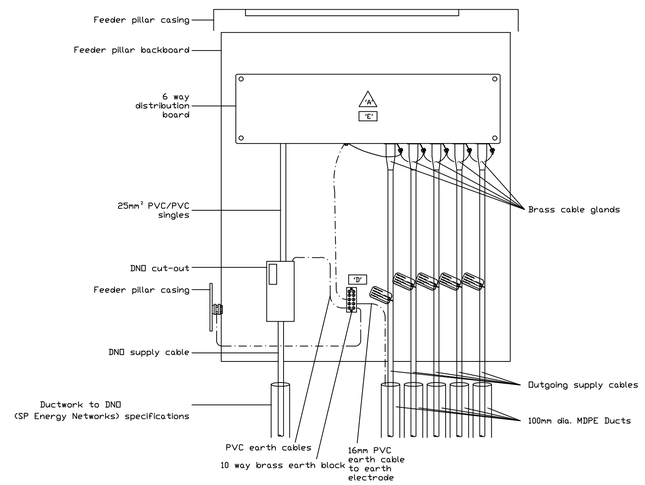
Label to be yellow background with black symbol and fixed using brass nuts, bolts and nylon washers

LABEL 'E'

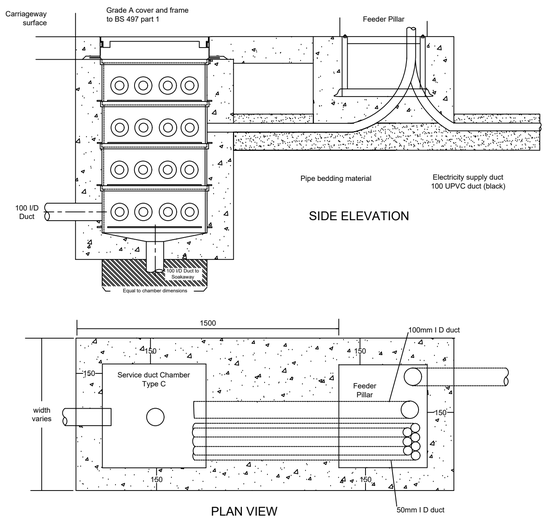


Label shall have 5mm black lettering on a white background and fixed using brass nuts, bolts and nylon washers

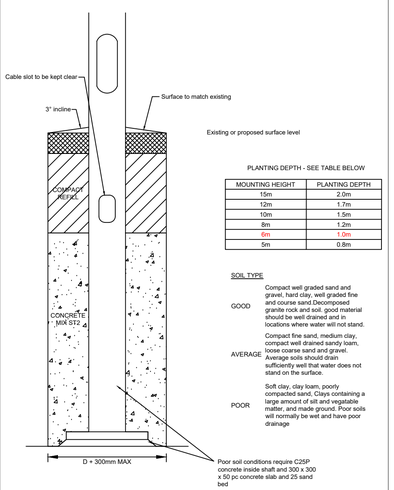
Feeder Pillar Details N.T.S



Ducting details N.T.S



Typical column installation details N.T.S



PLANTING DEPTH - SEE TABLE BELOW

MOUNTING HEIGHT	PLANTING DEPTH
15m	2.0m
12m	1.7m
10m	1.5m
8m	1.2m
6m	1.0m
5m	0.8m

SOIL TYPE

GOOD — Compact well graded sand and gravel, hard clay, well graded fine and course sand.Decomposed granite rock and soil. good material should be well drained and in locations where water will not stand.

AVERAGE — Compact fine sand, medium clay, compact well drained sandy loam, loose coarse sand and gravel. Average soils should drain sufficiently well that water does not stand on the surface.

POOR — Soft clay, clay loam, poorly compacted sand, Clays containing a large amount of silt and vegatable matter, and made ground. Poor soils will normally be wet and have poor drainage

REV	DESCRIPTION	DATE	DRN	APP
F	Client comments added to drawing	18/11/20	SS	PDL
E	Feeder pillars relocated	26/10/20	SS	PDL
D	Client comments added to drawing	11/09/20	SS	PDL
C	Additional infomation added to drawing	04/09/20	SS	PDL
B	Information revised	21/08/20	SS	PDL
A	Lantern & Ducting change	12/08/20	SS	PDL

DRAWING NO: 21555-D-02
REV: F

DRAWING STATUS: DESIGN

CLIENT:

IronsideFarrar Environmental Consultants

PROJECT: Manchester Airport Car Park Private

TITLE: Proposed Ducting Layout

SCALE: AS INDICATED
DESIGNED BY: SS 30/06/20
SHEET NO: Sheet 1 of 1
APPROVED BY: PDL 16/07/20

Harttron

CONSULTATION, DESIGN & INSTALLATION

E. info@harttron.com

T. 01625 850855 F. 01625 850856

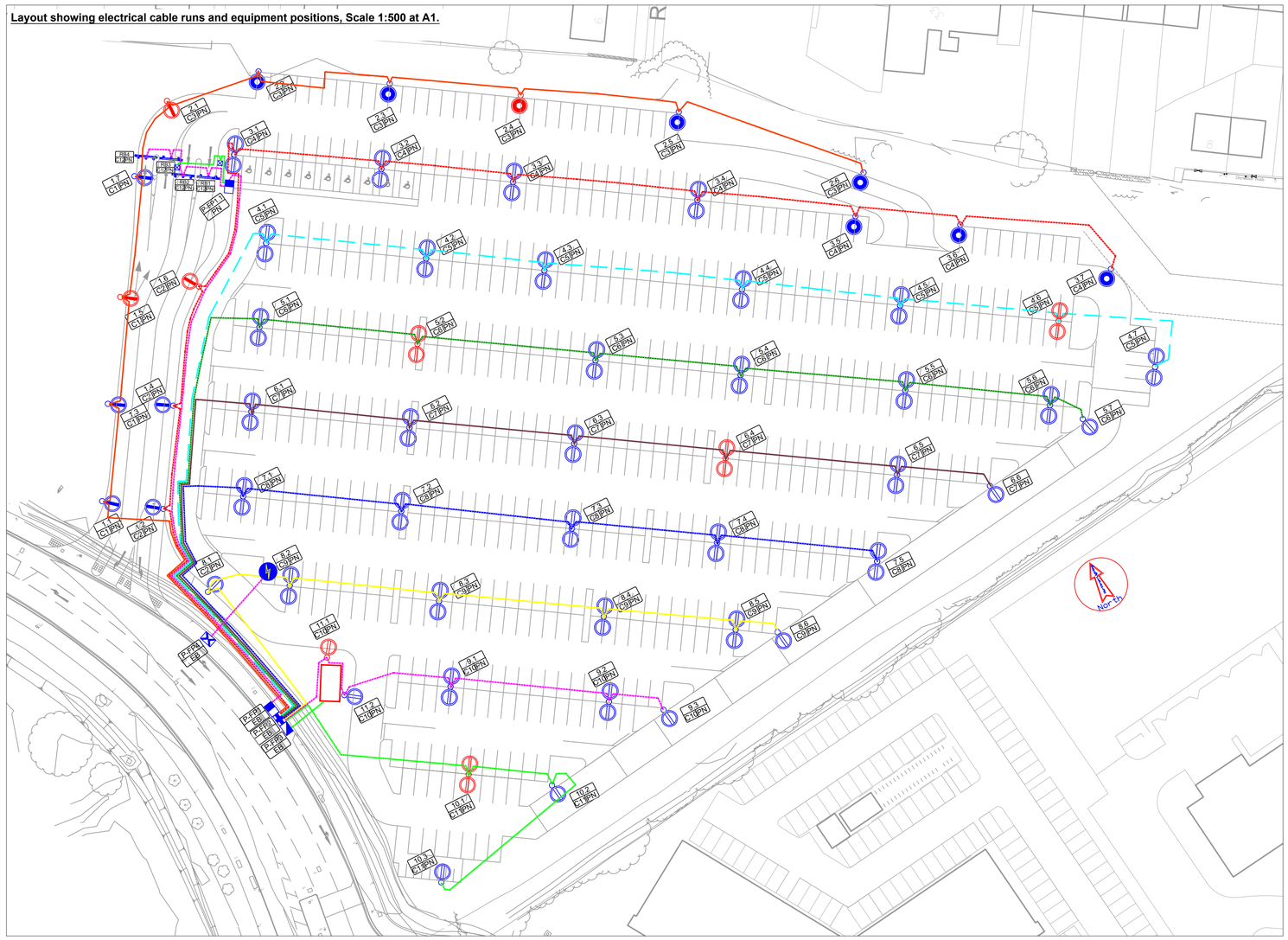
PROJECT: F:\Projects\IronsideFarrar\Manchester Airport Car Park\Drawings\Rev_F

XREF DRAWINGS:

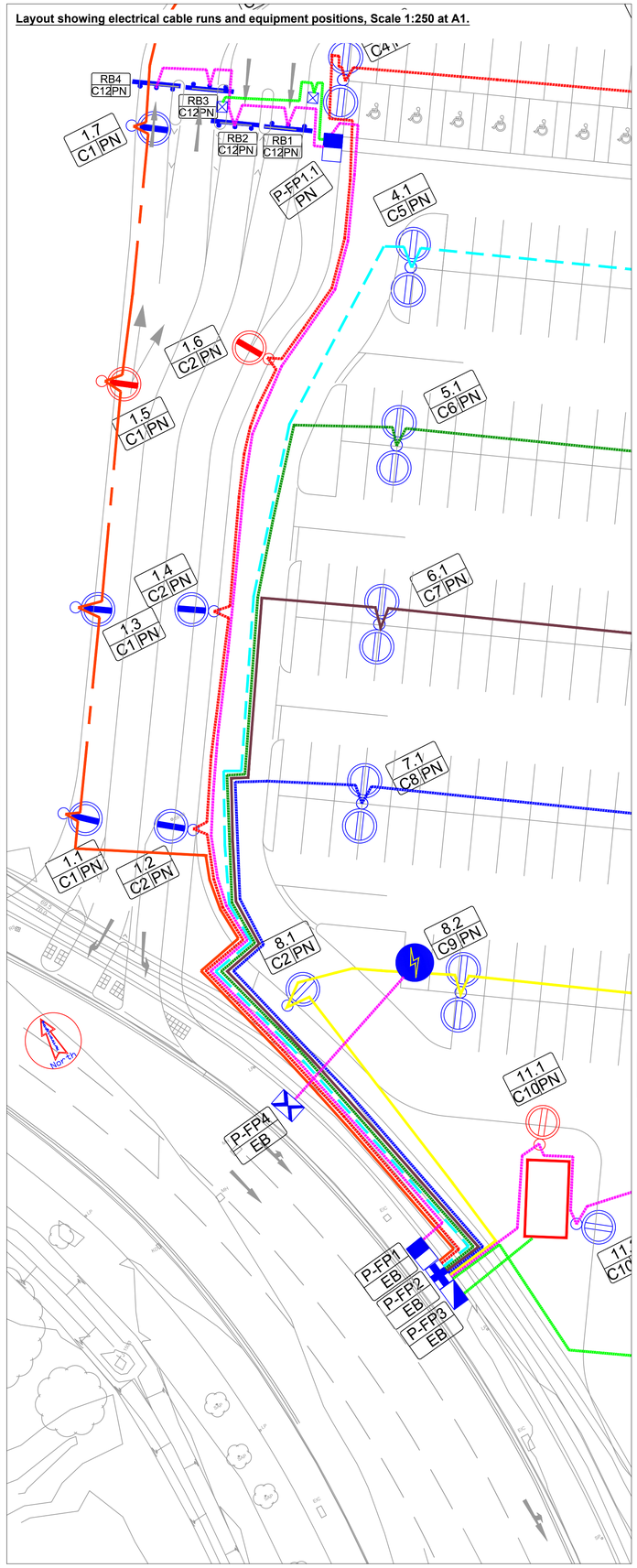
Date Plotted: 25/11/2020 8:21 AM

HARTTRON DESIGNS ARE THE PROPERTY OF HARTTRON LIMITED, COPIES IN PART OR WHOLE ARE NOT PERMITTED WITHOUT WRITTEN AUTHORISATION. (C) COPYRIGHT.

Layout showing electrical cable runs and equipment positions, Scale 1:500 at A1.



Layout showing electrical cable runs and equipment positions, Scale 1:250 at A1.



Notes

1. All wiring including component labelling to be in accordance with BS7671.

2. Prior to excavation works the installation contractor must be aware of underground services or hazards which may be encountered in the installation of the lighting system. Advice should be sought from the developers engineering representative.

3. The installation contractor must be aware of any overhead obstructions. Advice should be sought from the developers engineering representative.

BoQ

HOLOPHANE EUROPE LIMITED VMX.2.LA044.V1.D4D4.W027
HOLOPHANE EUROPE LIMITED PHOTOMETRIC LAB test report no. B14065 - SUM19007
lamp(s): LA044
candela file 'VMX.2.LA044.V1.D4D4.W027.IES'
1 lamp(s) per luminaire, photometry is absolute
Maintenance Factor = 0.820, watts per luminaire = 27
Outreach (from mounting axis to photometric center)= 300 mm
tilt angle= 5 deg
mounting height= 4 m
number locations= 8, number luminaires= 8
kw all locations= 0.2

HOLOPHANE EUROPE LIMITED VMX.2.LA164.V3.D4D4.W122
HOLOPHANE EUROPE LIMITED PHOTOMETRIC LAB test report no. B14065 - SUM19007
lamp(s): LA164
candela file 'VMX.2.LA164.V3.D4D4.W122.IES'
1 lamp(s) per luminaire, photometry is absolute
Maintenance Factor = 0.820, watts per luminaire = 122
Outreach (from mounting axis to photometric center)= 300 mm
mounting height= 6 m
number locations= 8, number luminaires= 8
kw all locations= 1.0

HOLOPHANE EUROPE LIMITED VMX.2.LA044.V1.D4D4.W027
HOLOPHANE EUROPE LIMITED PHOTOMETRIC LAB test report no. B14065 - SUM19007
lamp(s): LA044
candela file 'VMX.2.LA044.V1.D4D4.W027.IES'
1 lamp(s) per luminaire, photometry is absolute
Maintenance Factor = 0.820, watts per luminaire = 27
Outreach (from mounting axis to photometric center)= 300 mm
mounting height= 6 m
number locations= 77, number luminaires= 77
kw all locations= 2.1

Key

Proposed Street Lighting Equipment

Proposed Column Types:
Manufacturer: Aspendale
Material: Hot dip Galvanised Steel
Type: Tubular
Root Protection: Glass Fibre Epoxy
Other: BS68 Tefco Cut-out ; 1 Per column

Quantity: 53 **Type A:** Proposed 6m column
Quantity: 12 **Type C:** Proposed 6m Base-Hinged column
Quantity: 10 **Type B:** Proposed 4m column
Quantity: 01 **Type D:** Proposed 4m Base-Hinged column

Symbols shown in RED are the same lanterns as BLUE with a **Raise and Lower** column.
Columns show in Red must have support for CCTV capabilities.

Proposed Bracket Types:
Quantity: 54 **Type A:** **Manufacturer:** Valmont Stainton **Material:** Galvanised steel **Type:** Double Pole bracket (0.3m)
Quantity: 74 **Type B:** No Bracket

Proposed Lantern Types:
Manufacturer: Holophane **Model:** VMAX **Tilt:** 0 Degrees



Holophane VMAX (for illustrative purposes only)

Quantity: 55 **Type A:** **Optic:** VMX.2.LA044.V1.D4D4 **Wattage:** 27W **Lumen Output:** 3.92klm **Photometry File:** VMX.2.LA044.V1.D4D4.W027.IES'

Quantity: 08 **Type B:** **Optic:** VMX.2.LA164.V3.D4D4 **Wattage:** 122W **Lumen Output:** 16.59klm **Photometry File:** VMX.2.LA164.V3.D4D4.W122.IES'

53 Column: Type A Lantern: Type A Bracket: Type A	08 Column: Type A Lantern: Type A Bracket: Type B	07 Column: Type B Lantern: Type A Bracket: Type B	08 Column: Type A Lantern: Type B Bracket: Type B
12 Column: Type C Lantern: Type A Bracket: Type A	01 Column: Type C Lantern: Type A Bracket: Type B	01 Column: Type D Lantern: Type A Bracket: Type B	08 Column: Type C Lantern: Type B Bracket: Type B

Proposed Street Lighting Equipment (Other)

Type A: Quantity: 01 — **Manufacturer:** Lucy Zodion **Order Code:** TH6003/4668 **Size Code:** 14 **External Dimensions:** 1110x400x1294 (mm) **Backboard Dimensions:** 1080x1075 (mm) **Supply In:** 2 Phase DNO metered supply **Supply Out:** BS-88 fuse protected cables

Type B: Quantity: 01 — **Manufacturer:** Lucy Zodion **Order Code:** TH6002/4666 **Size Code:** 14 **External Dimensions:** 600x250x836 (mm) **Backboard Dimensions:** 550x575 (mm) **Supply In:** DNO unmetered supply **Supply Out:** BS-88 fuse protected cables

Type C: Quantity: 01 — **Manufacturer:** Lucy Zodion **Order Code:** TH6002/4668 **Size Code:** 14 **External Dimensions:** 600x250x836 (mm) **Backboard Dimensions:** 550x575 (mm) **Supply In:** DNO unmetered supply **Supply Out:** BS-88 fuse protected cables **(BT / Fibre Cable Only)**

Type D: Quantity: 01 — **Manufacturer:** Lucy Zodion **Order Code:** TH6002/4666 **Size Code:** 14 **External Dimensions:** 1110x400x1294 (mm) **Backboard Dimensions:** 1080x1075 (mm) **Supply In:** Single Phase DNO metered supply **Supply Out:** BS-88 fuse protected cables

Proposed Equipment (Other)

