London City Airport
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City Airport Development Programme (CADP1)

Condition 92 : Construction Lighting

ATKINS

March 2018 V2.

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Project Glossary of Abbreviations

Project Glossary of Abbreviations	
Acronym	**Meaning**
ADE	Apron Deck Extension - including the apron platform for all new stands, the full length parallel taxiway the deck for the ETE
CADP1	City Airport Development Programme
CCTV	Closed Circuit Television
DLR	Docklands Light Railway
EEC	Eastern Energy Centre
EPE	East Pier Extension
ETE	East Terminal Extension
MTB	Main Terminal Building
OBB	Outward Bound Baggage (final)
TCF	Temporary Coaching Facility
UKPNS	United Kingdom Power Networks
WEC	Western Energy Centre
WSY	Western Service Yard
WTE	West Terminal Extension

1. Introduction

1.1.1. The City Airport Development Programme (CADP1) planning application (13/01228/FUL) was granted planning permission by the Secretaries of State for Communities and Local Government and Transport in July 2016 following an appeal and public inquiry which was held in March/April 2016.

1.1.2. On 5th January 2017, the London Borough of Newham (LBN) approved some minor non-material design changes to the appearance of the western and southern elevations of the Western Terminal Extension (WTE). A further non-material amendment (17/02865/NONMAT) to the Planning Permission was approved on 27 September 2017 for minor amendments to the terminal buildings and associated service yard, East Pier, forecourt and decked car park. The approved minor amendments have been incorporated into the details provided to satisfy this condition

1.1.3. Condition 92 requires that:

"Before the Commencement of the relevant Phase of Development a Construction Lighting Scheme for that Phase shall be submitted to and approved in writing by the Local Planning Authority. Details should include appearance, siting, orientation and screening of the lights to be used during construction and the means of construction and laying out of cabling for such lights. The approved scheme shall be constructed / installed prior to Commencement of the relevant Phase and shall be removed following the completion of the Phase of Development.

Reason: to ensure that and community safety is not compromised."

1.1.4. The Airport submitted a Construction Phasing Plan to LBN pursuant to Condition 4 of the CADP1 permission in February 2017. It was proposed to build out CADP1 as a single uninterrupted period of construction over 5 years split into two distinct phases. Consistent with terminology used in the UES, the two phases were referred to as the 'Interim Works' and the 'Completed Works' – each delivering different parts of the CADP1 infrastructure. The Interim Works would be delivered first and would be immediately followed by the Completed Works. This Construction Phasing Plan was approved by LBN in March 2017 (ref. 17/00500/AOD) and the details pursuant to Condition 92 for the 'Interim Works' were also approved at the same time (ref. 17/00335/AOD).

1.1.5. Ahead of the commencement of construction of CADP1, the Airport's Delivery Partner have identified a number of programme efficiencies and improvements to the 5 year build which would reduce the duration of the construction programme by 14 months to 3 years 10 months and deliver the full CADP1 infrastructure in an accelerated single phase (*2017 Accelerated Construction Plan)*.

1.1.6. This submission seeks approval of the construction lighting details pursuant to Condition 92 for all of the approved CADP1 infrastructure to be delivered by the new *2017 Accelerated Construction Plan* as described below.

1.1.7. The construction lighting details hae not changed from those approved previously (17/00335/AOD) but have been updated in this submission to reflect some small changes to the overall size of the compound area submitted for approval under separate cover pursuant to condition 96.

1.1.8. At the request of LBN Officers, new text added to the previously approved details (17/00335AOD) has been distinguished in blue text in this document

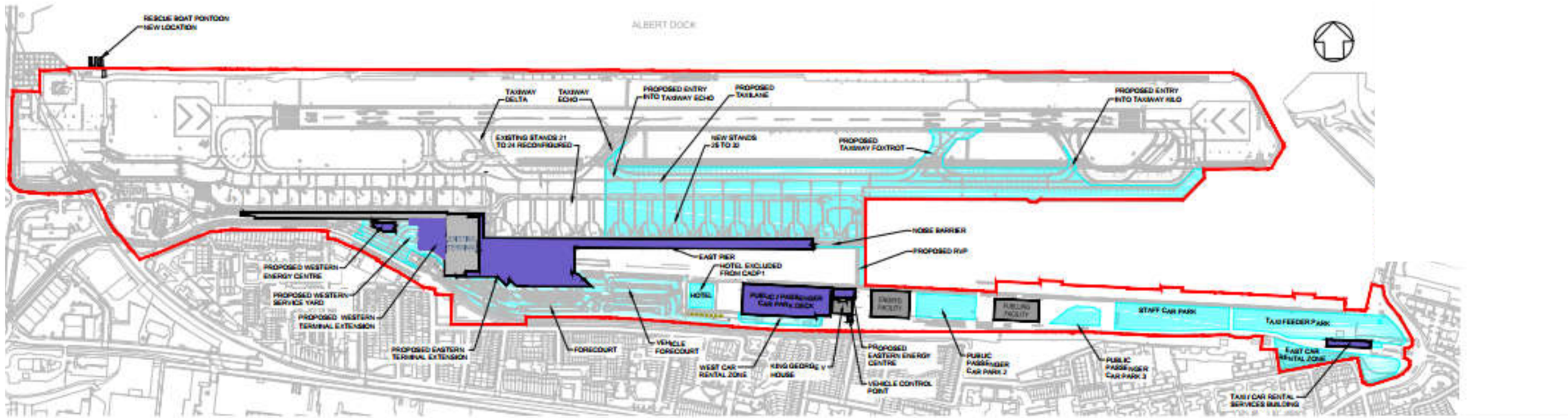


Figure 1-1 Extent of CADP1 works

2. Construction Lighting Design

2.1. Design Strategy

Design Process

2.1.1. Atkins will be producing a detailed performance specification that will detail the Contractor's responsibility for the detailed design of the construction lighting. The following section details the additional requirements that will be imposed on the contractor's final design the will ensure compliance with the listed aspects of Condition 92. A draft of the performance specification is included in the appendices for information.

Appearance

Construction Lighting

2.1.2. The construction lighting for the CADP1 Works will predominantly be temporary mobile lighting either in the form of site installed fluorescent batten luminaires or stand-alone mobile floodlight towers. The lighting equipment will be of a normal construction light design with yellow bodies and yellow cabling fixed directly to temporary support structures or to the advancing structure. The construction lighting will by necessity move within the CADP1 construction area as the works progress and different parts of the development are built and the nature of the tasks change. The appointed contractor will be responsible for the detailed design and selection of the final lighting equipment in accordance with design criteria in this document and the performance specification included in appendix C. The location and type of luminaires are identified in Section 3.

2.1.3. Given the waterborne nature of constructing the deck over KGV Dock this area will be lit primarily from floodlights fixed to the construction barges. Localised lighting may also be mounted on the existing buildings, if deemed appropriate by the Contractor once appointed (see Section 3 for more detail).

Construction Compound

2.1.4. The appearance of the lighting equipment will be as found typically in industrial installations (see Section 3 for more detail). Final choice of the luminaires will be made by the Contractor as part of the detailed design.

2.1.5. Where possible it is intended to utilise the existing external lighting columns, within the proposed compounds, as required to meet the requirements of Table C-1 and Table C-2 with additional industrial luminaires. The new luminaires will be full cut off luminaires with no upward light (see Section 3 for more detail).

Siting

2.1.6. A sensitive receptor study was undertaken to establish a strategy for the positioning and type of lighting equipment. The study identified the type and position of the receptor and provided a basis for establishing the following criteria (see Appendix B):-

- Type of luminaire;
- Luminaire maximum power;
- Light distribution;
- Aiming position;
- Mounting height and
- Luminaire tilt.

2.1.7. The criteria establishes a framework for demonstrating compliance with the Updated Environmental Statement (UES).

Location of Lighting in CADP1 Construction Areas

2.1.8. The luminaires will be sited to suit the progression of the construction works and the positions of the luminaires will change (see drawing A400-PAW-A-14-XXX-XX-DR-GA-900-004-S3 - Appendix A). The position of the luminaires will be chosen to restrict light spillage i.e. facing away from residential properties. Where luminaires face toward properties they will be restricted in light output and be restricted in tilt to no more than 5 degrees.

Location of Lighting in Construction Compounds

2.1.9. The luminaires will be restricted to a mounting height of below 12m. The existing car park lighting is currently 6m semi cut-off luminaires with a degree of upward light. The construction lighting will be of a full cut off asymmetrical floodlight design restricted to 5 degrees vertical tilt maximum. The lighting will be arranged in rows following the line of Hartmann road. The southernmost row will follow the line of the 3m compound hoarding along the line of the raised section of the existing car park (see Figure 3-8 for details).

Orientation (in both horizontal and vertical planes)

2.1.10. All luminaires on both the construction sites and compounds are to be full cut off luminaires with no upward light. The luminaires are to be orientated away from the residential properties to minimise spill light. The luminaires are to have 0 degrees tilt preferably but with a maximum vertical tilt of 5 degrees. The limit of 5 degrees tilt mitigates obtrusive light to the sensitive receptors in terms of glare and light spill beyond the site boundary.

Physical Screening of the luminaires

2.1.11. Physical screening of the luminaires is not intended as a primary mitigation measure for the construction lighting. Rather, all lighting will adhere with the design criteria outlined in this report which will provide sufficient mitigation. However, following site elements (see Table 2-2) will give local receptors some physical screening from construction lighting:

Table 2-1 Physical screening elements to construction lighting for the CADP1 Works

Screening element	Sites benefiting
DLR station	WEC WTE WSY
WSY Compound Hoarding (3m)	WEC WTE WSY
West Pier	WEC WTE WSY
Main Terminal Building	WEC WTE WSY OBB TCF ADE
DLR Wall	All compounds, car parks OBB ADE
East pier	TCF ADE
Compound hoarding parallel to Hartmann Road (3m)	ADE All compounds
Contractor cabins	Compounds

Notes:
1. Luminaire screening elements fixed to the luminaires such as glare cowls and visors will be used where they are of benefit.

Cabling

2.1.12. All cabling will be designed by the Contractor during the detailed design phase prior to commencement of work on site the Contractor will be restricted to utilising a combination of buried and surface mounted cabling fixed to temporary and existing structures. The use of catenary mounted cabling will be restricted to a minimum. Mobile lighting will be part of the design of the manufactured product hence has no planning implications as identified in condition 92.

Further Mitigation Measures

2.1.13. The following measures will be utilised by the Contractor during the detailed design of the CADP1 Works with respect to construction lighting:-

- Utilisation of the minimum mounting height for all luminaires (max allowable height 10m);
- Optimisation of luminaire light distribution;
- No upward light output;
- Mounting of luminaires on existing buildings and site accommodation to light walkways;
- Maximising colour rendering of lamp sources to reduce installed illuminance levels and to maximise colour contrast;
- Minimising backward light output;
- Minimising initial Illuminance by maximising maintenance factor and optimising luminaire specification; and
- Minimising the maximum light output of luminaires

2.2. Construction Lighting Design Criteria

2.2.1. The Contractor shall be responsible for producing a construction lighting design that includes details for ensuring that all construction lighting is in accordance with the sequencing of the CADP1 Works. The design criteria below are extracted from BS EN 12464-2:2014 and should be considered as the starting point for the contractor to develop the detailed lighting design to suit his final construction strategy. The final design of each luminaire will be determined by the exact nature of the works that the Contractor is undertaking in each specific area. The Contractor's detailed lighting design shall cover the construction lighting installation identifying:-

- Maintained illuminance levels;
- Luminaire aiming positions and tilt for each luminaire;
- Maintenance factor;
- Luminaire construction and datasheet;
- Initial Illuminance Levels;
- Illuminance Uniformity min/average;
- Illuminance Diversity minimum/maximum;
- Lamp or LED type and Efficacy;
- Luminaire details including images and performance datasheets;
- Luminaire absolute photometry;
- Glare Ratios;
- Threshold Increments (road lighting for site roads);
- Luminaire mounting heights:
- Annotated and dimensioned lighting layouts identifying luminaire types, aiming points and column positions; and
- Typical Luminance calculations to the sensitive receptors identified for each of CADP1 Works sites and compounds.

A detailed description of the lighting criteria that the Contractor must comply with for the construction lighting is included within Appendix C.

Sensitive receptors for condition 92

2.2.2. The receptor study was undertaken for the two different conditions that apply to external lighting i.e. conditions 41 and 92, which have common receptors but differing sensitivity levels dependant upon the differences between the construction lighting and the final external lighting. The contractor and LCY will be responsible for the evaluation all complaints of residential receptors and applying subsequent mitigation measures including redesign, repositioning, realignment of lighting equipment etc. to comply with the standards referred to in this document and its appendices. In accordance with the Construction Environmental Management Plan submitted under the terms of Condtion 88 of the CADP1 Permission all complaints and enquiries relating to construction lighting will be reported to Officers at the London Borough of Newham.

2.2.3. For Condition 92 the obtrusive light senitive receptors have been identified specifically for the construction lighting (see Figure 2-1), including Construction Compounds for which details have been provided under condition 96 and for the overall construction area related to the CADP1 Works. The receptor study has been undertaken for the whole site but has been analysed here for the construction lighting only. These receptors were taken from the UES zone of theoretical visibility (ZTV) and finalised by a walking survey of the environs (restricted to viewing from Public Rights of Way at ground level). A full set of photographic receptor point results sheets recorded during the survey are contained within Appendix A.

2.2.4. The receptors that are significant for the CADP1 construction site are identified generally as residential properties to the south of the airport. The northern receptors are considered too distant to have any sensitivity to the contractor's compounds or the deck constuction site with the identified mitagtion measures.

2.2.5. The perimeter walls on both sides of the DLR are aproximately 2.5 metres tall minimum and there is a change level always to the north with Hartman Road being approximately 750-2000mm higher than Newland Road for example; hence all ground floor windows are effectively shaded from the site.

2.2.6. The first floor bedroom windows for the southern receptors (1-26) are beneath the proposed height of the construction lighting and as such will have a very oblique view of the luminaires. Windows above the third floors will be looking down on the construction site and hence will only see reflected light from the ground and objects below 8m. High reflectances are not anticipated.

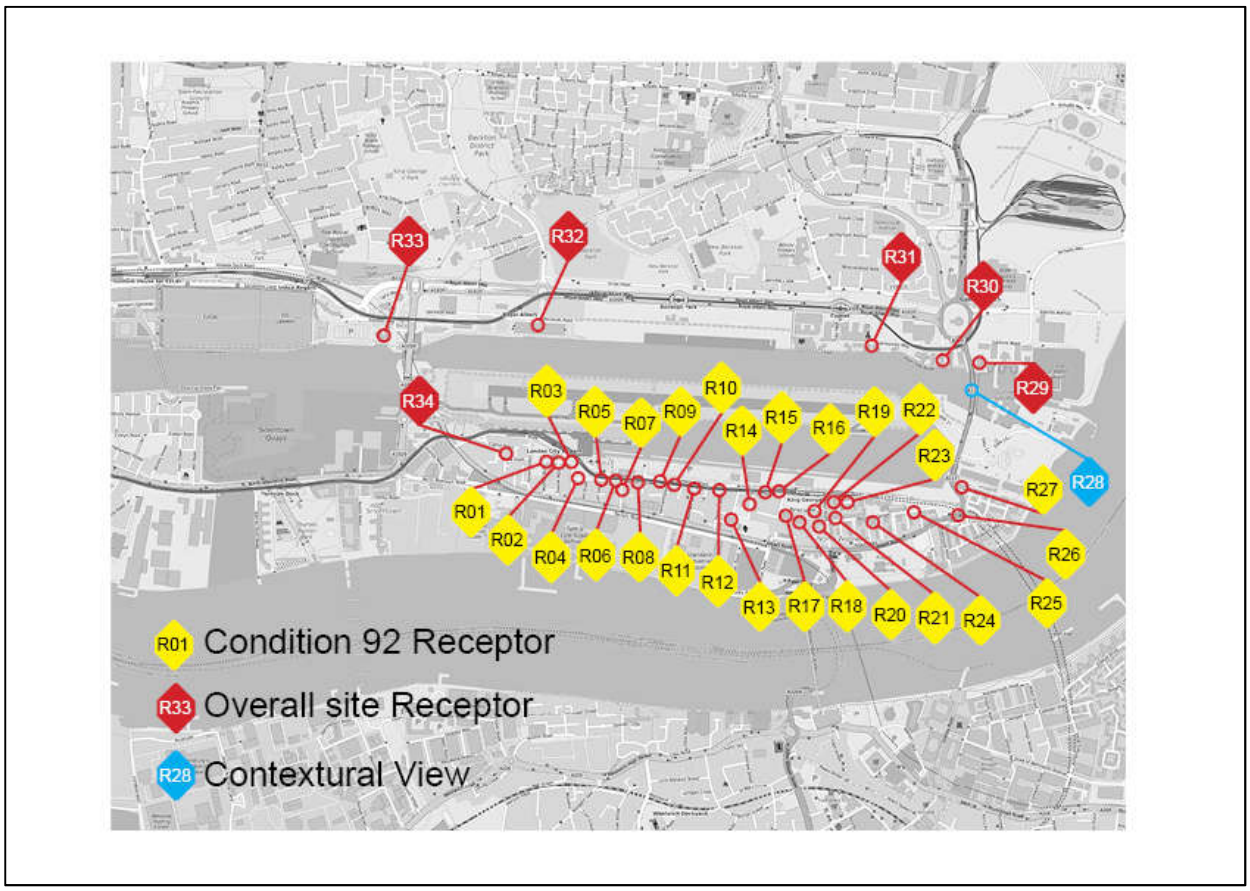


Figure 2-1 Obtrusive Light Sensitive Receptors for construction Lighting CADP1 Works

Notes:

1. For full details of the receptor survey see (Appendix B).

Obtrusive lighting sites for Construction Lighting CADP1 Works

2.2.7. Table 2-2 identifies the receptor sensitivity for Condition 92.

Table 2-2 Condition 92 CADP1 Works Sensitive Receptors Analysis

Receptor Nos	Name	1 WEC	2 WTE WSY	3 OBB deck	4 Apron Ext	5 MTB, ETE & NEP	5 Decked Car Park CP 1	6 Grade car parks 2-4	7 Contractor Compound	Approx. Min Distance from site to Receptor (red line)	Remarks
R1-3	Newland Rd Residential windows above 1st floor level	Minor	Minor	nil	nil	Nil	Minor	Minor	nil	100m	DLR station a major obstruction in view
R4-10	Winifred Street	nil	nil	Minor	Minor	Nil	Minor	Minor	nil	35m	A number of 3 storey Flats on this road. The majority of resdidential properties blocked by DLR at ground and first floor
R11	Fernhill Street Winifred Street	nil	nil	Minor	Minor	Minor	Minor	Minor	Minor	56m	Blocked by DLR at ground and First floor
R12	Dunedin House, Manwood street	nil	nil	Minor	Minor	minor	Minor	Minor	Minor	56m	Blocked by DLR at ground and first floor
R13	Brixham St Residential windows above 1st floor level	nil	nil	Minor	Minor	Minor	Minor	Minor	Minor	139m	Full obstructed views of site from 5th floor
R14-16	Rymill Rd and tower blocks Residential windows above 1st floor level	nil	nil	nil	Minor	Minor	Minor	Minor	Minor	55m	A number of 3 storey Flats on this road. The majority of residential properties blocked by DLR at ground and first floor levels

Receptor Nos	Name	1 WEC	2 WTE WSY	3 OBB deck	4 Apron Ext	5 MTB, ETE & NEP	5 Decked Car Park CP 1	6 Grade car parks 2-4	7 Contractor Compound	Approx. Min Distance from site to Receptor (red line)	Remarks
R17-19	Pier Rd Residential windows above 1st floor level	Minor	nil	Minor	Minor	Minor	Minor	Minor	Minor	164m	Tower blocks command a total view of airport from 3rd floor and above.
R20	Woodman St Residential windows above 1st floor level	Minor	nil	Minor	Minor	Minor	Minor	Minor	Minor	125m	Massionettte block 5 storeys
R21-25	Claremont house	nil	nil	Minor	Minor	Minor	Minor	Minor	Minor	210m	
R23	Claremont Court	Minor	nil	Minor	Minor	Minor	Minor	Minor	Minor	35m	
R22	Felixstowe Court	nil	nil	nil	Minor	Minor	Minor	Minor	Minor	85m	
R27	Camel St/Drew St tower blocks	nil	nil	nil	Minor	Minor	Minor	Minor	Minor	89m	Longitudinal view of compounds from 3rd floor window
R34		Minor	Minor	nil	Minor		nil	nil	Minor	276m	

3. Typical Lighting Equipment

Figure 3-1 Wall luminaire with minimal upward light

Figure 3-2 Asymmetric flat glass floodlight

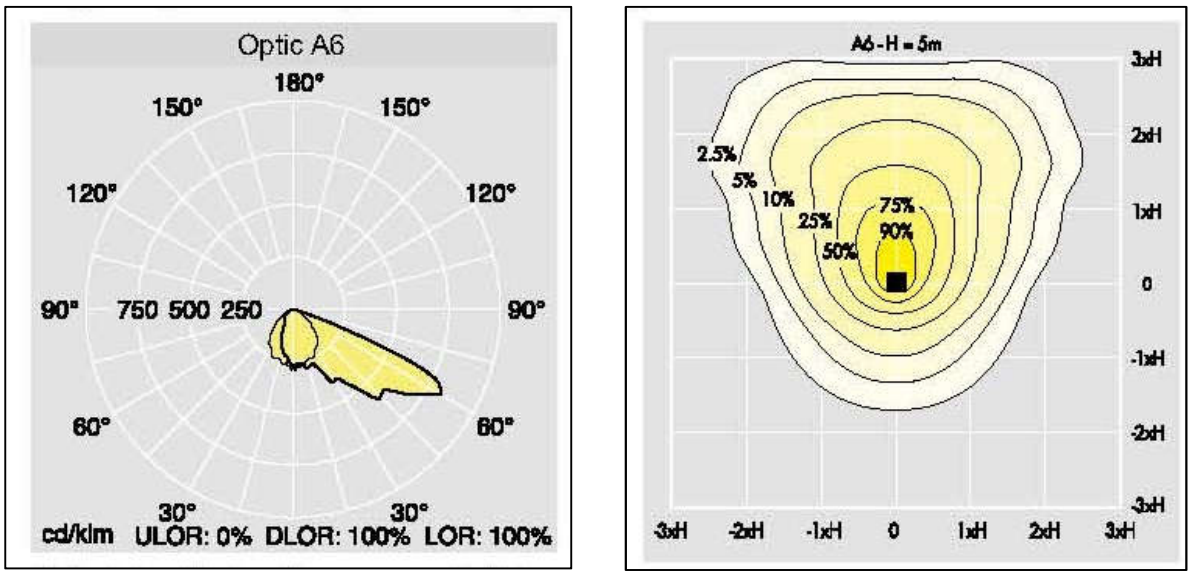


Figure 3-3 Typical Polar curve and Light Footprint

Figure 3-4 Lattice floodlight tower for new Compound Areas

Figure 3-5 Portable Floodlight tower for construction sites (moved as work proceeds)

(*please note the floodlights are shown heavily tilted. The construction lighting shall be restricted to a tilt to no more than 5 Degrees above the horizontal plane*)

Typical lighting arrangements

Construction works

Deck of KGV Dock

3.1.1. The expansion of the deck over KGV dock will be facilitated by barges working concurrently. Lighting will be provided by floodlights mounted to the barges. The lighting will therefore be targeted at the relevant construction work and will move with the barges as the work progresses.

Sufficient temporary lighting, with adequate reserve in case of failure, shall be provided to enable a high standard of workmanship to be achieved in safe working conditions.

WEC and WTE/WSY construction site and compounds (1, 2 and 3)

3.1.1. The lighting within these compounds and site will be illuminated by mobile lighting and/or, if feasible, temporary lighting fixed to existing structures. The operating times of these sites will only include night working whilst crane operations are undertaken. All other works will be undertaken during daylight hours. The lighting will reduce to a security lighting installation once crane works have been completed. (see Figure 2-1 and Figure 3-6).

