Crossrail Line 1
Assessment of Lighting Impacts: Technical Report

Detail Assessment Pro-forma

Site Location

<table>
<thead>
<tr>
<th>Location</th>
<th>Environmental Zone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Royal Oak Portal, Westbourne Park</td>
<td>E4</td>
</tr>
<tr>
<td>Route Window</td>
<td></td>
</tr>
</tbody>
</table>

Detailed Assessment

Personnel
Barry Hannaford, Keith Miller, Kate Lowens & Iain Carlile

Climatic Conditions
<table>
<thead>
<tr>
<th>Rain</th>
<th>Mist</th>
<th>Overcast</th>
<th>Clear</th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
<td>M</td>
<td>O</td>
<td>C</td>
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</table>

Photographic Record

<table>
<thead>
<tr>
<th>Receptor Location</th>
<th>Location</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Receptor 1</td>
</tr>
<tr>
<td>2</td>
<td>Receptor 2</td>
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<tr>
<td>3</td>
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<tr>
<td>4</td>
<td>Receptor 4</td>
</tr>
<tr>
<td>5</td>
<td>Receptor 5</td>
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</table>

Baseline Lit Effect

A: Luminaires are present along the boundary wall to the north of the rail lines, however those are not operating at present. There is some light spill illuminating the area from luminaires located within adjacent areas (refer to photo NC1-18).

C: Existing platform 1A.

D: Detailed Site Activity

2-5 Infrequent/Testing

E: Extended Daytime

F: Normal Working

G: Exterior Workplace

H: Exterior Pedestrian

I: Exterior Vehicular/Pedestrian

J: Exterior Security

K: Exterior Amenities

L: Exterior Amenity

M: Exterior Environmental

N: Exterior Workplace

O: Exterior Pedestrian

P: Exterior Vehicular/Pedestrian

Q: Exterior Security

R: Exterior Amenities

S: Exterior Amenity

T: Exterior Environmental

U: Exterior Workplace

V: Exterior Pedestrian

W: Exterior Vehicular/Pedestrian

X: Exterior Security

Y: Exterior Amenities

Z: Exterior Amenity

Other

Perceived Brightness + Impact

1 High

2 Normal

3 Low

4 Very High

5 Very Low

6 Extreme

7 Intense

8 Extremely

9 Very Intense

10 Intensely

Glare

<table>
<thead>
<tr>
<th>3 High</th>
<th>2 Moderate</th>
<th>1 Low</th>
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</thead>
<tbody>
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</tbody>
</table>

Lamp Type

S0X FLU SON TH HIT M8F Other

Lamp Colour

Y Yellow WW Warm CW Cool C Coloured

Other

Criteria + Magnitude

<table>
<thead>
<tr>
<th>Receptors Location</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
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Perceived Brightness + Impact

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Glare

3 High | 2 Moderate | 1 Low

1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

Lamp Type

S0X FLU SON TH HIT M8F Other

Lamp Colour

Y Yellow WW Warm CW Cool C Coloured

Other

Site Diagram

1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

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<td>Royal Oak Portal &amp; Westbourne Bridge Shaft</td>
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NC1-28
Tower block windows: 2.5cd/m²

NC1-29

NC1-30

NC1-31
Train Windows: 3cd/m²

NC1-32

NC1-33

NC1-34
Luminaires: 17cd/m²

NC1-35

NC1-36

NC1-37
Façade: 3cd/m²

NC1-38
Office Windows: 6cd/m²

NC1-39

NC1-40

NC1-41
Office Windows: 8 cd/m²
Sky Glow: 0.7 cd/m²

NC1-42
Car park luminaires: 600cd/m²
Hoard: 5cd/m²
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<td>C1</td>
</tr>
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</table>

Luminaires: 1318cd/m²
Road: 1.4cd/m²

NC1-46
Luminaires: 7000cd/m²
Road: 3.2cd/m²

NC1-47
Luminaires: 1318cd/m²
Road: 1.4cd/m²
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Analysis

Receptor Location 1 – Vehicular users of the Westway flyover.

