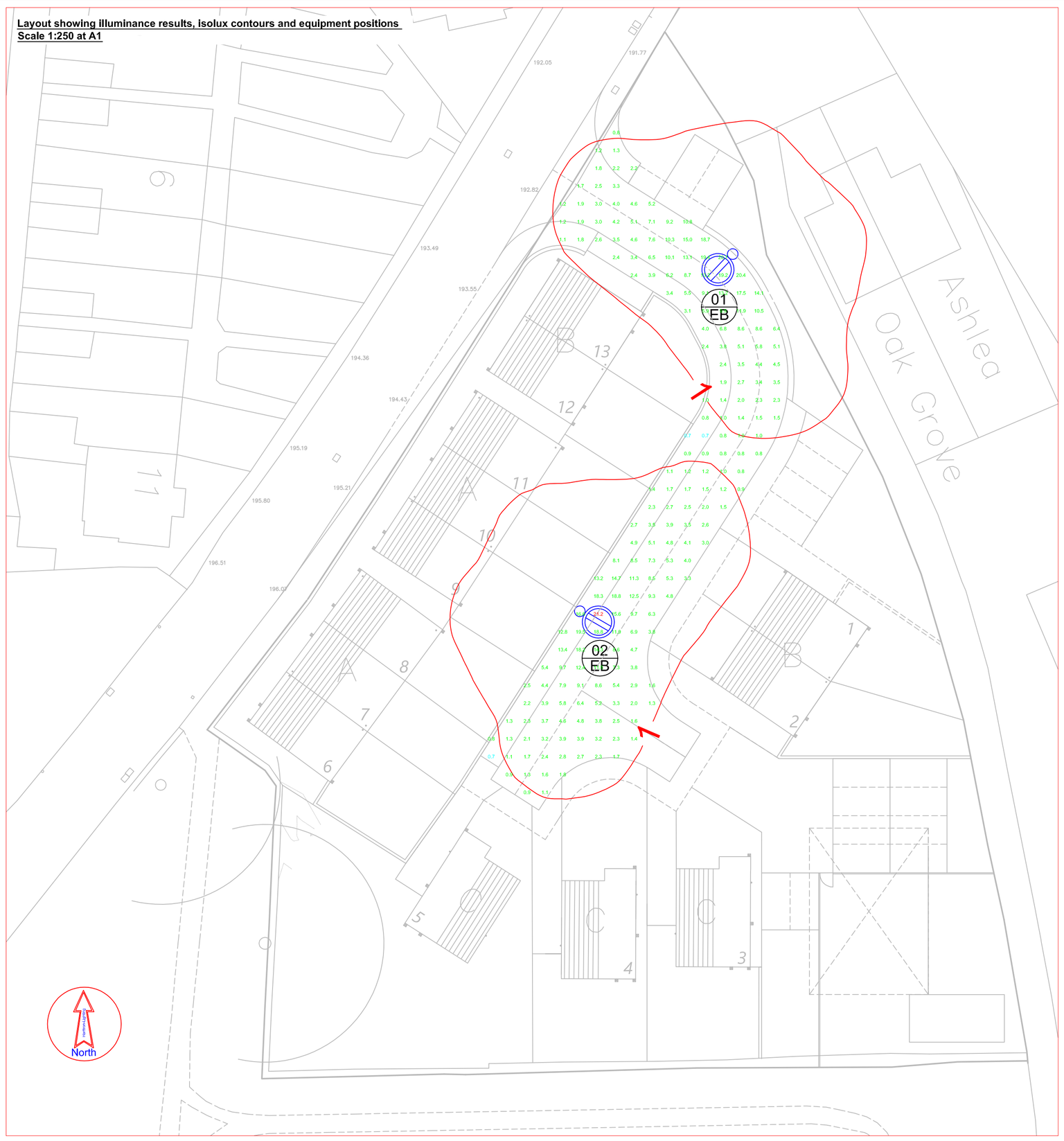
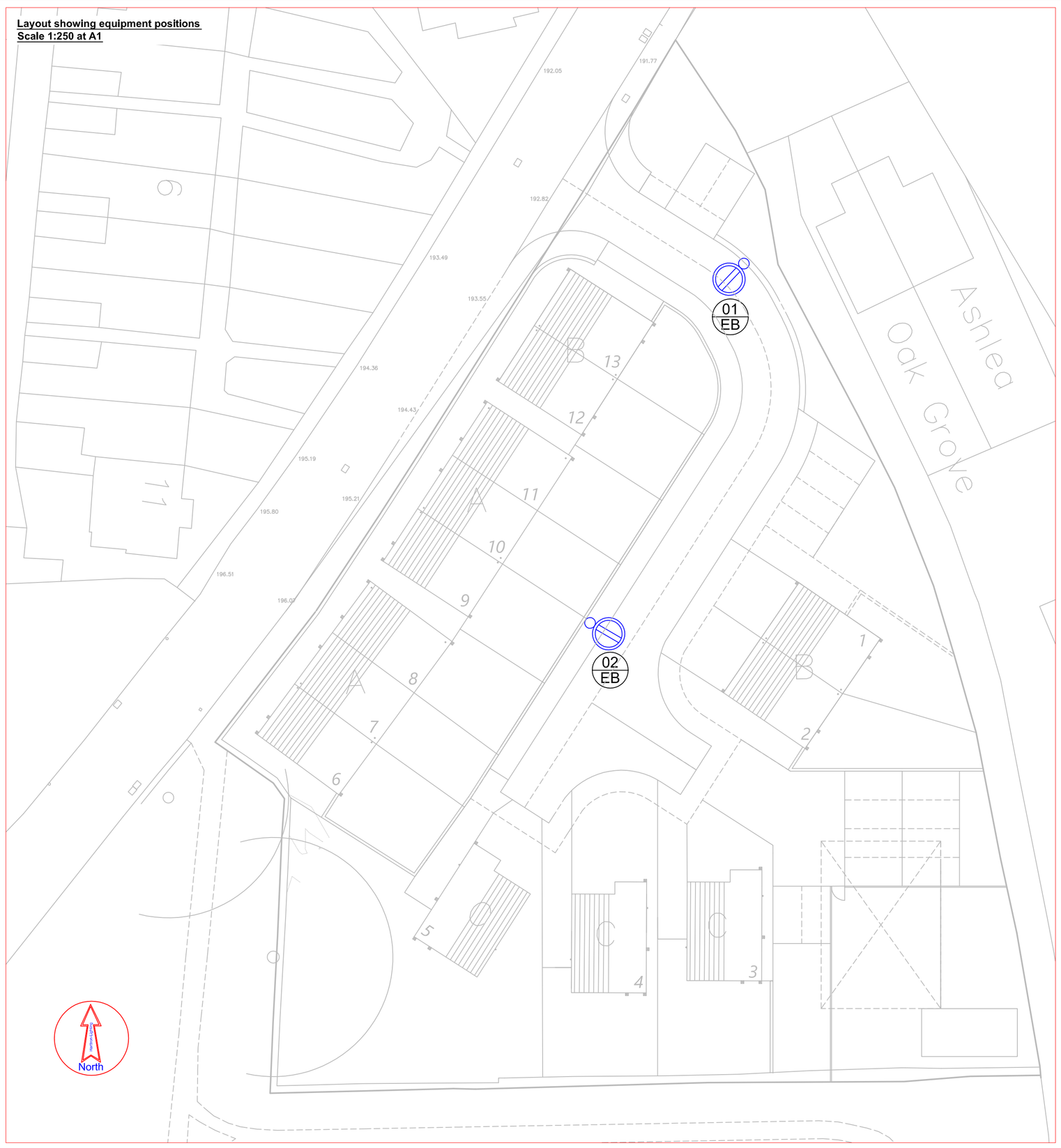
Layout showing illuminance results, isolux contours and equipment positions
Scale 1:250 at A1