MTB and NEP

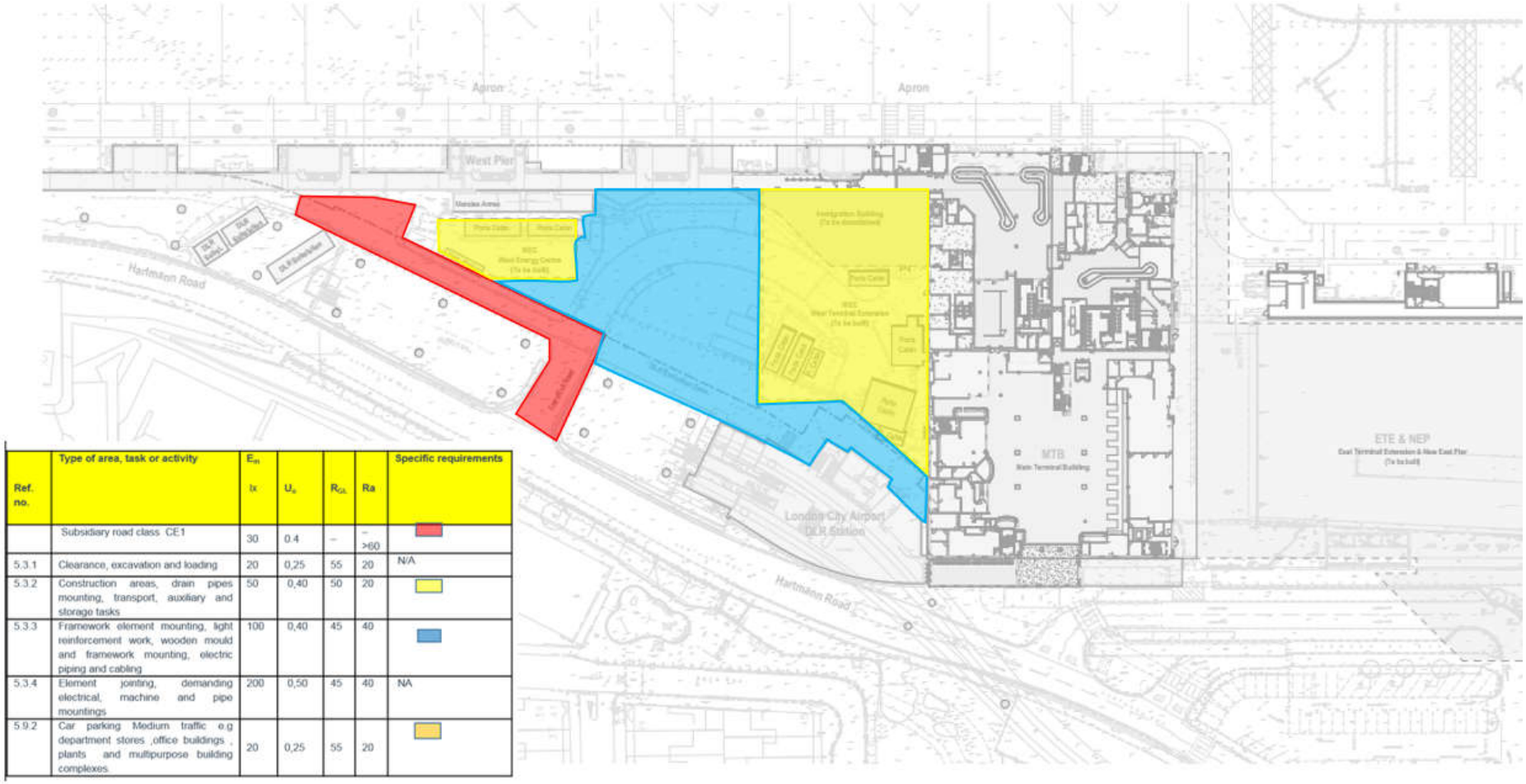
3.1.2. The lighting for the construction works for the MTB and the NEP will consist of a combination of temporary fluorescent luminaires and floodlights matching the construction works. The position of the MTB and NEP means that it has a low risk of causing obtrusive light due to the distance to the residential propaerties and the low power nature of the luminaires.

Decked Car Park CP1

3.1.3. The lighting for the decked carp park will consist of normal construction lighting which will be in its nature temporary and follow the construction of the building works. The constrauction works will need to be from floodlight towers aimed north from the southern edge of the site and aimed away from the residential properties of Newland Rd, Winifred Street and Fernhill Street,

Grade Car parks CP2-CP6

3.1.4. The lighting for the grade car parks will be via mobile floodlighting units following the progress of the construction works the likelihood is that the whole of the site area will be lit at any one time. the luminaires will be palced on the southside of the site aimed north away from the residential properties.



Ref. no.	Type of area, task or activity	E_m lx	U_o	R_{GL}	Ra	Specific requirements
	Subsidiary road class CE1	30	0.4	–	– >60	
5.3.1	Clearance, excavation and loading	20	0,25	55	20	N/A
5.3.2	Construction areas, drain pipes mounting, transport, auxiliary and storage tasks	50	0,40	50	20	
5.3.3	Framework element mounting, light reinforcement work, wooden mould and framework mounting, electric piping and cabling	100	0,40	45	40	
5.3.4	Element jointing, demanding electrical, machine and pipe mountings	200	0,50	45	40	NA
5.9.2	Car parking Medium traffic e.g department stores ,office buildings , plants and multipurpose building complexes.	20	0,25	55	20	

Figure 3-6 WEC and WSY Construction Site Lighting Criteria

Main Compound

Contractor's Compound

3.1.5. The main contractors' compound will be 24 hour at certain periods during the construction programme.All site cabins should be equipped with shutters which will be closed in the hours of darkness to reduce lighting levels during the hours of darkness cabins will only be single stacked in compound areas with the exception of the western service yard where there will be double stacked cabins. Existing lighting columns will be reused as appropriate supplemented with new floodlight towers to suit the layout of the compound. It should be noted that the cabins will provide limited screening to the adjacent receptors in Felixstowe Court (R27).

3.1.6. The lighting to cover any laydown areas will be a reduced security and circulation lighting level of 50 lux 0.4 uniformity and will be covered by the existing lighting with additional luminaires.

Hartmann Road

3.1.7. Hartmann road has been classed as a CE1 class road as there is no designated pavement areas for pedestrians.The lighting will be via full cut off street lanterns with glare shields where necessary the luminaires will be placed against the DLR wall facing away from the residential properties (subject to agreement with the DLR). Negotiations are to be held by the contraactor with the DLR prior to the finalisation of the detail design of the construction lighting.

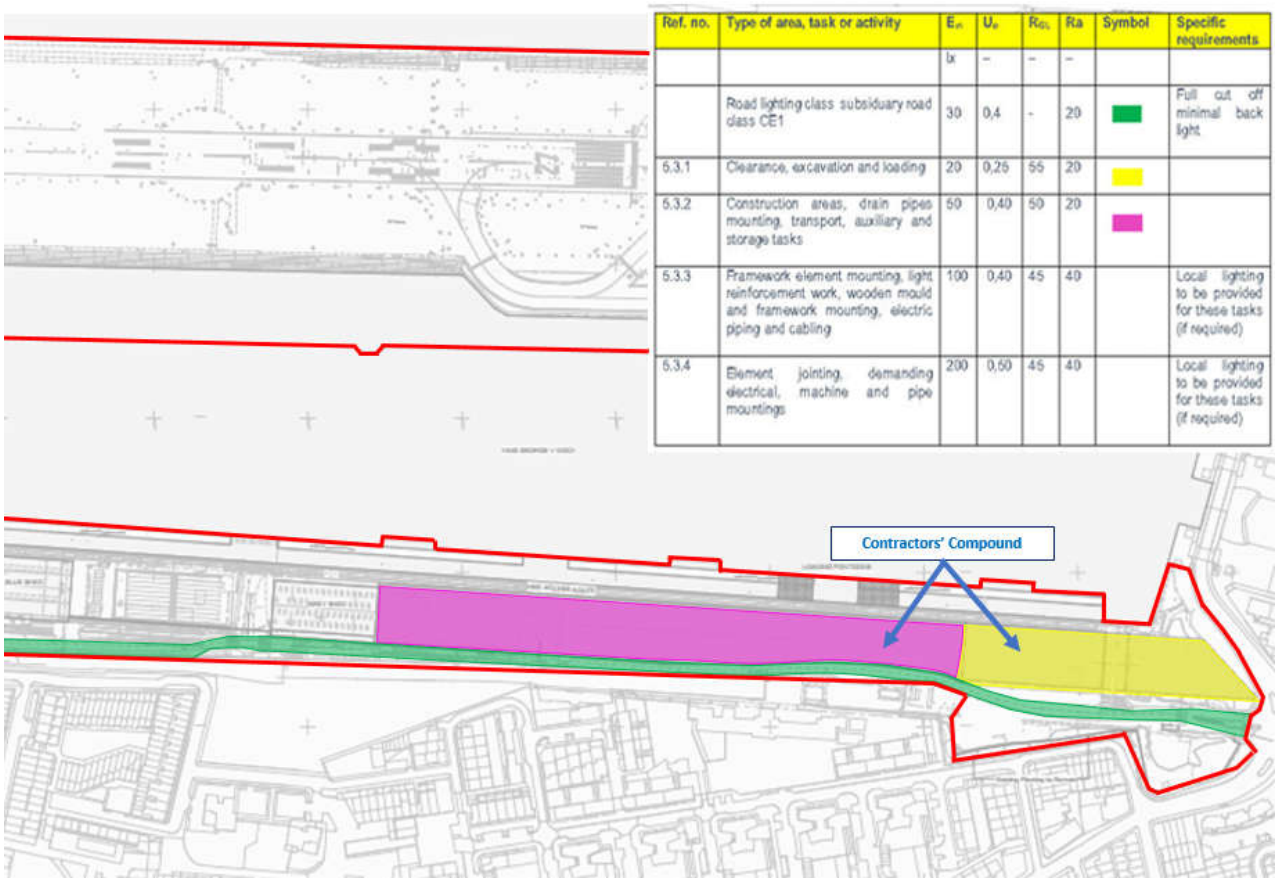


Figure 3-7 Compound Lighting Criteria

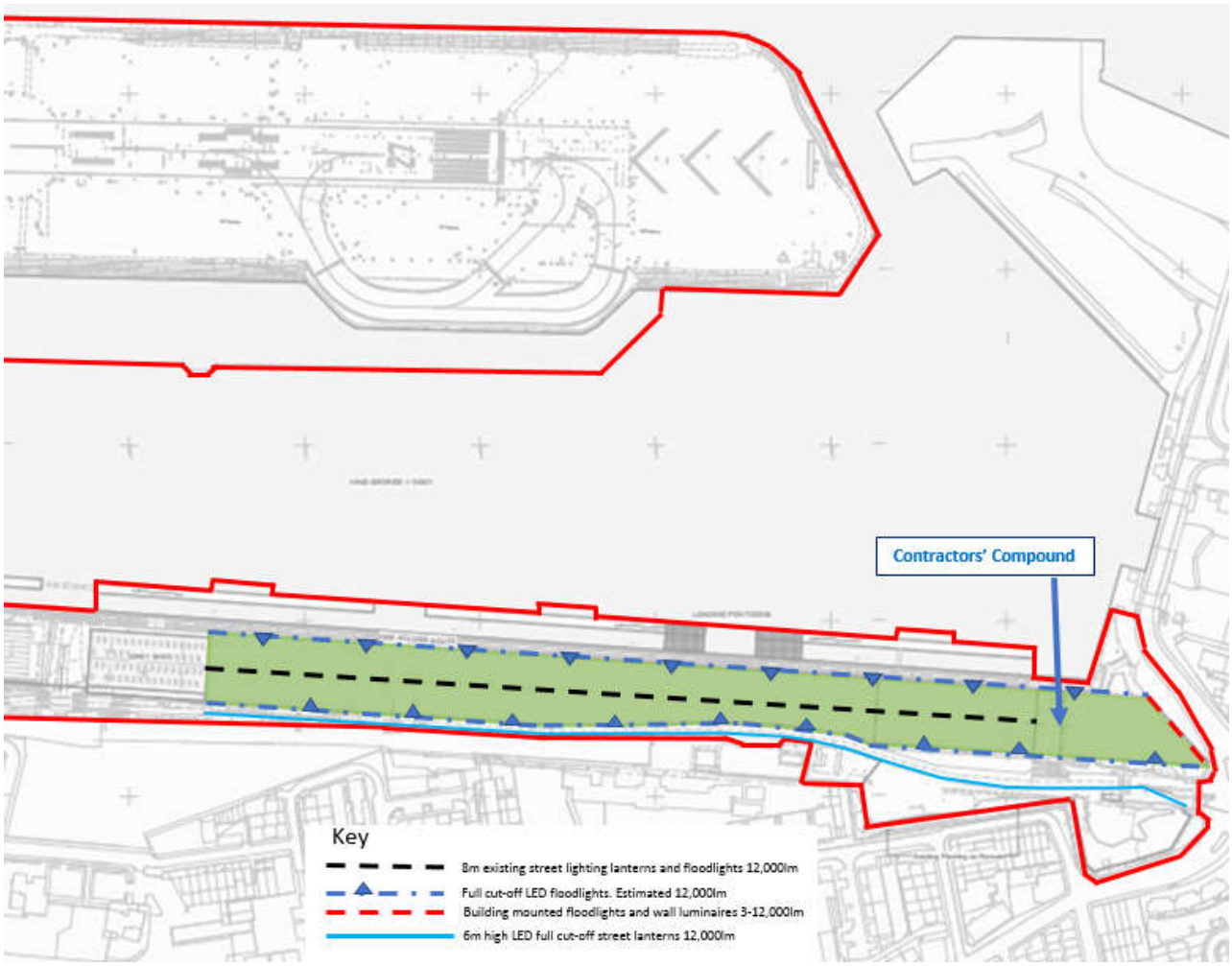


Figure 3-8 Construction Compound Lighting Location

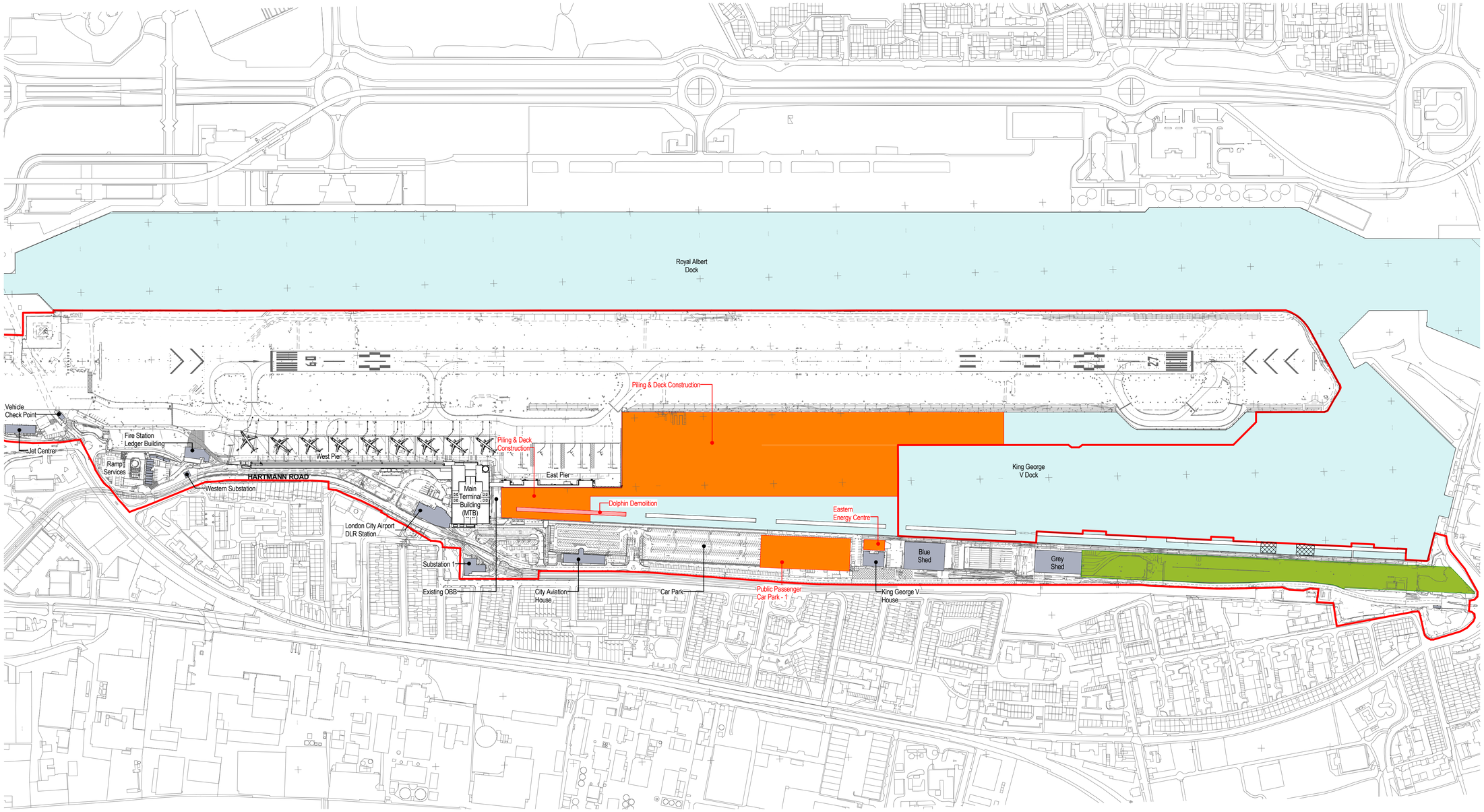
Appendices

Appendix A. Drawing List

A.1. Indicative Construction Phasing Plans

Table A-1 PAW Drawings related to Condition 92

Drawing No	Title	Revision	Status
A400-PAW-A-14-XXX-XX-DR-GA-900-001-D-S3	CADP1 Site Wide Indicative Construction Phasing Year 1	D	S3
A400-PAW-A-14-XXX-XX-DR-GA-900-002-D-S3	CADP1 Site Wide Indicative Construction Phasing Year 2	D	S3
A400-PAW-A-14-XXX-XX-DR-GA-900-003-D-S3	CADP1 Site Wide Indicative Construction Phasing Year 3	D	S3
A400-PAW-A-14-XXX-XX-DR-GA-900-004-D-S3	CADP1 Site Wide Indicative Construction Phasing Year 4	D	S3
A400-PAW-A-14-XXX-XX-DR-GA-900-006-C-S3	CADP1 Condition 96 Figure 1: Construction Compound and Details	C	S3
A400-PAW-A-14-XXX-XX-DR-GA-900-007-D-S3	CADP Condition 96 Figure 2: Construction Compound & Details	D	S3



1 Sitewide Indicative Construction Phasing - Year 1

1 : 3000

0 20000 60000 100000 140000 180000 220000 260000 300000
1:3000

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- Base building survey information by LCY and MSA

Legend

- Under Construction
- Construction Complete
- Indicative Area of Contractors Compound
- Temporary Barge Berths & Crane Platforms
- Temporary Aircraft Noise Barrier
- Aircraft Noise Barrier
- Existing Facilities
- Demolished Works
- Application Boundary

SCALE BAR

N

Rev	Drn	Date	Description
D	MDS	09/01/18	For Approval
Previously Issued as A400-PAW-A-13-XXX-DR-GA-948-004			
C	MDS	02/12/16	For Approval
B	MDS	10/11/16	For Planning Approval
A	MDS	25/10/16	For Planning Approval

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London City Airport Limited City Avation House Royal Docks London E16 2pb

PASCALL +WATSON
The Warehouses 10 Black Friars Lane London EC4V 6ER
T +44 (0)20 3837 2500
www.pascalls.co.uk

Client
LONDON CITY AIRPORT

Project Name
CITY AIRPORT DEVELOPMENT PROGRAMME

Title
CADP Site Wide
Indicative Construction Phasing
Year 1

Discipline	Purpose of Issue
Architecture	For Approval
Drawing Originator	Originators Job No.
Pascall+Watson architects	5077

Checked By	Checked date	Drawn By	Drawn Date
TA	09/01/18	MS	25/10/16
Approved By	Approval Date	Scale @ A1	
MN	09/01/18	1 : 3000	

Building Grid Reference
CADP

Proj.Code	Orig.	Disc.	Zone	Level	Title	Type	Subtype	Drg. Series/NO.	Rev.	Status
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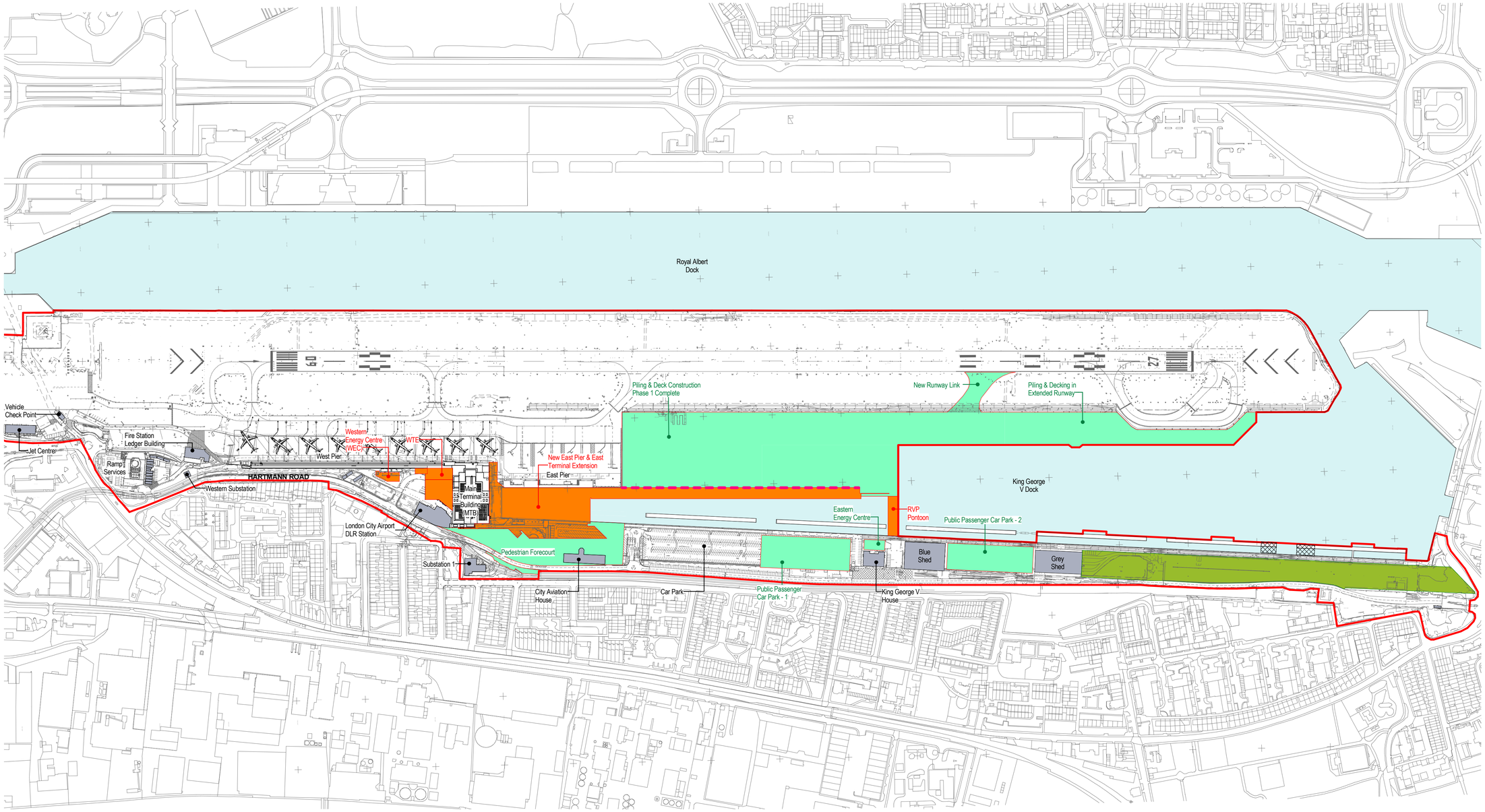

2 Sitewide Indicative Construction Phasing - Year 2

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Legend

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- Construction Complete
- Indicative Area of Contractors Compound
- Temporary Barge Berths & Crane Platforms
- Temporary Aircraft Noise Barrier
- Aircraft Noise Barrier
- Existing Facilities
- Demolished Works
- Application Boundary

SCALE BAR

N

Rev	Drn	Date	Description
D	MDS	09/01/18	For Approval
Previously Issued as A400-PAW-A-13-XXX-DR-GA-948-005			
C	MDS	02/12/16	For Approval
B	MDS	10/11/16	For Planning Approval
A	MDS	25/10/16	For Planning Approval

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Client: LONDON CITY AIRPORT

Project Name: CITY AIRPORT DEVELOPMENT PROGRAMME

Title: CADP Site Wide Indicative Construction Phasing Year 2

Discipline	Purpose of Issue
Architecture	For Approval
Drawing Originator	Originators Job No.
Pascall+Watson architects	5077

