



TYPE B LUMINAIRE DW WINDSOR MILANO HALO



LUMINAIRE TYPES A,C,D,E,F BEGA 24572k3

Layout No.	Type	X	Y	Height	Angle Deg.	Tilt Deg.	Out-Deg.	Dimmed to%
1	C	518112.2	174319.9	3.5	221	0	0	100
2	F	518096.4	174265.4	2.5	228	0	0	100
3	F	518110.9	174250.6	2.5	20	0	0	100
4	F	518108.9	174255.6	2.5	30	0	0	100
5	F	518105.6	174261.1	2.5	42	0	0	100
6	A	518109.7	174265.6	2.5	43	0	0	30
7	A	518113.7	174259.3	2.5	26	0	0	30
8	A	518116.6	174252.4	2.5	15	0	0	30
9	A	518104.3	174270.9	2.5	136	0	0	30
10	A	518116.1	174244	2.5	4	0	0	30
11	E	518103	174243.1	2.5	191	0	0	50
12	E	518103.1	174238.2	2.5	179	0	0	50
13	E	518102.5	174233.4	2.5	169	0	0	50
14	E	518101	174228.9	2.5	152	0	0	50
15	E	518098.8	174224.7	2.5	150	0	0	50
16	E	518095.8	174220.9	2.5	138	0	0	50
17	C	518093.8	174215.3	3.5	222	0	0	50
18	B	518096.1	174322.3	5	41	0	0	80
19	B	518106.3	174303.8	5	344	0	0	80
20	B	518096.2	174280.4	5	331	0	0	80
21	B	518078.2	174268.9	5	344	0	0	80
22	B	518092.3	174249.1	5	165	0	0	80
23	D	518100.2	174211.2	2.5	226	0	0	60
24	D	518104.8	174215.9	2.5	237	0	0	60
25	D	518108.5	174221.3	2.5	248	0	0	60
26	D	518111.2	174227.2	2.5	256	0	0	60
27	D	518112.8	174233.6	2.5	267	0	0	60
28	D	518113.2	174240.1	2.5	276	0	0	60
29	F	518101.7	174265.7	2.5	42	0	0	100


Lighting Design Notes
Specification and supporting design information


The lighting design is compliant with BS5489-1:2020


Lighting classification for the project has been assessed under the BS5489-1:2020 risk assessment criteria. Suitable lighting levels for the area are as follows:


Lighting class chosen: P5 when an MF is applied - results shown without MF to show worst case scenario on day one.


MF used: 1
Dimming employed: Yes - some luminaires are pre-dimmed to enable a bespoke and ecology sensitive design to be delivered.


Proposed wall mounted luminaire A 
Luminaire: Bega 24572K3 - dimmed to 30% output
Wall mounted at 2.5m

Proposed column/luminaire B 
Luminaire: DW Windsor Milano Halo 2.7K - dimmed to 80% output
Column: 4.5m column to put light source at 5m

Proposed wall mounted luminaire C 
Luminaire: Bega 24572K3 - C17 dimmed to 50% output, C1 remains at 100% output
Wall mounted at 3.5m

Proposed wall mounted luminaire D 
Luminaire: Bega 24572K3 - dimmed to 60% output
Wall mounted at 2.5m

Proposed wall mounted luminaire E 
Luminaire: Bega 24572K3 - dimmed to 50% output
Wall mounted at 2.5m

Proposed wall mounted luminaire F 
Luminaire: Bega 24572K3 - remain at 100% output
Wall mounted at 2.5m

ISOLUX CONTOURS



For a full equipment specification, column schedule, design rationale, environmental/ecology considerations and risk assessment, please see the final page of this drawing information pack.

For lighting results and calculations, please see accompanying lighting report.

All columns must be installed within private land and away from the adoptable highway.

Columns are to be supplied with private live electrical connections. All electrical information supplied and designed by others. Any lit signs in the vicinity of proposed new lighting work will require energising either by the DNO or Private connection. Details of any electrical design will be by others.

