

# HIGH SPEED RAIL (LONDON - WEST MIDLANDS)

Supplementary Environmental Statement and Additional Provision 2 Environmental Statement

Volume 5 | Technical appendices CFAs 4-6 CFA4 | Kilburn (Brent) to Old Oak Common CFA6 | South Ruislip to Ickenham

July 2015

SES and AP2 ES 3.5.1.1

SES AND AP2 ES – VOLUME 5

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### Supplementary Environmental Statement and Additional Provision 2 Environmental Statement

Volume 5 | CFA4 | Kilburn (Brent) to Old Oak Common

SES AND AP2 ES – VOLUME 5

www.gov.uk/hs2

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This table shows the topics covered by the technical appendices in this volume, and the reference codes for them.

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	Cultural heritage	CH-002-004
		CH-003-004
	Land quality	LQ-001-004
	Landscape and visual	LV-001-004
	Sound, noise and vibration	SV-002-004
		SV-003-004
CFA6, South Ruislip to Ickenham	Air quality	AQ-001-006
	Cultural heritage	CH-002-006
		CH-003-006
	Sound, noise and vibration	SV-004-006

Environmental topic:	Air quality	AQ
Appendix name:	Data appendix	001
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	Common	

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### 1 Introduction

#### 1.1 Structure of this air quality assessment appendix

- 1.1.1 This appendix provides an update to Appendix AQ-001-004 from the main Environmental Statement (ES) (Volume 5, Appendix AQ-001-004). This update should be read in conjunction with Appendix AQ-001-004 from the main ES.
- 1.1.2 This appendix is structured as follows:
  - baseline air quality data (Section 2);
  - dust impact evaluation and risk rating (Section 3); and
  - air quality assessment, road traffic (Section 4).
- 1.1.3 Maps referred to throughout this air quality appendix are contained in the Volume 5 air quality map book, within this Supplementary Environmental Statement (SES) and Additional Provision 2 ES (AP2 ES).

#### 1.2 Scope of this assessment

- 1.2.1 This air quality assessment considers changes to local air quality as a result of :
  - corrections to Appendix AQ-001-004 from the main ES;
  - changes to the design or construction assumptions which do not require changes to the Bill;
  - changes to the design of the scheme that are outside the existing limits of the Bill (i.e. AP2 amendments); and
  - updates to traffic models.

#### Methodology, data sources and design criteria

1.2.2 The assessment scope, key assumptions and limitations for air quality are set out in Volume 1, the Scope and Methodology Report (SMR) (Volume 5: Appendix CT-001 -000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES as amended by the SMR Addendum 2 (Volume 5: Appendix CT-001 -000/3 of the SES and AP2 ES), which was produced to specifically amend and advance the SMR for AP2. The SMR Addendum 2 focuses on updates and refinements to the establishment of the baseline and definition of the survey, the scope of the air quality assessment and the assessment methodology.

### 2 Dust impact evaluation and risk rating

- 2.1.1 This section provides details of the assessment of dust emissions during construction of the scheme. Since the submission of the main ES, new guidance<sup>1</sup> has been published by the Institute of Air Quality Management (IAQM). This assessment follows the approach described in the new guidance. Maps of the assessed receptors in relation to the scheme and associated construction activities are contained within the Volume 5 air quality map book within this SES and AP<sub>2</sub> ES.
- 2.1 Old Oak Common, including grade separated junction to provide three turnback sidings for the Crossrail service and passive provision for a WMCL Crossrail Link (AP2-004-004) and Atlas Road to Old Oak Common Station Box Temporary Logistics Tunnel (AP2-004-005)
- 2.1.1 This includes provision of infrastructure to enable up to 12 trains per hour to be turned back at Old Oak Common. This requires connections to Great Western Main Line (GWML) to the west of Old Oak Common Station, including three turnback sidings south of Wells House Road and a new flyover on the GWML up-relief line.
- 2.1.2 Additional land is required to build a 920m-long tunnel from the Atlas Road Satellite Construction Compound, via a shaft, to the east end of the Old Oak Common HS2 station box. The tunnel will enable removal of excavated material by conveyor belt from the Euston tunnels directly to the Willesden Euroterminal Main Construction Compound and the Atlas Road Satellite Compound, and segment delivery in the opposite direction.
- 2.1.3 The dust assessment criteria for the haul routes are based on those for earthworks, as set out in the IAQM guidance. This emission phase was considered to be the most applicable, as the assessment of impacts from earthworks will depend, in part, on the passage of vehicles over open surfaces. It was assumed that significant effects would not occur beyond a distance of 50m from the haul route, again based on interpretation of the earthworks criteria, and that all areas of the haul route will be subject to more than 10 vehicle movements per day. Wherever there are receptors within 50m of a haul route, the sensitivity of the receiving environment was derived using the IAQM guidance. The need for, and capability of, the local environmental management plan (LEMP) to control these dust emissions, as directed by the draft Code of Construction Practice<sup>2</sup> (CoCP), was then considered in forming the conclusion of the assessment.

#### Dust emission magnitude

2.1.4 Each dust generating activity has been assigned a dust emission magnitude as shown in Table. Information used to determine the dust emissions magnitude for each of the activities has been taken from 'Technical Note: C221-MMD-CL-NOT-010-500022' with confirmation from relevant project engineers.

<sup>&</sup>lt;sup>1</sup> IAQM, 2014, Guidance on the assessment of dust from demolition and construction, London

<sup>&</sup>lt;sup>2</sup> Volume 5: Appendix CT-003-000

Table 1 : Old Oak Common, including turnback stub, dust emission magnitude for construction activities

Activity	Dust emission magnitude	Reasoning
Demolition	Large	Building volume greater than 50,000m <sup>3</sup> Potentially dusty construction material (concrete)
Earthworks	Large	Area greater than 10,000m <sup>2</sup> involved in earthworks Potentially dusty soil type
Construction	Large	Greater than 100,000m <sup>3</sup> building material volume On-site concrete batching, piling, use of dusty construction materials
Trackout	Large	More than 50 heavy goods vehicles (HGVs) per day
Haul route	Large	More than 50 heavy goods vehicles (HGV) per day Site greater than 10,000m <sup>2</sup> Potentially dusty soil type

#### Assessed receptors and sensitivity of the area

- 2.1.5 The site is located in a densely populated area, with 10 to 100 residential receptors identified within 50m of demolition and haul route activities, and within 20m of the site boundary. Residential receptors are high sensitivity receptors for both dust soiling and health effects. Background PM10 concentrations are predicted to be between 24 and 28µg/m<sup>3</sup>.
- 2.1.6 The sensitivity of the area to dust soiling and human health has been assessed for each dust-generating activity in Table 2. The sensitivity of the area to earthworks, construction and trackout activities has been identified as high for dust soiling effects and human health effects due to the close proximity of high sensitivity receptors combined with the high ambient PM10 concentrations in the surrounding area. The sensitivity of the area to demolition and haul route movements has been identified as medium, due to the proximity of receptors to these activities.