Baseline: Vehicular users of the Westway Flyover have clear uninterrupted views of the Areas A and B from multiple angles.

During Construction; Ambient illumination levels, therefore sky glow and visual brightness will be increased. Hoarding is unlikely to sufficiently shield views into the site, due to the elevated location of the road. Accurate direction, aiming and localised shielding of fixtures may aid in limiting glare and direct views of lamp sources above hoarding level. Spill light should not impact. However, given the close proximity to the site and multiple sight lines, glare may be experienced at some viewing locations. As the site is operational 24/7 the duration of the impact is extended. The suggested impact is NOT SIGNIFICANT.

During Operation; It is assumed that the emergency intervention point will be illuminated by low level lighting and it is assumed that the remaining site area will be returned to the baseline condition. Impacts upon receptors, in comparison to the baseline condition should therefore be minimal. The suggested impact is NOT SIGNIFICANT.

Receptor Location 2 – Workplace - High Rise Commercial Development

Baseline: Receptors within the workplace see predominantly Areas A, illuminated with a floodlights – HIT metal halide of differing colour temperatures. Some areas of the site are until landscaped.

During Construction; Ambient illumination levels, therefore sky glow and visual brightness will be increased. Hoarding is unlikely to sufficiently shield views into the site from high level. Accurate direction, aiming and localised shielding of fixtures may aid in limiting spill light, glare may be seen at some viewing locations. However, given the proximity and unobstructed views into the site glare is unlikely to significantly impact. Spill light should not be an issue. As the site is operational 24/7 the duration of the impact is extended. The suggested impact is NOT SIGNIFICANT.

During Operation; It is assumed that the emergency intervention point will be illuminated by low level lighting and it is assumed that the remaining site area will be returned to the baseline condition. Impacts upon receptors, in comparison to the baseline condition should therefore be minimal. The suggested impact is NOT SIGNIFICANT.

Receptor Location 3 – Workplace - High Rise Commercial Development, Bishops Bridge Road

Baseline: Receptors within the workplace see predominantly Area C, - an illuminated platform, lit by linear fluorescent, the receptor view is obscured by the platform canopy. Sites A and B are distant.

During Construction; Ambient illumination levels, therefore sky glow and visual brightness will be increased. Illumination at low level within Area C may be mitigated by the use of hoarding, views from first floors may be unobstructed. High level illuminated equipment or luminaries above hoarding level, may be seen or produce spill light onto adjacent areas. Accurate direction, aiming and localised shielding of fixtures may aid in limiting spill light, glare and direct views of lamp sources above hoarding level. As the site is operational 24/7 the duration of the impact is extended. The suggested impact is NOT SIGNIFICANT.

During Operation; It is assumed that the platform and lighting installation will be returned at a minimum to the baseline condition. The suggested impact is NOT SIGNIFICANT. If a new lighting scheme, designed in accordance with key guidance publications, is installed the impact may improve to SIGNIFICANT BENEFICIAL.

Receptor Location 4 – Train Drivers

Baseline; Clear views of the site from multiple angles of view.

During Construction; Clear views into the site; Hoarding is unlikely to sufficiently shield views into the site, due to the elevated height of the train drivers. Ambient illumination levels, therefore sky glow and visual brightness will be increased. Accurate direction, aiming and localised shielding of fixtures may aid in limiting spill light, glare and direct views of lamp sources above hoarding level. However, given the close proximity to the site multiple sight lines, glare may be seen at some viewing locations. As the site is operational 24/7 the duration of the impact is extended. The suggested impact is SIGNIFICANT ADVERSE. Crossrail will work with Network Rail to devise and implement measures that will ensure that any impact is NOT SIGNIFICANT.

During Operation; It is assumed that the turnback facility will be illuminated 247. Impacts upon receptors, in comparison to the baseline condition will be evident and significant, dependent upon the design of the turn back lighting scheme – currently no details provided. Ambient illumination may impact upon the views of signalling. If the existing baseline is reinstated the suggested impact is NOT SIGNIFICANT. If a new lighting scheme, designed in accordance with key guidance publications, is installed the impact may improve to SIGNIFICANT BENEFICIAL.