Checked By	Checked date	Drawn By	Drawn Date
TA	09/01/18	MS	25/10/16
Approved By	Approval Date	Scale @ A1	
MN	09/01/18	1 : 3000	

Building Grid Reference: CADP

Proj.Code	Orig.	Disc.	Zone	Level	Title	Type	Subtype	Drg. Series/NO.	Rev.	Status
A400	PAW	A	14	XXX	XX	DR	GA	900-002	D	S3

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Legend

- Under Construction
- Construction Complete
- Indicative Area of Contractors Compound
- Temporary Barge Berths & Crane Platforms
- Temporary Aircraft Noise Barrier
- Aircraft Noise Barrier
- Existing Facilities
- Demolished Works
- Application Boundary

SCALE BAR

N

Royal Albert Dock

Vehicle Check Point
Jet Centre
Fire Station
Ledger Building
Ramp Services
HARTMANN ROAD
Western Substation
Western Energy Centre (WEC)
WTE
West Pier
Main Terminal Building (MTB)
WSYD Construction
London City Airport DLR Station
Substation 1
Pedestrian Forecourt
Vehicle Forecourt
East Pier Removed
New East Pier & East Terminal Extension
Piling & Deck Construction Phase 1 & 2 Complete
New Runway Link
Decking on Extended Taxiway
King George V Dock
Eastern Energy Centre
RVP Pontoon
Public Passenger Car Park - 2
Public Passenger Car Park - 3
Staff Car Park
Taxi Feeder Park & Taxi Marshall Kiosk
Blue Shed
Grey Shed
Public Passenger Car Park - 1
King George V House
VCP/ RVP Building
East Car Rental Zone
Taxi / Car Rental Services Building Complete
West Car Rental Zone

0 20000 60000 100000 140000 180000 220000 260000 300000
1:3000

3 Sitewide Indicative Construction Phasing - Year 3
1 : 3000

Rev	Drn	Date	Description
D	MDS	09/01/18	For Approval
Previously Issued as A400-PAW-A-13-XXX-DR-GA-948-006			
C	MDS	02/12/16	For Approval
B	MDS	10/11/16	For Planning Approval
A	MDS	25/10/16	For Planning Approval

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Client: LONDON CITY AIRPORT

Project Name: CITY AIRPORT DEVELOPMENT PROGRAMME

Title: CADP Site Wide Indicative Construction Phasing Year 3

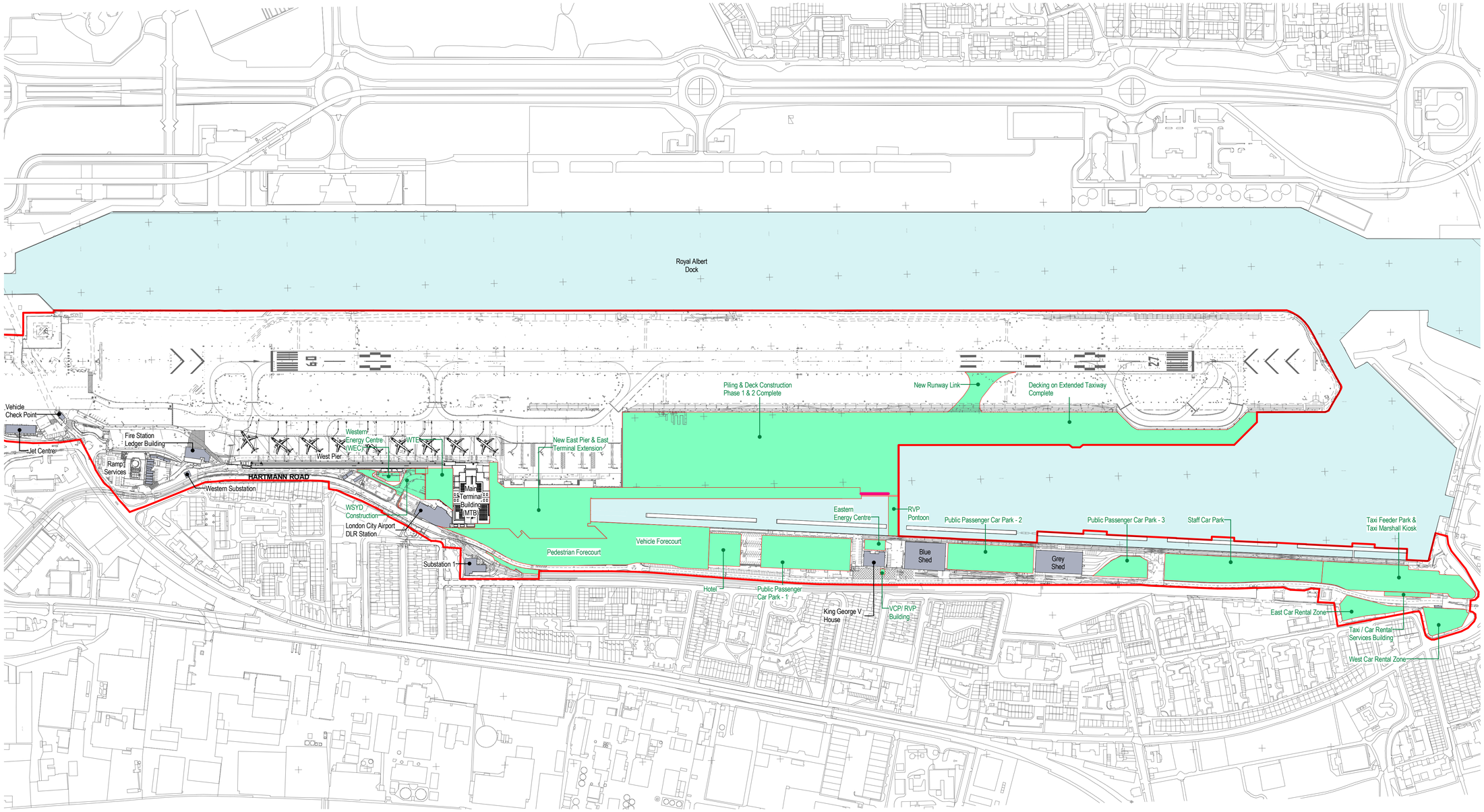
Discipline	Purpose of Issue
Architecture	For Approval
Drawing Originator	Originators Job No.
Pascall+Watson architects	5077

Checked By	Checked date	Drawn By	Drawn Date
TA	09/01/18	MS	25/10/16
Approved By	Approval Date	Scale @ A1	
MN	09/01/18	1 : 3000	

Building Grid Reference: CADP

Proj.Code	Orig.	Disc.	Zone	Level	Title	Type	Subtype	Drg. Series/NO.	Rev.	Status
A400	PAW	A	14	XXX	XX	DR	GA	900-003	D	S3

Enter address here



4 Sitewide Indicative Construction Phasing - Year 4

1 : 3000

0 20000 60000 100000 140000 180000 220000 260000 300000

1:3000

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- Internal layouts are for illustrative purposes only.

- Base building survey information by LCY and MSA

Legend

- Under Construction
- Construction Complete
- Indicative Area of Contractors Compound
- Temporary Barge Berths & Crane Platforms
- Temporary Aircraft Noise Barrier
- Aircraft Noise Barrier
- Existing Facilities
- Demolished Works
- Application Boundary

SCALE BAR

N

Rev	Drn	Date	Description
D	MDS	09/01/18	For Approval
Previously Issued as A400-PAW-A-13-XXX-DR-GA-948-007			
C	MDS	02/12/16	For Approval
B	MDS	10/11/16	For Planning Approval
A	MDS	25/10/16	For Planning Approval

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Client: LONDON CITY AIRPORT

Project Name: CITY AIRPORT DEVELOPMENT PROGRAMME

Title: CADP Site Wide Indicative Construction Phasing Year 4

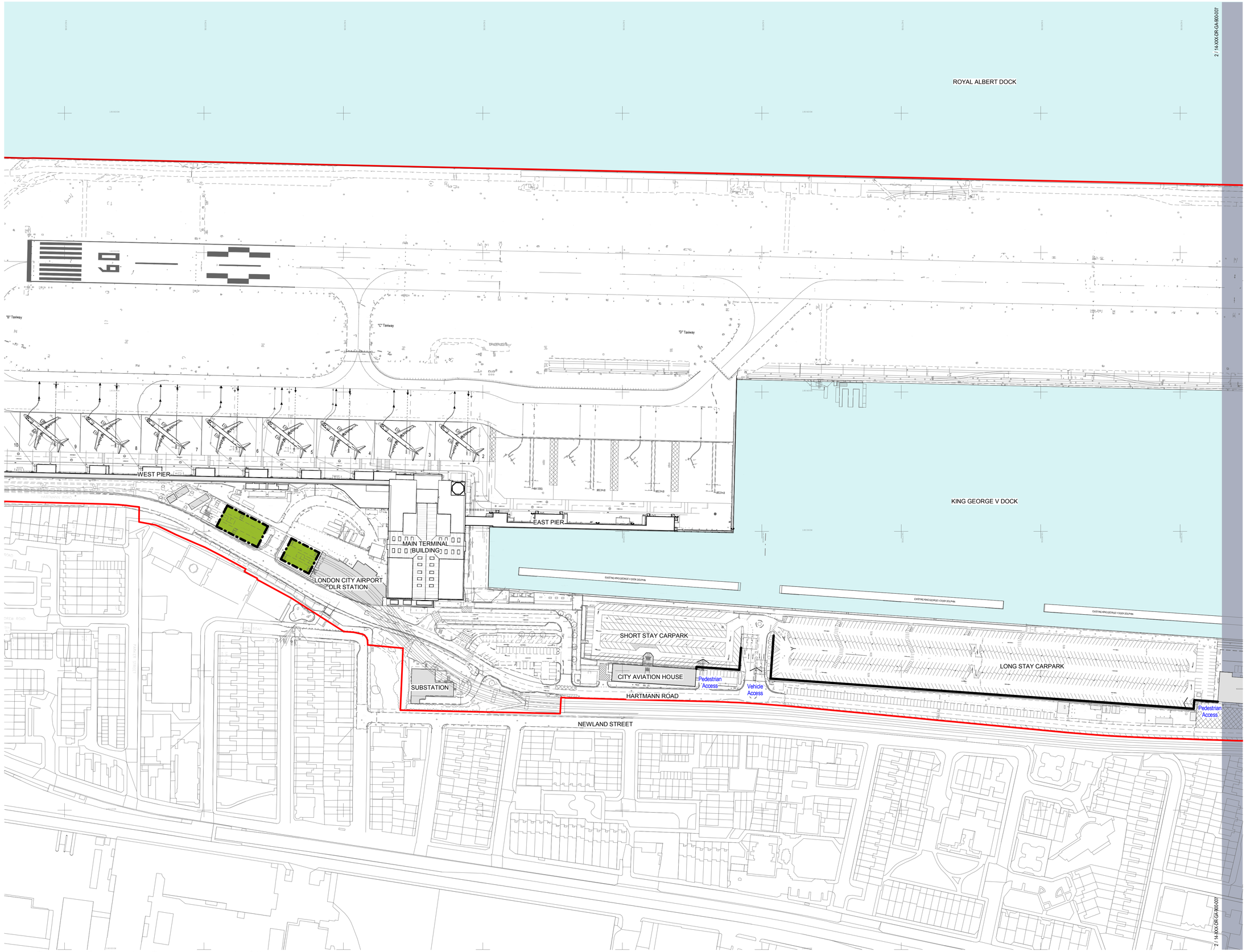
Discipline	Purpose of Issue
Architecture	For Approval
Drawing Originator: Pascall+Watson architects	Originators Job No.: 5077

Checked By	Checked date	Drawn By	Drawn Date
TA	09/01/18	MS	25/10/16
Approved By	Approval Date	Scale @ A1	
MN	09/01/18	1 : 3000	

Building Grid Reference: CADP

Proj.Code	Orig.	Disc.	Zone	Level	Title	Type	Subtype	Drg. Series/NO.	Rev.	Status
A400	PAW	A	14	XXX	XX	DR	GA	900-004	D	S3

Enter address here



1 **Sitewide Contractor Compounds - 1 of 2**
1 : 1250

Enter address here

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- Base building survey information by LCY and MSA

Legend

- Indicative Compound Area
  Total Area: 0.09278 hectares
- Proposed Construction Compound Timber Hoarding and Noise Barrier - 3 metres
- Application Boundary

SCALE BAR

N

Rev	Drn	Date	Description
C	MDS	09/01/18	For Approval
Previously Issued as A400-PAW-A-13-XXX-DR-GA-948-001			
B	MDS	02/12/16	For Approval
A	MDS	25/10/16	For Planning Approval

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Client
LONDON CITY AIRPORT

Project Name
CITY AIRPORT DEVELOPMENT PROGRAMME

Title
CADP Condition 96
Figure 1: Construction Compound & Details

Discipline	Purpose of Issue
Architecture	For Approval
Drawing Originator: Pascall+Watson architects	Originators Job No.: 5077

Checked By	Checked date	Drawn By	Drawn Date
TA	09/01/18	MS	25/10/16
Approved By: MN	Approval Date: 09/01/18	Scale @ A1: 1 : 1250	

Building Grid Reference
CADP

Proj.Code	Orig.	Disc.	Zone	Level	Title	Type	Subtype	Drg. Series/NO.	Rev.	Status
A400	PAW	A	14	XXX	XX	DR	GA	900-006	C	S3

1 / 14-XXX-DR-GA-900-006

"K" Taxiway

"L" Taxiway

"M" Taxiway

KING GEORGE V DOCK

EXISTING KING GEORGE V DOCK (SOUTH)

EXISTING KING GEORGE V DOCK (SOUTH)

EXISTING KING GEORGE V DOCK (SOUTH)

EXISTING KING GEORGE V DOCK (SOUTH)

EXISTING KING GEORGE V DOCK (SOUTH)

LOADING PONTOONS

BLUE SHED

GREY SHED

FIRE ACCESS ROUTE

Vehicle Access

Vehicle Access

Vehicle Access

Access

Access

Stanley Road

Access Gates

Access Gates

Existing Planting to Remain

1 / 14-XXX-DR-GA-900-006

2 Sitewide Contractor Compounds - 2 of 2

1 : 1250

Enter address here

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- Internal layouts are for illustrative purposes only.

- Base building survey information by LCY and MSA

Legend

- Indicative Contractors Compound Area: 2.05073 hectares
- Temporary Barge Berths & Crane Platforms
- Existing Timber Palisade
- Existing Metal Palisade
- Proposed Mesh Fence
- Proposed Construction Noise Barrier - 3 metres
- Proposed Construction Compound Timber Hoarding and Noise Barrier - 3 metres
- Application Boundary

SCALE BAR

N

Rev	Drn	Date	Description
D	MDS	09/01/18	For Approval
Previously Issued as A400-PAW-A-13-XXX-DR-GA-948-002			
C	MDS	02/12/16	For Approval
B	MDS	10/11/16	For Planning Approval
A	MDS	25/10/16	For Planning Approval

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Client: LONDON CITY AIRPORT

Project Name: CITY AIRPORT DEVELOPMENT PROGRAMME

Title: CADP Condition 96
Figure 2: Construction Compound & Details

Discipline: Architecture			Purpose of Issue: For Approval
Drawing Originator: Pascall+Watson architects			Originators Job No.: 5077
Checked By: TA	Checked date: 09/01/18	Drawn By: MS	Drawn Date: 25/10/16
Approved By: MN	Approval Date: 09/01/18	Scale @ A1: 1 : 1250	
Building Grid Reference: CADP			

Proj Code	Orig.	Disc.	Zone	Level	Tile	Type	Subtype	Drg. Series/NO.	Rev.	Status
A400	PAW	A	14	XXX	XX	DR	GA	900-007	D	S3

Appendix B. Sensitive Receptors

B.1. Sensitive Receptor Survey 4-10-16

Please refer to the Unified Environmental Statement (UES) for full details of the obtrusive lighting conditions. The survey undertaken is an addition to give further information as to the method of how the planning conditions will be discharged against the requirements identified within the UES

B.1.1. Survey Assumptions

A photographic survey was undertaken on the 4th October 2016 between 09:00 and 14:30 for the whole site to address the planning conditions 41 and 92.

- All receptors were identified in their relationship to the London City Airport site. Photographs were taken to identify the relationship of key residential properties.
- The receptor points can be assumed to be similar for properties within a 40m radius.
- The survey was undertaken in line with ILP (Institute of Lighting Professionals) PLG04 Guidance on Undertaking Environmental Lighting Impact Assessments.
- All photographs were taken from public rights of way at 1.5m above ground level so are indicative of the views of above ground floors
- The photographs were taken with a Digital Camera with 35mm focal length lens and a FX sensor.
- The photographs are Jpeg images derived from camera raw files so have had a level of processing to balance highlights and shadows to give a clear representative Image of the ambient conditions.
- Night time images have not been taken.

B.1.2. Sensitive Receptor List

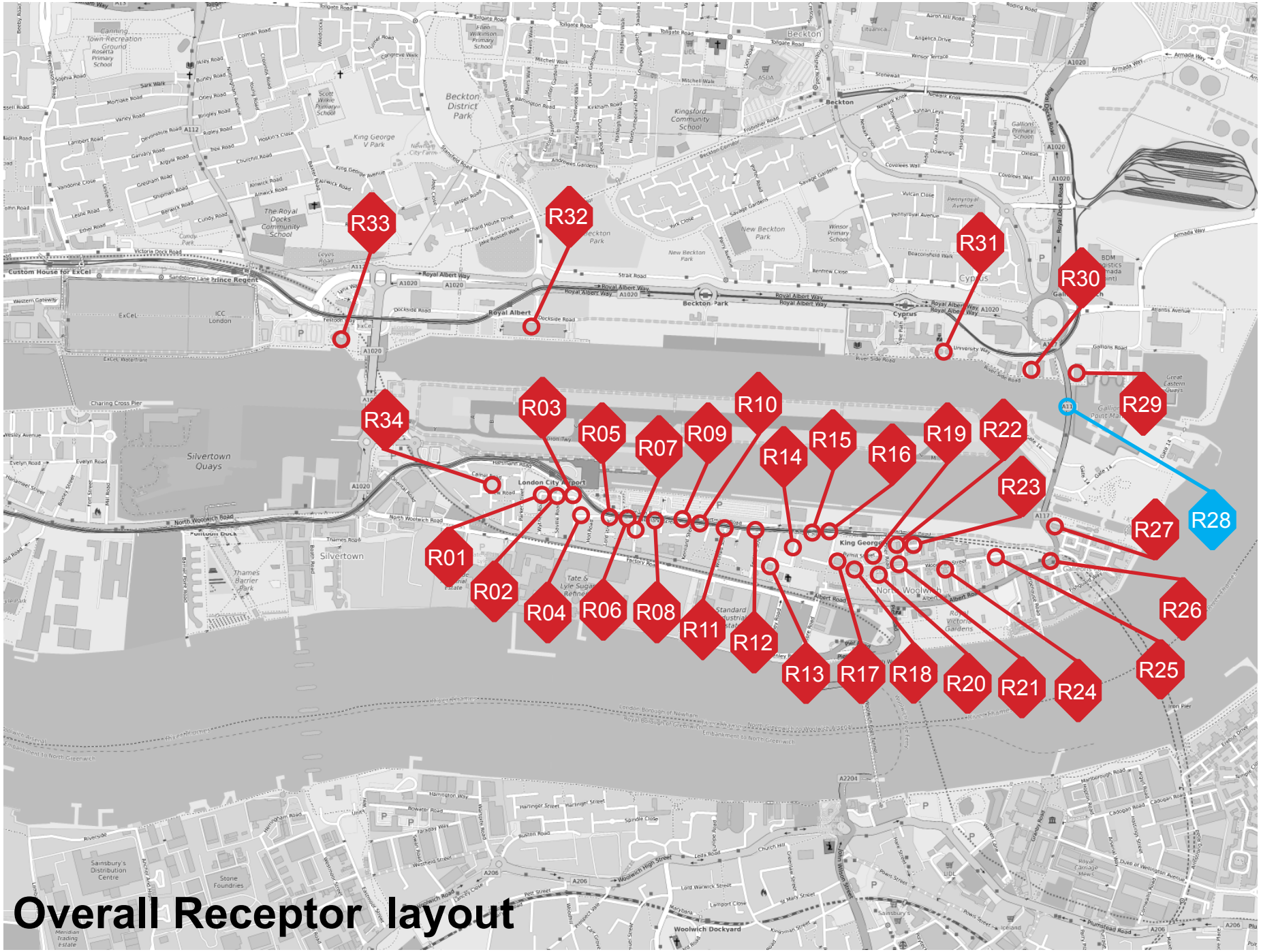
Table B-1 Sensitive Receptor list

Receptor points Reference	Street	No	Photo ref	Comments
R1	Drew Road/Wythes Road	64	Dsc_4607 & dsc_4608, dsc_4610, 4611	First photo: Next to primary school, toward DLR station (major obstruction) 2 1st floor windows facing DLR. second photo; from rear window' third photo: of house; 4th photo: pic of rear window
R2	Saville Road/Drew Road	39	Dsc_4609, 4612	First photo: 4 first floor windows facing DLR; 2nd photo: pic of windows
R3	Drew Road	43	Dsc_4613, 4614	1st photo: 2 x1st floor Windows, v. Restricted view of airport, DLR station major obstruction; 2nd photo: pic of first floor windows
R4	Newland Street	2-10b (flats)	Dsc_4615, 4616	3 storey high property; vegetation and fence obstructing view on ground and 1st floors, partial view 2nd floor; 2nd photo: of flats

Receptor points Reference	Street	No	Photo ref	Comments
R5	Lord Street	29	Dsc_4617, 4618	3 storey town-house; obstructed view of vegetation on ground and 1st floor and DLR track; 2nd photo: of townhouse
R6	Newland Street - The Park flats	26-36	Dsc_4619, 4620	3 storey blocks of flats, view of wall on ground and first, partial view of DLR station 2nd floor; 2nd photo: of flats
R7	Tate Road	29	Dsc_4621, 4622	Standard 2 storey house, ground view of house, first view of airport offices; 2nd photo: of house
R8	Newland Street	38-76	Dsc_4623, 4624	Terrace houses ground view of DLR wall and airport office, some views of airport entrance; 2nd photo: of terraced houses
R9	Newland Street - St Edwards	78-88	Dsc_4625, 4626	3 storey blocks of flats, views of street lights, ground floor view of DLR wall, other stories of lights and airport; 2nd photo: of houses
R10	Newland Street- St Edwards flats + Sheldrake close	90-104 & 104-126	Dsc_4627, 4628.	4 storey blocks of flats, ground floor view of DLR wall, 2nd & above view of streetlights & airport; 2nd photo: of flats
R11	Winifred Street	56-108 even	Dsc_4629, 4630	3 storey cruciform blocks of flats almost against DLR wall, fence fixed to block view of ground & first, partial view of airport & streetlights 2nd floor; 1st photo: of flats; 2nd photo: of wall & fence
R12	Fernhill Street	40-42	Dsc_4631, 4632	2 storey house with ground floor view of metal railing & wall, first floor view of streetlights & KGV house; 2nd photo: of house;
R13	Dunedin house, Manwood Street	NA	Dsc_4633, 4634	19 storey block of flats; 3rd floor & above with clear view to airport; 2nd photo: of tower block
R14	Grenadier Street	14, 15	Dsc_4635, 4636	End of terrace house with first floor only view to DLR wall and warehouse beyond; 2nd photo: of house
R15	Brixham Street	32-58	Dsc_4637, 4638	3 storey town houses, with ground & first floor views of vegetation, fence & DLR wall, with 2nd floor view of warehouse beyond; 2nd photo: of houses