Road crossing duct chamber 300x300 (mm)	Citysync ANPR Camera with Raise and lower barrier Wattage: 20W Dimensions: 780mm x 260mm x 315mm (H x W x D) 04
APNR Cameras (Presumed 20W) 02	RO/JEC EV car charging point 2.8kW in power (19.5A) 01

Cable / Duct types	Drawing Symbol
Proposed Curcit Cable 1	
Proposed Curcit Cable 2	
Proposed Curcit Cable 3	
Proposed Curcit Cable 4	
Proposed Curcit Cable 5	
Proposed Curcit Cable 6	
Proposed Curcit Cable 7	
Proposed Curcit Cable 8	
Proposed Curcit Cable 9	

Security hut - CCTV to be powered and monitored from here

Proposed column scheme numbering for proposed equipment

1.1= Proposed Column number
P-FP1 = Feeder Pillar Number
C1 = Proposed Circuit number
PN = Private Cable Network Connection
EB = Existing Building Supply
RB1 = Racing Barrier number

Column numbering is only indicative and may be subject to change upon installation of equipment

REV	DESCRIPTION	DATE	DRN	APP
F	Client comments added to drawing	18/11/20	SS	PDL
E	Feeder pillar relocated	26/10/20	SS	PDL
D	Client comments added to drawing	11/09/20	SS	PDL
C	Additional information added to drawing	04/09/20	SS	PDL
B	Information revised	21/08/20	SS	PDL
A	Lantern & Ducting change	12/08/20	SS	PDL

DRAWING NO: 21555-D-03 REV: F

DRAWING STATUS: DESIGN

CLIENT:

IronsideFarrar Environmental Consultants

PROJECT: Manchester Airport Car Park Private

TITLE: Proposed Electrical and Cabling detail Drawing

SCALE: AS INDICATED DESIGNED BY: SS 30/06/20

SHEET NO: Sheet 1 of 1 APPROVED BY: PDL 16/07/20

Harttron

CONSULTATION, DESIGN & INSTALLATION

E. info@harttron.com
T. 01625 850855 F. 01625 850856

PROJECT: F:\Projects\IronsideFarrar\Manchester Airport Car Park\Drawings\Rev_F

XREF DRAWINGS:

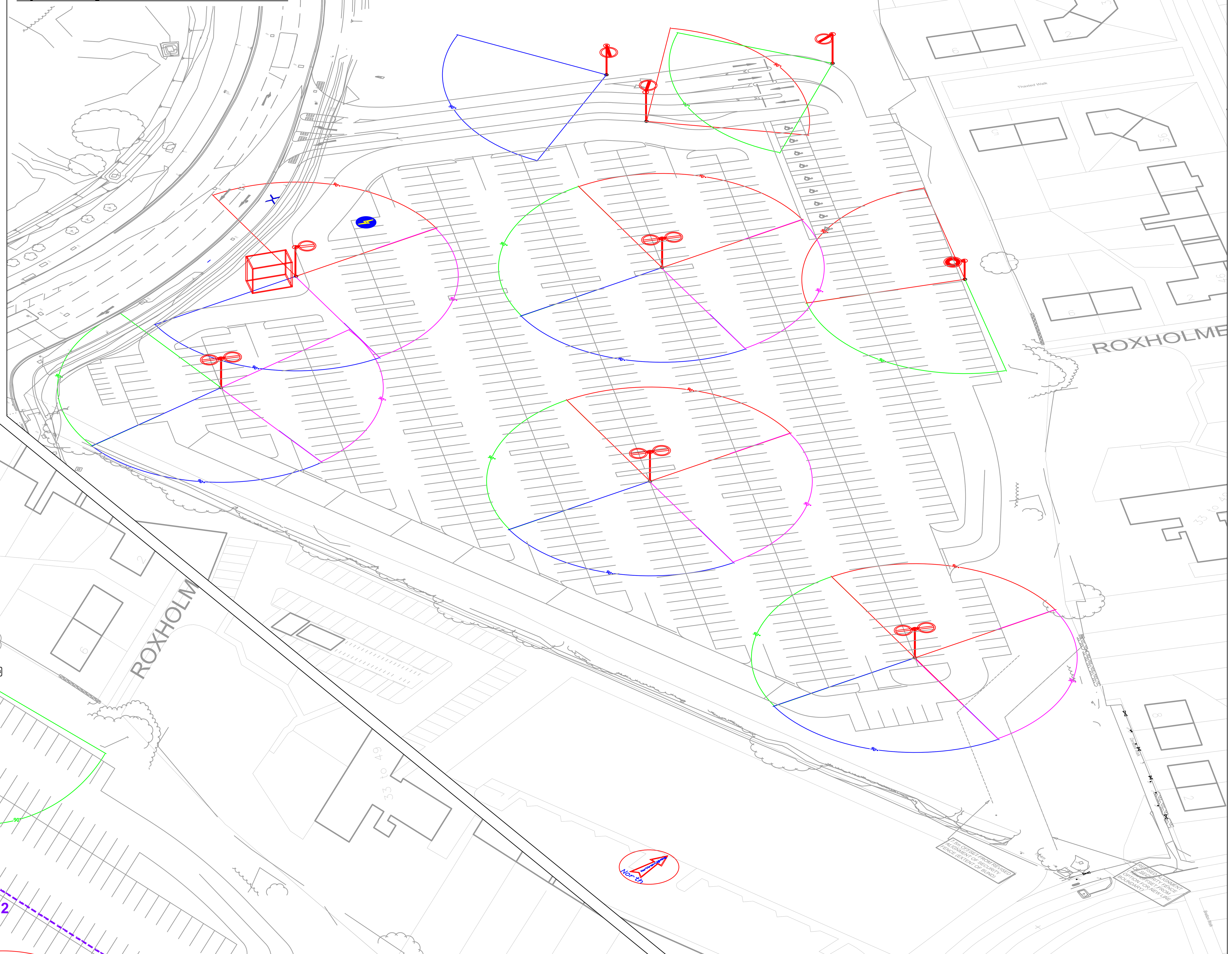
Date Plotted: 25/11/2020 8:21 AM

HARTTRON DESIGNS ARE THE PROPERTY OF HARTTRON LIMITED, COPIES IN PART OR WHOLE ARE NOT PERMITTED WITHOUT WRITTEN AUTHORISATION. (C) COPYRIGHT.