Activity	Dust soiling	Human health
Demolition	Medium	Medium
Earthworks	High	High
Construction	High	High

Table 2 : Old Oak Common, including turnback stub, sensitivity of the area to dust soiling and human health

Activity	Dust soiling	Human health
Trackout	High	High
Haul route	Medium	Medium

#### **Risk of impacts**

- 2.1.7 Taking into consideration the dust emission magnitude and the sensitivity of the area, the site has been classified as high risk at worst for both dust soiling and human health impacts (Table 3). It should be noted that this is the risk prior to the implementation of mitigation measures which are embedded within the project as part of the CoCP.
- 2.1.8 It is anticipated that with the implementation of the measures described in the draft CoCP, the impacts will be slight adverse and effects not significant, as was the case in the main ES. Amendments AP2-004-004 and AP2-004-005 do not change the overall conclusions due to the scale of dust emissions associated with these changes.

Activity	Dust soiling	Human health
Demolition	High	High
Earthworks	High	High
Construction	High	High
Trackout	High	High
Haul route	Medium	Medium

Table 3 : Old Oak Common, including turnback stub Summary dust risk table prior to mitigation

- 2.2 Makro Atlas/ Willesden Euroterminal, including alteration of land requirements at Atlas Road to maintain operation of bus depots (AP2-004-006) and alteration of land required for the conveyor route running from Atlas Road to Victoria Road Crossover box (AP2-004-007)
- 2.2.1 This includes amended temporary land requirements for the Atlas Road satellite construction compound to facilitate continued operation of the London United and Tower Transit bus depots.

#### **Dust emission magnitude**

2.2.2 Each dust generating activity has been assigned a dust emission magnitude as shown in Table 4. Information used to determine the dust emissions magnitude for each of the activities has been taken from 'Technical Note: C221-MMD-CL-NOT-010-500022' with confirmation from relevant project engineers. Earthworks has not been assessed, as this activity will be taking place on site.

Table 4 : Makro Atlas/ Willesden Euroterminal, dust emission magnitude for construction activities

Activity	Dust emission magnitude	Reasoning
Demolition	Large	Building volume greater than 50,000m <sup>3</sup> Potentially dusty construction material (concrete)
Construction	Medium	Less than 25,000m <sup>3</sup> building material volume On-site concrete batching (segment casting facility)
Trackout	Large	More than 50 heavy goods vehicles (HGVs) per day
Haul route	Large	More than 50 heavy goods vehicles (HGV) per day Site greater than 10,000m <sup>2</sup> Potentially dusty soil type

#### Assessed receptors and sensitivity of the area

- 2.2.3 The site is located in a densely populated area, with 10 to 100 residential receptors identified within 20m of trackout and haul routes, within 50m of demolition, and within 200m of construction activities. Residential receptors are high sensitivity receptors for both dust soiling and health effects. Background PM10 concentrations are predicted to be between 24 and 28µg/m<sup>3.</sup>
- 2.2.4 The sensitivity of the area to dust soiling and human health has been assessed for each dust-generating activity in Table 5. The sensitivity of the area to trackout and haul route movements has been identified as high for dust soiling effects and human health effects due to the close proximity of high sensitivity receptors combined with the ambient PM10 concentrations in the surrounding area. The sensitivity of the area to demolition has been identified as medium and to construction as low, both for dust soiling and health effects, due to the proximity of receptors to these activities.

Table 5 : Makro Atlas/ Willesden Euroterminal, sensitivity of the area to dust soiling, human health and ecological impacts

Activity	Dust soiling	Human health
Demolition	Medium	Medium
Construction	Low	Low
Trackout	High	High
Haul route	High	High

#### **Risk of impacts**

- 2.2.5 Taking into consideration the dust emission magnitude and the sensitivity of the area, the site has been classified as high risk at worst for dust soiling and human health impacts (Table 6). It should be noted that this is the risk prior to the implementation of mitigation measures which are embedded within the project as part of the draft CoCP.
- 2.2.6 It is anticipated that with the implementation of the measures described in the draft CoCP, the impacts will be slight adverse and effects not significant, as was the case for the main ES.

Activity	Dust soiling	Human health
Demolition	High	High
Construction	Low	Low
Trackout	High	High
Haul route	High	High

Table 6 : Makro Atlas/ Willesden Euroterminal Summary dust risk table prior to mitigation

### 3 Air quality assessment - road traffic

#### 3.1 Overall assessment approach

3.1.1 The overall assessment approach remains the same as described in Appendix AQ-oo1oo4 of the main ES. Where changes to this approach have been employed, these are detailed in section 3.2.

#### 3.2 Model inputs and verification

#### Model parameters for detailed assessment

3.2.1 The ADMS-Roads model was used for the detailed assessment. A surface roughness length of 1.5m, surface roughness at meteorological site of 0.2m, minimum Monin Obukhov length of 100m and latitude of 51.5 degrees were used in the detailed assessment. All other model parameters were model default settings. Meteorological data from the London Heathrow monitoring site was used.

#### **Model verification**

- 3.2.2 Since the model predicts nitrogen oxide (NO<sub>x</sub>) contributions for the modelled roads, this was initially compared to the NO<sub>x</sub> road contribution derived from NO<sub>x</sub> concentrations (where available) measured at monitoring sites and Defra background maps.
- 3.2.3 Roadside monitoring sites were chosen from across the traffic model area, which extends west of the study area. This allowed a greater number of sites to be included in the verification. Sites where nearby busy roads were not included in the traffic model data set (and which, therefore, could not be modelled correctly as roadside

## sites with the traffic data set) or where monitored road $NO_x$ was found to be negative were excluded from assessment. The results of this comparison are shown in Table 3.