Receptor points Reference	Street	No	Photo ref	Comments
R16	Brixham Street	65	Dsc_4639, 4640	End of terrace house with ground view of vegetation & DLR wall, first of steel structure; 2nd photo: of house
R17	Rymill street-Westland House		Dsc_4641, 4642	19 storey tower block of flats, ground to 2nd floor, views of walls3rd floor & up with views across to airport; 2nd photo: of tower block
R18	Rymill Street-Queensland House		Dsc_4643, 4644	19 storey tower block of flats, ground to 2nd floor views of wall, 3rd floor & up with views across to airport; 2nd photo: of tower block
R19	Rymill Street	3-6	Dsc_4645, 4646	Terraced houses with loft conversions; ground & first floors with view of building site, 2nd floor with views to airport; 2nd photo: of houses
R20	Pier Parade (Maisonettes to backs of shops), Pier road	1-31	Dsc_4647, 4648	Mix of flats and maisonettes on the backs of shops, 4 stories high, no ground view, first view of house, 2nd view of airport; 2nd photo: of parade of houses
R21	Woodman Road (Woodman Parade)	1-8	Dsc_4649, 4650	Obstructed view due to 8 storey block of flats immediately in front, angular view at left only. 1st photo: of shop backs, 2nd photo: of wall & fence
R22	Claremont House	13-42	Dsc_4651, 4652	8 storey block of flats, east-west views of airport; 1st photo: western facade; 2nd photo: eastern facade
R23	Claremont Close	65	Dsc_4653, 4654	3 storey block of flats facing directly onto fence hiding DLR, 2nd photo: of DLR fence
R24	Brocklebank House, Woodman Street		Dsc_4655, 4656	5 x 8 storey block of flats overlooking an academy; top 2 floors able to see airport; 2nd photo: of flats
R25	Woodman Street	14-36a even	Dsc_4657, 4658	4 storey block of flats overlooking road and DLR; 1st photo: in direction of airport; 2nd photo: General photo of flats
R26	Albert Road	38-72 evens	Dsc_4659, 4660	4 storey block of flats, back looking across road, top view of warehouses & streetlights, 2nd photo: of flats

Receptor points Reference	Street	No	Photo ref	Comments
R27	Fishguard way – Felixstowe Court	43-58	Dsc_4661, 4662	5 storey block of flats, 3rd, 4th & 5th floors with view across to airport, other views of vegetation and metal fencing, 2nd photo: of flats
R28	Sir Steve Redgrave Bridge/Albert bridge		Dsc_4663-4670	Panorama of London city airport from Albert Road bridge
R29	Gallions point, Sir Steve Redgrave bridge overlooking city airport	Fathom court	Dsc_4671, 4672	6 storey block of flats Photo 1: of flats; Photo 2; Flats overlooking bridge & airport
R30	University of East London Docklands campus	Halls of residence	Dsc_4673, 4674	4 x 7 storey blocks of flats all overlooking the dock and runway. Photo 1: of the runway; photo 2: of the flats
R31	University of East London Docklands campus	Halls of residence	Dsc_4675, 4676	6 x 4 storey circular blocks of flats. Photo 1: general shot of all flats; photo 2: towards airport and canary wharf
R32	Newham Borough Council dockside offices	N/A	Dsc_4677, 4678	5 storey office block with ground to ceiling windows, overlooking the dock and airport runway. Photo 1: of the offices; photo 2: of the runway and sugar factory
R33	Doubletree by Hilton hotel		Dsc_4679, 4680, 4681, 4682 - panorama	8 storey hotel with views over the water. Photo 1: toward the hotel; photo 2: from other side of the Connaught Bridge, toward the airport no access to a point on Connaught Bridge to take view on the line of the upper floor Bedrooms.
R34	Drew road & Camel road	2-94 even + 14-98 even	Dsc_4684, 4685	2 x 8 storey tower block of flats, 4th floor and below with views toward the DLR and London City Airport. Below 4th floor views of houses. Photo 1: towards flats; photo 2: towards airport & DLR



Overall Receptor layout

Project: London City Airport CADP
Client: London City Airport

Designer: David Mooney
Date: 06-10-16

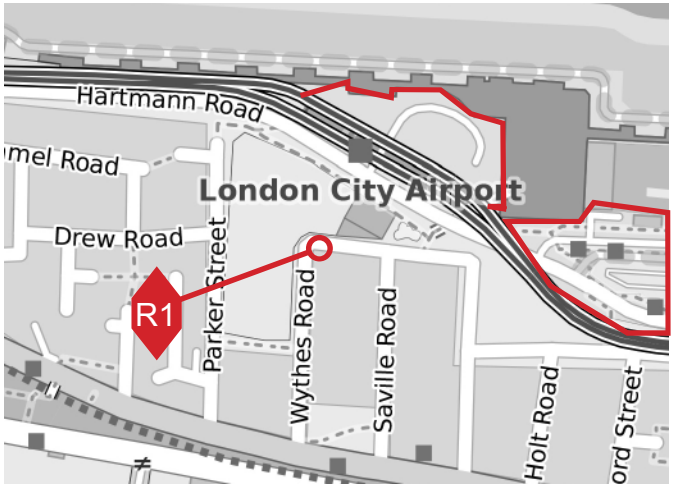
Receptor Name: 64 Drew Street
Receptor No: R01
Long/Lat: 51.503 / 0.047
Distance to site: 93m
Date/Time: 04/10/16 10.50

ATKINS

Daytime Images

Receptor 01	Obtrusive Light Parameters			
Sites	Sky Glow	Light Intrusion	Luminaire Intensity	Building Luminance
WSY	Min	Nil	Nil	Nil
WEC	Min	Nil	Nil	Nil
WTE	Min	Nil	Nil	Nil
OBB	Min	Nil	Nil	Nil
TFC	Min	Nil	Nil	Nil
ADE	Min	Nil	Nil	Nil
C1	Min	Nil	Nil	Nil
C2	Min	Nil	Nil	Nil
C3	Min	Nil	Nil	Nil
C4	Min	Nil	Nil	Nil
C5	Min	Nil	Nil	Nil
Key				
	Signi cant change requiring mitigation			
	Minor change that may require mitigation			
	Minimal change, no mitigation			
	No change in current baseline			

Location:



Remarks: **Standard two storey house. Possible views onto airport from rst ooor.** Photo One: From ground oor window facing primary school, toward DLR station. Photo Two: From rear window area of house facing primary school, toward DLR station. Photo Three: Showing three main windows that have view of rst photo. Photo Four: Showing rear window that has views of second photo.

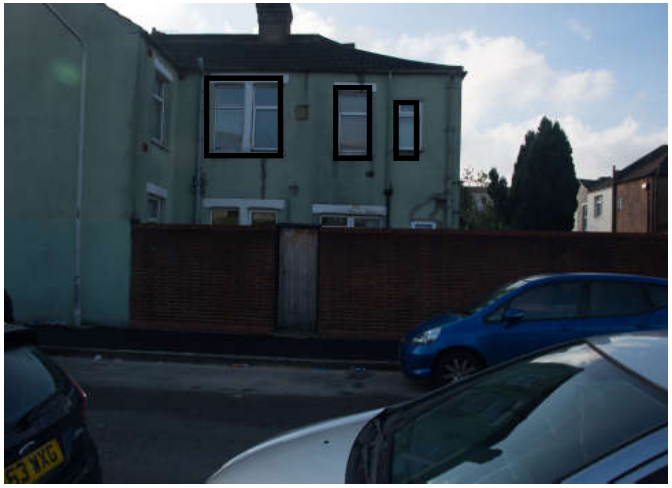
Project: London City Airport CADP
Client: London City Airport

Designer: David Mooney
Date: 06-10-16

Receptor Name: 39 Saville Road/Drew Street
Receptor No: R02
Long/Lat: 51.503 / 0.048
Distance to site: 98m
Date/Time: 04/10/16 10.55

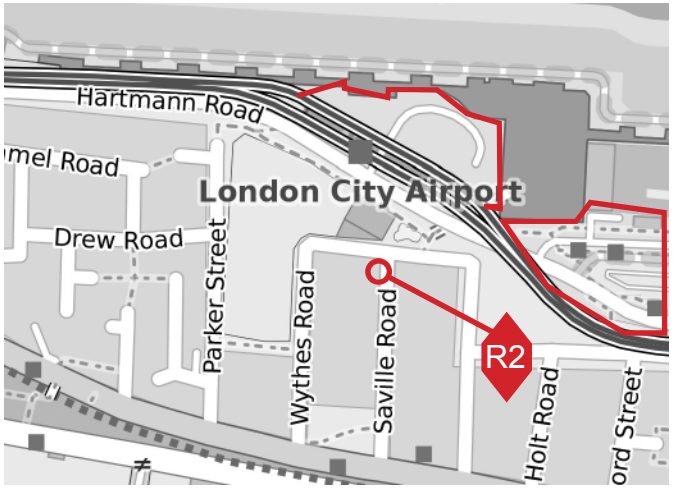
ATKINS

Daytime Images



Receptor 02	Obtrusive Light Parameters			
Sites	Sky Glow	Light Intrusion	Luminaire Intensity	Building Luminance
WSY	Min	Nil	Nil	Nil
WEC	Min	Nil	Nil	Nil
WTE	Min	Nil	Nil	Nil
OBB	Min	Nil	Nil	Nil
TFC	Min	Nil	Nil	Nil
ADE	Min	Nil	Nil	Nil
C1	Min	Nil	Nil	Nil
C2	Min	Nil	Nil	Nil
C3	Min	Nil	Nil	Nil
C4	Min	Nil	Nil	Nil
C5	Min	Nil	Nil	Nil
Key				
	Signi cant change requiring mitigation			
	Minor change that may require mitigation			
	Minimal change, no mitigation			
	No change in current baseline			

Location:



Remarks: **Standard two storey house. Possible views onto airport from rst oor.** Photo One: From rst oor windows area facing primary school toward DLR station. Photo Two: Showing windows with views of photo one.

Project: London City Airport CADP
Client: London City Airport

Designer: David Mooney
Date: 06-10-16

Receptor Name: 43 Drew Road
Receptor No: R03
Long/Lat: 51.503 / 0.045
Distance to site: 97m
Date/Time: 04/10/16 11:00

Daytime Images

Receptor 03	Obtrusive Light Parameters			
Sites	Sky Glow	Light Intrusion	Luminaire Intensity	Building Luminance
WSY	Min	Nil	Nil	Nil
WEC	Min	Nil	Nil	Nil
WTE	Min	Nil	Nil	Nil
OBB	Min	Nil	Nil	Nil
TFC	Min	Nil	Nil	Nil
ADE	Min	Nil	Nil	Nil
C1	Min	Nil	Nil	Nil
C2	Min	Nil	Nil	Nil
C3	Min	Nil	Nil	Nil
C4	Min	Nil	Nil	Nil
C5	Min	Nil	Nil	Nil
Key				
	Signi cant change requiring mitigation			
	Minor change that may require mitigation			
	Minimal change, no mitigation			
	No change in current baseline			

Location:

Remarks: **Standard two storey house. Possible views onto airport from rst oor.** Photo One: From rst oor windows area toward DLR station and pedestrian tunnel. Photo Two: Showing rst oor windows with views of rst photo

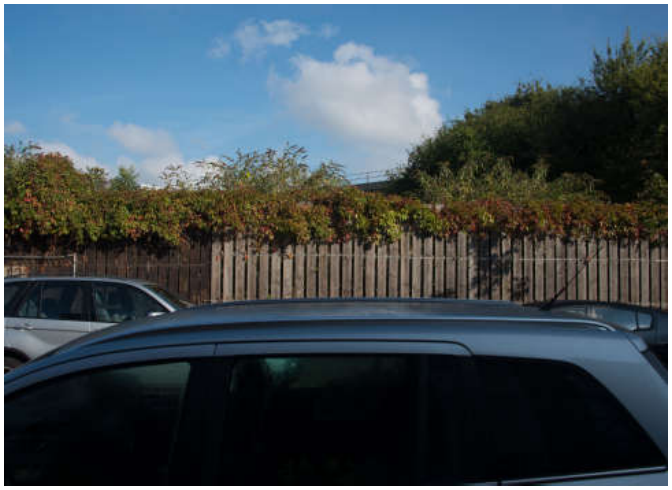
Project: London City Airport CADP
Client: London City Airport

Designer: David Mooney
Date: 06-10-16

Receptor Name: Flats 2-10b Newland Street
Receptor No: R04
Long/Lat: 51.502 / 0.048
Distance to site: 70m
Date/Time: 04/10/16 11:05

ATKINS

Daytime Images



Receptor 04	Obtrusive Light Parameters			
Sites	Sky Glow	Light Intrusion	Luminaire Intensity	Building Luminance
WSY	Min	Nil	Nil	Nil
WEC	Min	Nil	Nil	Nil
WTE	Min	Nil	Nil	Nil
OBB	Min	Nil	Nil	Nil
TFC	Min	Nil	Nil	Nil
ADE	Min	Nil	Nil	Nil
C1	Min	Nil	Nil	Nil
C2	Min	Nil	Nil	Nil
C3	Min	Nil	Nil	Nil
C4	Min	Nil	Nil	Nil
C5	Min	Nil	Nil	Nil
Key				
	Signi cant change requiring mitigation			
	Minor change that may require mitigation			
	Minimal change, no mitigation			
	No change in current baseline			

Location:

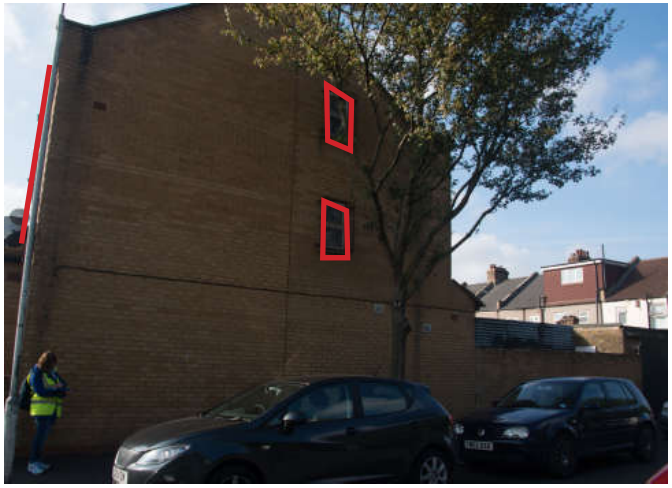
Remarks: **Three-storey high block of ats. Possible views onto airport on second oor.** First Photo: From windows areas towards vegetation and fence. Photo Two: Showing window positions per oor with views of photo one.

Project: London City Airport CADP
Client: London City Airport

Designer: David Mooney
Date: 06-10-16

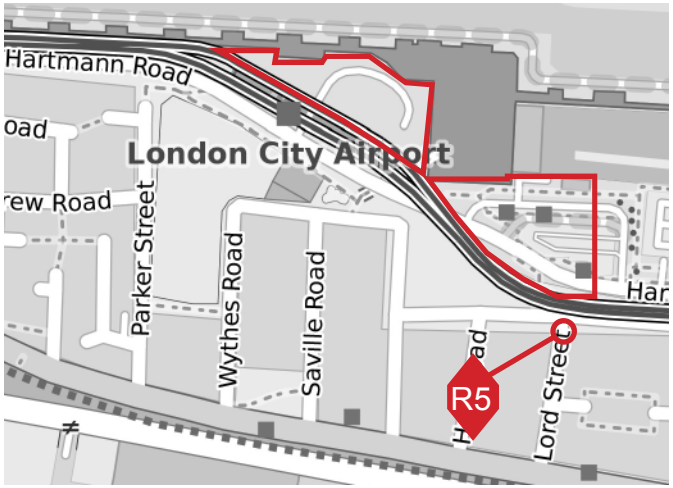
Receptor Name: 29 Lord Street
Receptor No: R05
Long/Lat: 51.502 / 0.050
Distance to site: 144m
Date/Time: 04/10/16 11:10

Daytime Images



Receptor 05	Obtrusive Light Parameters			
Sites	Sky Glow	Light Intrusion	Luminaire Intensity	Building Luminance
WSY	Min	Nil	Nil	Nil
WEC	Min	Nil	Nil	Nil
WTE	Min	Nil	Nil	Nil
OBB	Min	Nil	Nil	Nil
TFC	Min	Nil	Nil	Nil
ADE	Min	Nil	Nil	Nil
C1	Min	Nil	Nil	Nil
C2	Min	Nil	Nil	Nil
C3	Min	Nil	Nil	Nil
C4	Min	Nil	Nil	Nil
C5	Min	Nil	Nil	Nil
Key				
	Signi cant change requiring mitigation			
	Minor change that may require mitigation			
	Minimal change, no mitigation			
	No change in current baseline			

Location:



Remarks: **Three-storey townhouse. Main views of vegetation and bridge.** Photo One: From area of rst and second oor Windows facing vegetation and DLR bridge. Photo Two: Showing rst and second oor windows with views of photo one.

Project: London City Airport CADP
Client: London City Airport

Designer: David Mooney
Date: 06-10-16

Receptor Name: 26-36 The Park, Newland St.
Receptor No: R06
Long/Lat: 51.502 / 0.051
Distance to site: 150m
Date/Time: 04/10/16 11:10

Daytime Images

Receptor 06	Obtrusive Light Parameters			
Sites	Sky Glow	Light Intrusion	Luminaire Intensity	Building Luminance
WSY	Min	Nil	Nil	Nil
WEC	Min	Nil	Nil	Nil
WTE	Min	Nil	Nil	Nil
OBB	Min	Nil	Nil	Nil
TFC	Min	Nil	Nil	Nil
ADE	Min	Nil	Nil	Nil
C1	Min	Nil	Nil	Nil
C2	Min	Nil	Nil	Nil
C3	Min	Nil	Nil	Nil
C4	Min	Nil	Nil	Nil
C5	Min	Nil	Nil	Nil
Key				
	Signi cant change requiring mitigation			
	Minor change that may require mitigation			
	Minimal change, no mitigation			
	No change in current baseline			

Location:

Remarks: **Three-storey blocks of ats. Main views of wall and tips of pole-top luminaires.** Photo One: From area of windows facing wall and vegetation. Photo Two: Showing windows of all oors with varying views of Photo One.

Project: London City Airport CADP
Client: London City Airport

Designer: David Mooney
Date: 06-10-16

Receptor Name: 29 Tate Road
Receptor No: R07
Long/Lat: 51.502 / 0.052
Distance to site: 154m
Date/Time: 04/10/16 11:13

Daytime Images

Receptor 07	Obtrusive Light Parameters			
Sites	Sky Glow	Light Intrusion	Luminaire Intensity	Building Luminance
WSY	Min	Nil	Nil	Nil
WEC	Min	Nil	Nil	Nil
WTE	Min	Nil	Nil	Nil
OBB	Min	Nil	Nil	Nil
TFC	Min	Nil	Nil	Nil
ADE	Min	Nil	Nil	Nil
C1	Min	Nil	Nil	Nil
C2	Min	Nil	Nil	Nil
C3	Min	Nil	Nil	Nil
C4	Min	Nil	Nil	Nil
C5	Min	Nil	Nil	Nil
Key				
	Signi cant change requiring mitigation			
	Minor change that may require mitigation			
	Minimal change, no mitigation			
	No change in current baseline			

Location:

Remarks: **Standard two storey house, with views of wall and airport of ces.** Photo One: From rst oor windows area facing wall and airport of ces. Photo Two: Showing rst oor windows with views of Photo One.

Project: London City Airport CADP
Client: London City Airport

Designer: David Mooney
Date: 06-10-16

Receptor Name: 38-76 Newland Street
Receptor No: R08
Long/Lat: 51.502 / 0.054
Distance to site: 182m
Date/Time: 04/10/16 11:15

Daytime Images

Receptor 08	Obtrusive Light Parameters			
Sites	Sky Glow	Light Intrusion	Luminaire Intensity	Building Luminance
WSY	Min	Nil	Nil	Nil
WEC	Min	Nil	Nil	Nil
WTE	Min	Nil	Nil	Nil
OBB	Min	Nil	Nil	Nil
TFC	Min	Nil	Nil	Nil
ADE	Min	Nil	Nil	Nil
C1	Min	Nil	Nil	Nil
C2	Min	Nil	Nil	Nil
C3	Min	Nil	Nil	Nil
C4	Min	Nil	Nil	Nil
C5	Min	Nil	Nil	Nil
Key				
	Signi cant change requiring mitigation			
	Minor change that may require mitigation			
	Minimal change, no mitigation			
	No change in current baseline			

Location:

Remarks: **Two-storey terraced houses with views of wall and airport of ces.** Photo One: From general area of houses facing wall. Higher no. houses with more of a view of airport of ces. Photo Two: Showing a typical terraced houses with views of Photo One.

Project: London City Airport CADP
Client: London City Airport

Designer: David Mooney
Date: 06-10-16

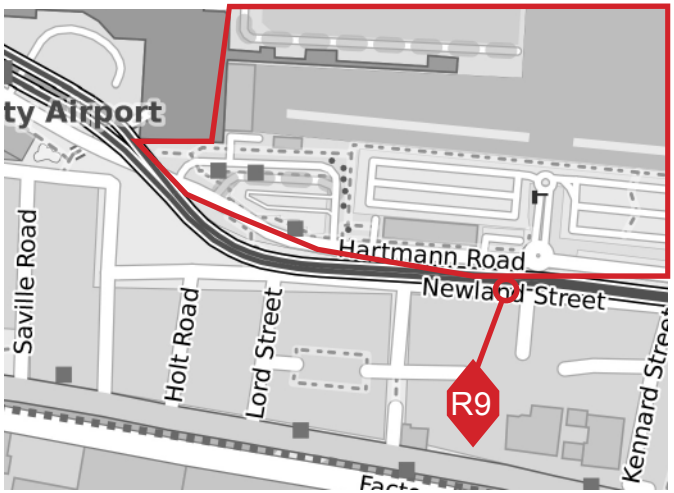
Receptor Name: 78-88 St. Edwards, Newland St
Receptor No: R09
Long/Lat: 51.502 / 0.053
Distance to site: 199m
Date/Time: 04/10/16 11:19

ATKINS

Daytime Images

Receptor 09	Obtrusive Light Parameters			
Sites	Sky Glow	Light Intrusion	Luminaire Intensity	Building Luminance
WSY	Min	Nil	Nil	Nil
WEC	Min	Nil	Nil	Nil
WTE	Min	Nil	Nil	Nil
OBB	Min	Nil	Nil	Nil
TFC	Min	Nil	Nil	Nil
ADE	Min	Nil	Nil	Nil
C1	Min	Nil	Nil	Nil
C2	Min	Nil	Nil	Nil
C3	Min	Nil	Nil	Nil
C4	Min	Nil	Nil	Nil
C5	Min	Nil	Nil	Nil
Key				
	Signi cant change requiring mitigation			
	Minor change that may require mitigation			
	Minimal change, no mitigation			
	No change in current baseline			

Location:



Remarks: **Three-storey block of ats, with views of wall and street lights**. **Views of East Pier,OBB ,Drop Off Forecourt and Car Park.** Photo One:From windows area facing wall and street lights. Photo Two: Showing all windows of all oors with varying views of wall and streetlights.

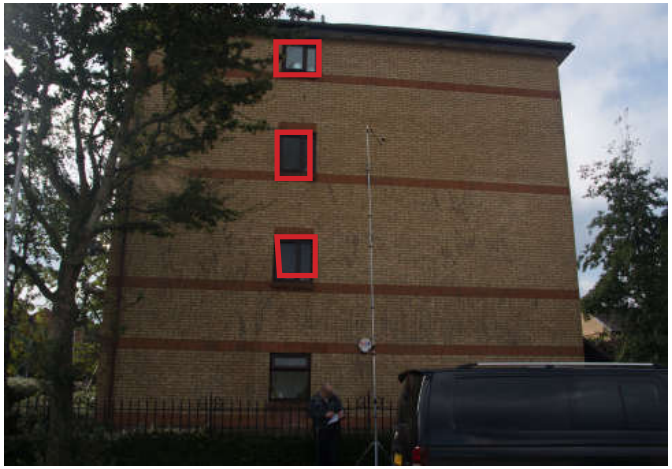
Project: London City Airport CADP
Client: London City Airport

Designer: David Mooney
Date: 06-10-16

Receptor Name: 90-104 St. Edwards
104-126 Sheldrake Close
Receptor No: R10
Long/Lat/Date: 51.502 / 0.055 04/10/16
Distance to site & Time: 265m 11:23

ATKINS

Daytime Images Views to site



Receptor 10	Obtrusive Light Parameters			
Sites	Sky Glow	Light Intrusion	Luminaire Intensity	Building Luminance
WSY	Min	Nil	Nil	Nil
WEC	Min	Nil	Nil	Nil
WTE	Min	Nil	Nil	Nil
OBB	Min	Nil	Nil	Nil
TFC	Min	Nil	Nil	Nil
ADE	Min	Nil	Nil	Nil
C1	Min	Nil	Nil	Nil
C2	Min	Nil	Nil	Nil
C3	Min	Nil	Nil	Nil
C4	Min	Nil	Nil	Nil
C5	Min	Nil	Nil	Nil
Key				
	Signi cant change requiring mitigation			
	Minor change that may require mitigation			
	Minimal change, no mitigation			
	No change in current baseline			

Location:

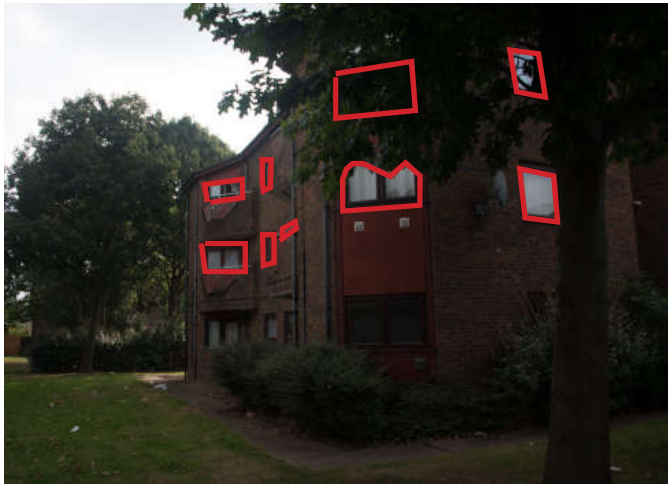
Remarks: Four-storey block of ats, with views of wall and over it, and streetlights. Photo One: From windows area facing wall. Photo Two: Showing windows on all oors with varying views of Photo One.