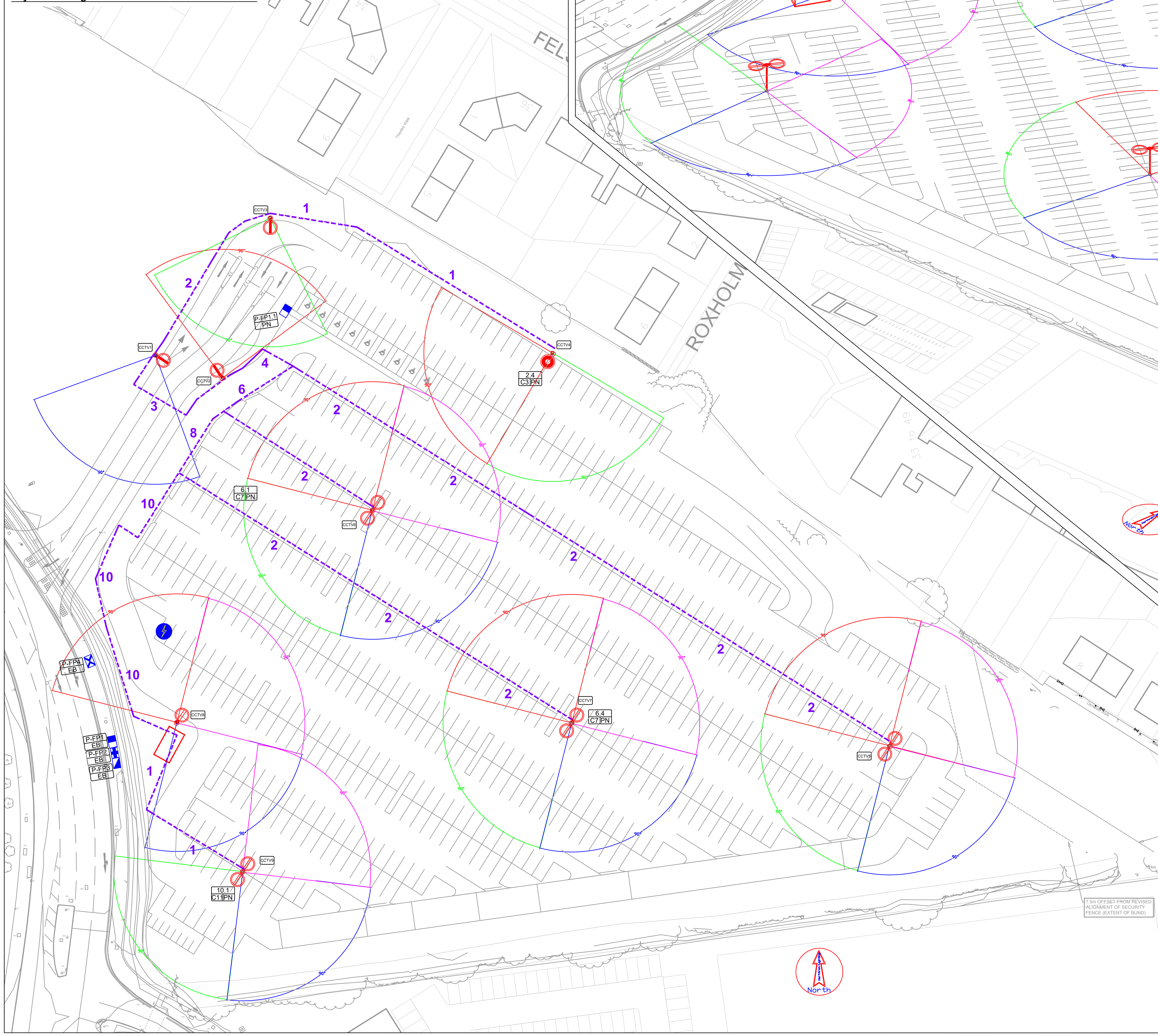
Site overview N.T.S



Layout showing Positions of CCTV in 3D view N.T.S



Layout showing Positions of CCTV scale 1:500 at A1



CCTV Reference	Proposed Number of Cameras
CCTV1	1
CCTV2	1
CCTV3	1
CCTV4	2
CCTV5	2 (360 view)
CCTV6	2 (360 view)
CCTV7	2 (360 view)
CCTV8	1 (360 view)
CCTV9	1 (360 view)

Key

Armoured Fibre Cable and 6mm SWA/PVC/SWA cable in 100mm Purple MDPE duct (marked "Communications") at 750mm cover across highway and car park and 450mm cover in footway and service strip. Approximatly 1 calbe per camera.*

* Cable type to be confirmed by data contractor

Proposed CCTV Tower showing area of view per camera -
-Bosch DINION IP 6000 PTZ Cameras (Point / Tilt / Zoom) with 60m View
-Bosch AutoDome 5000 Fixed 360 degree panaramic with 180m View
(Client to decide on placements per column)

CCTV1 — CCTV pillar reference number.

01 — **Manufacturer:** Lucy Zodion
Order Code: THM0024658
Size Code: 08
External Dimensions: 600x250x836 (mm)
Backboard Dimensions: 590×675 (mm)
Supply In: DNO unmetered supply
Supply Out: MCB Type C protected cables
(BT / Fibre Cable Only)

Raise and Lower Columns - for more details See Layout: Lighting Layout 01

Security hut - CCTV to be powered and monitored from here

1.1 C1 PN — 1.1= Proposed Column number
P-FP1 EB — P-FP1 = Feeder Pillar Number
C1 = Proposed Circuit number
PN = Private Cable Network Connection
EB = DNO / IDNO connection
RB1 — RB1 = Raising Barrier number

Column numbering is only indicative and may be subject to change upon installation of equipment

Notes

1. All columns to be provided with Private Network.
2. Column positions to be agreed on site with the engineer. All columns to be sited within the adoptable highway and generally in compliance with a Private Standard Specification. Columns shall not be installed within dropped kerb areas.
3. Column numbering to be agreed with the site engineer.
4. The Contractor is to provide the engineer with as-built drawings, test certificates and column and lantern data sheets.
5. A list of proposed equipment is to be rendered by the contractor for approval by the engineer prior to the installation.
6. Ducting to be installed to satisfy the requirements of engineer.
7. All lighting and CCTV columns to be erected with a minimum clearance of 1m from kerbedge.
8. Minimum distance for a column to be erected in a service strip is 1m back from the front face of the column to kerb edge.
9. The installation contractor must be aware of any overhead obstructions. Advice should be sought from the engineering representative.
10. Prior to excavation works the installation contractor must be aware of underground services or hazards which may be encountered in the installation of the lighting system. Advice should be sought from the developers engineering representative.
11. A minimum of 8m of CAT 6 cable to be provided per CCTV column.

REV	DESCRIPTION	DATE	DRN	APP
F	Client comments added to drawing	18/11/20	SS	PDL
E	Feeder pillars relocated	26/10/20	SS	PDL
D	Client comments added to drawing	11/09/20	SS	PDL
C	Additional information added to drawing	04/09/20	SS	PDL
B	Information revised	21/08/20	SS	PDL
A	Lantern & Ducting change	12/08/20	SS	PDL

DRAWING NO: 21555-D-04 REV: F

DRAWING STATUS: DESIGN

CLIENT: IronsideFarrar Environmental Consultants

PROJECT: Manchester Airport Car Park Private

TITLE: Proposed CCTV Installation Drawing

SCALE: AS INDICATED
DESIGNED BY: SS 30/06/20
SHEET NO: Sheet 1 of 1
APPROVED BY: PDL 16/07/20

Harttron

CONSULTATION, DESIGN & INSTALLATION

E. info@harttron.com
T. 01625 850855 F. 01625 850856

PROJECT: F:\Projects\IronsideFarrar\Manchester Airport Car Park\Drawings\Rev_F

XREF DRAWINGS:

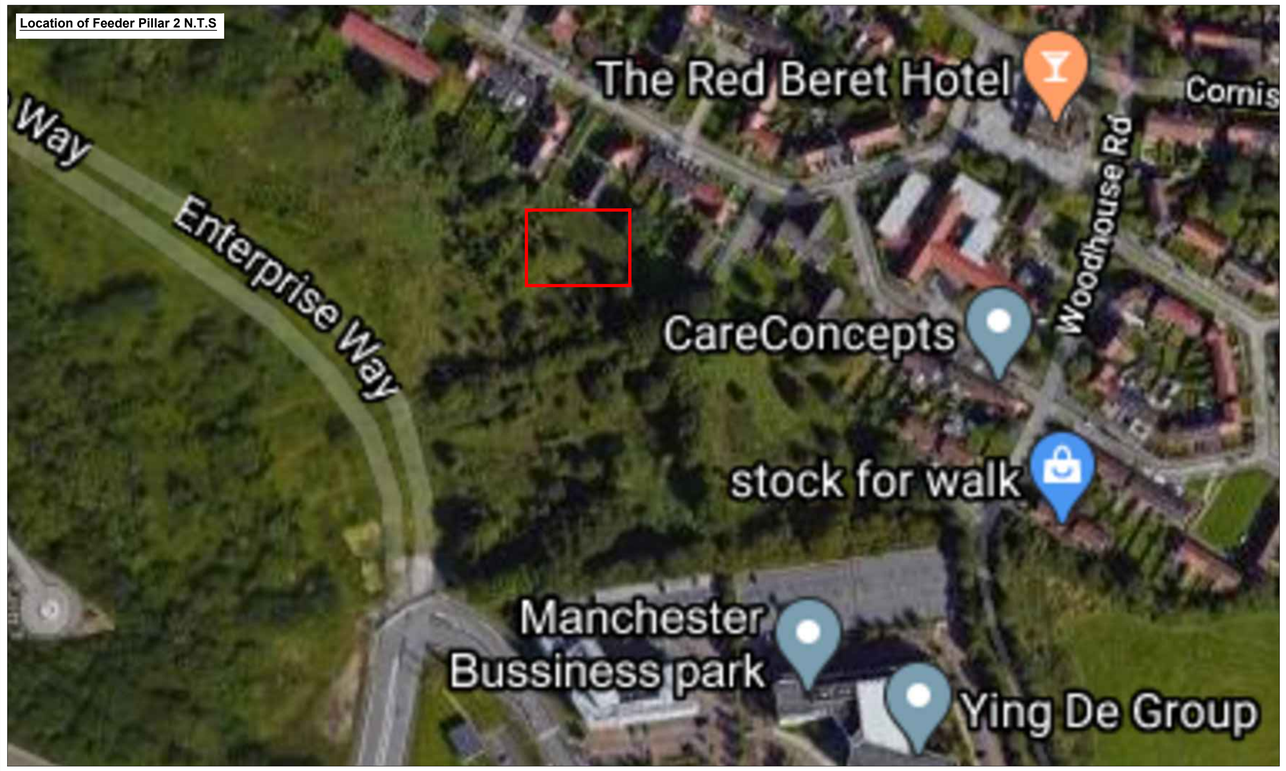
Date Plotted: 25/11/2020 8:21 AM

HARTTRON DESIGNS ARE THE PROPERTY OF HARTTRON LIMITED, COPIES IN PART OR WHOLE ARE NOT PERMITTED WITHOUT WRITTEN AUTHORISATION. (C) COPYRIGHT.