Columns shall be placed as shown on the drawing. Columns are always located a minimum 0.8m away from the trafficked area. Mid hinged columns must fold away from trafficked area.

Existing trees within a 5m radius of any proposed equipment should be cut back and maintained throughout the life of the installation. New trees should not be planted within 5m of any proposed lighting equipment.

There shall be no tolerance given to the manufacturers' dimensions for planting depths for lighting.

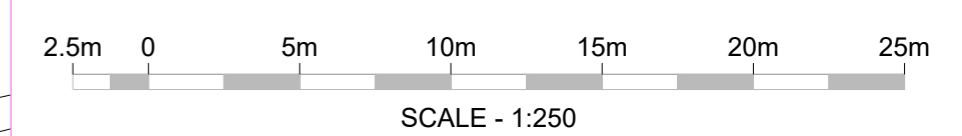
Obtrusive light has been considered against all relevant guidance and where possible luminaires have been placed away from windows. Where this hasn't been possible shields will be installed to reduce any impact, where luminaires have this option, and its possible to do so.

All luminaires must be installed as per British standards. Luminaires must be maintained regularly to keep lighting levels as per the design. Light source changes must occur within manufacturer guidelines.

ALL WORK MUST BE COMPLETED TO BRITISH STANDARDS.

Contractor Notes:

- Contractor shall comply with CDM regulations
- Electrical works to be in accordance with IEE Wiring Regulations BS7671 and G39 latest editions.
- Works in the vicinity of underground and over-ground utilities must be in accordance with HSE guidance notes HSG47, HSG6 and NJUG guidelines.
- Contractor shall acquire statutory undertaker plans prior to commencement of any works on site, where there are services identified in the area of the works the contractor must comply with the statutory undertakers' requirements.
- Contractor's disposal must comply with WEEE directive and COSHH regulations.
- COSHH assessments to be provided for all hazardous materials.
- Drawing shall be printed out in colour.
- All overhead and underground services are shown on the construction drawing, where in existence. Stats information is intended as a guide only and not to be used for construction purposes. Contractors to double check before installation and provide required mitigation where necessary.
- Column numbers are indicative and will require confirmation from the Developer.



Rev	Description	Drawn	Date

Client: it does Lighting Limited
The Cube
13 Stone Hill
Two Mile Ash
Milton Keynes
MK5 8DN
w: www.itdoes.co.uk
e: information@itdoes.co.uk
t: 01908 560110

IT DOES LIGHTING.
bringing ideas to light

Project Name: Howson Terrace, Richmond for H21

Title / Description: On site non adoptable street and amenity lighting to meet P5 and provide suitable mitigation for ecology receptors

Site: Richmond Client: Housing 21

Designer: LC Checked: BC Approved:  ISO A1
Highway Authority: NA OS Reference: First drawn 04-10-21
Drawing Number: 192-01-NAD-CD-L1-B Rev: B



Milano Halo

Bromwich House

LB

32.3m
Post

1 to 35

92 88

90

96 100

98 102

104 108

110 114

116 120

118 122

124 126


Proposed new column and luminaire in the same location as existing. Opportunity to energise with a transferred supply - contractor to investigate

Proposed new column and luminaire in the same location as existing. Opportunity to energise with a transferred supply - contractor to investigate


Proposed new column and luminaire in the same location as existing. Opportunity to energise with a transferred supply - contractor to investigate

Proposed new column and luminaire in the same location as existing. Opportunity to energise with a transferred supply - contractor to investigate


Proposed new column and luminaire in a new location - will require new electrical supply

Luminaire A 


Quantity: 5
 Brand: BEGA
 Luminaire: Wall mounted circular
 Optic: 24572K3 with PIR and dimming
 Colour temperature: 3000K
 Flux: 0.67klm
 Circuit Wattage: 10W
 To order products please contact...
 Paul Cox at Lite paulcox@lite-ltd.co.uk
 07719542774
 Mounting Height: 2.5m
 Finished colour: Anthracite
Controls
 Luminaire to be pre-dimmed to 30% output before install or afterwards via the installer app.