Project: London City Airport CADP
Client: London City Airport

Designer: David Mooney
Date: 06-10-16

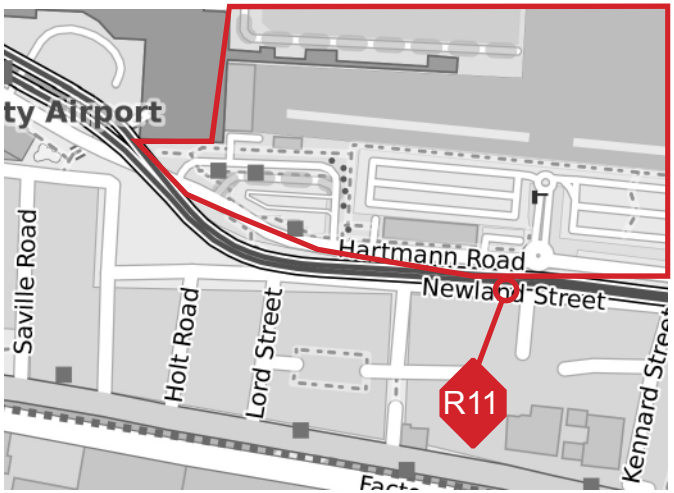
Receptor Name: 56-108 (even) Winifred Street
Receptor No: R11
Long/Lat: 51.502 / 0.056
Distance to site: 260m
Date/Time: 04/10/16 11:30

Daytime Images



Receptor 11	Obtrusive Light Parameters			
Sites	Sky Glow	Light Intrusion	Luminaire Intensity	Building Luminance
WSY	Min	Nil	Nil	Nil
WEC	Min	Nil	Nil	Nil
WTE	Min	Nil	Nil	Nil
OBB	Min	Nil	Nil	Nil
TFC	Min	Nil	Nil	Nil
ADE	Min	Nil	Nil	Nil
C1	Min	Nil	Nil	Nil
C2	Min	Nil	Nil	Nil
C3	Min	Nil	Nil	Nil
C4	Min	Nil	Nil	Nil
C5	Min	Nil	Nil	Nil
Key				
	Signi cant change requiring mitigation			
	Minor change that may require mitigation			
	Minimal change, no mitigation			
	No change in current baseline			

Location:



Remarks: **Three-storey circular block of ats with views of wall and fence attached to hide DLR trains, as well as street lights. Vews of East Pier,OBB ,Drop Off Forecourt and Car Park.** Photo One: From general area of windows facing wall and fence. Photo Two: Showing the windows facing the wall with potential views into the airport.

Project: London City Airport CADP
Client: London City Airport

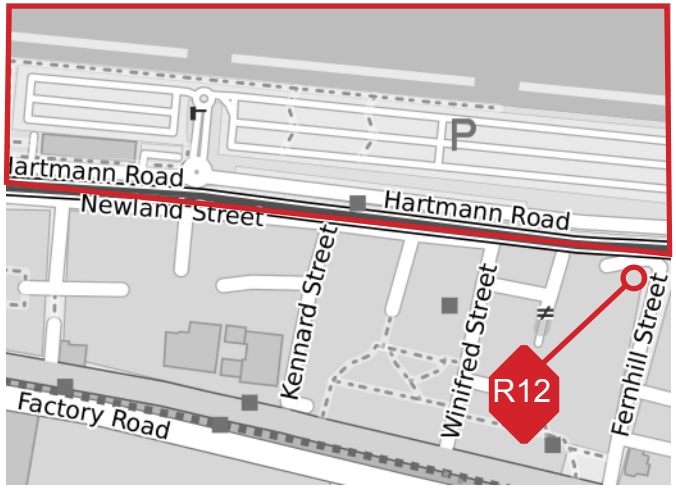
Designer: David Mooney
Date: 06-10-16

Receptor Name: 40 Fernhill St/Winifred St
Receptor No: R12
Long/Lat: 51.502 / 0.057
Distance to site: 275m
Date/Time: 04/10/16 11:40

Daytime Images

Receptor 12	Obtrusive Light Parameters			
Sites	Sky Glow	Light Intrusion	Luminaire Intensity	Building Luminance
WSY	Min	Nil	Nil	Nil
WEC	Min	Nil	Nil	Nil
WTE	Min	Nil	Nil	Nil
OBB	Min	Nil	Nil	Nil
TFC	Min	Nil	Nil	Nil
ADE	Min	Nil	Nil	Nil
C1	Min	Nil	Nil	Nil
C2	Min	Nil	Nil	Nil
C3	Min	Nil	Nil	Nil
C4	Min	Nil	Nil	Nil
C5	Min	Nil	Nil	Nil
Key				
	Signi cant change requiring mitigation			
	Minor change that may require mitigation			
	Minimal change, no mitigation			
	No change in current baseline			

Location:



Remarks: **Two-storey end of terrace house with view of metal railing & wall and possible views of streetlights & KGV house as well as views of Dockside and East Pier Extension.** Photo One: From general area of rst oor window facing metal railing and wall. Photo Two: Showing rst oor windows with view of Photo One.

Project: London City Airport CADP
Client: London City Airport

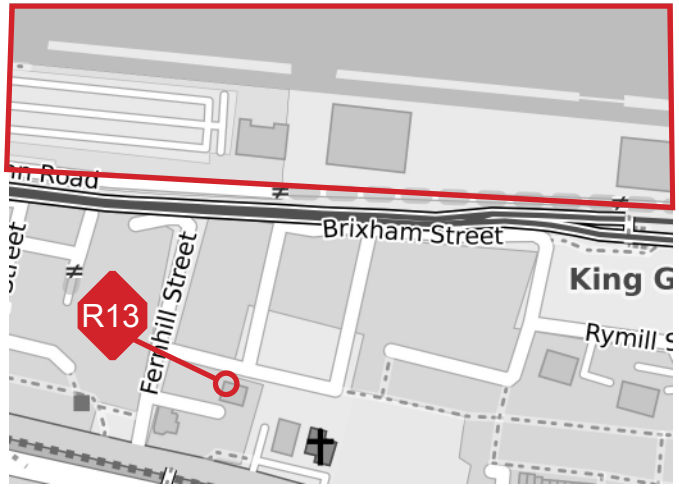
Designer: David Mooney
Date: 06-10-16

Receptor Name: Dunedin House, Manwood St
Receptor No: R13
Long/Lat: 51.501 / 0.058
Distance to site: 360m
Date/Time: 04/10/16 11:45

Daytime Images

Receptor 13	Obtrusive Light Parameters			
Sites	Sky Glow	Light Intrusion	Luminaire Intensity	Building Luminance
WSY	Min	Nil	Nil	Nil
WEC	Min	Nil	Nil	Nil
WTE	Min	Nil	Nil	Nil
OBB	Min	Nil	Nil	Nil
TFC	Min	Nil	Nil	Nil
ADE	Min	Nil	Nil	Nil
C1	Min	Nil	Nil	Nil
C2	Min	Nil	Nil	Nil
C3	Min	Nil	Nil	Nil
C4	Min	Nil	Nil	Nil
C5	Min	Nil	Nil	Nil
Key				
	Signi cant change requiring mitigation			
	Minor change that may require mitigation			
	Minimal change, no mitigation			
	No change in current baseline			

Location:



Remarks: **Ninteen-storey block of ats with views of whole site.** Photo One: Showing the road and airport in the background. Photo Two: From other side of the road, showing the rst 6 stories of the tower block.

Project: London City Airport CADP
Client: London City Airport

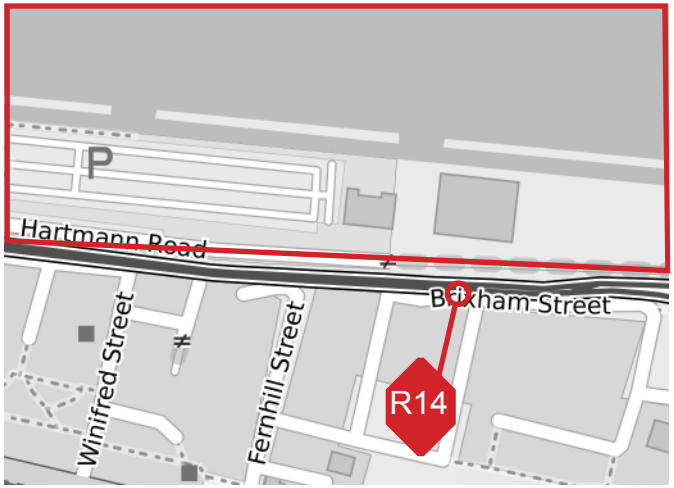
Designer: David Mooney
Date: 06-10-16

Receptor Name: 14-15 Grenadier Street
Receptor No: R14
Long/Lat: 51.501 / 0.059
Distance to site: 260m
Date/Time: 04/10/16 11:50

Daytime Images

Receptor 14	Obtrusive Light Parameters			
Sites	Sky Glow	Light Intrusion	Luminaire Intensity	Building Luminance
WSY	Min	Nil	Nil	Nil
WEC	Min	Nil	Nil	Nil
WTE	Min	Nil	Nil	Nil
OBB	Min	Nil	Nil	Nil
TFC	Min	Nil	Nil	Nil
ADE	Min	Nil	Nil	Nil
C1	Min	Nil	Nil	Nil
C2	Min	Nil	Nil	Nil
C3	Min	Nil	Nil	Nil
C4	Min	Nil	Nil	Nil
C5	Min	Nil	Nil	Nil
Key				
	Signi cant change requiring mitigation			
	Minor change that may require mitigation			
	Minimal change, no mitigation			
	No change in current baseline			

Location:



Remarks: **End of terrace house, having a singular window with views of a wall and fence.** Photo One: From the general area of the rst oor window facing the wall and fence. Photo Two: Showing the house and rst oor window with views of Photo One.

Project: London City Airport CADP
Client: London City Airport

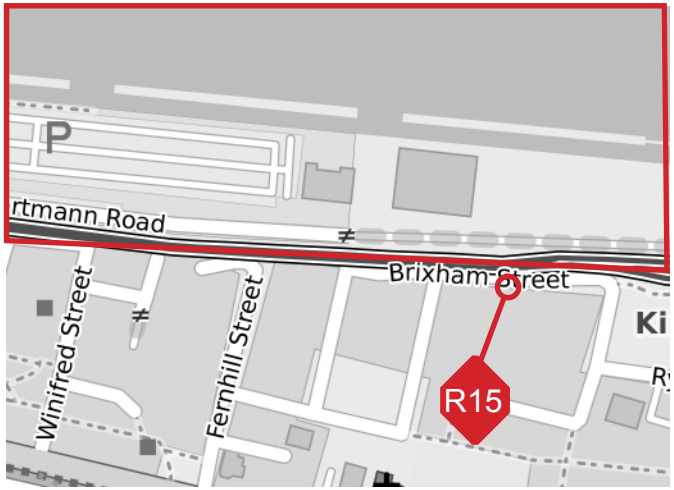
Designer: David Mooney
Date: 06-10-16

Receptor Name: 32-58 Brixham Street
Receptor No: R15
Long/Lat: 51.502 / 0.061
Distance to site: 270m
Date/Time: 04/10/16 11:53

Daytime Images

Receptor 15	Obtrusive Light Parameters			
Sites	Sky Glow	Light Intrusion	Luminaire Intensity	Building Luminance
WSY	Min	Nil	Nil	Nil
WEC	Min	Nil	Nil	Nil
WTE	Min	Nil	Nil	Nil
OBB	Min	Nil	Nil	Nil
TFC	Min	Nil	Nil	Nil
ADE	Min	Nil	Nil	Nil
C1	Min	Nil	Nil	Nil
C2	Min	Nil	Nil	Nil
C3	Min	Nil	Nil	Nil
C4	Min	Nil	Nil	Nil
C5	Min	Nil	Nil	Nil
Key				
	Signi cant change requiring mitigation			
	Minor change that may require mitigation			
	Minimal change, no mitigation			
	No change in current baseline			

Location:



Remarks: **Three-storey town houses, views of vegetation, fence & wall, with view of warehouse beyond.** Photo One: Showing the vegetation, wall and fence. Photo Two: Showing the town houses with varying views of Photo One.

Project: London City Airport CADP
Client: London City Airport

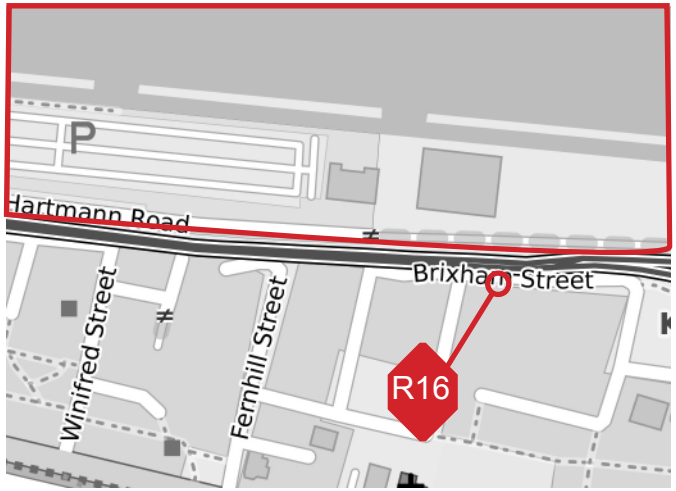
Designer: David Mooney
Date: 06-10-16

Receptor Name: 65 Brixham Street
Receptor No: R16
Long/Lat: 51.502 / 0.060
Distance to site: 275m
Date/Time: 04/10/16 11:55

Daytime Images

Receptor 16	Obtrusive Light Parameters			
Sites	Sky Glow	Light Intrusion	Luminaire Intensity	Building Luminance
WSY	Min	Nil	Nil	Nil
WEC	Min	Nil	Nil	Nil
WTE	Min	Nil	Nil	Nil
OBB	Min	Nil	Nil	Nil
TFC	Min	Nil	Nil	Nil
ADE	Min	Nil	Nil	Nil
C1	Min	Nil	Nil	Nil
C2	Min	Nil	Nil	Nil
C3	Min	Nil	Nil	Nil
C4	Min	Nil	Nil	Nil
C5	Min	Nil	Nil	Nil
Key				
	Signi cant change requiring mitigation			
	Minor change that may require mitigation			
	Minimal change, no mitigation			
	No change in current baseline			

Location:



Remarks: **End of terrace house with views of vegetation, wall and passing DLR trains as well as views of the Dockside.** Photo One: Showing the views of the vegetation, wall and passing DLR train from the general area of rst oor window. Photo Two: Showing the rst oor window with views of Photo One.

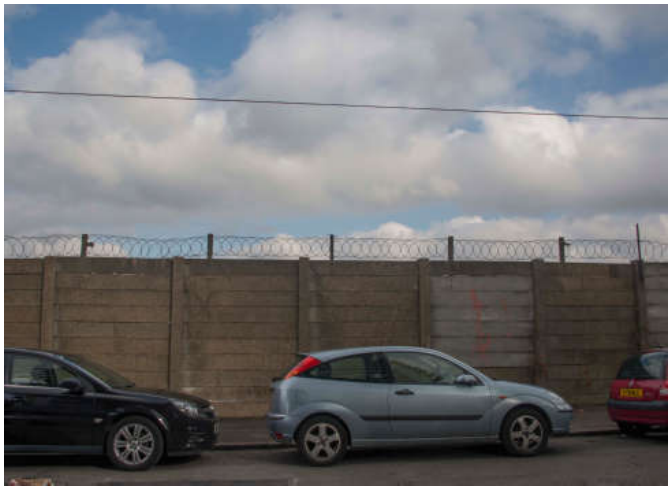
Project: London City Airport CADP
Client: London City Airport

Designer: David Mooney
Date: 06-10-16

Receptor Name: Westand House, Rymill Street
Receptor No: R17
Long/Lat: 51.501 / 0.062
Distance to site: 350m
Date/Time: 04/10/16 11:58

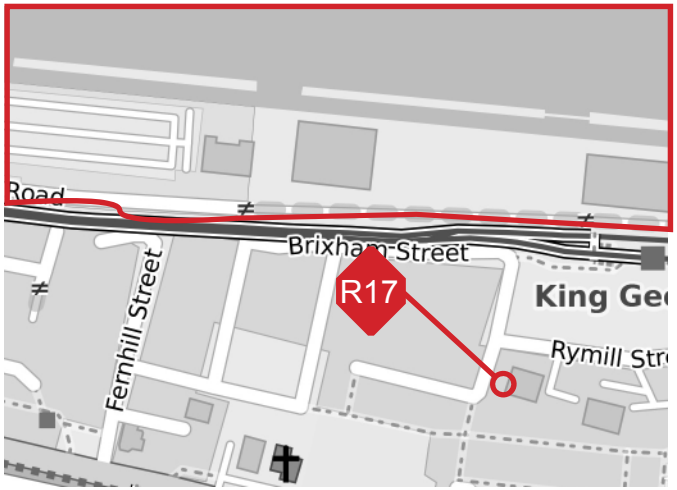
ATKINS

Daytime Images



Receptor 17	Obtrusive Light Parameters			
Sites	Sky Glow	Light Intrusion	Luminaire Intensity	Building Luminance
WSY	Min	Nil	Nil	Nil
WEC	Min	Nil	Nil	Nil
WTE	Min	Nil	Nil	Nil
OBB	Min	Nil	Nil	Nil
TFC	Min	Nil	Nil	Nil
ADE	Min	Nil	Nil	Nil
C1	Min	Nil	Nil	Nil
C2	Min	Nil	Nil	Nil
C3	Min	Nil	Nil	Nil
C4	Min	Nil	Nil	Nil
C5	Min	Nil	Nil	Nil
Key				
	Signi cant change requiring mitigation			
	Minor change that may require mitigation			
	Minimal change, no mitigation			
	No change in current baseline			

Location:



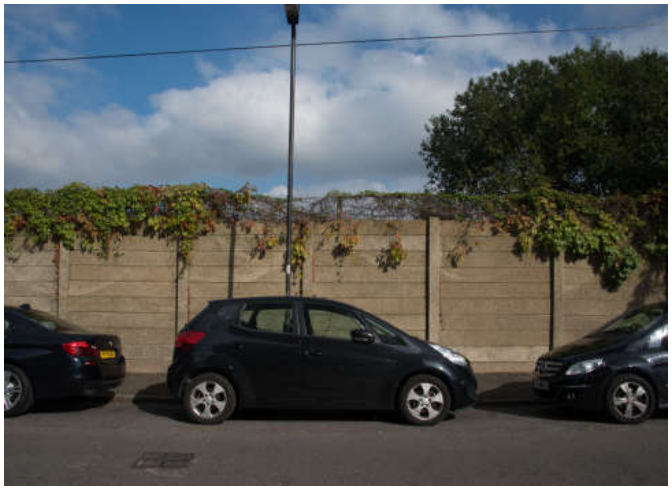
Remarks: **Ninteen-storey tower block of ats with views of whole airport site.** Photo One: From general area of windows, facing wall and airport site above this. Photo Two: Showing rst 5 stories of tower block with varying views of Photo One.

Project: London City Airport CADP
Client: London City Airport

Designer: David Mooney
Date: 06-10-16

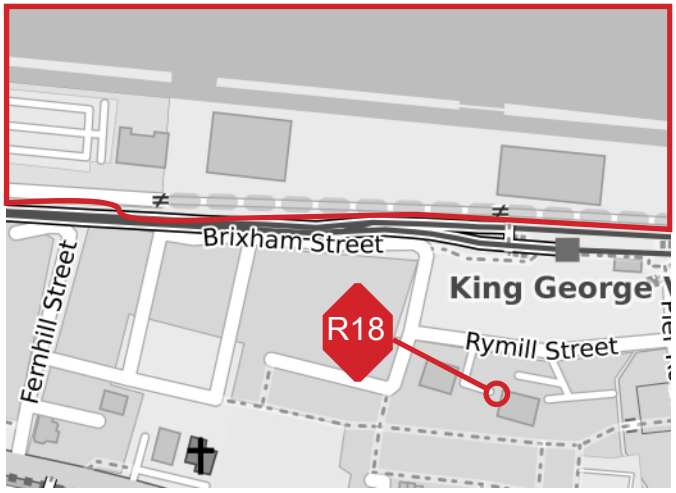
Receptor Name: Queensland House, Rymill St
Receptor No: R18
Long/Lat: 51.501 / 0.062
Distance to site: 360m
Date/Time: 04/10/16 12:01

Daytime Images



Receptor 18	Obtrusive Light Parameters			
Sites	Sky Glow	Light Intrusion	Luminaire Intensity	Building Luminance
WSY	Min	Nil	Nil	Nil
WEC	Min	Nil	Nil	Nil
WTE	Min	Nil	Nil	Nil
OBB	Min	Nil	Nil	Nil
TFC	Min	Nil	Nil	Nil
ADE	Min	Nil	Nil	Nil
C1	Min	Nil	Nil	Nil
C2	Min	Nil	Nil	Nil
C3	Min	Nil	Nil	Nil
C4	Min	Nil	Nil	Nil
C5	Min	Nil	Nil	Nil
Key				
	Signi cant change requiring mitigation			
	Minor change that may require mitigation			
	Minimal change, no mitigation			
	No change in current baseline			

Location:



Remarks: **Ninteen-storey tower block of ats with views of whole airport site. One facade has views of Dockside only.** Photo One: From general area of windows, facing wall and airport site above this. Photo Two: Showing rst 5 stories of tower block with varying views of Photo One.

Project: London City Airport CADP
Client: London City Airport

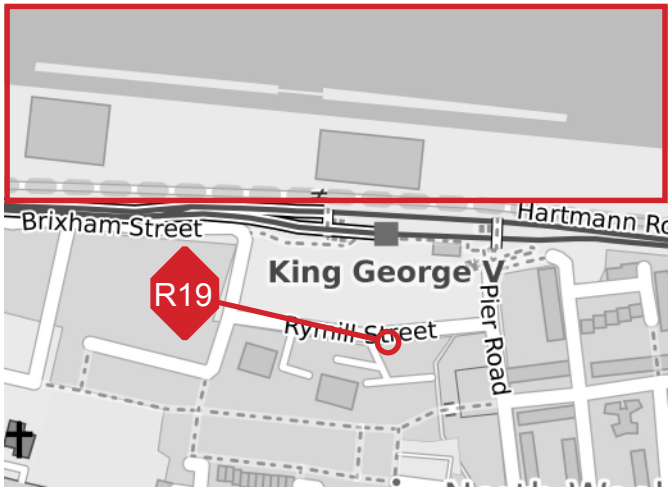
Designer: David Mooney
Date: 06-10-16

Receptor Name: 3-6 Rymill Street
Receptor No: R19
Long/Lat: 51.501 / 0.062
Distance to site: 335m
Date/Time: 04/10/16 12:04

Daytime Images

Receptor 19	Obtrusive Light Parameters			
Sites	Sky Glow	Light Intrusion	Luminaire Intensity	Building Luminance
WSY	Min	Nil	Nil	Nil
WEC	Min	Nil	Nil	Nil
WTE	Min	Nil	Nil	Nil
OBB	Min	Nil	Nil	Nil
TFC	Min	Nil	Nil	Nil
ADE	Min	Nil	Nil	Nil
C1	Min	Nil	Nil	Nil
C2	Min	Nil	Nil	Nil
C3	Min	Nil	Nil	Nil
C4	Min	Nil	Nil	Nil
C5	Min	Nil	Nil	Nil
Key				
	Signi cant change requiring mitigation			
	Minor change that may require mitigation			
	Minimal change, no mitigation			
	No change in current baseline			

Location:



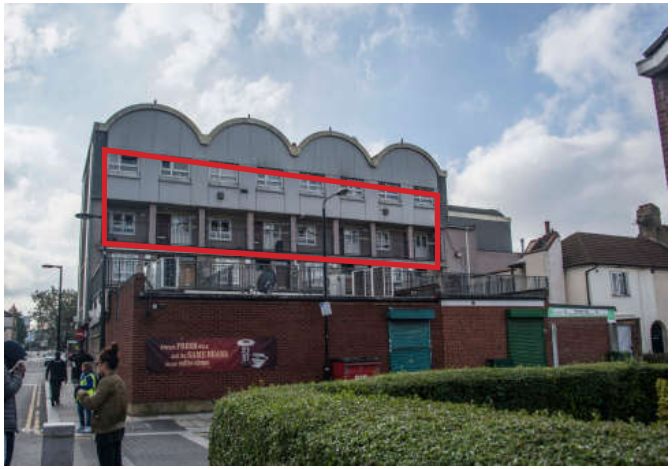
Remarks: **Terraced houses; some with loft conversions with views of construction compounds and Dockside.** Photo One: From general window areas facing construction compound. Photo Two: Showing windows of houses with varying views of Photo One.