Layout showing proposed run for Feeder Pillar 1 N.T.S



Location of Feeder Pillar 2 N.T.S



Electrical schematic details N.T.S

Incoming DNO supply*

*Subject to confirmation of LV mains

FEEDER PILLAR FP01

All protective devices to be BS-88 Fuses. Changing to other devices may cause the the circuit to not conform to BS7671

6A

6mm² x 3 core PVC/SWA/PVC Cable

Circuit 1

RB1 C12PN — Approx. Length - 8.5m

Approx. Length - 4.5m

RB2 C12PN — Approx. Length - 5.8m

Approx. Length - 4.5m

RB3 C12PN — Approx. Length - 4.5m

RB4 C12PN

Approx. Ducting Length - 144m
Approx. Cable Length - 173m
Total Wattage - 80W
Total Amps* - 0.6A

*Total value includes a safety factor of x1.8

Circuit 2

Approx. Length - 8.5m

Approx. Length - 4.5m

Approx. Ducting Length - 18m
Approx. Cable Length - 22m

Key

Proposed Street Lighting Equipment

Proposed Column Types:
Manufacturer: Abacus
Material: Hot dip Galvanised Steel
Type: Tubular
Colour Finish: Glass Flake Epoxy
Other: BS68 Tolfix Cut-out , 1 Per column

Quantity: 23 **Type A:** Proposed 6m column
Quantity: 02 **Type B:** Proposed 4m column
Quantity: 08 **Type C:** Proposed 6m Base-Hinged column
Quantity: 03 **Type D:** Proposed 4m Base-Hinged column

Symbols shown in RED are the same lanterns as BLUE with a Raise and Lower column.
Columns show in Red must have support for CCTV capabilities.

Proposed Bracket Types:
Quantity: 34 **Type A:**
Manufacturer: Valmont Stainton
Material: Galvanised steel
Type: Double Pole bracket (0.3m)
Quantity: 01 **Type B:** No Bracket

Proposed Lantern Types:
Manufacturer: Holophane
Model: VMAX
Tilt: 0 Degrees

Holophane VMAX
(for illustrative purposes only)

Quantity: 65 **Type A:**
Optic: VMX-2 LA164 V1 D4D4
Wattage: 27W
Lumen Output: 3.92lm
Photometry File: VMX-2 LA164 V1 D4D4 W027 IES'

Quantity: 08 **Type B:**
Optic: VMX-2 LA164 V3 D4D4
Wattage: 122W
Lumen Output: 16.59lm
Photometry File: VMX-2 LA164 V3 D4D4 W122 IES'

01 Column: Type A Lantern: Type A Bracket: Type A	02 Column: Type A Lantern: Type A Bracket: Type B	07 Column: Type B Lantern: Type A Bracket: Type B	05 Column: Type A Lantern: Type A Bracket: Type B
03 Column: Type C Lantern: Type A Bracket: Type A	04 Column: Type C Lantern: Type A Bracket: Type B	01 Column: Type D Lantern: Type A Bracket: Type B	01 Column: Type C Lantern: Type B Bracket: Type B

Proposed Street Lighting Equipment (Other)

Type A: Quantity: 01
Manufacturer: Lucy Zodion
Order Code: THM0024668
Size Code: 14
External Dimensions: 1110x400x1294 (mm)
Backboard Dimensions: 1083×1075 (mm)
Supply In: 3 Phase DNO metered supply
Supply Out: BS-88 fuse protected cables

Type B: Quantity: 01
Manufacturer: Lucy Zodion
Order Code: THM0024666
Size Code: 08
External Dimensions: 600x250x836 (mm)
Backboard Dimensions: 580×675 (mm)
Supply In: DNO unmetered supply
Supply Out: BS-88 fuse protected cables

Type C: Quantity: 01
Manufacturer: Lucy Zodion
Order Code: THM0024668
Size Code: 14
External Dimensions: 600x250x836 (mm)
Backboard Dimensions: 1083×1075 (mm)
Supply In: DNO unmetered supply
Supply Out: BS-88 fuse protected cables (BT / Fibre Cable Only)

Type D: Quantity: 02
Manufacturer: Lucy Zodion
Order Code: THM0024666
Size Code: 08
External Dimensions: 1110x400x1294 (mm)
Backboard Dimensions: 1083×1075 (mm)
Supply In: Single Phase DNO metered supply
Supply Out: BS-88 fuse protected cables

Proposed Equipment (Other)

02 Road crossing duct chamber 300x300 (mm)	04 Citronyx ANPR Camera with Raise and lower barrier Wattage: 20W Dimensions: 300mm x 260mm x 315mm (H x W x D)
APNR Cameras (Presumed 20W)	ROLEC EV car charging point 2.6kW in power (18.5A)

Contour Values	Contour colours
0.1 Lux	
0.4 Lux	
5.0 Lux	
10 Lux	
20 Lux	

Security hut - CCTV to be powered and monitored from here

Proposed column scheme numbering for proposed equipment

1 = Proposed Column number
FP1 = Feeder Pillar Number
PN = Private Network Cable
PN = Private Cable Network Connection
EB = DNO / IDNO connection
RB1 = Raising Barrier number

REV	DESCRIPTION	DATE	DRN	APP
F	Client comments added to drawing	18/11/20	SS	PDL
E	Feeder pillars relocated	26/10/20	SS	PDL
D	Client comments added to drawing	11/09/20	SS	PDL
C	Additional information added to drawing	04/09/20	SS	PDL
B	Information revised	21/08/20	SS	PDL
A	Lantern and ducting change	12/08/20	SS	PDL

DRAWING NO: 21555-D-05
REV: F

DRAWING STATUS: DESIGN

CLIENT: IronsideFarrar Environmental Consultants

PROJECT: Manchester Airport Car Park Private

TITLE: Feeder Pillar Detail Drawing

SCALE: AS INDICATED
DESIGNED BY: SS 30/06/20
SHEET NO: Sheet 1 of 3
APPROVED BY: PDL 16/07/20

Harttron
CONSULTATION, DESIGN & INSTALLATION
E. info@harttron.com
T. 01625 850855 F. 01625 850856

PROJECT: F:\Projects\IronsideFarrar\Manchester Airport Car Park\Drawings\Rev_F

XREF DRAWINGS:

Date Plotted: 25/11/2020 8:21 AM

HARTTRON DESIGNS ARE THE PROPERTY OF HARTTRON LIMITED, COPIES IN PART OR WHOLE ARE NOT PERMITTED WITHOUT WRITTEN AUTHORISATION. (C) COPYRIGHT.

Electrical schematic details N.T.S

Incoming Three Phase DNO supply*

*Subject to confirmation of LV mains

*Line 1 = 5.770A
*Line 2 = 8.724A
*Line 3 = 10.245A
*Nuetral = 24.325A

*Total value includes a safety factor of x1.8

FEEDER PILLAR P-FP2

Consumer Unit (Two spare ways)
All protective devices to be BS-88 Fuses. Changing to other devices may cause the circuit to not conform to BS7671
CIRCUITS TO BE SPREAD EQUALLY ACROSS EACH PHASE

Feeder Pillar Equipment Totals:

Amps(A)*: 24.325
Wattage(W): 3271
KVA*: 5.838

*Total value includes a safety factor of x1.8

16mm² 3 core XPLE/SWA/PVC

L1 16A Circuit 1

10.1 C11|PN 6A
10.2 C11|PN 6A
10.3 C11|PN 6A

Approx. Ducting Length - 100m
Approx. Cable Length - 125m
Total Wattage - 108W
Total Amps* - 0.81A
See Latest: 21555-C-01

*Total value includes a safety factor of x1.8

L2 16A Circuit 2

11.1 C10|PN 6A
11.2 C10|PN 6A
9.1 C10|PN 6A
9.2 C10|PN 6A
9.3 C10|PN 6A

Approx. Ducting Length - 93m
Approx. Cable Length - 112m
Total Wattage - 189W
Total Amps* - 1.42A
See Latest: 21555-C-02

*Total value includes a safety factor of x1.8

L3 16A Circuit 3

8.1 C2|PN 6A
8.2 C9|PN 6A
8.3 C9|PN 6A
8.4 C9|PN 6A
8.5 C9|PN 6A
8.6 C9|PN 6A

Approx. Ducting Length - 154m
Approx. Cable Length - 185m
Total Wattage - 270W
Total Amps* - 2.0A
See Latest: 21555-C-03

*Total value includes a safety factor of x1.8

L1 16A Circuit 4

7.1 C8|PN 6A
7.2 C8|PN 6A
7.3 C8|PN 6A
7.4 C8|PN 6A
7.5 C8|PN 6A

Approx. Ducting Length - 196m
Approx. Cable Length - 235m
Total Wattage - 270W
Total Amps* - 2.0A
See Latest: 21555-C-04

*Total value includes a safety factor of x1.8

L2 16A Circuit 5

6.1 C7|PN 6A
6.2 C7|PN 6A
6.3 C7|PN 6A
6.4 C7|PN 6A
6.5 C7|PN 6A
6.6 C7|PN 6A

Approx. Ducting Length - 236m
Approx. Cable Length - 283m
Total Wattage - 297W
Total Amps* - 2.22A
See Latest: 21555-C-05

*Total value includes a safety factor of x1.8

L3 16A Circuit 6

5.1 C6|PN 6A
5.2 C6|PN 6A
5.3 C6|PN 6A
5.4 C6|PN 6A
5.5 C6|PN 6A
5.6 C6|PN 6A
5.7 C6|PN 6A

Approx. Ducting Length - 268m
Approx. Cable Length - 322m
Total Wattage - 351W
Total Amps* - 2.63A
See Latest: 21555-C-06