Luminaire B 


Quantity: 5
 Brand: DW Windsor
 Luminaire: Milano Halo LED 16 LED
 Optic:D1
 Code: G420038 0000 100
 LED Quantity: 16
 Colour temperature: 2700K
 Flux: 2.22klm
 Driver current: 200mA
 G class: G3
 Column mounting: Post top
 To order products please contact...Dean Johnston@dwindsor.co.uk 07887952938
Lighting column
 Height: 4.5m to put the light source at 5m
 Material: Galvanised
 Type: conical tapered
 Manufacturer: DW Windsor
 Finished colour: to match luminaire
 Root protection: Glass flake
Controls
 Driver: 200mA
 Photocell socket: yes mini cell
 Switching regime: 18/18 lux dusk till dawn

Luminaire C 


Quantity: 2
 Brand: BEGA
 Luminaire: Wall mounted circular
 Optic: 24572K3 with PIR and dimming
 Colour temperature: 3000K
 Flux: 0.67klm
 Circuit Wattage: 10W
 To order products please contact...
 Paul Cox at Lite paulcox@lite-ltd.co.uk
 07719542774
 Mounting Height: 3.5m
 Finished colour: Anthracite
Controls
 Luminaire C1 to be at 100% output and C17 to be at pre-dimmed to 50% output before install or afterwards via the installer app.

Luminaire D 

Quantity: 6
 Brand: BEGA
 Luminaire: Wall mounted circular
 Optic: 24572K3 with PIR and dimming
 Colour temperature: 3000K
 Flux: 0.67klm
 Circuit Wattage: 10W
 To order products please contact...
 Paul Cox at Lite paulcox@lite-ltd.co.uk
 07719542774
 Mounting Height: 2.5m
 Finished colour: Anthracite
Controls
 Luminaire to be pre-dimmed to 60% output before install or afterwards via the installer app.

Luminaire E 

Quantity: 6
 Brand: BEGA
 Luminaire: Wall mounted circular
 Optic: 24572K3 with PIR and dimming
 Colour temperature: 3000K
 Flux: 0.67klm
 Circuit Wattage: 10W
 To order products please contact...
 Paul Cox at Lite paulcox@lite-ltd.co.uk
 07719542774
 Mounting Height: 2.5m
 Finished colour: Anthracite
Controls
 Luminaire to be pre-dimmed to 50% output before install or afterwards via the installer app.

Luminaire F 


Quantity: 5
 Brand: BEGA
 Luminaire: Wall mounted circular
 Optic: 24572K3 with PIR and dimming
 Colour temperature: 3000K
 Flux: 0.67klm
 Circuit Wattage: 10W
 To order products please contact...
 Paul Cox at Lite paulcox@lite-ltd.co.uk
 07719542774
 Mounting Height: 2.5m
 Finished colour: Anthracite
Controls
 Luminaire to be left at full output - no dimming applied.

It does Lighting Ltd design caveats

This document has been prepared by it does Lighting Ltd in its professional capacity as consultants in accordance with the terms and conditions of it does Lighting Ltd's Consultancy's contract with the commissioning party (the "Client"). Regard should be had to those terms and conditions when considering and/or placing any reliance on this document. No part of this document may be copied or reproduced by any means without prior written permission from it does Lighting Ltd. Please note that this proposal assumes that the lighting designer's information does not formally become construction information; rather it is to be fully coordinated and incorporated into the architects (or other lead designers) and electrical engineers final construction information. The services do not include for adopting lead consultants design responsibilities or duties for Architectural services, structural, electrical engineering, cost consultancy, quantity surveying or project management.