Project: London City Airport CADP
Client: London City Airport

Designer: David Mooney
Date: 06-10-16

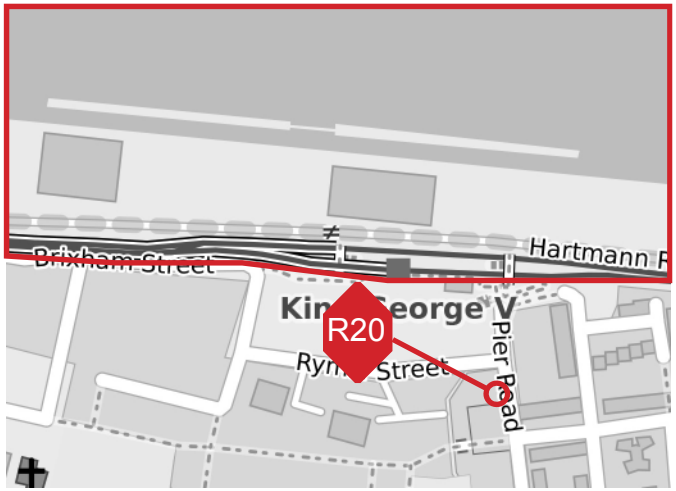
Receptor Name: 1-31 Pier Parade, Pier Road
Receptor No: R20
Long/Lat: 51.500 / 0.063
Distance to site: 345m
Date/Time: 04/10/16 12:08

Daytime Images



Receptor 20	Obtrusive Light Parameters			
Sites	Sky Glow	Light Intrusion	Luminaire Intensity	Building Luminance
WSY	Min	Nil	Nil	Nil
WEC	Min	Nil	Nil	Nil
WTE	Min	Nil	Nil	Nil
OBB	Min	Nil	Nil	Nil
TFC	Min	Nil	Nil	Nil
ADE	Min	Nil	Nil	Nil
C1	Min	Nil	Nil	Nil
C2	Min	Nil	Nil	Nil
C3	Min	Nil	Nil	Nil
C4	Min	Nil	Nil	Nil
C5	Min	Nil	Nil	Nil
Key				
	Signi cant change requiring mitigation			
	Minor change that may require mitigation			
	Minimal change, no mitigation			
	No change in current baseline			

Location:



Remarks: **A mixture of ats and maisonettes at the back of a parade of shops, some views of DLR station and of airport.** Photo One: From general window areas showing views of DLR station and airport. Photo Two: Showing the windows of each oor with varying views of Photo One.

Project: London City Airport CADP
Client: London City Airport

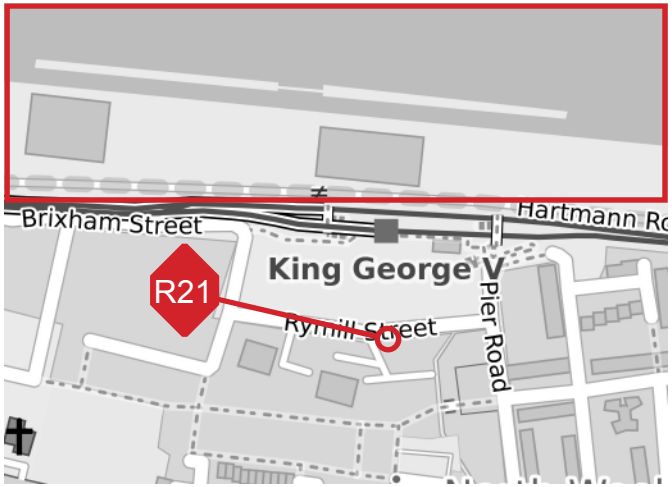
Designer: David Mooney
Date: 06-10-16

Receptor Name: 1-8 Woodman Road
Receptor No: R21
Long/Lat: 51.501 / 0.064
Distance to site: 355m
Date/Time: 04/10/16 12:13

Daytime Images

Receptor 21	Obtrusive Light Parameters			
Sites	Sky Glow	Light Intrusion	Luminaire Intensity	Building Luminance
WSY	Min	Nil	Nil	Nil
WEC	Min	Nil	Nil	Nil
WTE	Min	Nil	Nil	Nil
OBB	Min	Nil	Nil	Nil
TFC	Min	Nil	Nil	Nil
ADE	Min	Nil	Nil	Nil
C1	Min	Nil	Nil	Nil
C2	Min	Nil	Nil	Nil
C3	Min	Nil	Nil	Nil
C4	Min	Nil	Nil	Nil
C5	Min	Nil	Nil	Nil
Key				
	Signi cant change requiring mitigation			
	Minor change that may require mitigation			
	Minimal change, no mitigation			
	No change in current baseline			

Location:



Remarks: A mixture of ats and maisonettes at the back of a parade of shops, four stories high with obstructed views of Dockside and Construction Compounds. Photo One: From general window areas showing obstructed views of wall and fence. Photo Two: From side of obstruction, with varying views of photo one.

Project: London City Airport CADP
Client: London City Airport

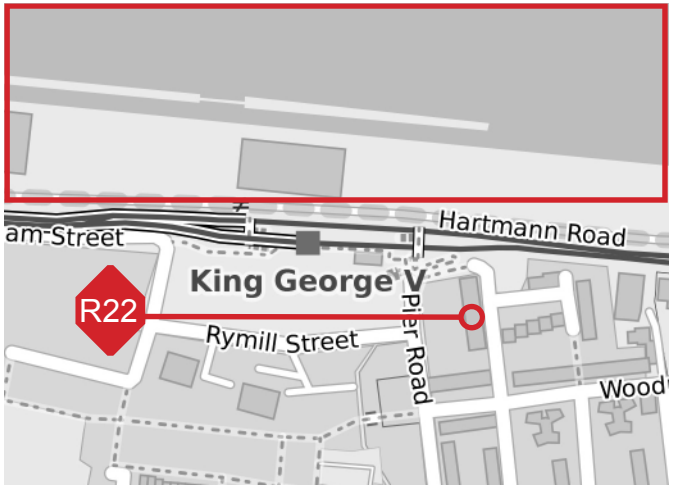
Designer: David Mooney
Date: 06-10-16

Receptor Name: 13-42 Claremont House
Receptor No: R22
Long/Lat: 51.501 / 0.064
Distance to site: 285m
Date/Time: 04/10/16 12:18

Daytime Images

Receptor 22	Obtrusive Light Parameters			
Sites	Sky Glow	Light Intrusion	Luminaire Intensity	Building Luminance
WSY	Min	Nil	Nil	Nil
WEC	Min	Nil	Nil	Nil
WTE	Min	Nil	Nil	Nil
OBB	Min	Nil	Nil	Nil
TFC	Min	Nil	Nil	Nil
ADE	Min	Nil	Nil	Nil
C1	Min	Nil	Nil	Nil
C2	Min	Nil	Nil	Nil
C3	Min	Nil	Nil	Nil
C4	Min	Nil	Nil	Nil
C5	Min	Nil	Nil	Nil
Key				
	Signi cant change requiring mitigation			
	Minor change that may require mitigation			
	Minimal change, no mitigation			
	No change in current baseline			

Location:



Remarks: **Eight-storey block of ats with east-west views of the airport.** Photo One: Western facade of the block of ats. Photo Two: Eastern facade of the block of ats.

Project: London City Airport CADP
Client: London City Airport

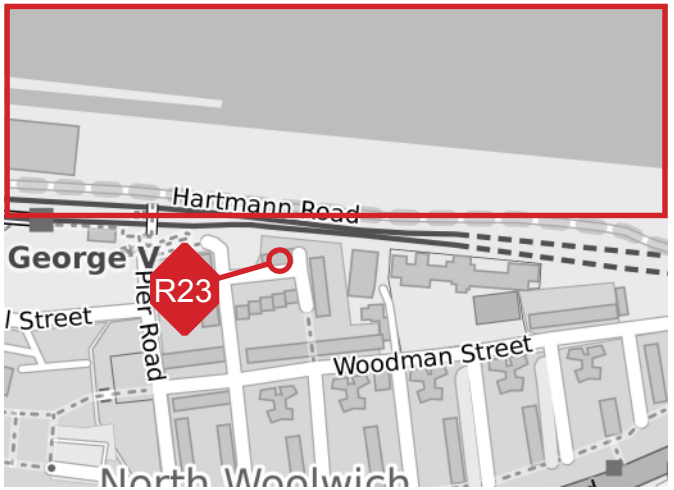
Designer: David Mooney
Date: 06-10-16

Receptor Name: 65 Claremont Close
Receptor No: R23
Long/Lat: 51.502 / 0.064
Distance to site: 285m
Date/Time: 04/10/16 12:23

Daytime Images

Receptor 23	Obtrusive Light Parameters			
Sites	Sky Glow	Light Intrusion	Luminaire Intensity	Building Luminance
WSY	Min	Nil	Nil	Nil
WEC	Min	Nil	Nil	Nil
WTE	Min	Nil	Nil	Nil
OBB	Min	Nil	Nil	Nil
TFC	Min	Nil	Nil	Nil
ADE	Min	Nil	Nil	Nil
C1	Min	Nil	Nil	Nil
C2	Min	Nil	Nil	Nil
C3	Min	Nil	Nil	Nil
C4	Min	Nil	Nil	Nil
C5	Min	Nil	Nil	Nil
Key				
	Signi cant change requiring mitigation			
	Minor change that may require mitigation			
	Minimal change, no mitigation			
	No change in current baseline			

Location:



Remarks: **Three-storey block of ats with views directly onto the wall and fence.** Photo One: From general area of windows on East Facade facing onto the wall and fence. Photo Two: From the other side of the road showing the windows on the West facade over the wall and fence.

Project: London City Airport CADP
Client: London City Airport

Designer: David Mooney
Date: 06-10-16

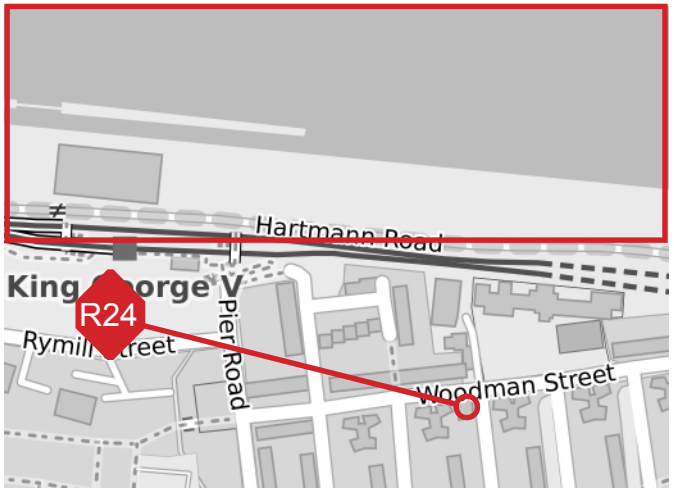
Receptor Name: Brocklebank HouseWoodman St
Receptor No: R24
Long/Lat: 51.501 / 0.066
Distance to site: 358m
Date/Time: 04/10/16 12:29

ATKINS

Daytime Images

Receptor 24	Obtrusive Light Parameters			
Sites	Sky Glow	Light Intrusion	Luminaire Intensity	Building Luminance
WSY	Min	Nil	Nil	Nil
WEC	Min	Nil	Nil	Nil
WTE	Min	Nil	Nil	Nil
OBB	Min	Nil	Nil	Nil
TFC	Min	Nil	Nil	Nil
ADE	Min	Nil	Nil	Nil
C1	Min	Nil	Nil	Nil
C2	Min	Nil	Nil	Nil
C3	Min	Nil	Nil	Nil
C4	Min	Nil	Nil	Nil
C5	Min	Nil	Nil	Nil
Key				
	Signi cant change requiring mitigation			
	Minor change that may require mitigation			
	Minimal change, no mitigation			
	No change in current baseline			

Location:



Remarks: **Five no. Eight-storey block of ats with views of Dockside and east pier extension from top oors.** Photo One: From general location of windows facing a school academy. Photo Two: Showing the rst four stories of the ats with varying views of Photo One.

Project: London City Airport CADP
Client: London City Airport

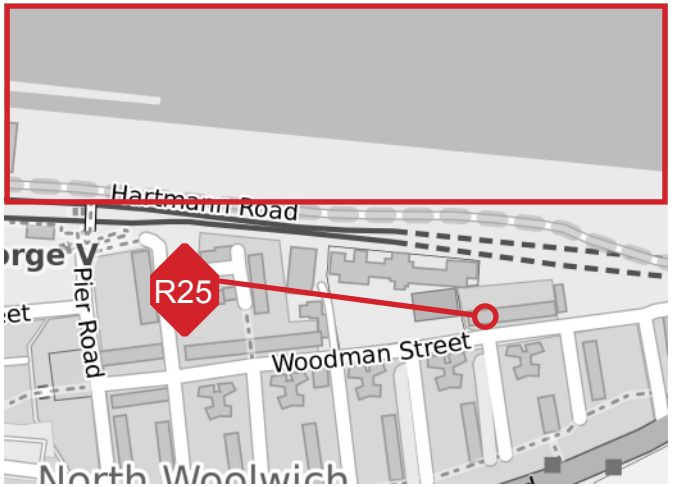
Designer: David Mooney
Date: 06-10-16

Receptor Name: 14-36a Woodman Street
Receptor No: R25
Long/Lat: 51.501 / 0.0669
Distance to site: 387m
Date/Time: 04/10/16 12:35

Daytime Images

Receptor 25	Obtrusive Light Parameters			
Sites	Sky Glow	Light Intrusion	Luminaire Intensity	Building Luminance
WSY	Min	Nil	Nil	Nil
WEC	Min	Nil	Nil	Nil
WTE	Min	Nil	Nil	Nil
OBB	Min	Nil	Nil	Nil
TFC	Min	Nil	Nil	Nil
ADE	Min	Nil	Nil	Nil
C1	Min	Nil	Nil	Nil
C2	Min	Nil	Nil	Nil
C3	Min	Nil	Nil	Nil
C4	Min	Nil	Nil	Nil
C5	Min	Nil	Nil	Nil
Key				
	Signi cant change requiring mitigation			
	Minor change that may require mitigation			
	Minimal change, no mitigation			
	No change in current baseline			

Location:



Remarks: **Four-storey block of ats with views of dockside and Contractor Compounds and views of dockside and east pier extension from upper oors.** Photo One: Showing side of ats in direction of airport; Photo Two: General photo of ats.

Project: London City Airport CADP
Client: London City Airport

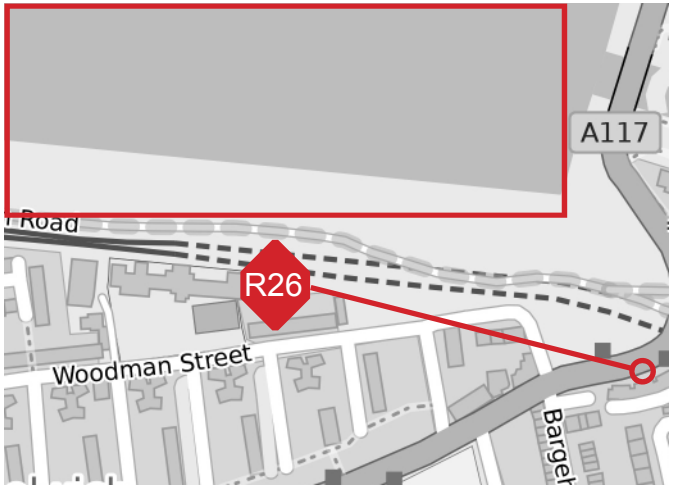
Designer: David Mooney
Date: 06-10-16

Receptor Name: 43-72 (even) Albert Road
Receptor No: R26
Long/Lat: 51.501 / 0.070
Distance to site: 417m
Date/Time: 04/10/16 12:42

Daytime Images

Receptor 26	Obtrusive Light Parameters			
Sites	Sky Glow	Light Intrusion	Luminaire Intensity	Building Luminance
WSY	Min	Nil	Nil	Nil
WEC	Min	Nil	Nil	Nil
WTE	Min	Nil	Nil	Nil
OBB	Min	Nil	Nil	Nil
TFC	Min	Nil	Nil	Nil
ADE	Min	Nil	Nil	Nil
C1	Min	Nil	Nil	Nil
C2	Min	Nil	Nil	Nil
C3	Min	Nil	Nil	Nil
C4	Min	Nil	Nil	Nil
C5	Min	Nil	Nil	Nil
Key				
	Signi cant change requiring mitigation			
	Minor change that may require mitigation			
	Minimal change, no mitigation			
	No change in current baseline			

Location:



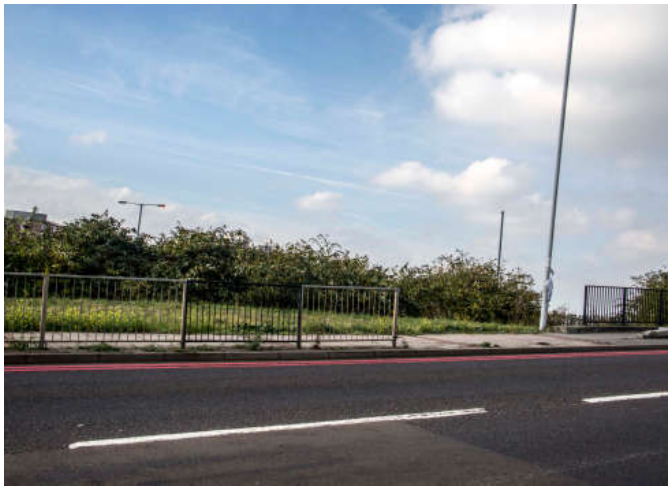
Remarks: **Four-storey block of ats with views of metal railing, and views of DLR and airport from upper oors.** Photo One: iFrom general location of windows facing metal railing. Photo Two: Showing block of ats with varying views of Photo One.

Project: London City Airport CADP
Client: London City Airport

Designer: David Mooney
Date: 06-10-16

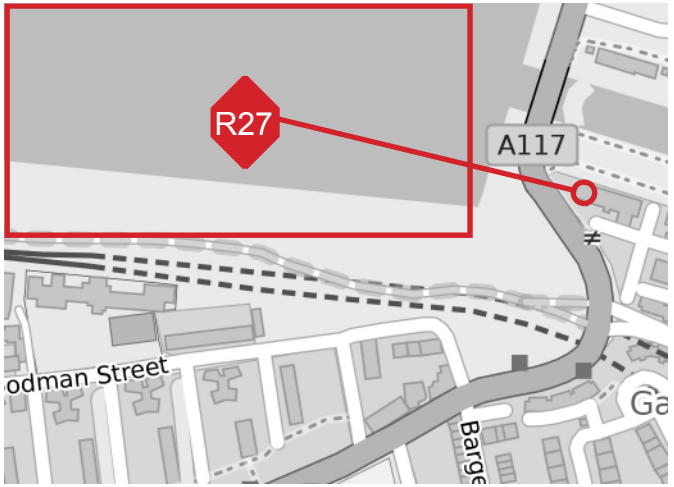
Receptor Name: 43-58 Felixstowe Court
Fishguard Way
Receptor No: R27
Long/Lat & Date/Time: 51.501 / 0.072 04/10/16
Distance to site & Time: 350m 13:00

Daytime Images



Receptor 27	Obtrusive Light Parameters			
Sites	Sky Glow	Light Intrusion	Luminaire Intensity	Building Luminance
WSY	Min	Nil	Nil	Nil
WEC	Min	Nil	Nil	Nil
WTE	Min	Nil	Nil	Nil
OBB	Min	Nil	Nil	Nil
TFC	Min	Nil	Nil	Nil
ADE	Min	Nil	Nil	Nil
C1	Min	Nil	Nil	Nil
C2	Min	Nil	Nil	Nil
C3	Min	Nil	Nil	Nil
C4	Min	Nil	Nil	Nil
C5	Min	Nil	Nil	Nil
Key				
	Signi cant change requiring mitigation			
	Minor change that may require mitigation			
	Minimal change, no mitigation			
	No change in current baseline			

Location:



Remarks: **Five-storey block of ats with 3rd oors and up having views across to the airport; lower oors with views of vegetation and metal fencing.** Photo One: From general location of windows facing main road and airport. Photo Two: Showing block of ats with varying views of Photo One.

A400-ATK-Z-13-XXX-DC-RP-900-002

Project: London City Airport CADP
Client: London City Airport

Designer: David Mooney
Date: 06-10-16

Receptor Name: Sir Steven Redgrave Bridge
Receptor No: R28
Long/Lat: 51.501 / 0.071
Distance to site: 308m
Date/Time: 04/10/16 13:05

ATKINS

Tower Block - R13

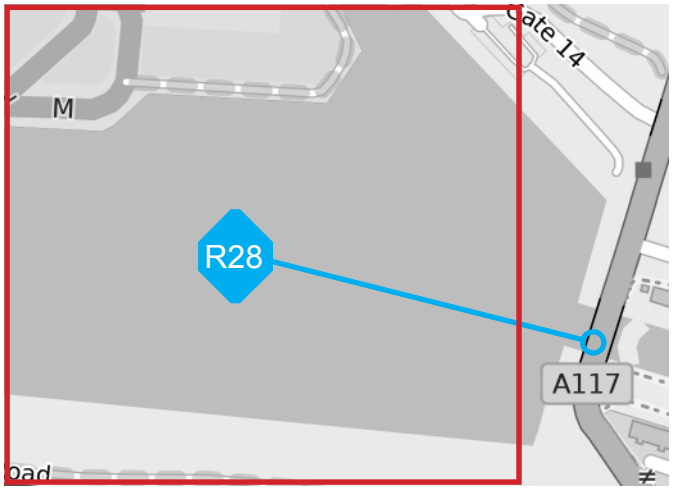
LCA Terminal Airside and Compound areas

Newham Borough Council Of ces - R31

University of East London - Docklands Campus

Gallions Point - R29

Location:



Remarks: Contextural Panorama of London City Airport from Sir Steven Redgrave Bridge

Project: London City Airport CADP
Client: London City Airport

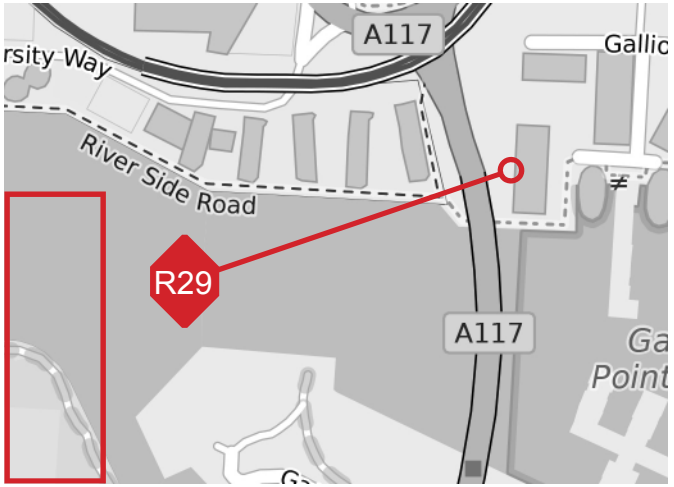
Designer: David Mooney
Date: 06-10-16

Receptor Name: Fathom Court, Gallions Point
Receptor No: R29
Long/Lat: 51.506 / 0.072
Distance to site: 340m
Date/Time: 04/10/16 13:19

Daytime Images

Receptor 29	Obtrusive Light Parameters			
Sites	Sky Glow	Light Intrusion	Luminaire Intensity	Building Luminance
WSY	Min	Nil	Nil	Nil
WEC	Min	Nil	Nil	Nil
WTE	Min	Nil	Nil	Nil
OBB	Min	Nil	Nil	Nil
TFC	Min	Nil	Nil	Nil
ADE	Min	Nil	Nil	Nil
C1	Min	Nil	Nil	Nil
C2	Min	Nil	Nil	Nil
C3	Min	Nil	Nil	Nil
C4	Min	Nil	Nil	Nil
C5	Min	Nil	Nil	Nil
Key				
	Signi cant change requiring mitigation			
	Minor change that may require mitigation			
	Minimal change, no mitigation			
	No change in current baseline			

Location:



Remarks: **Six-storey block of ats with views of airport site over the bridge.** Photo One: From general location of at windows with views of the bridge and distant airport. Photo Two: Showing block of ats with varying views of Photo One.