*Total value includes a safety factor of x1.8

L1 16A Circuit 7

4.1 C5|PN 6A
4.2 C5|PN 6A
4.3 C5|PN 6A
4.4 C5|PN 6A
4.5 C5|PN 6A
4.6 C5|PN 6A
4.7 C5|PN 6A

Approx. Ducting Length - 304m
Approx. Cable Length - 365m
Total Wattage - 378W
Total Amps* - 2.84A
See Latest: 21555-C-07

*Total value includes a safety factor of x1.8

L2 16A Circuit 8

1.2 C2|PN 6A
1.4 C2|PN 6A
1.6 C2|PN 6A
3.1 C4|PN 6A
3.2 C4|PN 6A
3.3 C4|PN 6A
3.4 C4|PN 6A
3.5 C4|PN 6A
3.6 C4|PN 6A
3.7 C4|PN 6A

Approx. Ducting Length - 317m
Approx. Cable Length - 380m
Total Wattage - 663W
Total Amps* - 4.97A
See Latest: 21555-C-08

*Total value includes a safety factor of x1.8

L3 16A Circuit 9

1.1 C1|PN 6A
1.3 C1|PN 6A
1.5 C1|PN 6A
1.7 C1|PN 6A
2.1 C3|PN 6A
2.2 C3|PN 6A
2.3 C3|PN 6A
2.4 C3|PN 6A
2.5 C3|PN 6A
2.6 C3|PN 6A

Approx. Ducting Length - 300m
Approx. Cable Length - 360m
Total Wattage - 745W
Total Amps* - 5.59A
See Latest: 21555-C-09

*Total value includes a safety factor of x1.8

Location of Feeder Pillar 1 N.T.S



Layout showing proposed run for Feeder Pillar 2 N.T.S



Key

Proposed Street Lighting Equipment

Proposed Column Types:
Manufacturer: Abacus
Material: Hot dip Galvanised Steel
Type: Tubular
Root Protection: Glass Flake Epoxy
Other: BS88 Tefco Cutout , 1 Per column

Quantity: 03 **Type A:** Proposed 6m column
Quantity: 08 **Type C:** Proposed 6m Base-Hinged column
Quantity: 02 **Type B:** Proposed 4m column
Quantity: 01 **Type C:** Proposed 4m Base-Hinged column

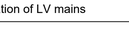
Symbols shown in RED are the same lanterns as BLUE with a **Raise and Lower** column.
Columns show in Red must have support for CCTV capabilities.

Proposed Bracket Types:

Quantity: 54 **Type A:**
Manufacturer: Valmont Stainton
Material: Galvanised steel
Type: Double Pole bracket (0.3m)

Quantity: 24 **Type B:** No Bracket

Proposed Lantern Types:
Manufacturer: Holophane
Model: VMAX
Tilt: 0 Degrees


Holophane VMAX
(for illustrative purposes only)

Quantity: 65 **Type A:**
Manufacturer: Holophane
Watts: VMX.2.LA044.V1.D4D4
Wattage: 27W
Lumen Output: 3.92klm
Photometry File: VMX.2.LA044.V1.D4D4 WG27.IES'

Quantity: 08 **Type B:**
Manufacturer: Holophane
Watts: VMX.2.LA154.V3.D4D4
Wattage: 122W
Lumen Output: 16.59klm
Photometry File: VMX.2.LA154.V3.D4D4 WV22.IES'

Column: Type A, Lantern: Type A, Bracket: Type A — 65 No
Column: Type A, Lantern: Type A, Bracket: Type B — 08 No
Column: Type B, Lantern: Type A, Bracket: Type B — 01 No
Column: Type A, Lantern: Type B, Bracket: Type B — 08 No
Column: Type C, Lantern: Type A, Bracket: Type A — 02 No
Column: Type C, Lantern: Type B, Bracket: Type B — 01 No
Column: Type C, Lantern: Type A, Bracket: Type B — 01 No
Column: Type C, Lantern: Type B, Bracket: Type B — 01 No

Proposed Street Lighting Equipment (Other)

Quantity: 01 **Type A:**
Manufacturer: Lucy Zodion
Order Code: THM0024666
Size Code: 08
External Dimensions: 1110x400x1294 (mm)
Backboard Dimensions: 1080×1075 (mm)
Supply In: 3 Phase DNO metered supply
Supply Out: BS-88 fuse protected cables

Quantity: 01 **Type B:**
Manufacturer: Lucy Zodion
Order Code: THM0024666
Size Code: 08
External Dimensions: 600x250x836 (mm)
Backboard Dimensions: 580×575 (mm)
Supply In: 3 Phase DNO metered supply
Supply Out: BS-88 fuse protected cables

Quantity: 01 **Type C:**
Manufacturer: Lucy Zodion
Order Code: THM0024658
Size Code: 08
External Dimensions: 600x250x836 (mm)
Backboard Dimensions: 580×575 (mm)
Supply In: DNO unmetered supply
Supply Out: BS-88 fuse protected cables
(BT / Fibre Cabs Only).

Quantity: 01 **Type D:**
Manufacturer: Lucy Zodion
Order Code: THM0024668
Size Code: 08
External Dimensions: 1110x400x1294 (mm)
Backboard Dimensions: 1080×1075 (mm)
Supply In: Single Phase DNO metered supply
Supply Out: BS-88 fuse protected cables

Proposed Equipment (Other)

Road crossing duct chamber 300x300 (mm)

Citysync ANPR Camera with Raise and Lower lantern
Wattage: 20W
Dimensions: 760mm x 260mm x 315mm (H x W x D)

APNR Cameras (Presumed 20W)

ROLEC EV car charging point 2.6kW in power (19.5A)

Contour Values	Contour colours
0.1 Lux	
0.4 Lux	
5.0 Lux	
10 Lux	
20 Lux	

Security hut - CCTV to be powered and monitored from here

Proposed column scheme numbering for proposed equipment

1.1= Proposed Column number
P-FP1 = Feeder Pillar Number
C1 = Circuit number from FP
PN = Private Cable Network Connection
EB = DNO / IDNO connection
RB1 = Raising Barrier number

REV	DESCRIPTION	DATE	DRN	APP
F	Client comments added to drawing	18/11/20	SS	PDL
E	Feeder pillars relocated	26/10/20	SS	PDL
D	Client comments added to drawing	11/09/20	SS	PDL
C	Additional information added to drawing	04/09/20	SS	PDL
B	Information revised	21/08/20	SS	PDL
A	Lantern & Ducting change	12/08/20	SS	PDL

DRAWING NO: 21555-D-05
REV: F

DRAWING STATUS: DESIGN

CLIENT:

IronsideFarrar Environmental Consultants

PROJECT: Manchester Airport Car Park Private

TITLE: Feeder Pillar Detail Drawing

SCALE: AS INDICATED
DESIGNED BY: SS 30/06/20
SHEET NO: Sheet 2 of 3
APPROVED BY: PDL 16/07/20

Harttron

CONSULTATION, DESIGN & INSTALLATION

E. info@harttron.com
T. 01625 850855 F. 01625 850856

PROJECT: F:\Projects\IronsideFarrar\Manchester Airport Car Park\Drawings\Rev_F

XREF DRAWINGS:

Date Plotted: 25/11/2020 8:22 AM

HARTTRON DESIGNS ARE THE PROPERTY OF HARTTRON LIMITED, COPIES IN PART OR WHOLE ARE NOT PERMITTED WITHOUT WRITTEN AUTHORISATION. (C) COPYRIGHT.

Electrical schematic details N.T.S

Proposed Feeder Pillar 3 (P-FP3)

Security room

All protective devices to be BS88 Fuses. Changing to other devices may cause the circuit to not conform to BS7671

Camera's to be controlled by others

Feeder Pillar Equipment Totals:

Amps(A)*:2.80
Wattage(W):373
KVA*:0.672

*Total value includes a safety factor of x1.8

Fibre Optic and 6mm SWA/PVC/SWA

10A Circuit 1

Approx. Length - 41.66m

CCTV9

Approx. Ducting Length - 41.66m
Approx. Cable Length - 50m
Total Wattage - 25W
Total Amps* - 0.19A

*Total value includes a safety factor of x1.8

10A Circuit 2

Approx. Length - 5m

CCTV8

Approx. Ducting Length - 5m
Approx. Cable Length - 6m
Total Wattage - 25W
Total Amps* - 0.19A

*Total value includes a safety factor of x1.8

10A Circuit 3

Approx. Length - 168m

CCTV7

Approx. Ducting Length - 168m
Approx. Cable Length - 201.6m
Total Wattage - 50W
Total Amps* - 0.38A

*Total value includes a safety factor of x1.8

10A Circuit 4

Approx. Length - 124.4m

CCTV6

Approx. Ducting Length - 124.4m
Approx. Cable Length - 150m
Total Wattage - 50W
Total Amps* - 0.38A

*Total value includes a safety factor of x1.8

10A Circuit 5

Approx. Length - 250m

CCTV5

Approx. Ducting Length - 250m
Approx. Cable Length - 300m
Total Wattage - 50W
Total Amps* - 0.38A