Any advice, opinions, or recommendations within this document (a) should be read and relied upon only in the context of the document as a whole; (b) do not, in any way, purport to include any manner of legal advice or opinion; (c) are based upon the information made available to it does Lighting Ltd at the date of this document and on current UK standards, codes, technology and construction practices as at the date of this document. It should be noted and it is expressly stated that no independent verification of any of the documents or information supplied to it does Lighting Ltd has been made. No liability is accepted by it does Lighting Ltd for any use of this document, other than for the purposes for which it was originally prepared and provided. Following final delivery of this document to the Client, it does Lighting Ltd will have no further obligations or duty to advise the Client on any matters, including development affecting the information or advice provided in this document.

Risk Assessment for BS5489-1:2013 or 2020 compliance and CDM2015 compliance						
PS = Probably Severity (1 = trivial and 6 = Multiple deaths), PF = Probable Frequency (1 = improbable and 6 = common), RR = Residual Risk out of 36						
Assessed Risk	Concerns	PS	Mitigation	PF	Conclusion	RR
Traffic Composition	Potential for non-motorised users to be both using and crossing the roadway. Concerns are for safety and visibility. Potential for collisions, resulting in injury or death	4	Lighting levels have been designed to BS5489 and are suitable for the traffic and pedestrian composition. Good uniformity achieved within the design	2	Lighting is suitable for the environment and will enable safe pedestrian and road user activities.	8
Likelihood of Parked Cars	Parked cars may block light and obscure views of road users	3	Limited potential for parked cars outside of allocated parking	2	All possible mitigation during the design process has been considered and implemented where possible	6
Ambient lighting or environmental zone	Concern is that a new design may increase ambient levels. Potential effects on ecology and environment	2	Lighting levels have been designed to BS5489 and are suitable for the location and use. Luminaire types chosen are installed at a zero degree uplift in order to ensure there is no additional sky glow from any part of the installation. Luminaires do not provide light above 90 degrees and conform to G3	1	Lighting levels suitable for area and all possible measures have been taken to reduce sky glow, spill and obtrusive light during the design process.	2
Visual Guidance/traffic control	Concerns that lighting column locations may confuse road users as to road layout and direction	3	Columns are placed as per their original locations and therefore orientation should not be an issue.	1	No further mitigation required as lighting levels are sufficient, and all possible measures have been considered and implemented during the design process.	3
Trees	Concerns are that trees may block light from proposed column locations and limit road users night time vision, potentially resulting in a road traffic accident	3	Planting layouts have been shown on the drawing, so the design process can take them into consideration. No columns located within 5 metres of tree locations, or where they are near by they will be cut back and maintained where needed	1	Lighting unaffected as long as good practice and the design parameters listed within the mitigation section are followed.	3
Maintenance	Concerns over collisions with road users during maintenance which would result in potential severe harm. Risk to those working at height has also been considered.	5	Working at height procedures to be followed by contractors. All workers must ensure that they are protected from on and offsite traffic and wear appropriate PPE. Proposed column locations have been detailed as far back from the trafficked area as is practicable to help reduce the risk to maintenance staff. Only suitably qualified, competent individuals to undertake any maintenance work. All work to comply with the most recent electrical and health and safety standards. Roads to be suitable closed off or barriers erected to prevent traffic collision.	2	All possible options for safe working of installation and maintenance teams on lighting equipment have been addressed whilst still enabling a design to be installed.	10
Installation	Concerns over collisions with road users during installation, which would result in potential severe harm. Risk to those working at height as been considered. Potential for electrocution due to contact with overhead or underground cables.	5	Working at height precautions must be taken. All workers must ensure that they are protected from on and offsite traffic and wear appropriate PPE. No lone working and all British Standard working practices must be followed. All areas should be suitably closed off at the time of installation. Columns have been set back as far as possible within the design. All known services have been shown within the drawing but are indicative and not to scale. Confirmation of location of existing utilities to be confirmed by ground penetration radar or pilot holes. All excavation to be conducted in accordance with HSG47 and NJUG. Appropriate safety barriers to be erected to prevent public/operatives from falling into open trenches.	2	The contractor to further investigate and risk assess for existing services prior to commencement of excavation. Contractor to employ soft digging techniques as required.	10
Passive safe	Columns may be hazard for road users and members of public	4	Requirement for passive safe assessed as per ILP's TR30 flow chart. Road speed of 30mph and predicted ADT of under 5,000	2	Passive safe equipment not required.	8
Crime	Lighting may not be adequate to deter or allow surveillance of criminal activity.	3	The lighting levels specified are considered suitable to help deter crime in the area. Colour rendering of 70CRI promotes recognition of individuals and faces. Also useful for CCTV if in the vicinity.	2	All practicable measures taken.	6
Covid-19	Potential risk to those installing or maintaining lighting stock during the pandemic and potential increased risk to life	3	All operatives within the area should wear appropriate PPE to stop spreading any virus and protect others	2	All practicable measures taken	6