Layout showing equipment positions
Scale 1:250 at A1



Key

Proposed
Column: 6m CU Phosco tubular galvanised steel with planted base
Lantern: Post top mounted Philips Mini Iridium
Reference: See BoQ
Candela file: See BoQ
Tilt: 0°
Lamp: 45w CPO-TW
Ballast: electronic
PECU: factory fitted miniature, switching at 55lux 1:0.5 ratio

Proposed column scheme number
EB = New DNO Service
TR = Transfer DNO Service
PD = Disconnect DNO Service
PN = Private network

1.0 lux iso contour line (BS5489: 2013: S4 minimum)

Philips Mini Iridium
(for illustrative purposes only)

Until technical approval has been obtained from the relevant adopting authority, it should be understood that all drawings issued are preliminary and NOT for construction. Should the contractor commence site work prior to approval being given, it is entirely at their own risk.

Additional Notes

Double pole isolation device with a 6A BS88 fuse to be utilised above the DNO cut out. Tofco model to be used.

- 1.5mm Flex for the downleads.
- BS 951 'safety electrical connection' lable in base.
- Copper grease on door hinge & door retaining bolt
- 6A discrimination DNO to private cut out.
- Conductors doubled over in the terminals

BS5489-1:2013: Table A.7 - Variation of maintained lighting level with S/P ratio of light source

Lighting Class	Benchmark (e.g. R_a < 60 or when S/P ratio of light source is not known or specified)		S/P ratio = 1.2 and $R_a \geq 60$ (e.g. some types of warm white lamp such as metal halide)		S/P Ratio = 2 and $R_a \geq 60$ (e.g. some types of cool white compact fluorescent or LED)	
	$\bar{E}$	E_{min}	$\bar{E}$	E_{min}	$\bar{E}$	E_{min}
P1 or S1	15.0	3.0	13.4	2.7	12.3	2.5
P2 or S2	10.0	2.0	8.6	1.7	7.7	1.5
P3 or S3	7.5	1.5	6.3	1.3	5.5	1.1
P4 or S4	5.0	1.0	4.0	0.8	3.4	0.7
P5 or S5	3.0	0.6	2.2	0.4	1.8	0.4
P6 or S6	2.0	0.4	1.4	0.4	1.1	0.4

BOQ

SGS451 FG OC IT1 P1
lamp(s): CPO-TW45W
candela file 'SGS451 FG 1xCPO-TW45W HF OC IT1 P1.ldt'
1 lamp(s) per luminaire, 4300 initial lumens per lamp
Maintenance Factor = 0.770, watts per luminaire = 52
Outreach (from mounting axis to photometric center)= 300 mm
mounting height= 6 m
number locations= 2, number luminaires= 2
kw all locations= 0.1

Illuminance Results

Section 38
206 points at z=0, sp 1.5m by 1.5m
HORIZONTAL LUX

Average	5.4
Maximum	21.2
Minimum	0.7
Min/Avg(Uo)	0.129
Min/Max	0.033
Coef Var	0.929
UnifGrad	2.08

Table A.5 **Lighting classes for subsidiary roads with a typical speed of main user $v \leq 30$ mph**

Traffic flow	Lighting class			
	Ambient luminance: very low (E1)	Ambient luminance: low (E2)	Ambient luminance: moderate (E3)	Ambient luminance: high (E4)
Busy [A]	S3 or P3	S3 or P3	S2 or P2	S2 or P2
Normal [B]	S4 or P4	S4 or P4	S3 or P3	S3 or P3
Quiet [C]	S5 or P5	S5 or P5	S4 or P4	S4 or P4

*NOTE 1 Table A.5 assumes no parked vehicles – see risk assessment in **A.3.3.2.***

NOTE 2 If facial recognition is important then an ES lighting class from BS EN 13201-2:2003, Table 5, or an ESC lighting class from CIE 115:2010 [N1], Table 7, can be selected as an additional criterion. Good colour rendering contributes to better facial recognition. (The ES lighting class in BS EN 13201-2:2003 is expected to be replaced by SC upon publication of the revised edition.)

NOTE 3 To ensure adequate uniformity, the actual value of the maintained average illuminance is not to exceed 1.5 times the value indicated for the class.