Receptor Location 5 – Vehicles/Pedestrians using Westbourne Bridge

Baseline: Views of Areas B and C care severely restricted by walls and parapet of the bridge. The road way is illuminated by SON lamps mounted on 10 –22 m columns.

During Construction; Views of Areas B and C care severely restricted by walls and parapet of the bridge. It is unlikely that these receptors will be impacted. The suggested impact is NOT SIGNIFICANT.

During Operation; It is assumed that the emergency intervention point will be illuminated by low level lighting and it is assumed that the remaining site areas will be returned to the baseline condition. It is unlikely that these receptors will be impacted. The suggested impact is NOT SIGNIFICANT.

Receptor Location 6 – Residences on Gloucester Terrace/Orcsett Terrace

Baseline: Receptors see primarily an urban landscape in Area B with spill light from the taxi maintenance firm. Area C - an illuminated platform, lit by linear fluorescent is at close proximity, the receptors view is obscured by the platform canopy.

During Construction; Ambient illumination levels, therefore sky glow and visual brightness will be increased. Accurate direction, aiming and localised shielding of fixtures may aid in limiting glare and direct views of lamp sources above hoarding level. Spill light should not impact. Given the close proximity to the Area C and removal of the canopied area obstructing their view, glare may be seen at some viewing locations. As the site is operational 24/7 the duration of the impact is extended. The suggested impact is SIGNIFICANT ADVERSE.

During Operation; It is assumed that the emergency intervention point will be illuminated by low level lighting and it is assumed that the remaining site areas will be returned to the baseline condition. It is unlikely that these receptors will be impacted. The suggested impact is NOT SIGNIFICANT. If a new lighting scheme, designed in accordance with key guidance publications, is installed the impact may improve to SIGNIFICANT BENEFICIAL.

Receptor Location 7 – Vehicles using Ranelagh Bridge

Baseline: Views of Areas B and C care severely restricted by walls and parapet of the bridge. The road way is illuminated by HIT lamps mounted on 8 –10 m columns.

During Construction; Views of Areas B and C care severely restricted by walls and parapet of the bridge. It is unlikely that these receptors will be impacted. The suggested impact is NOT SIGNIFICANT.

During Operation; It is assumed that the emergency intervention point will be illuminated by low level lighting and it is assumed that the remaining site areas will be returned to the baseline condition. It is unlikely that these receptors will be impacted. The suggested impact is NOT SIGNIFICANT.

Receptor Location 8 – Residences at the Eastern End of Western Park Villas

Baseline: Receptors’ views in 2-3 story residences are obscured by a high wall adjacent to existing railway line. Views from the upper floors will be unimpeded.

During Construction; Views of all areas are severely restricted by walls at lower levels, however views from the upper levels may be unobstructed. It is unlikely that these receptors will be impacted. Hoarding will provide some shielding of views into the sites. Accurate direction, aiming and localised shielding of fixtures may aid in limiting glare and direct views of lamp sources above hoarding level. Spill light should not impact. Ambient illumination levels, therefore sky glow, will be increased. As the site is operational 24/7 the duration of the impact is extended. The construction impact is to be SIGNIFICANT ADVERSE.

During Operation; It is assumed that the emergency intervention point will be illuminated by low level lighting and it is assumed that the remaining site areas will be returned to the baseline condition. It is unlikely that these receptors will be impacted. The suggested impact is NOT SIGNIFICANT.

Receptor Location 9 – Vehicles/Pedestrians using Lord Hill’s Bridge

Baseline: Views of Areas B and C care severely restricted by walls and parapet of the bridge. The road way is illuminated by HIT lamps mounted on 8 –10 m columns.

During Construction; Views of Areas B and C care severely restricted by walls and parapet of the bridge. It is unlikely that these receptors will be impacted. The suggested impact is NOT SIGNIFICANT.

During Operation; It is assumed that the emergency intervention point will be illuminated by low level lighting and it is assumed that the remaining site areas will be returned to the baseline condition. It is unlikely that these receptors will be impacted. The suggested impact is NOT SIGNIFICANT.