		NAME	COMPETENCE LEVEL (1,2,3 OR 4)	QUALIFICATIONS	CERTIFICATES SUPPLIED TO SHOW COMPETENCY I.E. I/ENG/CENG/MILP/FILP
DESIGNER	Lorraine Calcott	4	I/Eng MILP MSLL	Yes	
CHECKED BY	Not required as designer level 4				
To be completed should designer not be level 3/4					

Equality and Diversity Impact Assessment				
Characteristic	Could this scheme affect this group less favourably than others? Yes/No	Assessment of potential impact. High/Medium/Low/None/Unknown POSITIVE	Assessment of potential impact. High/Medium/Low/None/Unknown NEGATIVE	Details
Age	Yes	Med	Low	The lighting design has been carried out in accordance with British Standards. It is recognised that the scheme could have a disproportionate adverse impact on elderly or vulnerable people, particularly in emergency situations, when accessing the Site
Disability	Yes	Med	Low	The lighting design has been carried out in accordance with British Standards. It is recognised that the scheme could have a disproportionate adverse impact on disabled people, particularly in emergency situations, when accessing the Site
Gender	No	None	None	
Gender Identity	No	None	None	
Race	No	None	None	
Religion or belief	No	None	None	
Pregnancy/Maternity	No	None	None	
Sexual orientation	No	None	None	
Marriage and civil partnerships	No	None	None	

Design Parameters and notes

Speed of road: Less than 30mph
 Use Intensity: Localised
 Traffic Calming: none
 Traffic Composition: Mixed
 Parked Vehicles: Yes
 Environmental Considerations: Mitigation provided where required for ecology receptors - Dark corridor maintained
 Lighting Classes Selected: P5 with no S/P ratio or MF applied
 Maintenance Factor: 1 - demonstrating day one outputs and worst case scenario.
 Design Calculation Grid Spacing: 1.5m x 1.5m (or less)
 Installed Luminaire Tilt: Zero degrees, post top no upward light
 Colour Temperature: 3000K for the wall lights and 2700K for the post top luminaires.

In hard to reach areas with no vehicular access or where clear of 5m from any overhead cables cannot be met mid hinged raise and lower columns shall be used, these shall be tool free and on person operational. They must raise and lower away from the trafficked area and overhead cables.

There shall be no tolerances given to manufacturers dimensions for planting depths for columns.

Existing or proposed trees shall be at least 5m from any lighting equipment. They must be maintained to remain so.

The lighting design of this site has been designed by a competent person (level 4) as assessed under the Institution of Lighting Professionals (ILP) competency framework as this complies with CDM2015 regulation requirements for design, risk for the Client and any Secured by Design (SBD) requirements.

Environmental Assessment

Both permanent and temporary impacts have been assessed for the design against conservation, ecology, landscape, land use, community, energy and construction. No significant impacts are anticipated from the installation of new lighting equipment for this project other than those stated separately within this document.

Landscape: The installation of columns will affect the daytime scene due to changing the current infrastructure within the area. Visibility of luminaires at night will be negligible as they are an improvement on the currently installed equipment being in use within the area.