Site	Ordnance Survey co- ordinates	Monitored total NO <sub>2</sub>	Monitored total NO <sub>x</sub>	Background NO <sub>2</sub>	Background NO <sub>x</sub>	Monitored road NO <sub>x</sub>	Modelled road NO <sub>x</sub>	Monitored /modelled road NO <sub>x</sub>
LLB - lkea (AURN)	520866, 185169	76.0	257.4	33.4	56.1	201.3	51.5	3.9
LLB - John Keble Primary School	521619, 183554	41.1	86.7	35.1	60.3	26.4	22.8	1.2
LBE - Hangar Lane Gyratory (AURN)	518537, 182708	95.0	324.6	37.0	63.4	261.2	72.3	3.6
LBE - Western Avenue (AURN)	520430, 181950	73-3	184.8	37-3	64.7	120.2	30.0	4.0
LBHi - South Ruislip (AURN)	510835, 184916	52.1	111.7	27.1	42.7	69.0	18.5	3.7
LBHi - Oxford Avenue (AURN)	509551, 176974	44.1	78.4	37.1	66.0	12.4	5.5	2.2
LBHa - Pinner Road (AURN)	513504, 188998	46.8	110.4	23.9	36.8	73.5	8.6	8.6
RBKC - Cromwell Road (AURN)	526524, 178965	69.1	155.9	39.8	66.2	89.7	30.7	2.9
RBKC - Kings Road (AURN)	527268, 178089	92.6	224.3	39.1	64.8	159.4	17.2	9.2

Table 7 : Comparison of monitored and modelled NOx concentrations for verification

Site	Ordnance Survey co- ordinates	Monitored total NO <sub>2</sub>	Monitored total NO <sub>x</sub>	Background NO <sub>2</sub>	Background NO <sub>x</sub>	Monitored road NO <sub>x</sub>	Modelled road NO <sub>x</sub>	Monitored /modelled road NO <sub>x</sub>
LLB - Junction of Kingsbury Road / Edgware Road	521447, 188730	54.0	Not measured	29.2	47-4	55-9	18.8	3.0
LLB - Junction North Circular Road / Chartley Avenue	521222, 186122	93.0	Not measured	36.6	62.2	184.4	61.7	3.0
LLB - Dudden Hill Lane junction with High Road	522191, 184821	60.0	Not measured	31.5	52.1	69.2	37.4	1.8
LLB - Junction Dollis Hill Lane / Cricklewo od	523180, 186590	76.0	Not measured	31.3	51.5	128.6	33.6	3.8
LLB - Chichele Road near Melrose Avenue	523692, 185372	65.0	Not measured	31.1	51.1	87.7	21.2	4.1
LLB - IKEA, North Circular Road	520866, 185173	103.0	Not measured	33-4	56.1	237.6	42.0	5.7
LLB - High Street, Harlesden	521743, 183361	76.0	Not measured	35.1	60.3	116.6	34.7	3.4
LLB - Kilburn Bridge	525461, 183558	101.0	Not measured	35.1	59.5	223.6	28.1	7.9

Site	Ordnance Survey co- ordinates	Monitored total NO <sub>2</sub>	Monitored total NO <sub>x</sub>	Background NO <sub>2</sub>	Background NO <sub>x</sub>	Monitored road NO <sub>x</sub>	Modelled road NO <sub>x</sub>	Monitored /modelled road NO <sub>x</sub>
LLE - Ealing Horn Lane AQMS (co- located triplicate)	520432, 181428	52.0	Not measured	37.3	64.7	30.1	18.8	1.6
LLE - 326 Western Avenue	520424, 181957	59.0	Not measured	37.3	64.7	50.8	28.7	1.8
LLE - 57 - 75 Old Oak Common Lane (PO)	521557, 180996	49.0	Not measured	34.1	57.0	30.2	14.8	2.0
LLE - 39 Old Oak Lane	521587, 182684	50.0	Not measured	34.7	59.9	29.8	14.5	2.1
LLE - 5 Leamingt on Park	520532, 181517	46.0	Not measured	37-3	64.7	14.1	21.4	0.7
LBHF - Westway	522548, 180960	77.0	Not measured	34-9	57.4	124.4	41.9	3.0
LBHF - Hammers mith Broadway	523327, 178484	77.0	Not measured	45.7	79.6	95.0	41.8	2.3
LBHF - Talgarth Road	524150, 178363	56.0	Not measured	40.3	67.3	38.7	55-5	0.7
LBHF - Uxbridge Road	522861, 180061	43.0	Not measured	34.9	57-4	14.2	8.8	1.6
RBKC - Chatswor th Court	525263, 178936	51.0	Not measured	42.3	71.4	20.0	16.5	1.2
RBKC - Sloane	528011, 178675	81.0	Not measured	40.0	66.1	128.5	22.8	5.6

Site	Ordnance Survey co- ordinates	Monitored total NO <sub>2</sub>	Monitored total NO <sub>x</sub>	Background NO <sub>2</sub>	Background NO <sub>x</sub>	Monitored road NO <sub>x</sub>	Modelled road NO <sub>x</sub>	Monitored /modelled road NO <sub>x</sub>
Square	ordinaces							
RBKC - Chelsea Physic Garden (Gate)	527726, 177727	59.0	Not measured	40.0	56.7	60.3	17.1	3.5
RBKC - Sloane Avenue	527411, 178659	56.0	Not measured	39.1	64.8	41.5	8.1	5.1
RBKC - Cromwell Road/ Natural History Museum	526550, 178968	70.0	Not measured	39.8	66.2	86.1	25.7	3.3
RBKC - Pavillion St/ Sloane Avenue	527889, 179145	54.0	Not measured	43.1	72.5	27.2	13.2	2.1
RBKC - Kensingto n High St/Kensin gton Church Street	525630, 179674	62.0	Not measured	38.6	63.8	61.5	16.6	3.7
RBKC - Fulham Road/ Limerston Street	526377, 177867	55.0	Not measured	38.5	63.5	40.0	18.6	2.1
RBKC - Warwick Road	524825, 178902	50.0	Not measured	40.3	67.3	21.8	15.9	1.4
RBKC - Ladbroke Grove / Nth Ken Library	524342, 181271	53.0	Not measured	41.7	72.1	24.7	26.6	0.9
RBKC - Cromwell Road/	525355, 178841	84.0	Not measured	42.3	71.4	133.4	69.4	1.9

Site	Ordnance Survey co- ordinates	Monitored total NO <sub>2</sub>	Monitored total NO <sub>x</sub>	Background NO <sub>2</sub>	Background NO <sub>x</sub>	Monitored road NO <sub>x</sub>	Modelled road NO <sub>x</sub>	Monitored /modelled road NO <sub>x</sub>
Earls Court Road								

- 3.2.4 The calculated model adjustment factor for the road contribution of NO<sub>x</sub> was 3.21. This was applied to all NO<sub>x</sub> results from the ADMS-Roads modelling. This is in accordance with Defra guidance<sup>3</sup> on model verification.
- 3.2.5 A final check was then made to compare the total NO<sub>2</sub> concentrations from the modelling to the monitored data. This is shown in Table 8 :

Table 8 : Comparison of monitored and modelled annual average  $NO_2$  concentrations