*Total value includes a safety factor of x1.8

10A Circuit 6

Approx. Length - 123m

CCTV2

Approx. Length - 30.9m

CCTV1

Approx. Length - 46.9m

CCTV3

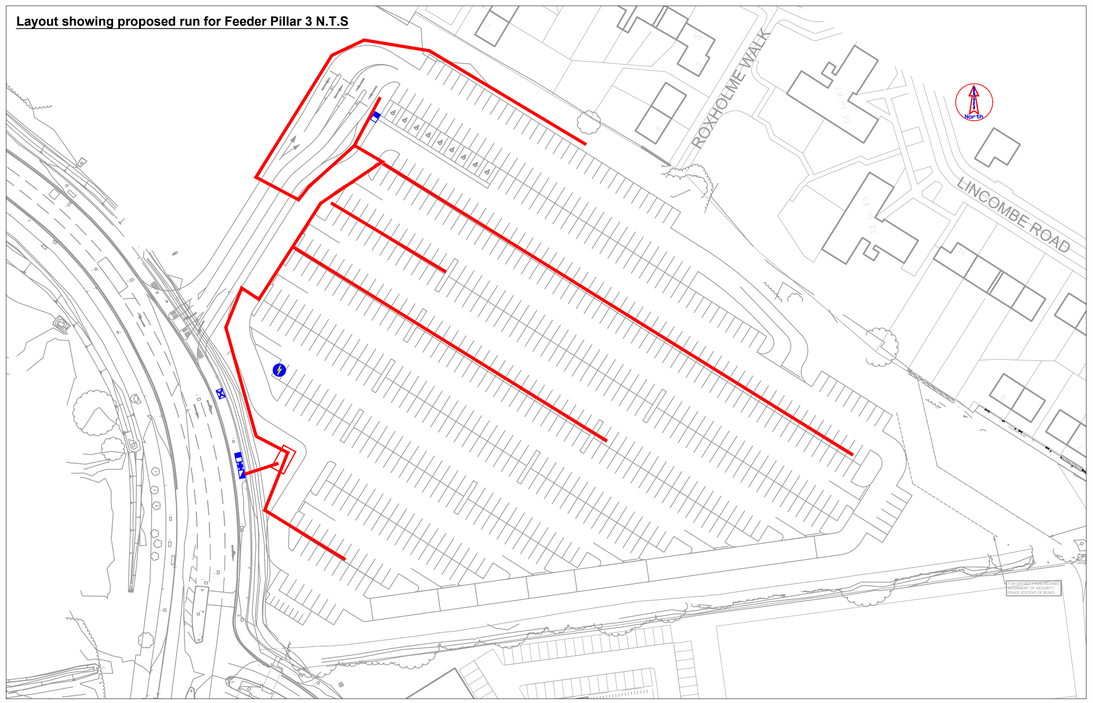
Approx. Length - 68.9m

CCTV4

Approx. Ducting Length - 269.7m
Approx. Cable Length - 324m
Total Wattage - 173W
Total Amps* - 1.30A

*Total value includes a safety factor of x1.8

Layout showing proposed run for Feeder Pillar 3 N.T.S



Electrical schematic details N.T.S

Incoming DNO supply*

*Subject to confirmation of LV mains

FEEDER PILLAR FP03

All protective devices to be BS-88 Fuses. Changing to other devices may cause the the circuit to not conform to BS7671

TBC

Circuit 1

10mm² x 3 core PVC/SWA/PVC Cable**

**To Be confirmed

Note:
Feeder pillar to feed power to security hut. CCTV controled from security hut.

Key

Proposed Street Lighting Equipment

Proposed Column Types:
Manufacturer: Aiscock
Material: Hot dip Galvanised Steel
Type: Tubular
Root Protection: Glass Fibre Epoxy
Other: BS68 Tefnol Cut-out ; 1 Pav column

Quantity: 53 **Type A:** Proposed 6m column
Quantity: 58 **Type C:** Proposed 6m Base-Hinged column
Quantity: 02 **Type B:** Proposed 4m column
Quantity: 01 **Type D:** Proposed 4m Base-Hinged column

Symbols shown in RED are the same lanterns as BLUE with a Raise and Lower column.
Columns show in Red must have support for CCTV capabilities.

Proposed Bracket Types:

Quantity: 54 **Type A:**
Manufacturer: Valmont Stainton
Material: Galvanised steel
Type: Double Pole bracket (0.3m)

Quantity: 04 **Type B:** No Bracket

Proposed Lantern Types:
Manufacturer: Holophane
Model: VMAX
Tilt: 0 Degrees

Holophane VMAX
(for illustrative purposes only)

Quantity: 64 **Type A:**
Optic: VMX 2 LA044 V1 D4D4
Wattage: 27W
Lumen Output: 3.92klm
Photometry File: VMX 2 LA044 V1 D4D4 IW27.IES'

Quantity: 08 **Type B:**
Optic: VMX 2 LA164 V3 D4D4
Wattage: 122W
Lumen Output: 16.59klm
Photometry File: VMX 2 LA164 V3 D4D4 IW122.IES'

53	Column: Type A Lantern: Type A Bracket: Type A	08	Column: Type A Lantern: Type A Bracket: Type B
07	Column: Type B Lantern: Type A Bracket: Type B	08	Column: Type A Lantern: Type B Bracket: Type B
02	Column: Type C Lantern: Type A Bracket: Type A	01	Column: Type C Lantern: Type A Bracket: Type B
01	Column: Type D Lantern: Type A Bracket: Type B	08	Column: Type C Lantern: Type B Bracket: Type B

Proposed Street Lighting Equipment (Other)

Type A: Quantity: 01
Manufacturer: Lucy Zodion
Order Code: THM0024668
Size Code: 14
External Dimensions: 1115x400x1294 (mm)
Backboard Dimensions: 1080×1075 (mm)
Supply In: 3 Phase DNO metered supply
Supply Out: BS-88 fuse protected cables

Type B: Quantity: 01
Manufacturer: Lucy Zodion
Order Code: THM0024666
Size Code: 14
External Dimensions: 600x250x836 (mm)
Backboard Dimensions: 590×975 (mm)
Supply In: DNO unmetered supply
Supply Out: BS-88 fuse protected cables

Type C: Quantity: 01
Manufacturer: Lucy Zodion
Order Code: THM0024668
Size Code: 14
External Dimensions: 600x250x836 (mm)
Backboard Dimensions: 590×975 (mm)
Supply In: DNO unmetered supply
Supply Out: BS-88 fuse protected cables
(BT / Fibre Cable Only)

Type D: Quantity: 02
Manufacturer: Lucy Zodion
Order Code: THM0024668
Size Code: 14
External Dimensions: 1115x400x1294 (mm)
Backboard Dimensions: 1080×1075 (mm)
Supply In: Single Phase DNO metered supply
Supply Out: BS-88 fuse protected cables

Proposed Equipment (Other)

Road crossing duct chamber 300X300 (mm)	Citysync ANPR Camera with Raise and lower barrier Wattage: 20W Dimensions: 780mm x 260mm x 310mm (H x W x D)
APNR Cameras (Presumed 20W)	ROLEC EV car charging point 2.6kW in power (19.5A)

Cable / Duct types	Drawing Symbol
Proposed Curcit Cable 1	
Proposed Curcit Cable 2	
Proposed Curcit Cable 3	
Proposed Curcit Cable 4	
Proposed Curcit Cable 5	
Proposed Curcit Cable 6	
Proposed Curcit Cable 7	
Proposed Cable 8	
Proposed Curcit Cable 9	

Security hut - CCTV to be powered and monitored from here

Proposed column scheme numbering for proposed equipment

FP = Proposed Column number
P-FP1 = Feeder Pillar Number
C1 = Proposed Circuit number
PN = Private Cable Network Connection
EB = DNO / IDNO connection
RB1 = Raising Barrier number

Column numbering is only indicative and may be subject to change upon installation of equipment

REV	DESCRIPTION	DATE	DRN	APP
F	Client comments added to drawing	18/11/20	SS	PDL
E	Feeder pillars relocated	26/10/20	SS	PDL
D	Client comments added to drawing	11/09/20	SS	PDL
C	Additional information added to drawing	04/09/20	SS	PDL
B	Information revised	21/08/20	SS	PDL
A	Lantnern and ducting change	21/08/20	SS	PDL

DRAWING NO: 21555-D-05
REV: F

DRAWING STATUS: DESIGN

CLIENT:

IronsideFarrar Environmental Consultants

PROJECT: Manchester Airport Car Park Private

TITLE: Feeder Pillar detail Drawing

SCALE: AS INDICATED
DESIGNED BY: SS 30/06/20
SHEET NO: Sheet 3 of 3
APPROVED BY: PDL 16/07/20

Harttron
CONSULTATION, DESIGN & INSTALLATION
E. info@harttron.com
T. 01625 850855 F. 01625 850856

PROJECT: F:\Projects\IronsideFarrar\Manchester Airport Car Park\Drawings\Rev_F

XREF DRAWINGS:

Date Plotted: 25/11/2020 8:22 AM

HARTTRON DESIGNS ARE THE PROPERTY OF HARTTRON LIMITED, COPIES IN PART OR WHOLE ARE NOT PERMITTED WITHOUT WRITTEN AUTHORISATION. (C) COPYRIGHT.