Land use: The use of the area may increase because the additional lighting will encourage people to use the space more, as the perception of safety will have increased.

Traffic noise and vibration: No permanent increase anticipated.

Flora: Some clearance of grass/scrubland may be required. The removal of any substantial vegetation and trees is not anticipated.

Fauna: No considerable negative effects upon ecology are anticipated.

Contamination: Luminaires selected are made from suitable materials for the location in which they are to be used and are CE and ROHS compliant.

It is noted that there is some concern about the leaching of zinc from galvanised surfaces into the ground. The galvanised surfaces are coated below ground level, which will reduce the leaching of any zinc. The client specifies this form of protection.

The LEDs used contain small quantities of hazardous substances however, the contractor will carry out the disposal of faulty electrical items and metals in strict accordance with National directives, and recommendations.

Reference Documents

British Standard, industry reference, and regulatory documents have been considered during the design process of this project. The project meets those standards, where required or otherwise stated.

Rev	Description	Drawn	Date

Client: **IT DOES LIGHTING.**
 bringing ideas to light

Project Name: **Howson Terrace, Richmond - Housing 21**

Title / Description: **Lighting Equipment Specification, Design Notes, Risk and Environmental Considerations**

Site: **Richmond** Client: **Housing 21**

Designer: **LC** Checked: **BC** Approved: ISO A1

Highway Authority: **NA** OS Reference: First Drawn: **04-10-21**

Drawing Number: **192-01-NAD-CD-LI-B** Rev: **B**

DATE: 4 October 2021
DESIGNER: Lorraine Calcott
PROJECT No: 192-01-NAD-LO-LI-A
PROJECT NAME: Howson Terrace



Lighting designed to P5 to protect the ecology receptors whilst still providing adequate lighting for the safety and security of the residents and their visitors.
All lighting has been dimmed from its original outputs at the factory to ensure the light levels are installed as per the sites design.
Luminaires have shields and optics that stop direct upward light.
The wall lights do provide a little forward light to provide good facial recognition for the identification of visitors and for CCTV.
Post top luminaires have no visibility of the light source from above or directly from the side to ensure the least impact possible for receptors. 3000K or 2700K has been used to reduce the blue light peak within the spectral content of the luminaires.
The eastern flank experiences less than 1lux along the sites edge to maintain a dark corridor for receptors. MF at 1 so reflecting worst case senario at day one.

Non-adoptable lighting

PREPARED BY: it does Lighting Ltd
The Cube,
13 Stone Hill
Two Mile Ash
Milton Keynes
MK8 8DN
e-mail: information@itdoes.co.uk
website: www.itdoes.co.uk
Phone: 01908 560110

Layout Report

General Data

Dimensions in Metres Angles in Degrees
 Grid Origin 518054.9m x 174178.2m
 Area 90.6m x 163.6m
 Sample Spacing 1.49m x 1.49m

Luminaires



Luminaire A Data

Supplier	
Type	24572K3
Lamp(s)	671 lm,10 W
Lamp Flux (klm)	0.67
File Name	BE_24572K3.ies
Maintenance Factor	1.00
Lum. Int. Class	None
Lamp S/P Ratio	0.00
No. in Project	5

Luminaire B Data

Supplier	D W Windsor
Type	Milano Halo-16LED-2.7k-D1 200mA UMSU G 42 0038 0000 100
Lamp(s)	16x2.7k LED
Lamp Flux (klm)	2.22
File Name	Milano Halo-16LED-2.7k-D1_200mA UMSU G 42 0038 0000 100.ies
Maintenance Factor	1.00
Lum. Int. Class	G3
Lamp S/P Ratio	1.30
No. in Project	5

Luminaire C Data

Supplier	
Type	24572K3
Lamp(s)	671 lm,10 W
Lamp Flux (klm)	0.67
File Name	BE_24572K3.ies
Maintenance Factor	1.00
Lum. Int. Class	None
Lamp S/P Ratio	0.00
No. in Project	2