Site	Monitored concentration (µg/m³)	Modelled concentration (µg/m³)	Difference ((modelled - monitored)/monitored) x 100
LLB - Ikea (AURN)	76.0	86.5	14%
LLB - John Keble Primary School	41.1	64.2	56%
LBE - Hangar Lane Gyratory (AURN)	95.0	104.2	10%
LBE - Western Avenue (AURN)	73-3	72.2	-1%
LBHi - South Ruislip (AURN)	52.1	53-3	2%
LBHi - Oxford Avenue (AURN)	44.1	47-9	9%
LBHa - Pinner Road (AURN)	46.8	39.5	-16%
RBKC - Cromwell Road (AURN)	69.1	73.4	6%
RBKC - Kings Road (AURN)	92.6	60.5	-35%
LLB - Junction of Kingsbury Road / Edgware Road	54.0	55-5	3%
LLB - Junction North Circular Road / Chartley Avenue	93.0	96.1	3%

<sup>&</sup>lt;sup>3</sup> Department for Environment, Food and Rural Affairs (2009) Technical Guidance Note LAQM TG(09)

Site	Monitored concentration (µg/m³)	Modelled concentration (µg/m³)	Difference ((modelled - monitored)/monitored) x 100
LLB - Dudden Hill Lane junction with High Road	60.0	74.1	23%
LLB - Junction Dollis Hill Lane / Cricklewood	76.0	70.6	-7%
LLB - Chichele Road near Melrose Avenue	65.0	59-3	-9%
LLB - IKEA, North Circular Road	103.0	79.1	-23%
LLB - High Street, Harlesden.	76.0	74.6	-2%
LLB - Kilburn Bridge	101.0	68.8	-32%
LLE - Ealing Horn Lane AQMS (co-located triplicate)	52.0	62.0	19%
LLE - 326 Western Avenue	59.0	71.1	21%
LLE - 57 - 75 Old Oak Common Lane (PO)	49.0	55.0	12%
LLE - 39 Old Oak Lane	50.0	55.8	12%
LLE - 5 Leamington Park	46.0	64.5	40%
LBHF - Westway	77.0	79.5	3%
LBHF - Hammersmith Broadway	77.0	86.9	13%
LBHF - Talgarth Road	56.0	93.3	67%
LBHF - Uxbridge Road	43.0	48.5	13%
RBKC - Chatsworth Court	51.0	62.2	22%
RBKC - Sloane Square	81.0	66.3	-18%
RBKC - Chelsea Physic Garden (Gate)	59.0	57-3	-3%
RBKC - Sloane Avenue	56.0	50.6	-10%

Site	Monitored concentration (µg/m <sup>3</sup> )	Modelled concentration (µg/m <sup>3</sup> )	Difference ((modelled - monitored)/monitored) x 100
RBKC - Cromwell Road/ Natural History Museum	70.0	69.0	-1%
RBKC - Pavillion Street/ Sloane Avenue	54.0	59.2	10%
RBKC - Kensington High Street/Kensington Church Street	62.0	59.5	-4%
RBKC - Fulham Road/ Limerston Street	55.0	61.4	12%
RBKC - Warwick Road	50.0	60.0	20%
RBKC - Ladbroke Grove / Nth Ken Library	53.0	71.8	36%
RBKC - Cromwell Road/ Earls Court Road	84.0	104.8	25%

3.2.6 As the majority of modelled NO<sub>2</sub> concentrations were within 25% of the monitored concentrations, no further adjustment was undertaken.

#### 3.3 Construction traffic

3.3.1 Construction traffic data used in this assessment are detailed in Volume 5 Appendix TR-001-0040.

#### **Receptors assessed**

#### 3.3.2 Receptors assessed are listed in Table 9.

Table 9 : Modelled receptors (construction phase)

Receptor	Description/location	Ordnance Survey (OS) coordinates
4-12	2 Victoria Terrace	521445, 182474
4-16	84 Shaftesbury Gardens	521415, 182456
4-18	Holbrook House, Victoria Road	520926, 181878
4-19	116 Wales Farm Road	520887, 181753
4-41	Burlington Danes School, Wood Lane	523014, 181514
4-42	235A Scrubs Lane	523026, 181633

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Receptor	Description/location	Ordnance Survey (OS) coordinates
4-43	1B Woodmans Mews	523009, 181566
4-44	235 Scrubs Lane	522985, 181685
4-45	The Production Offices, Old Oak Lane	521471, 182511
4-46	76 Shaftesbury Gardens	521374, 182423
4-47	98 Shaftesbury Gardens	521434, 182423
4-48	3 Shaftesbury Gardens	521312, 182366
4-49	4 Midland Terrace	521258, 182284
4-50	152 Victoria Road	520875, 181851
4-51	Ebbett Court, Victoria Road	520789, 181888
4-53	1 Park Royal Road	520594, 181830
4-54	Trentham Court, Victoria Road	520701, 181874
4-55	96 Wales Farm Road	520839, 181701
4-69	179 Church Road	521445, 182475
4-70	The Castle Public House, Victoria Road	521416, 182456
4-71	50 Old Oak Lane	520926, 181878
4-72	4 Midland Terrace	520887, 181753
4-73	Lewis House, Victoria Road	523014, 181515
4-74	37 Old Oak Lane	523027, 181633
4-75	41 Old Oak Lane	523009, 181566
4-76	The Fishermans Arms Public House, Old Oak Lane	522986, 181685
4-77	49 Old Oak Lane	521472, 182511
4-78	Webb Place	521374, 182424
4-79	59 Old Oak Lane	521434, 182423
4-80	30 Old Oak Lane	521312, 182366

Receptor	Description/location	Ordnance Survey (OS) coordinates
4-81	Station Offices, Station Road	521258, 182285
4-82	63A-63C Station Road	520875, 181852
4-83	61C Station Road	520789, 181888
4-84	4 Acton Lane	520594, 181831
4-85	245 Wulfstan Street	520702, 181874
4-86	240 Old Oak Common Lane	520839, 181701
4-87	1 Wulfstan Street	521456, 184656
4-88	1 Wulfstan Street (Duplicate)	520912, 181837
4-89	10 Wulfstan Street	521570, 182686
4-90	22 Wood Lane	521245, 182282
4-91	Yonex, Wood Lane	521044, 182115
4-92	41 Scrubs Lane	521589, 182688
4-93	167 Wells House Road	521554, 182634
4-94	98 Old Oak Common Lane	521538, 182675
4-95	2 Western Avenue	521576, 182665
4-96	76 Old Oak Common Lane	521622, 182764
4-97	176 Old Oak Road	521605, 182771
4-98	135 Old Oak Common Lane	521606, 182729
4-99	Banstead Court, Westway	521707, 183025
4-100	209 Westway	521727, 183022
4-101	140 Bentworth Road	521721, 183033
4-102	153 Latimer Road	521612, 183312
4-103	1 St. Helens Gardens	521521, 181541
4-104	Arthur Court, Bramley Road	521476, 181484

