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

Layout showing equipment positions, Scale 1:500 at A1

Key

Proposed
Column: 6m Fabrikat galvanised tubular steel with glass flake epoxy root
Lantern: Thorn Zumtobel CIviTEQ, post top mounted
Tilt: 5°
Reference: "CIviTEQ Small • 12 Neutral White 4000K LED 370mA • NR Optic • Flat Glass"
Photometric file: "S5_R2.LDT"
PECU: factory fitted Zodlon SS12A, 20lux (switching ratio 1:1)
Other: dimmable driver, factory set to dim to 50% of maximum light output from 1900 to 0700

Thorn CIviTeq lantern
(for illustrative purposes only)

Proposed column scheme number

01 = Proposed Column Number
EB = Proposed DNO Connection
PT = Proposed DNO Connection Transfer
PD = Proposed DNO Disconnect
PN = Proposed Private Network Connection
EX = Existing Column
LS = Landlord supply point

Column numbering to be finalised with the Authoritative Engineer

0.6 lux iso contour line (BS 5489-1:2013 P.5: minimum)

3.0 lux iso contour line (illustrative)

5.0 lux iso contour line (illustrative)

Notes

1. Column foundations to be as per "LCC' Standard Specification for Highway Power Supplies and Street Furniture", herein called LCC Standard Specification.

2. All columns to be provided with Distribution Network Operator Services to the LCC Standard Specification, 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 LCC Standard Specification. 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. 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.

7. Ducting to be installed to satisfy the requirements of Distribution Network Operator.

8. The contractor to liase with Distribution Network Operator with regard to connections and disconnections of columns and illuminated signs.

9. All lighting columns to be erected with a minimum clearance of 1m to the driveways.

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

12. 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.

13. Maintenance factor of 0.88 specified by Lancashire CC.

14. 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.

Summary

The level of light spillage of the proposed lighting for the Section 38 (adoptable) area is minimal, with the 0.6lux level (equivalent to levels at a full moon) extends around 8m outside the site in one position.

This is prior to dimming. When dimming is active, the levels of light on the development and spill light will be reduced.

Notes and assumptions.

1. No design brief from Lancashire County Council was available for this initial design

2. Therefore all the lighting equipment specified has not been confirmed by Lancashire County Council (LCC).

3. Lighting class required has not been confirmed by LCC.

3. The lighting effect of the existing lighting on Chatburn Road has not been included within this design.

Design Criteria

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.

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

Lighting Class	Benchmark (e.g. Ra < 60 or when S/P ratio of light source is not known or specified)		S/P Ratio = 1.2 and Ra >= 60		S/P Ratio = 2 and Ra >= 60	
	Eav in lux	Emin in lux	Eav in lux	Emin in lux	Eav in lux	Emin in lux
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

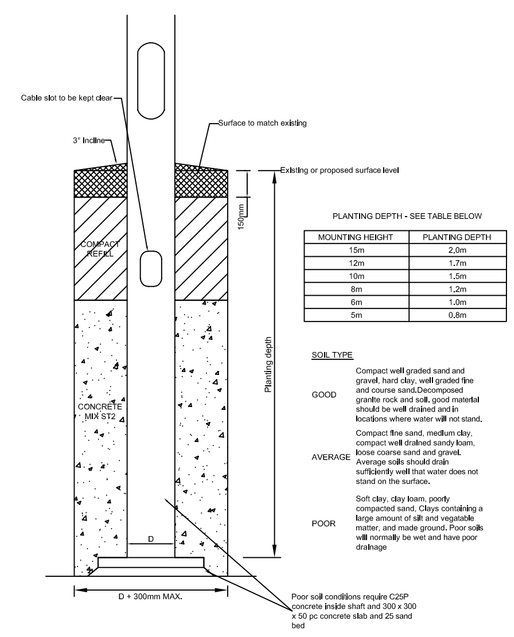
CivITEQ Small - 12 Neutral White 4000K LED 370mA - WS Optic - Flat Glass
lamp(s): LED
candela file 'S5_R2.LDT'
1 lamp(s) per luminaire, 1700 initial lumens per lamp
Maintenance Factor = 0.880, watts per luminaire = 21
Outreach (from mounting axis to photometric center)= 300 mm
tilt angle= 5 deg
mounting height= 6 m
number locations= 11, number luminaires= 11
kw all locations= 0.2

Illuminance results

calc grid
1242 points at z=0, sp 1.5m by 1.5m
HORIZONTAL LUX

Average	3.5
Maximum	10.2
Minimum	0.6
Min/Avg(Uo)	0.171
Min/Max	0.059
Coef Var	0.705
UnifGrad	1.90

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

DRAWING NO: 17870-D-01
REV: -

DRAWING STATUS: FOR CONSULTATION ONLY

McDermott

PROJECT: Chatburn Road, Clitheroe Lighting Assessment

TITLE: Proposed Lighting and Installation Design Layout

SCALE: As indicated
DESIGNED BY: MP 25/05/17
SHEET NO: Sheet 1 of 1
APPROVED BY: PDL 25/05/17

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PROJECT: F:\Projects\McDermott Homes Ltd\Chatburn Road, Clitheroe\Drawings

XREF DRAWINGS: 17870-X-LAYOUT 23.05.17
Date Plotted: 26/05/2017 9:59 AM

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