Luminaire D Data

Supplier	
Type	24572K3
Lamp(s)	671 lm,10 W
Lamp Flux (klm)	0.67
File Name	BE_24572K3.ies
Maintenance Factor	1.00
Lum. Int. Class	None
Lamp S/P Ratio	0.00
No. in Project	6

Luminaire E Data

Supplier	
Type	24572K3
Lamp(s)	671 lm,10 W
Lamp Flux (klm)	0.67
File Name	BE_24572K3.ies
Maintenance Factor	1.00
Lum. Int. Class	None
Lamp S/P Ratio	0.00
No. in Project	6

Luminaire F Data

Supplier	
Type	24572K3
Lamp(s)	671 lm,10 W
Lamp Flux (klm)	0.67
File Name	BE_24572K3.ies
Maintenance Factor	1.00
Lum. Int. Class	None
Lamp S/P Ratio	0.00
No. in Project	5

Layout

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Dimmed to	Target X	Target Y	Target Z
1	C	518112.17	174319.85	3.50	221.00	0.00	0.00	0.00	100%			
2	F	518096.35	174265.44	2.50	228.00	0.00	0.00	0.00	100%			
3	F	518110.92	174250.57	2.50	20.00	0.00	0.00	0.00	100%			
4	F	518108.90	174255.61	2.50	30.00	0.00	0.00	0.00	100%			
5	F	518105.61	174261.13	2.50	42.00	0.00	0.00	0.00	100%			
6	A	518109.71	174265.60	2.50	43.00	0.00	0.00	0.00	30%			
7	A	518113.70	174259.31	2.50	26.00	0.00	0.00	0.00	30%			
8	A	518116.55	174252.43	2.50	15.00	0.00	0.00	0.00	30%			
9	A	518104.31	174270.91	2.50	136.00	0.00	0.00	0.00	30%			
10	A	518116.14	174243.97	2.50	4.00	0.00	0.00	0.00	30%			
11	E	518103.01	174243.12	2.50	191.00	0.00	0.00	0.00	50%			
12	E	518103.07	174238.15	2.50	179.00	0.00	0.00	0.00	50%			
13	E	518102.54	174233.42	2.50	169.00	0.00	0.00	0.00	50%			
14	E	518100.96	174228.87	2.50	152.00	0.00	0.00	0.00	50%			
15	E	518098.77	174224.70	2.50	150.00	0.00	0.00	0.00	50%			
16	E	518095.82	174220.85	2.50	138.00	0.00	0.00	0.00	50%			
17	C	518093.75	174215.26	3.50	222.00	0.00	0.00	0.00	50%			
18	B	518096.10	174322.26	5.00	41.00	0.00	0.00	0.00	80%			
19	B	518106.29	174303.83	5.00	344.00	0.00	0.00	0.00	80%			
20	B	518096.15	174280.43	5.00	331.00	0.00	0.00	0.00	80%			
21	B	518078.24	174268.85	5.00	344.00	0.00	0.00	0.00	80%			
22	B	518092.26	174249.13	5.00	165.00	0.00	0.00	0.00	80%			
23	D	518100.21	174211.19	2.50	226.00	0.00	0.00	0.00	60%			
24	D	518104.76	174215.86	2.50	237.00	0.00	0.00	0.00	60%			
25	D	518108.49	174221.30	2.50	248.00	0.00	0.00	0.00	60%			
26	D	518111.15	174227.22	2.50	256.00	0.00	0.00	0.00	60%			
27	D	518112.76	174233.64	2.50	267.00	0.00	0.00	0.00	60%			
28	D	518113.23	174240.10	2.50	276.00	0.00	0.00	0.00	60%			
29	F	518101.73	174265.66	2.50	42.00	0.00	0.00	0.00	100%			

Horizontal Illuminance (lux)

Grid 1



Results

Eav	4.89
Emin	0.76
Emax	21.28
Emin/Emax	0.04
Emin/Eav	0.16