Receptor	Description/location	Ordnance Survey (OS) coordinates
4-105	17 Bramley Road	521986, 181094
4-106	91 St. Anns Road	521985, 181094
4-107	67 St. Anns Road	522000, 181136
4-108	28 St. Anns Road	523108, 181301
4-109	10 St. Anns Road	523218, 181001
4-110	34 St. Anns Road	522394, 182798
4-111	3 St. Anns Villas	521307, 182090
4-112	Galen House, Du Cane Road	521595, 181023
4-113	Erconwald Street	521573, 180911
4-114	8 Wulfstan Street	521613, 180922
4-115	1 Wood Lane	521646, 180794
4-116	53 Craven Park	521528, 181243
4-117	85 Church Road	521998, 180924
4-118	120 Church Road	522547, 180995
4-119	Church Cottages, High Road	522982, 181064
4-120	2 Donnington Road	523454, 181160
4-121	247 Ladbroke Grove	523769, 181265
4-122	282 Ladbroke Grove	523784, 181083
4-123	336 Ladbroke Grove	523759, 180787
4-124	Steve Biko Court, St. Johns Terrace	523836, 180612
4-125	142 Western Avenue	523888, 180486
4-126	15 Bolton Gardens	523943, 180343
4-127	19 Bramerton Street	523962, 180285
4-128	30 Bramerton Street	523987, 180212

Receptor	Description/location	Ordnance Survey (OS) coordinates
4-129	50 Glebe Place	524000, 180110
4-130	407 Kings Road	522693, 181188
4-131	100 Craven Park Road	521779, 181312
4-132	Trentham Court, Victoria Road	523057, 181462
4-133	Ebbett Court, Victoria Road	522983, 181690
4-134	114-120 Victoria Road	521101, 184007
4-135	Webb Place	521197, 184227
4-136	78 Old Oak Lane	521352, 184479
4-137	58 Station Road	521480, 184768
4-138	37 Station Road	523119, 184065
4-139	16 Acton Lane	524128, 181738
4-140	10 Acton Lane	524067, 181967
4-141	58 Wendover Road	523964, 182223
4-142	3 Acton Lane	523877, 182434
4-143	3 Wells House Road	521014, 181065
4-144	Park Lodge, Old Oak Common Lane	525797, 178396
4-145	240 Wulfstan Street	527088, 177906
4-146	159 Wulfstan Street	527130, 177831
4-147	140 Fitzneal Street	527189, 177850
4-148	147 Fitzneal Street	526632, 177560
4-149	49 Wells House Road	521259, 183764
4-150	51 Wells House Road	520721, 181903
4-151	36 Wales Farm Road	520821, 181877
4-152	23 The Approach	520988, 182044

Receptor	Description/location	Ordnance Survey (OS) coordinates
4-153	127 Perryn Road	521624, 182768
4-154	108 Western Avenue	521638, 182833
4-155	207-209 Old Oak Road	521647, 183100
4-156	74 Old Oak Common Lane	521664, 183104
4-157	85 Old Oak Common Lane	521563, 183330
4-158	2 Du Cane Road	521600, 183315
4-159	223 Du Cane Road	521649, 183308
4-160	220 Du Cane Road	521631, 183317
4-161	162 Old Oak Road	521311, 182039
4-162	1-26 Banstead Court, Westway	521512, 181597
4-163	55 Westway	521552, 181540
4-164	Wengham House, Sundew Avenue	521654, 181424
4-165	Creighton Close, Bloemfontein Road	521505, 181345
4-166	207 Westway	521514, 181306
4-167	245 Westway	521340, 181910
4-168	Browning House, Wood Lane	521342, 181900
4-169	21 Stable Way	520719, 181593
4-170	170 Oxford Gardens	520943, 181114
4-171	Goodrich Court, Bramley Road	520921, 181078
4-172	16-21 Darfield Way	521137, 180997
4-173	Walmer House, 134 Bramley Road	521610, 180861
4-174	Robinson House, Bramley Road	521624, 180914
4-175	2 St. Helens Gardens	521550, 181030
4-176	8 St. Helens Gardens	521614, 181049

Receptor	Description/location	Ordnance Survey (OS) coordinates
4-177	92 Bramley Road	521773, 181049
4-178	Waynflete Square	521785, 181071
4-179	Lancaster West Estate, Bramley Road	521673, 180796
4-180	128 St. Anns Road	521690, 180887
4-181	Bramley Gardens, 123 St. Anns Road	521841, 180943
4-182	24 St. Anns Road	522319, 180929
4-183	1-2 Mortimer Square	522528, 180951
4-184	St Katherines House, St. Anns Road	522524, 180991
4-185	Florence House, St. Anns Road	522742, 181026
4-186	115 Wilsham Street	523133, 181143
4-187	114 Wilsham Street	523449, 181099
4-188	14 St. Anns Road	523498, 181195
4-189	Tabernacle School, St Anns Villas	523764, 181119
4-190	4 St. Anns Road	523628, 181051
4-191	33 St. Anns Villas	523791, 181190
4-192	12 St. Anns Villas	523770, 181242
4-193	14 St. Anns Villas	523793, 181257
4-194	11 St. Anns Villas	523780, 181293
4-195	10 St. Anns Villas	523780, 180950
4-196	9 St. Anns Villas	523759, 180950
4-197	Royal Crescent	523778, 180797
4-198	Royal Crescent	523805, 180705
4-199	Weedon House, Du Cane Road	523785, 180714
4-200	Vellacott House, Du Cane Road	523851, 180620

Receptor	Description/location	Ordnance Survey (OS) coordinates
4-201	Clement Danes House, Du Cane Road	523867, 180548
4-202	Christie House, Du Cane Road	523875, 180525
4-203	23 Wood Lane	523891, 180540
4-204	Nightingale House, Du Cane Road	523939, 180362
4-205	129 Scrubs Lane	523944, 180383
4-206	97 Scrubs Lane	523957, 180300
4-207	26 Scrubs Lane	523973, 180251
4-208	46 Scrubs Lane	523968, 180265
4-209	873 Harrow Road	523954, 180245
4-210	227 Ladbroke Grove	524006, 180157
4-211	208 Ladbroke Grove	524002, 180162
4-212	218 Ladbroke Grove	523986, 180150
4-213	241 Ladbroke Grove	524012, 180140
4-214	295 Ladbroke Grove	523992, 180133
4-215	250 Ladbroke Grove	524009, 180079
4-216	1 Trevorton Street	524030, 180086
4-217	300 Ladbroke Grove	522408, 181133
4-218	"Cowshed" Apartments, Ladbroke Grove	522545, 181159
4-219	Kerrington Court, Ladbroke Grove	522690, 181211
4-220	341 Ladbroke Grove	522921, 181214
4-221	322 Ladbroke Grove	523113, 181285
4-222	Grand Union Centre, West Row	523095, 181253
4-223	Canalside House, Ladbroke Grove	522578, 182309
4-224	299 Harrow Road	522500, 182463