Project: London City Airport CADP
Client: London City Airport

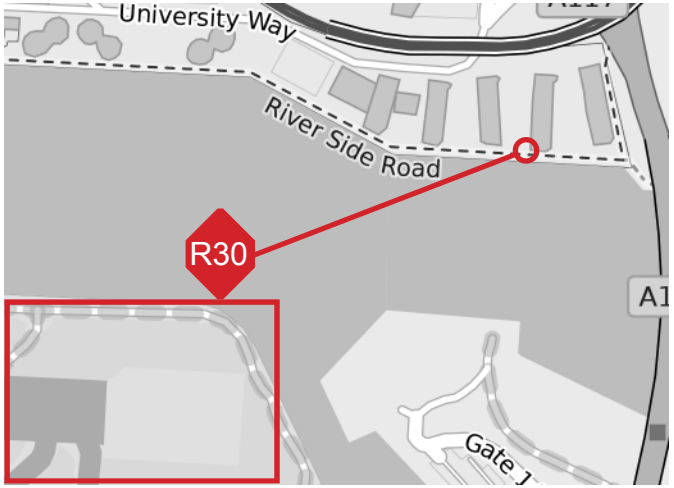
Designer: David Mooney
Date: 06-10-16

Receptor Name: UEL Docklands Campus
Receptor No: R30
Long/Lat: 51.506 / 0.069
Distance to site: 212m
Date/Time: 04/10/16 13:56

Daytime Images

Receptor 30	Obtrusive Light Parameters			
Sites	Sky Glow	Light Intrusion	Luminaire Intensity	Building Luminance
WSY	Min	Nil	Nil	Nil
WEC	Min	Nil	Nil	Nil
WTE	Min	Nil	Nil	Nil
OBB	Min	Nil	Nil	Nil
TFC	Min	Nil	Nil	Nil
ADE	Min	Nil	Nil	Nil
C1	Min	Nil	Nil	Nil
C2	Min	Nil	Nil	Nil
C3	Min	Nil	Nil	Nil
C4	Min	Nil	Nil	Nil
C5	Min	Nil	Nil	Nil
Key				
	Signi cant change requiring mitigation			
	Minor change that may require mitigation			
	Minimal change, no mitigation			
	No change in current baseline			

Location:



Remarks: **University of East London Campus. Four no. seven-storey Halls of Residence blocks of ats with distant views overlooking the dock and airport runway.** Photo One: From the general location of the windows facing the dock and airport runway. Photo Two: Showing the ats with varying views of Photo One.

Project: London City Airport CADP
Client: London City Airport

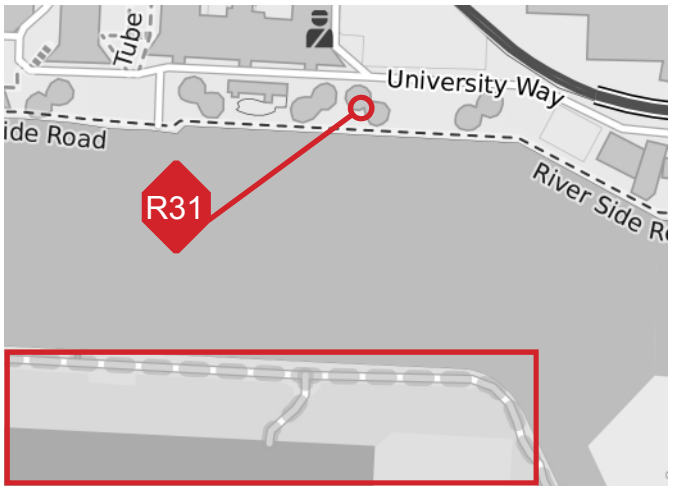
Designer: David Mooney
Date: 06-10-16

Receptor Name: UEL Docklands Campus
Receptor No: R31
Long/Lat: 51.507 / 0.066
Distance to site: 175m
Date/Time: 04/10/16 14:03

Daytime Images

Receptor 32	Obtrusive Light Parameters			
Sites	Sky Glow	Light Intrusion	Luminaire Intensity	Building Luminance
WSY	Min	Nil	Nil	Nil
WEC	Min	Nil	Nil	Nil
WTE	Min	Nil	Nil	Nil
OBB	Min	Nil	Nil	Nil
TFC	Min	Nil	Nil	Nil
ADE	Min	Nil	Nil	Nil
C1	Min	Nil	Nil	Nil
C2	Min	Nil	Nil	Nil
C3	Min	Nil	Nil	Nil
C4	Min	Nil	Nil	Nil
C5	Min	Nil	Nil	Nil
Key				
	Signi cant change requiring mitigation			
	Minor change that may require mitigation			
	Minimal change, no mitigation			
	No change in current baseline			

Location:



Remarks: **University of East Docklands Campus. Six no. Four-storey circular Halls of Residence blocks of ats with distant views overlooking the dock and airport runway.** Photo One: From the general location of the windows facing the dock and airport tunway. Photo Two: Showing the ats with varying views of Photo One.

Project: London City Airport CADP
Client: London City Airport

Designer: David Mooney
Date: 06-10-16

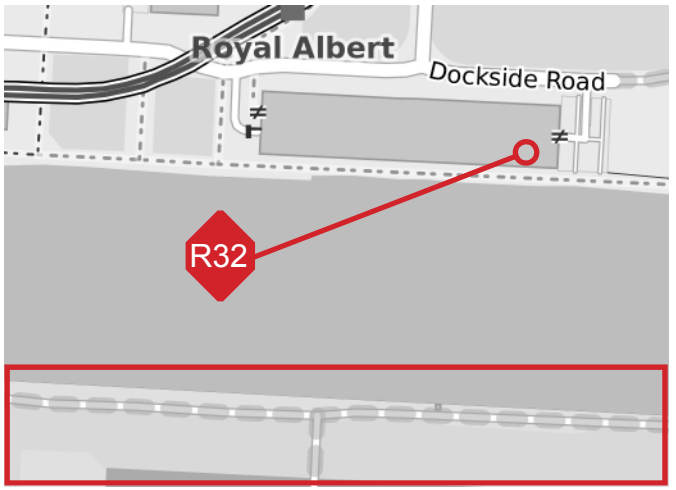
Receptor Name: Newham Borough Council
Receptor No: R32
Long/Lat: 51.507 / 0.047
Distance to site: 140m
Date/Time: 04/10/16 14:20

ATKINS

Daytime Images

Receptor 31	Obtrusive Light Parameters			
Sites	Sky Glow	Light Intrusion	Luminaire Intensity	Building Luminance
WSY	Min	Nil	Nil	Nil
WEC	Min	Nil	Nil	Nil
WTE	Min	Nil	Nil	Nil
OBB	Min	Nil	Nil	Nil
TFC	Min	Nil	Nil	Nil
ADE	Min	Nil	Nil	Nil
C1	Min	Nil	Nil	Nil
C2	Min	Nil	Nil	Nil
C3	Min	Nil	Nil	Nil
C4	Min	Nil	Nil	Nil
C5	Min	Nil	Nil	Nil
Key				
	Signi cant change requiring mitigation			
	Minor change that may require mitigation			
	Minimal change, no mitigation			
	No change in current baseline			

Location:



Remarks: **Newham Borough Council Dockside Of ces. Five storey of ce block with oor to ceiling glazed windows with views overlooked the dock and airport.**
Photo One: From the general location of the windows showing the dock and airport. Photo Two: Showing the of ce block with varying views of Photo One.

Project: London City Airport CADP
Client: London City Airport

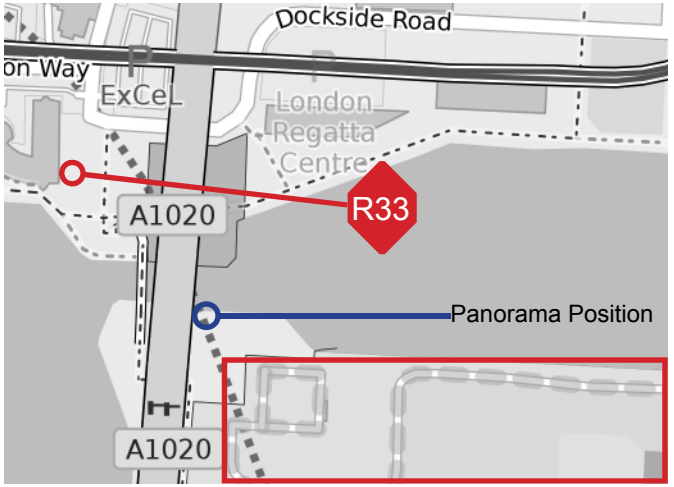
Designer: David Mooney
Date: 06-10-16

Receptor Name: Double Tree Hotel by Hilton
Receptor No: R33
Long/Lat: 51.507 / 0.039
Distance to site: 95m
Date/Time: 04/10/16 14:35

Daytime Images

Receptor 34	Obtrusive Light Parameters			
Sites	Sky Glow	Light Intrusion	Luminaire Intensity	Building Luminance
WSY	Min	Nil	Nil	Nil
WEC	Min	Nil	Nil	Nil
WTE	Min	Nil	Nil	Min
OBB	Min	Nil	Nil	Nil
TFC	Min	Nil	Nil	Nil
ADE	Min	Nil	Nil	Nil
C1	Min	Nil	Nil	Nil
C2	Min	Nil	Nil	Nil
C3	Min	Nil	Nil	Nil
C4	Min	Nil	Nil	Nil
C5	Min	Nil	Nil	Nil
Key				
	Signi cant change requiring mitigation			
	Minor change that may require mitigation			
	Minimal change, no mitigation			
	No change in current baseline			

Location:



Remarks: **Eight-storey hotel with views overlooking the dock and airport; views of the whole site from upper oors.** Photo One: From the otherside of the Connaught Bridge toward the hotel. Photo Two: From the edge of the pathway by the water's edge, toward the hotel.

Project: London City Airport CADP
Client: London City Airport

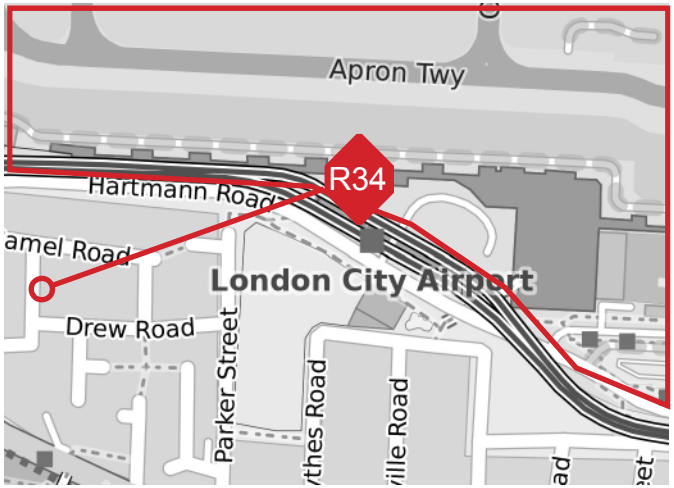
Designer: David Mooney
Date: 06-10-16

Receptor Name: 2-94 (even) Drew Road
14-98 (even) Camel Road
Receptor No: R34
Long/Lat & Date: 51.503 / 0.045 04/10/16
Distance to site & Time: 70m 14:45

Daytime Images

Receptor 34	Obtrusive Light Parameters			
Sites	Sky Glow	Light Intrusion	Luminaire Intensity	Building Luminance
WSY	Min	Nil	Nil	Nil
WEC	Min	Nil	Nil	Nil
WTE	Min	Nil	Nil	Min
OBB	Min	Nil	Nil	Nil
TFC	Min	Nil	Nil	Nil
ADE	Min	Nil	Nil	Nil
C1	Min	Nil	Nil	Nil
C2	Min	Nil	Nil	Nil
C3	Min	Nil	Nil	Nil
C4	Min	Nil	Nil	Nil
C5	Min	Nil	Nil	Nil
Key				
	Signi cant change requiring mitigation			
	Minor change that may require mitigation			
	Minimal change, no mitigation			
	No change in current baseline			

Location:



Remarks: **Two no. eight-storey tower blocks of ats with views of Western Service Yard, Western Terminal Extension and Western Energy Centre.** Photo One: From general location of ats windows towards houses and airport site. Photo Two: Showing one block of ats with varying views of Photo One.

Appendix C. Draft Contractor Performance specification

C.1. Construction lighting design criteria

Construction lighting compliance standards

Updated environmental statement

The Updated Environmental Statement (UES) carried out an initial assessment of lighting for all the CADP1 and included lighting constraints and criteria. These criteria have been further refined by the sensitive receptor study (see Appendix B),

Project specific obtrusive lighting criteria/constraints are identified in the UES Appendix 10.3.

Additional lighting technical constraints have been identified in this report to ensure that the obtrusive lighting criteria in Institute of Lighting Professional's Guidance Notes for the Reduction of Obtrusive Light GN 01 for the sensitive receptors identified in the UES Zone of Theoretical Visibility (ZTV) are achieved. The receptors within the ZTV have been further refined to relate to the CADP1 Works by the sensitive receptor study.

Site and aviation constraints

The construction lighting for compound areas will be utilised when the airport is operational and therefore is required to comply with the Civil Aviation Authority (CAA) Cap168 (as licensed by LCA), and the glare limitations identified also in BS EN 12464 Pt 2 table 5.2 as outlines in red at Table C-1 below.

Ref. no.	Type of area, task or activity	Em	Uo	R_{GL}	Ra	Specific requirements
		lx	–	–	–	
General						1. Direct light in the direction of the control tower and landing aircraft shall be avoided. 2. Direct light emitted above horizontal from floodlights should be restricted to the minimum.
5.2.1	Hangar apron	20	0,10	55	20	
5.2.2	Terminal apron	20	0,25	50	20	
5.2.3	Loading areas	20	0,25	50	40	For reading labels: E_m = 50 lx
5.2.4	Fuel depot	50	0,25	50	40	
5.2.5	Aircraft maintenance stands	200	0,50	45	60	

Table C-1 BS EN 12464 Pt2 Table 5.2 Airports

Notes: the red highlighted box identifies the additional aviation glare criteria which must be met.

See 0 for technical glossary and definitions of units.

Construction Lighting lighting criteria

The construction site lighting will be designed to the requirement listed in Table C-2 and Table C-3.

Table C-2 BS EN 12464 Pt2 Table 5.3 Building Sites

Ref. no.	Type of area, task or activity	E_m	U_o	R_{GL}	Ra	Specific requirements
		lx	–	–	–	
5.3.1	Clearance, excavation and loading	20	0,25	55	20	
5.3.2	Construction areas, drain pipes mounting, transport, auxiliary and storage tasks	50	0,40	50	20	
5.3.3	Framework element mounting, light reinforcement work, wooden mould and framework mounting, electric piping and cabling	100	0,40	45	40	
5.3.4	Element jointing, demanding electrical, machine and pipe mountings	200	0,50	45	40	

Notes: See Appendix A for technical glossary and definitions of units.

It should be noted that the airport will be continuing to operate whilst the construction works are underway therefore aviation constraints will take precedence and as such all construction work to the Apron deck will be undertaken whilst the airport is closed to air traffic.

Environmental Zoning

The UES produced by RPS in September 2015 (Appendix 10.3) has identified the environs around London City Airport as "*E4 urban*" (see ILP GN01 table 2). All lighting will therefore need to and hence the Contractor is required to meet the obtrusive lighting requirements of E4 for all construction lighting during the lifetime of the project which is outlines in red at Table C-3 below.

Table 2 – Obtrusive Light Limitations for Exterior Lighting Installations – General Observers						
Environmental Zone	Sky Glow ULR [Max %](1)	Light Intrusion (into Windows) Ev [lux] (2)		Luminaire Intensity I [candelas] (3)		Building Luminance Pre-curfew(4)
		Pre-curfew	Post-curfew	Pre-curfew	Post-curfew	Average, L [cd/m2]
E0	0	0	0	0	0	0
E1	0	2	0 (1*)	2,500	0	0
E2	2.5	5	1	7,500	500	5
E3	5.0	10	2	10,000	1,000	10
E4	15	25	5	25,000	2,500	25

Table C-3 Institute of lighting Professionals ILP Guidance Note 01 table 2

(1) Upward Light Ratio – Some lighting schemes will require the deliberate and careful use of upward light, e.g. ground recessed luminaires, ground mounted floodlights, festive lighting, to which these limits cannot apply. However, care should always be taken to minimise any upward waste light by the proper application of suitably directional luminaires and light controlling attachments.
(2) Light Intrusion (into Windows) – These values are suggested maxima and need to take account of existing light intrusion at the point of measurement. In the case of road lighting on public highways where building facades are adjacent to the lit highway, these levels may not be obtainable. In such cases where a specific complaint has been received, the Highway Authority should endeavour to reduce the light intrusion into the window down to the post curfew value by fitting a shield, replacing the luminaire, or by varying the lighting level.
(3) Luminaire Intensity – This applies to each luminaire in the potentially obtrusive direction, outside of the area being lit. The figures given are for general guidance only and for some sports lighting applications with limited mounting heights, may be difficult to achieve.
(4) Building Luminance – This should be limited to avoid over lighting, and related to the general district brightness. In this reference building luminance is applicable to buildings directly illuminated as a night-time feature as against the illumination of a building caused by spill light from adjacent luminaires or luminaires fixed to the building but used to light an adjacent area.

Source ILP GN 01

The construction lighting will operate during the identified construction period initially but will be revised to include any revisions during the construction period. It should be noted that the construction works will be undertaken on a 24 hour basis with the restrictions outlined in the condition 86:

> *Construction 2*
> *No construction works shall take place between the hours of 2000 Sunday to 0700 Monday.*
> *No construction works shall be carried out on Bank and Public Holidays.*
> *Reason: To ensure respite for nearby Sensitive Receptors and ensure a satisfactory standard of Development and to safeguard the amenities of the surrounding area.*

C.2. Specification

The successful Contractor(s) shall be responsible for the design, installation and operation of construction lighting covering their compound and all work areas for all phases of the City Airport Development Programme (CADP1). The construction lighting shall comply with all conditions defined in planning document The City Airport Development Programme (CADP1) 1 planning application (13/01228/FUL*)* specifically condition 41: External Lighting and condition 92: Construction Lighting.

The Contractor shall be responsible for ensuring that the lighting meets all health and safety requirements for the construction works that are being undertaken at the time and shall be responsible for refining the lighting to suit the ongoing constructions works as the nature of the tasks change throughout the phases of the CADP1.

The Contractor shall undertake the design, operation and installation of the lighting in accordance with the following documents:-

Table C-4 Applicable Design Standards

Date of publication	Publisher	Reference	Title
Jan 2014	BSI	BS EN 12464 Part 2	Light and lighting — Lighting of work places Part 2: Outdoor work places
April 2013	LCA/RPS	LSM02600	City Airport Development Programme Lighting impact assessment. Planning EIA Appendix 10.3
Nov 2014	LCA/RPS		Consolidated CADP1 EIA replacement chapter 6
	SLL	LG6	The Outdoor Environment
2011	ILP	GN01	Guidance Notes for the Reduction of Obtrusive Light
	SLL		Code for Lighting
	SLL		Guide to obtrusive Lighting

The contractor shall provide a compliance report covering the following criteria:-

- Maintained illuminance levels.
- Luminaire aiming positions and tilt for each luminaire.
- Maintenance factor.

- Luminaire construction and datasheet.
- Initial Illuminance Levels
- Illuminance Uniformity min/average.
- Illuminance Diversity min/max
- Lamp or LED type and Efficacy.
- Luminaire absolute photometry.
- Glare Ratio
- Threshold Increments
- Luminaire mounting height.
- Lighting layouts identifying luminaire types aiming points and column positions.
- Typical Luminance calculations to the sensitive receptors identified for each site and compound individually

C.2.1. Lighting by Area

C.2.1.1. General Requirements

The contractor is to provide the construction lighting design in compliance Condition 92 which shall include detailed specification details of all construction lighting to be used on all of the construction sites and support areas being utilised of the CADP1 construction Works. The Contractor shall provide a detail design report which shall form the basis and be updated to demonstrate compliance with the requirements prior to commencement of construction.

The detail design shall comply with following lighting criteria.

Light source:- the Contractor is to use a white light source with colour rendering index >60 being either conventional Metal Halide lamps or LEDs.

Luminaires:- all luminaires shall be full cut-off luminaires with no upward light. The distribution of the luminaires shall be chosen to constrain as much light as possible within the actual area of the construction sites or Contractor's compounds.

Luminaire Tilt:- no luminaire shall be tilted more than 5 degrees above the horizontal plane.

Maximum bare lamp efficacy:- no luminaire shall have luminous flux more than 35,000 lumens.

Luminaire mounting height:- shall not exceed 12m above final ground level or 5m above the construction works level if the construction level is above first floor level. The Contractor shall identify the maximum height of the construction lighting for each phase of the works.

Diversity:- the max/min ratio shall not exceed 1:10

Uniformity:- the Uniformity ratio min/ave shall meet the requirements identified in table 2.3.

C.2.1.2. Existing Lighting Equipment

The existing lighting positions, luminaires and columns are to be utilised as much as possible to achieve the new lighting layout. The existing columns maybe equipped with new luminaires where the existing luminaires are inappropriate. The new luminaires must obey the new criteria.

C.2.1.3. Design calculations

The Contractor shall supply illuminance and luminance calculations detailing the obtrusive lighting effects on the sensitive receptors defined in the EIA and in this document. The calculations shall include:-

- Illuminance grid values for the site areas and compounds.
- Isolux contours overlaid on scaled drawings detailing value and location of any spill light beyond the London City Airport site boundary the isolux contours shall include 0.5, 1, 2, 5, 10 and 50 lux contours and shall be identified for initial and maintained values.
- Point to point luminance calculations for all sensitive receptor facades identified within this document at the notional window centre point for each floor level.
- The Contractor shall also design anti – glare shielding as necessary to reduce the luminaire Luminance for the luminaire intensity criteria identified in table 3.
- Details of Lighting control measures including Timeclocks Photocells etc. to reduce lighting usage (dimming is preferred to reduce electricity usage (if LEDs are utilised).
- Calculations will be carried out using standard proprietary software such as Dialux or AGI 32.
- Lighting manufacturers shall not carry out the calculations. All calculations are to be under taken by the contractor.

C.2.1.4. Lighting Control

The contractor shall design a programmable lighting control system based upon the DALI protocol for all new construction luminaires with each luminaire being able to be individually addressed for the compounds and work areas. The construction sites will be controlled via local switch control. Some of the compound area

and Hartmann Road are likely to have the final lighting scheme installed therefore the controls will reflect the final external lighting control strategy having programmable time regime and luminance sensors controlled via the central lighting control system.