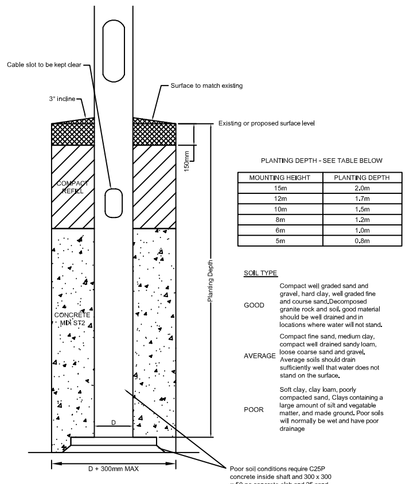
NOTE 4 It is recommended that the actual overall uniformity of illuminance Uo be as high as reasonably practicable.

NOTE 5 Grey highlighting indicates situations that would not usually occur in the UK.

NOTE 6 The ambient luminance descriptions E1 to E4 refer to the environmental zone as defined in ILP GN01 [N5].

[A] Busy traffic flow refers to areas where the traffic usage is high and can be associated with local amenities such as clubs, shopping facilities, public houses, etc.
[B] Normal traffic flow refers to areas where the traffic usage is of a level equivalent to a housing estate access road.
[C] Quiet traffic flow refers to areas where the traffic usage is of a level equivalent to a residential road and mainly associated with the adjacent properties or properties on other equivalent roads accessed from this road.

Layout showing typical column installation details
NTS



MAINTENANCE FACTOR (45w CPO-TW)

Assumed pollution category: -	Medium
Assumed clean & bulk change interval: -	12000 hours
Luminaire IP rating: -	IP66
Luminaire Maintenance Factor: -	0.87
Lamp Maintenance Factor: -	0.89

Therefore, design calculations have been performed using a maintenance factor of 0.77. The initial lumens used for the calculations were 4.3klm.

Notes

1. Column foundations to be as per Local Authority Standard Detail drawing.
2. All columns to be provided with Distribution Network Operator Services to Local Authority Standard Detail drawing, unless otherwise stated.
3. Column positions to be agreed on site with the Local Authority Street Lighting Engineer. All columns to be sited within the adoptable highway and generally in compliance with the current Local Authority Design Guide for Residential areas. Columns shall not be installed within dropped kerb areas.
4. Column numbering to be agreed with the Local Authority Street Lighting Engineer.
5. The Contractor is to provide Local Authority with as-built drawings, test certificates and column and lantern data sheets.
6. All Street Lighting works to be carried out by Local Authority approved contractors.
7. A list of proposed equipment is to be rendered by the contractor for approval by the Local Authority Street Lighting Engineer prior to the installation.
8. Adoptable ducting to be installed to satisfy the requirements of Distribution Network Operator.
9. The contractor to liaise with Distribution Network Operator with regard to connections and disconnections of columns and illuminated signs.
10. 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.
11. This lighting scheme comply's with North Wales Authorities Lighting Design Guide and Specification (ref: ENV/PP/DC-1075).
12. All wiring including component labelling to be in accordance with BS7671.
13. 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.
14. The installation contractor must be aware of any overhead obstructions. Advice should be sought from the developers engineering representative.
15. These calculation results are based on a 1.5m by 1.5m grid and illustrate perceived lighting levels for columns positioned to suit the local topography.
16. Column door orientation as per current Wrexham County Borough Council's policy is for the operative maintaining the column to be facing the oncoming traffic.

REV	DESCRIPTION	DATE	DRN	APP
B	New site layout	09/08/16	MP	PDL
A	Note added in key.	10/08/15	SJM	PDL

DRAWING NO: 15795-D-01
REV: B

DRAWING STATUS: DESIGN

Mytton Homes

PROJECT: St Johns Mews, High Street Brymbo, Wrexham - S38

TITLE: Proposed Lighting and Installation Design Layout

SCALE: As Indicated
DESIGNED BY: SJM 04/08/15
SHEET NO: Sheet 1 of 1
APPROVED BY: PDL 05/08/15

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XREF DRAWINGS: 15795-X-planning drawings.dwg

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