Receptor	Description/location	Ordnance Survey (OS) coordinates
4-225	2 St Johns Terrace	522398, 182671
4-226	Slaney Court, Chamberlayne Road	522379, 182672
4-227	Donnington Mansions, Donnington Road	522377, 182934
4-228	163 Chamberlayne Road	524163, 181650
4-229	54 Glebe Place	524185, 181661
4-230	25 Glebe Place	524168, 181702
4-231	32 Glebe Place	524141, 181706
4-232	23 Glebe Place	524075, 181880
4-233	239 Kings Road	524103, 181873
4-234	241-245 Kings Road	524016, 182019
4-235	219 Kings Road	524046, 182022
4-236	217 Kings Road	523995, 182098
4-237	280 Kings Road	524013, 182104
4-238	272 Kings Road	524003, 182065
4-239	Cremorne Estate, West	523980, 182183
4-240	466 Kings Road	523938, 182287
4-241	406 Kings Road	523875, 182351
4-242	355 Kings Road	523847, 182497
4-243	385 Kings Road	523868, 182479
4-244	Park House Hostel, Earls Court Road	523141, 184066
4-245	45 Bolton Gardens	523099, 184022
4-246	39 Bolton Gardens	523140, 184009
4-247	19 Bramham Gardens	527192, 177866
4-248	18 Bolton Gardens	527174, 177857

Receptor	Description/location	Ordnance Survey (OS) coordinates
4-249	1-2 Bolton Gardens	527119, 177826
4-250	24 Bolton Gardens	527164, 177876
4-251	9 Collingham Gardens	527057, 177960
4-252	69 Craven Park Road	527046, 177954
4-253	98 St Thomas's Road	527098, 177988
4-254	Odeon Court, St. Albans Road	527113, 177992
4-255	92 Craven Park	527043, 177980
4-256	2 Craven Park	527077, 178000
4-257	82 Craven Park	526550, 177505
4-258	50 Church Road	526534, 177522
4-259	165 Church Road	526674, 177638
4-260	62 Essex Road	526695, 177650
4-261	Bourke Close	526684, 177610
4-262	6 Wulfstan Street	525719, 178352
4-263	75 Wulfstan Street	525725, 17 <sup>8</sup> 337
4-264	108 Wulfstan Street	525778, 178367
4-265	146 Wulfstan Street	525764, 178376

#### **Background concentrations**

## 3.3.3 The background concentrations used in the assessment are shown in Table 10 : taken from the Defra maps.

Table 10 : Background 2012 concentrations at assessed receptors

Receptor (or zone of receptors)	Concentrations (μg/m³)		
	NO <sub>x</sub>	NO₂	РМ10
(4-12) 2 Victoria Terrace	59.9	34.7	22.9
(4-16) 84 Shaftesbury Gardens	59.9	34.7	22.9
(4-18) Holbrook House, Victoria Road	64.7	37-3	24.7

Receptor (or zone of receptors)	Concentrations (µg/m³)		
	NO <sub>x</sub>	NO <sub>2</sub>	PM10
(4-19) 116 Wales Farm Road	64.7	37.3	24.7
(4-41) Burlington Danes School, Wood Lane	71.3	41.7	25.7
(4-42) 235A Scrubs Lane	71.3	41.7	25.7
(4-43) 1B Woodmans Mews	71.3	41.7	25.7
(4-44) 235 Scrubs Lane	53.0	32.6	22.3
(4-45) The Production Offices, Old Oak Lane	59.9	34.7	22.9
(4-46) 76 Shaftesbury Gardens	59.9	34.7	22.9
(4-47) 98 Shaftesbury Gardens	59.9	34.7	22.9
(4-48) 3 Shaftesbury Gardens	59.9	34.7	22.9
(4-49) 4 Midland Terrace	59.9	34.7	22.9
(4-50) 152 Victoria Road	64.7	37-3	24.7
(4-51) Ebbett Court, Victoria Road	64.7	37.3	24.7
(4-53) 1 Park Royal Road	64.7	37.3	24.7
(4-54) Trentham Court, Victoria Road	64.7	37.3	24.7
(4-55) 96 Wales Farm Road	64.7	37.3	24.7
(4-69) 179 Church Road	55.2	32.9	23.5
(4-70) The Castle Public House, Victoria Road	64.7	37-3	24.7
(4-71) 50 Old Oak Lane	59.9	34.7	22.9
(4-72) 4 Midland Terrace	59.9	34.7	22.9
(4-73) Lewis House, Victoria Road	59.9	34.7	22.9
(4-74) 37 Old Oak Lane	59.9	34.7	22.9
(4-75) 41 Old Oak Lane	59.9	34.7	22.9
(4-76) The Fishermans Arms Public House, Old Oak Lane	59.9	34.7	22.9

Receptor (or zone of receptors)	Concentrations (μg/m <sup>3</sup> )		
	NO <sub>x</sub>	NO <sub>2</sub>	PM10
(4-77) 49 Old Oak Lane	59.9	34.7	22.9
(4-78) Webb Place	59.9	34.7	22.9
(4-79) 59 Old Oak Lane	59.9	34.7	22.9
(4-80) 30 Old Oak Lane	59.9	34.7	22.9
(4-81) Station Offices, Station Road	60.3	35.1	24.0
(4-82) 63A-63C Station Road	60.3	35.1	24.0
(4-83) 61C Station Road	60.3	35.1	24.0
(4-84) 4 Acton Lane	60.3	35.1	24.0
(4-85) 245 Wulfstan Street	49.8	30.9	21.9
(4-86) 240 Old Oak Common Lane	49.8	30.9	21.9
(4-87) 1 Wulfstan Street	49.8	30.9	21.9
(4-88) 1 Wulfstan Street (Duplicate)	49.8	30.9	21.9
(4-89) 10 Wulfstan Street	53.0	32.6	22.3
(4-90) 22 Wood Lane	71.3	41.7	25.7
(4-91) Yonex, Wood Lane	71.3	41.7	25.7
(4-92) 41 Scrubs Lane	55.9	33.8	22.6
(4-93) 167 Wells House Road	59.9	34.7	22.9
(4-94) 98 Old Oak Common Lane	49.8	30.9	21.9
(4-95) 2 Western Avenue	57.0	34.1	24.3
(4-96) 76 Old Oak Common Lane	57.0	34.1	24.3
(4-97) 176 Old Oak Road	57.0	34.1	24.3
(4-98) 135 Old Oak Common Lane	49.8	30.9	21.9
(4-99) Banstead Court, Westway	57.0	34.1	24.3