C.2.2. Typical Lighting Equipment Details

C.2.2.1. Typical Luminaire schedule

Schedule reference	TBC	**Revision**	-	**Date**	19 OCTOBER 2016	**Reason for Issue**	QA REVIEW
						Schedule status	PRELIMINARY FOR PLANNING
Project name	LCA CADP PRE CONDITIONS	**Project ref**	5151383	**Author**	D MOONEY	**Checked by**	GARETH DAVIES

ATKINS

Luminaire Equipment Schedule

														Revised since
A1	Contractor To confirm	Contractor To confirm	**Type**: floodlight **Mounting**: column Mounted 12m **Dimensions**: TBC **Finish**: GREY RAL TBC **Optics**: aluminium mirror reflector **Distribution**: Direct (assymmetric) **IP Rating:** IP65 **System Efficacy:** 102 Llm/W **DLOR:** 100% **ULOR**: 0% **Lumen output:** >19,000 Lm	**Type:** DALI **Control:** Dimmed **Wattage:** TBC **Power Factor:** ≥0.9	**Type:** LED **CCT:** 4000K **RA:** >80	Contractor To confirm	Contractor To confirm				Contractor to confirm	Contractor to confirm	**Location:** Open plan circulation zone Accessories: M6 threaded suspension rods to be RAL traffic black 9017	
A2	Contractor to confirm	Contractor To confirm	**Type**: floodlight **Mounting**: column Mounted 8m **Dimensions**: TBC **Finish**: GREY RAL TBC **Optics**: aluminium mirror reflector **Distribution**: Direct (assymmetric) **IP Rating:** IP65 **System Efficacy:** 102 Llm/W **DLOR:** 100% **ULOR**: 0% **Lumen output:** >12,000 Lm	**Type:** DALI **Control:** Dimmed **Wattage:** TBC **Power Factor:** ≥0.9	**Type:** LED **CCT:** 4000K **RA:** >80	Contractor To confirm	Contractor To confirm				Contractor to confirm	Contractor to confirm	**Location**: Communal corridors	
B1	Contractor to confirm	Contractor To confirm	**Type**: Mobile floodlight 12m with 110v generator transformer **Mounting**: column Mounted **Dimensions**: TBC **Finish**: GREY RAL TBC **Optics**: aluminium mirror reflector **Distribution**: Direct (assymmetric) **IP Rating:** IP65 **System Efficacy:** 102 Llm/W **DLOR:** 100% **ULOR**: 0% **Lumen output:** >12,000 Lm per luminaire	**Type:** DALI **Control:** Dimmed **Wattage:** 15W **Power Factor:** ≥TBC	**Type:** LED **CCT:** 4000K **RA:** >80	Contractor To confirm	Contractor To confirm				Contractor to confirm	Contractor to confirm	**Location**: Lift lobbies	

Schedule reference	TBC	**Revision**	-	**Date**	19 OCTOBER 2016	**Reason for Issue**	QA REVIEW	ATKINS
						Schedule status	PRELIMINARY FOR PLANNING	
Project name	LCA CADP PRE CONDITIONS	**Project ref**	5151383	**Author**	D MOONEY	**Checked by**	GARETH DAVIES	

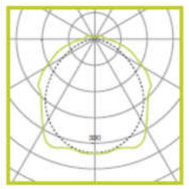
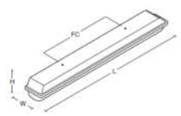
Luminaire Equipment Schedule

														Revised since
F2	Contractor to confirm	Contractor To confirm	**Type**: Street lantern **Mounting**: 6m column 1.2 m outreach arm 0-5 degree tilt **Dimensions**: Length: 600mm; Height: 150mm; Width: 330mm **Finish**: Aluminium Body light grey **Optics**: Injection moulded linear prism diffuser **Distribution**: Wide direct distribution (symmetric) **IP Rating:** IP65 **System Efficacy:** 105 Llm/W **LOR:** 100%	**Type:** DALI **Control:** Dimmed **Wattage:** 120W **Power Factor:** ≥0.95	**Type:** LED **CCT:** 4000K **RA:** >80				N/A		Contractor to confirm	Contractor to confirm	**Location:** BoH	

NOTES: 1. This schedule shall be read in conjunction with all specifications, schedules, drawings and sketches. **2.** Order codes are provided for reference only and the contractor shall ensure order codes match the equipment specifications provided. **3.** The contractor shall not install equipment based on information in this schedule - specifications such as fixing centres and electrical loads shall be established with the manufacturer directly. **4.** The contractor shall ensure that all installation components (suspension cables, joining pieces, lamps) are allowed for to match the layout drawings. **5.** All Ra figures shall be Ra14.

Schedule reference	TBC	**Revision**	-	**Date**	19 OCTOBER 2016	**Reason for Issue**	QA REVIEW	ATKINS
						Schedule status	PRELIMINARY FOR PLANNING	
Project name	LCA CADP PRE CONDITIONS	**Project ref**	5151383	**Author**	D MOONEY	**Checked by**	GARETH DAVIES	

Luminaire Equipment Schedule

														Revised since
C1	Contractor to confirm	Contractor To confirm	**Type**: Linear batten 110V **Mounting**: Surface mounted **Dimensions**: Length: 1275mm; Height: 103mm; Width: 170mm **Finish**: GRP Body light grey **Optics**: Injection moulded linear prism diffuser **Distribution**: Wide direct distribution (symmetric) **IP Rating:** IP65 **System Efficacy:** 105 Llm/W **LOR:** 100%	**Type:** DALI **Control:** Dimmed **Wattage:** 36W **Power Factor:** ≥0.95	**Type:** LED **CCT:** 4000K **RA:** >80				N/A		Contractor to confirm	Contractor to confirm	**Location:** BoH	
D1	Contractor to confirm	Contractor To confirm	: wall luminaire **Mounting**: Surface mounted **Dimensions**: Length: 300mm; Height: 300mm; Width: 170mm **Finish**: GRP Body light grey **Optics**: Injection moulded linear prism diffuser **Distribution**: Wide direct distribution (assymmetric) **IP Rating:** IP65 **System Efficacy:** 105 Llm/W **LOR:** 100% **ULOR** 0%	**Type:** DALI **Control:** Dimmed **Wattage:** 36W **Power Factor:** ≥0.95	**Type:** LED **CCT:** 4000K **RA:** >80		TBC				Contractor to confirm	Contractor to confirm	**Mounted to site cabins**	
F1	Contractor to confirm	Contractor To confirm	**Type**: Street lantern **Mounting**: 8m column 1.2 m outreach arm 0-5 degree tilt **Dimensions**: Length: 600mm; Height: 150mm; Width: 330mm **Finish**: Aluminium Body light grey **Optics**: Injection moulded linear prism diffuser **Distribution**: Wide direct distribution (symmetric) **IP Rating:** IP65 **System Efficacy:** 105 Llm/W **LOR:** 100%	**Type:** DALI **Control:** Dimmed **Wattage:** 120W **Power Factor:** ≥0.95	**Type:** LED **CCT:** 4000K **RA:** >80				N/A		Contractor to confirm	Contractor to confirm	**Location:** Hartmann rd	

Glossary

C.3. External Lighting Technical Terminology

The following definitions have been abstracted from BS EN 12665:2011

Brightness luminosity (obsolete): attribute of a visual sensation according to which an area appears to emit more or less light [IEC 60050-845:1987/CIE 17.4:1987; 845-02-28]

Contrast in the perceptual sense: assessment of the difference in appearance of two or more parts of a field seen simultaneously or successively (hence: brightness contrast, lightness contrast, colour contrast, simultaneous contrast, successive contrast, etc.)
2. in the physical sense: quantity intended to correlate with the perceived brightness contrast, usually defined by one of a number of formulae which involve the luminances of the stimuli considered, for example: $\Delta L/L$ near the luminance threshold, or $L1/L2$ for much higher luminances
[IEC 60050-845:1987/CIE 17.4:1987; 845-02-47] 3.1.6

Brightness contrast subjective assessment of the difference in brightness between two or more surfaces seen simultaneously or successively

Colour contrast subjective assessment of the difference in colour between two or more surfaces seen simultaneously or successively

Glare condition of vision in which there is discomfort or a reduction in the ability to see details or objects, caused by an unsuitable distribution or range of luminance, or to extreme contrasts
[IEC 60050-845:1987/CIE 17.4:1987; 845-02-52]

Flicker impression of unsteadiness of visual sensation induced by a light stimulus whose luminance or spectral distribution fluctuates with time
[IEC 60050-845:1987/CIE 17.4:1987; 845-02-49]

Visual field area or extent of physical space visible to an eye at a given position and direction of view NOTE It should be stated whether the visual field is monocular or binocular.

Visual performance: performance of the visual system as measured for instance by the speed and accuracy with which a visual task is performed
[IEC 60050-845:1987/CIE 17.4:1987; 845-09-04]

Visual comfort subjective condition of visual well-being induced by the visual environment

Reaction time minimum time interval between the occurrence of an event demanding immediate action and the response to the event (unit: s) NOTE The reaction time includes the time needed for perception, taking a decision and acting.

Visual task visual elements of the activity being undertaken NOTE The main visual elements are the size of the structure, its luminance, its contrast against the background and its duration.

Light and colour

Luminous flux Φ: quantity derived from radiant flux Φe by evaluating the radiation according to its action upon the CIE standard photometric observer (unit: lm) [IEC 60050-845:1987/CIE 17.4:1987; 845-01-25]

Luminous intensity: (of a source, in a given direction) I quotient of the luminous flux dΦ leaving the source and propagated in the element of solid angle dΩ containing the given direction, by the element of solid angle (unit: cd = lm · sr -1) [IEC 60050-845:1987/CIE 17.4:1987; 845-01-31]

Luminance :(in a given direction, at a given point of a real or imaginary surface) L quantity defined by the equation (unit: cd · m-2 = lm · m -2 · sr -1) NOTE See notes 1 to 5 to IEC 60050-845:1987/CIE 17.4:1987; 845-01-34.IEC 60050-845:1987/CIE 17.4:1987; 845-01-35]

Average luminance L luminance averaged over the specified surface or solid angle (unit: cd · m-2)

Minimum luminance L_{min} lowest luminance of any relevant point on the specified surface (unit: cd · m-2)
NOTE The relevant points at which the luminances are determined should be specified in the appropriate application standard.

Maximum luminance L_{max} highest luminance of any relevant point on the specified surface (unit: cd · m-2)
NOTE The relevant points at which the luminances are determined should be specified in the appropriate application standard.

Maintained luminance L_m minimum average luminance (unit: cd · m-2)
NOTE 1 Value below which average luminance should not fall.
NOTE 2 It is the average luminance at the time maintenance should be carried out.

Initial average luminance average luminance when the installation is new (unit: cd · m-2)

luminance contrast photometric quantity intended to correlate with brightness contrast, usually defined by one of a number of equations which involve the luminances of the stimuli considered (see also 3.1.5 [IEC 60050-845:1987/CIE 17.4:1987; 845-02-47])

Illuminance (at a point of a surface) E quotient of the luminous flux dΦ incident on an element of the surface containing the point, by the area dA of that element (unit: lx = lm · m-2)
[IEC 60050-845:1987/CIE 17.4:1987; 845-01-38]

Average illuminance E illuminance averaged over the specified surface (unit: lx)
NOTE In practice this can be derived either from the total luminous flux falling on the surface divided by the total area of the surface, or alternatively from an average of the illuminances at a representative number of points on the surface.

Minimum illuminance E_{min} lowest illuminance at any relevant point on the specified surface (unit: lx)

Maximum illuminance E_{max} highest illuminance at any relevant point on the specified surface (unit: lx)

Maintained illuminance E_m minimum average illuminance (unit: lx)
NOTE 1 Value below which the average illuminance on the specified area should not fall.
NOTE 2 It is the average illuminance at the time maintenance should be carried out.

Initial illuminance E_i average illuminance on the specified surface when the installation is new (unit: lx)

Spherical illuminance (at a point) total luminous flux falling on the curved surface of a very small semi-cylinder located at the specified point, divided by the curved surface area of the semi-cylinder (unit: lx).

Uniformity (luminance, illuminance) U_o ratio of minimum illuminance (luminance) to average illuminance (luminance) on (of) a surface (see also IEC 60050-845:1987/CIE 17.4; 845-09-58 uniformity ratio of illuminance)NOTE Use is also made of the ratio of minimum illuminance to maximum illuminance in which case this should be specified explicitly.

- **Reference surface:** surface on which illuminance is measured or specified
[IEC 60050-845:1987/CIE 17.4:1987; 845-09-49]

- **Disability glare** glare that impairs the vision of objects without necessarily causing discomfort IEC 60050-845:1987/CIE 17.4:1987; 845-02-57]

- **Discomfort glare** glare that causes discomfort without necessarily impairing the vision of objects [IEC 60050-845:1987/CIE 17.4:1987; 845-02-56]

- **Veiling reflections** specular reflections that appear on the object viewed and that partially or wholly obscure the details by reducing contrast
- [IEC 60050-845:1987/CIE 17.4:1987; 845-02-55]

- **Luminous environment** lighting considered in relation to its physiological and psychological effects [IEC 60050-845:1987/CIE 17.4:1987; 845-09-03]

- **Colour rendering effect** of an illuminant on the colour appearance of objects by conscious or subconscious comparison with their colour appearance under a reference illuminant [IEC 60050-845:1987/CIE 17.4:1987; 845-02-59]

- **CIE 1974 general colour rendering index Ra** : Mean of the CIE 1974 special colour rendering indices for a specified set of eight test colour samples[IEC 60050-845:1987/CIE 17.4:1987; 845-02-63]

- **Colour temperature** T_c temperature of a Planckian radiator whose radiation has the same chromaticity as that of a given stimulus (unit: K)
  NOTE The reciprocal colour temperature is also used, unit: K-1.
  [IEC 60050-845:1987/CIE 17.4:1987; 845-03-49]

- **Correlated colour temperature** T_{cp} temperature of the Planckian radiator whose perceived colour most closely resembles that of a given stimulus at the same brightness and under specified viewing conditions (unit: K) NOTE 1 The recommended method of calculating the correlated colour temperature of a stimulus is to determine on a chromaticity diagram the temperature corresponding to the point on the Planckian locus that is intersected by the agreed iso-temperature line containing the point representing the stimulus (see CIE Publication No 15). NOTE 2 Reciprocal correlated colour temperature is used rather than reciprocal colour temperature whenever correlated colour temperature is appropriate.
  [IEC 60050-845:1987/CIE 17.4:1987; 845-03-50]

- **Photometry** measurement of quantities referring to radiation as evaluated according to a given spectral luminous efficiency function, e.g. V(λ) or V'(λ)
  [IEC 60050-845:1987/CIE 17.4:1987; 845-05-09]

- **Contrast revealing coefficient** qc quotient between the luminance (L) of the road surface, and the vertical illuminance (Eυ) at that point

- **Diversity** (luminance, illuminance) extreme uniformity Ud ratio of minimum illuminance (luminance) to maximum illuminance (luminance) on (of) a surface (see also 3.2.20 uniformity).

- **Equivalent veiling luminance** (for disability glare or veiling reflections) L_{ve} luminance that, when added by superposition to the luminance of both the adapting background and the object, makes the luminance threshold or the luminance difference threshold the same under the two following conditions:
  (1) Glare present, but no additional luminance;
  (2) Additional luminance present, but no glare (unit:cd · m-2)
  [IEC 60050-845:1987/CIE 17.4:1987; 845-02-58]

- **Glare rating limit** R_{GL} upper limit of glare by the CIE Glare Rating system

- **Obtrusive light** spill light which because of quantitative, directional or spectral attributes in a given context gives rise to annoyance, discomfort, distraction or reduction in the ability to see essential information NOTE 1 In the case of outdoor sports lighting installations, obtrusive light is considered around the installation and not for spectators, referees or players within the sports area. NOTE 2 In

the case of large tertiary buildings with predominantly glazed facades, interior lighting may be considered as obtrusive light if it gives rise to annoyance, discomfort, distraction or a reduction in the ability to see essential information due to light spilling outside of the building structure.

- **Spill light** stray light, light emitted by a lighting installation which falls outside the boundaries of the property for which the lighting installation is designed threshold zone luminance L_{th} average road surface luminance of a transverse strip at a given location in the threshold zone of the tunnel (as a function of the measurement grid) (unit: cd · m-2)

Lighting equipment

- **Light Source** Lamp/ LED source made in order to produce an optical radiation, usually visible
  NOTE This term is also sometimes used for certain types of luminaires.
  [IEC 60050-845:1987/CIE 17.4:1987; 845-07-03]

- **Ballast/Driver** device connected between the supply and one or more discharge lamps which serves mainly to limit the current of the lamp(s) to the required value
  NOTE A ballast may also include means for transforming the supply voltage, correcting the power factor and, either alone or in combination with a starting device, provide the necessary conditions for starting the lamp(s).
  [IEC 60050-845:1987/CIE 17.4:1987; 845-08-34]

- **Luminaire** apparatus which distributes, filters or transforms the light transmitted from one or more lamps and which includes, except the lamps themselves, all the parts necessary for fixing and protecting the lamps and, where necessary, circuit auxiliaries together with the means for connecting them to the electric supply
  [IEC 60050-845:1987/CIE 17.4:1987; 845-10-01]

- **Rated luminous flux** (of a type of lamp) value of the initial luminous flux of a given type of lamp declared by the manufacturer or the responsible vendor, the lamp being operated under specified conditions (unit: lm) NOTE 1 The initial luminous flux is the luminous flux of a lamp after a short ageing period as specified in the relevant lamp standard. NOTE 2 The rated luminous flux is sometimes marked on the lamp. NOTE 3 In French, formerly “flux lumineux nominal”.
  [IEC 60050-845:1987/CIE 17.4:1987; 845-07-59]

- **Luminous efficacy of a source** η quotient of the luminous flux emitted by the power absorbed by the source (unit: lm · W-1)
  [IEC 60050-845:1987/CIE 17.4:1987; 845-01-55]

- **Light output ratio** (of a luminaire) R_{LO} ratio of the total flux of the luminaire, measured under specified practical conditions with its own lamps and equipment, to the sum of the individual luminous fluxes of the same lamps when operated outside the luminaire with the same equipment, under specified conditions NOTE 1 For luminaires using incandescent lamps only, the optical light output ratio and the light output ratio are the same in practice. NOTE 2 Light output ratio is sometimes signified by the abbreviation LOR.
  [IEC 60050-845:1987/CIE 17.4:1987; 845-09-39]

- **Light output ratio working** (of a luminaire) R_{LOW} ratio of the total flux of the luminaire, measured under specified practical conditions with its own lamps and equipment, to the sum of the individual luminous fluxes of the same lamps when operating outside the luminaire with a reference ballast, under reference conditions

- **Downward light output ratio** (of a luminaire) R_{DLO} ratio of the downward flux of the luminaire, measured under specified practical conditions with its own lamps and equipment, to the sum of the individual luminous fluxes of the same lamps when operated outside the luminaire with the same equipment, under specified conditions NOTE 1 The luminaire attitude should be declared so that appropriate corrections to the DLOR can be made if in application the installed attitude is different. NOTE 2 Downward light output ratio is sometimes signified by the abbreviation DLOR
  [IEC 60050-845:1987/CIE 17.4:1987; 845-09-40]

- **Upward light output ratio** (of a luminaire) RULO ratio of the upward flux of the luminaire, measured under specified practical conditions with its own lamps and equipment, to the sum of the individual luminous fluxes of the same lamps when operated outside the luminaire with the same equipment, under specified conditions NOTE 1 The luminaire attitude should be declared so that appropriate corrections to the ULOR can be made if in application the installed attitude is different. NOTE 2 Upward light output ratio is sometimes signified by the abbreviation ULOR.

- **(spatial) distribution of luminous intensity (of a source)** display, by means of curves or tables, of the value of the luminous intensity of the source as a function of direction in space [IEC 60050-845:1987/CIE 17.4:1987; 845-09-24]

- **Utilisation factor** (of an installation, for a reference surface) FU ratio of the luminous flux received by the reference surface to the sum of the individual fluxes of the lamps of the installation [IEC 60050-845:1987/CIE 17.4:1987; 845-09-51]

- **Utilance** (of an installation, for a reference surface) U ratio of the luminous flux received by the reference surface to the sum of the individual total fluxes of the luminaires of the installation [IEC 60050-845:1987/CIE 17.4:1987; 845-09-53]

- **Lamp lumen maintenance factor** FLLM ratio of the luminous flux of a lamp at a given time in its life to the initial luminous flux NOTE 1 See also CIE 97. NOTE 2 Lamp lumen maintenance factor is sometimes signified by the abbreviation LLMF.

- **Lamp survival factor** F_{LS} fraction of the total number of lamps which continue to operate at a given time under defined conditions and switching frequency NOTE 1 See also CIE 97.NOTE 2 Lamp survival factor is sometimes signified by the abbreviation LSF.

- **Luminaire maintenance factor** F_{LM} ratio of the light output ratio of a luminaire at a given time to the initial light output ratio NOTE 1 See also CIE 97. NOTE 2 Luminaire maintenance factor is sometimes signified by the abbreviation LMF.

- **Cut-off:** technique used for concealing lamps and surfaces of high luminance from direct view in order to reduce glare NOTE In public lighting distinction is made between full-cut-off luminaires, semi-cut-off luminaires and non-cut-off luminaires.
  [IEC 60050-845:1987/CIE 17.4:1987; 845-10-29]

- **Cut-off angle** (of a luminaire) angle, measured up from nadir, between the vertical axis and the first line of sight at which the lamps and the surfaces of high luminance are not visible (unit: degrees).
- [IEC 60050-845:1987/CIE 17.4:1987; 845-10-30]

- **Control gear** components required to control the electrical operation of the lamp(s)
  NOTE Control gear may also include means for transforming the supply voltage, correcting the power factor and, either alone or in combination with a starting device, provide the necessary conditions for starting the lamp(s).

- **Essential data** lamp and luminaire data required for the verification of conformity to requirements

- **Lamp code** any combination of letters and numbers by which the lamp type is identified

- **Lamp dimensions** all dimensions of the lamp that are relevant for the luminaire

- **Luminaire code** any combination of letters and numbers by which the luminaire type is identified

- **Luminaire luminous efficacy** l quotient of the luminous flux emitted by the luminaire by the power absorbed by the lamp and associated circuits of the luminaire **(**unit: lm · W-1)

- **Shielding angle** the angle between the horizontal plane and the first line of sight at which the luminous parts of the lamps in the luminaire are directly visible (unit: degrees) NOTE The complementary angle to the shielding angle is named cut-off angle.

- **Light source** object that produces light or other radiant flux NOTE The term light source indicates the source is essentially intended for illuminating and signalling purposes.

- **Useful data** lamp and luminaire data beneficial to the designers and users in the planning and operation of lighting installations.

- **Atmospheric luminance** L_{atm} light veil as a result of the scatter in the atmosphere expressed as a luminance (unit: cd · m-2)

Lighting installations

- **General lighting** substantially uniform lighting of an area without provision for special local requirements [IEC 60050-845:1987/CIE 17.4:1987; 845-09-06]

- **Localised lighting:** lighting designed to illuminate an area with a higher illuminance at certain specified positions, for instance those at which work is carried out [IEC 60050-845:1987/CIE 17.4:1987; 845-09-08]

- **Local lighting:** lighting for a specific visual task, additional to and controlled separately from the general lighting [IEC 60050-845:1987/CIE 17.4:1987; 845-09-07]

- **Spacing** (in an installation) distance between the light centres of adjacent luminaires of the installation [IEC 60050-845:1987/CIE 17.4:1987; 845-09-66]

- **Spacing to height ratio:** ratio of spacing to the height of the geometric centres of the luminaires above the reference plane NOTE For indoor lighting the reference plane is usually the horizontal working plane; for exterior lighting the reference plane is usually the ground.

- **Directional lighting:** lighting in which the light on the working plane or on an object is incident predominantly from a particular direction [IEC 60050-845:1987/CIE 17.4:1987; 845-09-19]

- **Diffused lighting:** lighting in which the light on the working plane or on an object is not incident predominantly from a particular direction.
[IEC 60050-845:1987/CIE 17.4:1987; 845-09-20]

- **Floodlighting** lighting of a scene or object, usually by projectors, in order to increase considerably its illuminance relative to its surroundings
[IEC 60050-845:1987/CIE 17.4:1987; 845-09-21]

- **Maintenance factor** light loss factor (obsolete) ratio of the average illuminance on the working plane after a certain period of use of a lighting installation to the initial average illuminance obtained under the same conditions for the installation NOTE 1 The term depreciation factor has been formerly used to designate the reciprocal of the above ratio. NOTE 2 The light losses take into account dirt accumulation on luminaire and room surfaces and lamp depreciation. NOTE 3 CIE 97 gives further information.
[IEC 60050-845:1987/CIE 17.4:1987; 845-09-59]

- **Room surface maintenance factor** F_{RSM} ratio of room surface reflectance at a given time to the initial reflectance value NOTE 1 See also CIE 97.NOTE 2 Room surface maintenance factor is sometimes signified by the abbreviation RSMF.

- **Life of lighting installation:** period after which the installation cannot be restored to satisfy the required performance because of non-recoverable deteriorations

- **Maintenance cycle:** repetition of lamp replacement, lamp/luminaire cleaning and room surface cleaning intervals NOTE See also CIE 97.

- **Maintenance schedule** set of instructions specifying maintenance cycle and servicing procedures NOTE See also CIE 97.absence factor F_A factor indicating the proportion of time that a space is unoccupied

David Mooney
Atkins
Woodcote Grove
Ashley Road
Epsom
KT18 5BW

david.mooney@atkinsglobal.com
01372 75 2752