Electrical schematic details N.T.S

Incoming Single Phase DNO supply*

*Subject to confirmation of LV mains

FEEDER PILLAR FP04

All protective devices to be BS-88 Fuses. Changing to other devices may cause the the circuit to not conform to BS7671

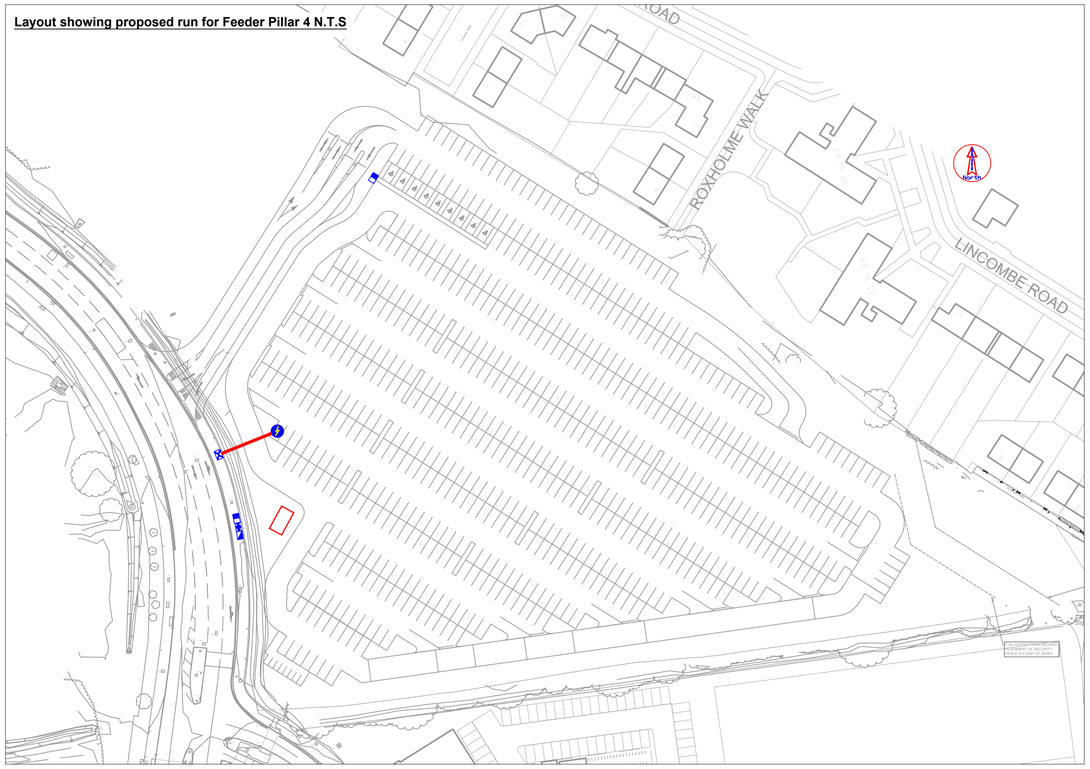
32A

Circuit 1

10mm² x 3 core PVC/SWA/PVC Cable**

**To Be confirmed

Layout showing proposed run for Feeder Pillar 4 N.T.S



Location of Feeder Pillar 4 N.T.S



Key

Proposed Street Lighting Equipment

Proposed Column Types:
Manufacturer: Various
Material: Hot dip Galvanised Steel
Type: Tubular
Rust Protection: Glass Flake Epoxy
Other: BS88 Tuflon Cutout - 1 Per column

Quantity: 53 **Type A:** Proposed 6m column
Quantity: 02 **Type B:** Proposed 4m column
Quantity: 08 **Type C:** Proposed 6m Base-Hinged column
Quantity: 01 **Type D:** Proposed 4m Base-Hinged column

Symbols shown in RED are the same lanterns as BLUE with a Raise and Lower column.
Columns show in Red must have support for CCTV capabilitys.

Proposed Bracket Types:

Quantity: 54 **Type A:** **Manufacturer:** Valmont Stanton **Material:** Galvanised steel **Type:** Double Pole bracket (0.3m)
Quantity: 29 **Type B:** No Bracket

Proposed Lantern Types:
Manufacturer: Holophane
Model: VMAX
Tilt: 0 Degrees

Holophane VMAX
(for illustrative purposes only)

Quantity: 45 **Type A:** **Optic:** VMX.2.LA044.V1.D4D4 **Wattage:** 27W **Lumen Output:** 3.92klm **Photometry File:** VMX.2.LA044.V1.D4D4.W027.IES*

Quantity: 08 **Type B:** **Optic:** VMX.2.LA154.V3.D4D4 **Wattage:** 122W **Lumen Output:** 16.59klm **Photometry File:** VMX.2.LA154.V3.D4D4.W122.IES*

01	Column: Type A Lantern: Type A Bracket: Type A	08	Column: Type A Lantern: Type A Bracket: Type B
02	Column: Type B Lantern: Type A Bracket: Type A	07	Column: Type B Lantern: Type A Bracket: Type B
03	Column: Type A Lantern: Type B Bracket: Type B
04	Column: Type C Lantern: Type A Bracket: Type A	06	Column: Type C Lantern: Type A Bracket: Type B
05	Column: Type D Lantern: Type A Bracket: Type B	01	Column: Type C Lantern: Type B Bracket: Type B

Proposed Street Lighting Equipment (Other)

Type A: Quantity: 01
Manufacturer: Lucy Zodion
Order Code: THM0024666
Size Code: 08
External Dimensions: 1110x400x1294 (mm)
Backboard Dimensions: 1080×1075 (mm)
Supply In: 3 Phase DNO metered supply
Supply Out: BS-88 fuse protected cables

Type B: Quantity: 01
Manufacturer: Lucy Zodion
Order Code: THM0024666
Size Code: 08
External Dimensions: 605x250x836 (mm)
Backboard Dimensions: 580×475 (mm)
Supply In: DNO unmetered supply
Supply Out: BS-88 fuse protected cables

Type C: Quantity: 01
Manufacturer: Lucy Zodion
Order Code: THM0024658
Size Code: 08
External Dimensions: 605x250x836 (mm)
Backboard Dimensions: 580×475 (mm)
Supply In: DNO unmetered supply
Supply Out: BS-88 fuse protected cables
(BT / Fibre Cable Only).

Type D: Quantity: 01
Manufacturer: Lucy Zodion
Order Code: THM0024658
Size Code: 08
External Dimensions: 1110x400x1294 (mm)
Backboard Dimensions: 1080×1075 (mm)
Supply In: Single Phase DNO metered supply
Supply Out: BS-88 fuse protected cables

Proposed Equipment (Other)

Road crossing duct chamber 300x300 (mm)

Citysync ANPR Camera with Raise and lower barrier Quantity: 04 Dimensions: 700mm x 260mm x 315mm (H x W x D)

ANPR Cameras (Presumed 20W)

ROLEC EV car charging point 2.6kW in power (19.5A)

Contour Values	Contour colours
0.1 Lux	
0.4 Lux	
5.0 Lux	
10 Lux	
20 Lux	

Security hut - CCTV to be powered and monitored from here

Proposed column scheme numbering for proposed equipment

- 1-1= Proposed Column number
- P-FP1 = Feeder Pillar Number
- C1 = Proposed Circuit number
- FB = Private Cable Network Connection
- EB = Existing Bollard
- RB1 = Raising Barrier number

REV	DESCRIPTION	DATE	DRN	APP
F	Client comments added to drawing	18/11/20	SS	PDL
E	Feeder pillars relocated	26/10/20	SS	PDL
D	Client comments added to drawing	11/09/20	SS	PDL
C	Additional information added to drawing	04/09/20	SS	PDL
B	Information revised	21/08/20	SS	PDL
A	Lantnern and ducting change	21/08/20	SS	PDL

DRAWING NO: 21555-D-05
REV: F

DRAWING STATUS: DESIGN

CLIENT: IronsideFarrar Environmental Consultants

PROJECT: Manchester Airport Car Park Private

TITLE: Feeder Pillar detail Drawing

SCALE: AS INDICATED
DESIGNED BY: SS 30/06/20
SHEET NO: Sheet 3 of 3
APPROVED BY: PDL 16/07/20

Harttron

CONSULTATION, DESIGN & INSTALLATION

E. info@harttron.com
T. 01625 850855 F. 01625 850856

NICEIC APPROVED CONTRACTOR

PROJECT: F:\Projects\IronsideFarrar\Manchester Airport Car Park\Drawings\Rev_F

XREF DRAWINGS:

Date Plotted: 25/11/2020 8:22 AM

HARTTRON DESIGNS ARE THE PROPERTY OF HARTTRON LIMITED, COPIES IN PART OR WHOLE ARE NOT PERMITTED WITHOUT WRITTEN AUTHORISATION. (C) COPYRIGHT.