Receptor (or zone of receptors)	Concentrations (µg/m <sup>3</sup>	Concentrations (μg/m³)		
	NO <sub>x</sub>	NO <sub>2</sub>	PM10	
(4-100) 209 Westway	57.4	34-9	24.2	
(4-101) 140 Bentworth Road	53.0	32.6	22.3	
(4-102) 153 Latimer Road	71.3	41.7	25.7	
(4-103) 1 St. Helens Gardens	71.3	41.7	25.7	
(4-104) Arthur Court, Bramley Road	71.3	41.7	25.7	
(4-105) 17 Bramley Road	61.5	36.9	24.7	
(4-106) 91 St. Anns Road	61.5	36.9	24.7	
(4-107) 67 St. Anns Road	61.5	36.9	24.7	
(4-108) 28 St. Anns Road	61.5	36.9	24.7	
(4-109) 10 St. Anns Road	61.5	36.9	24.7	
(4-110) 34 St. Anns Road	61.5	36.9	24.7	
(4-111) 3 St. Anns Villas	61.5	36.9	24.7	
(4-112) Galen House, Du Cane Road	53.0	32.6	22.3	
(4-113) Erconwald Street	49.8	30.9	21.9	
(4-114) 8 Wulfstan Street	71.3	41.7	25.7	
(4-115) 1 Wood Lane	53.0	32.6	22.3	
(4-116) 53 Craven Park	55.2	32.9	23.5	
(4-117) 85 Church Road	55.2	32.9	23.5	
(4-118) 120 Church Road	55.2	32.9	23.5	
(4-119) Church Cottages, High Road	55.2	32.9	23.5	
(4-120) 2 Donnington Road	50.7	30.8	22.4	
(4-121) 247 Ladbroke Grove	72.1	41.7	25.4	
(4-122) 282 Ladbroke Grove	72.1	41.7	25.4	

Receptor (or zone of receptors)	Concentrations (μg/m³)		
	NO <sub>x</sub>	NO <sub>2</sub>	PM10
(4-123) 336 Ladbroke Grove	57.1	34.5	22.8
(4-124) Steve Biko Court, St. Johns Terrace	57.1	34.5	22.8
(4-125) 142 Western Avenue	49.8	30.9	21.9
(4-126) 15 Bolton Gardens	71.4	42.3	25.7
(4-127) 19 Bramerton Street	72.8	35.2	23.6
(4-128) 30 Bramerton Street	72.8	35.2	23.6
(4-129) 50 Glebe Place	72.8	35.2	23.6
(4-130) 407 Kings Road	63.5	38.5	24.8
(4-131) 100 Craven Park Road	60.3	35.1	24.0
(4-132) Trentham Court, Victoria Road	64.7	37-3	24.7
(4-133) Ebbett Court, Victoria Road	64.7	37-3	24.7
(4-134) 114-120 Victoria Road	63.0	36.2	24.6
(4-135) Webb Place	59.9	34.7	22.9
(4-136) 78 Old Oak Lane	59.9	34.7	22.9
(4-137) 58 Station Road	60.3	35.1	24.0
(4-138) 37 Station Road	60.3	35.1	24.0
(4-139) 16 Acton Lane	60.3	35.1	24.0
(4-140) 10 Acton Lane	60.3	35.1	24.0
(4-141) 58 Wendover Road	60.3	35.1	24.0
(4-142) 3 Acton Lane	60.3	35.1	24.0
(4-143) 3 Wells House Road	59.9	34.7	22.9
(4-144) Park Lodge, Old Oak Common Lane	49.8	30.9	21.9
(4-145) 240 Wulfstan Street	49.8	30.9	21.9
Receptor (or zone of receptors)	Concentrations (µg/m³)		
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	NO <sub>x</sub>	NO <sub>2</sub>	PM10
(4-146) 159 Wulfstan Street	49.8	30.9	21.9
(4-147) 140 Fitzneal Street	49.8	30.9	21.9
(4-148) 147 Fitzneal Street	49.8	30.9	21.9
(4-149) 49 Wells House Road	49.8	30.9	21.9
(4-150) 51 Wells House Road	49.8	30.9	21.9
(4-151) 36 Wales Farm Road	64.7	37.3	24.7
(4-152) 23 The Approach	64.7	37.3	24.7
(4-153) 127 Perryn Road	64.7	37.3	24.7
(4-154) 108 Western Avenue	57.0	34.1	24.3
(4-155) 207-209 Old Oak Road	57.0	34.1	24.3
(4-156) 74 Old Oak Common Lane	57.0	34.1	24.3
(4-157) 85 Old Oak Common Lane	49.8	30.9	21.9
(4-158) 2 Du Cane Road	49.8	30.9	21.9
(4-159) 223 Du Cane Road	49.8	30.9	21.9
(4-160) 220 Du Cane Road	49.8	30.9	21.9
(4-161) 162 Old Oak Road	57.0	34.1	24.3
(4-162) 1-26 Banstead Court, Westway	57.0	34.1	24.3
(4-163) 55 Westway	57.0	34.1	24.3
(4-164) Wengham House, Sundew Avenue	57.4	34.9	24.2
(4-165) Creighton Close, Bloemfontein Road	57.4	34.9	24.2
(4-166) 207 Westway	57.4	34.9	24.2
(4-167) 245 Westway	53.0	32.6	22.3
(4-168) Browning House, Wood Lane	71.3	41.7	25.7

Receptor (or zone of receptors)	Concentrations (µg/m³)		
	NO <sub>x</sub>	NO <sub>2</sub>	PM10
(4-169) 21 Stable Way	71.3	41.7	25.7
(4-170) 170 Oxford Gardens	71.3	41.7	25.7
(4-171) Goodrich Court, Bramley Road	71.3	41.7	25.7
(4-172) 16-21 Darfield Way	71.3	41.7	25.7
(4-173) Walmer House, 134 Bramley Road	71.3	41.7	25.7
(4-174) Robinson House, Bramley Road	71.3	41.7	25.7
(4-175) 2 St. Helens Gardens	71.3	41.7	25.7
(4-176) 8 St. Helens Gardens	71.3	41.7	25.7
(4-177) 92 Bramley Road	61.5	36.9	24.7
(4-178) Waynflete Square	61.5	36.9	24.7
(4-179) Lancaster West Estate, Bramley Road	61.5	36.9	24.7
(4-180) 128 St. Anns Road	61.5	36.9	24.7
(4-181) Bramley Gardens, 123 St. Anns Road	61.5	36.9	24.7
(4-182) 24 St. Anns Road	61.5	36.9	24.7
(4-183) 1-2 Mortimer Square	61.5	36.9	24.7
(4-184) St Katherines House, St. Anns Road	61.5	36.9	24.7
(4-185) Florence House, St. Anns Road	61.5	36.9	24.7
(4-186) 115 Wilsham Street	61.5	36.9	24.7
(4-187) 114 Wilsham Street	61.5	36.9	24.7
(4-188) 14 St. Anns Road	61.5	36.9	24.7
(4-189) Tabernacle School, St Anns Villas	61.5	36.9	24.7
(4-190) 4 St. Anns Road	61.5	36.9	24.7
(4-191) 33 St. Anns Villas	61.5	36.9	24.7

Receptor (or zone of receptors)	Concentrations (µg/m³)		
	NO <sub>x</sub>	NO <sub>2</sub>	PM10
(4-192) 12 St. Anns Villas	61.1	36.7	24.0
(4-193) 14 St. Anns Villas	61.1	36.7	24.0
(4-194) 11 St. Anns Villas	61.5	36.9	24.7
(4-195) 10 St. Anns Villas	61.1	36.7	24.0
(4-196) 9 St. Anns Villas	61.5	36.9	24.7
(4-197) Royal Crescent	61.1	36.7	24.0
(4-198) Royal Crescent	61.1	36.7	24.0
(4-199) Weedon House, Du Cane Road	53.0	32.6	22.3
(4-200) Vellacott House, Du Cane Road	53.0	32.6	22.3
(4-201) Clement Danes House, Du Cane Road	53.0	32.6	22.3
(4-202) Christie House, Du Cane Road	53.0	32.6	22.3
(4-203) 23 Wood Lane	71.3	41.7	25.7
(4-204) Nightingale House, Du Cane Road	71.3	41.7	25.7
(4-205) 129 Scrubs Lane	55.9	33.8	22.6
(4-206) 97 Scrubs Lane	55.9	33.8	22.6
(4-207) 26 Scrubs Lane	55.9	33.8	22.6
(4-208) 46 Scrubs Lane	55.9	33.8	22.6
(4-209) 873 Harrow Road	55.9	33.8	22.6
(4-210) 227 Ladbroke Grove	72.1	41.7	25.4
(4-211) 208 Ladbroke Grove	72.1	41.7	25.4
(4-212) 218 Ladbroke Grove	72.1	41.7	25.4
(4-213) 241 Ladbroke Grove	72.1	41.7	25.4
(4-214) 295 Ladbroke Grove	72.1	41.7	25.4

Receptor (or zone of receptors)	Concentrations (µg/m³)		
	NO <sub>x</sub>	NO <sub>2</sub>	PM10
(4-215) 250 Ladbroke Grove	72.1	41.7	25.4
(4-216) 1 Trevorton Street	58.9	35.5	23.7
(4-217) 300 Ladbroke Grove	58.9	35.5	23.7
(4-218) "Cowshed" Apartments, Ladbroke Grove	57.1	34.5	22.8
(4-219) Kerrington Court, Ladbroke Grove	58.9	35.5	23.7
(4-220) 341 Ladbroke Grove	58.9	35.5	23.7
(4-221) 322 Ladbroke Grove	57.1	34.5	22.8
(4-222) Grand Union Centre, West Row	57.1	34.5	22.8
(4-223) Canalside House, Ladbroke Grove	57.1	34.5	22.8
(4-224) 299 Harrow Road	57.1	34.5	22.8
(4-225) 2 St Johns Terrace	57.1	34.5	22.8
(4-226) Slaney Court, Chamberlayne Road	50.7	30.8	22.4
(4-227) Donnington Mansions, Donnington Road	50.7	30.8	22.4
(4-228) 163 Chamberlayne Road	50.7	30.8	22.4
(4-229) 54 Glebe Place	72.8	35.2	23.6
(4-230) 25 Glebe Place	72.8	35.2	23.6
(4-231) 32 Glebe Place	72.8	35.2	23.6
(4-232) 23 Glebe Place	72.8	35.2	23.6
(4-233) 239 Kings Road	72.8	35.2	23.6
(4-234) 241-245 Kings Road	72.8	35.2	23.6
(4-235) 219 Kings Road	72.8	35.2	23.6
(4-236) 217 Kings Road	72.8	35.2	23.6
(4-237) 280 Kings Road	72.8	35.2	23.6

Receptor (or zone of receptors)	Concentrations (µg/m <sup>3</sup> )		
	NO <sub>x</sub>	NO <sub>2</sub>	PM10
(4-238) 272 Kings Road	64.8	39.1	24.4
(4-239) Cremorne Estate, West	63.5	38.5	24.8
(4-240) 466 Kings Road	63.5	38.5	24.8
(4-241) 406 Kings Road	63.5	38.5	24.8
(4-242) 355 Kings Road	63.5	38.5	24.8
(4-243) 385 Kings Road	63.5	38.5	24.8
(4-244) Park House Hostel, Earls Court Road	71.4	42.3	25.7
(4-245) 45 Bolton Gardens	71.4	42.3	25.7
(4-246) 39 Bolton Gardens	71.4	42.3	25.7
(4-247) 19 Bramham Gardens	71.4	42.3	25.7
(4-248) 18 Bolton Gardens	71.4	42.3	25.7
(4-249) 1-2 Bolton Gardens	71.4	42.3	25.7
(4-250) 24 Bolton Gardens	71.4	42.3	25.7
(4-251) 9 Collingham Gardens	71.4	42.3	25.7
(4-252) 69 Craven Park Road	60.3	35.1	24.0
(4-253) 98 St Thomas's Road	60.3	35.1	24.0
(4-254) Odeon Court, St. Albans Road	60.3	35.1	24.0
(4-255) 92 Craven Park	60.3	35.1	24.0
(4-256) 2 Craven Park	60.3	35.1	24.0
(4-257) 82 Craven Park	60.3	35.1	24.0
(4-258) 50 Church Road	55.2	32.9	23.5
(4-259) 165 Church Road	55.2	32.9	23.5
(4-260) 62 Essex Road	55.2	32.9	23.5

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Receptor (or zone of receptors)	Concentrations (µg/m³)		
	NO <sub>x</sub>	NO <sub>2</sub>	PM10
(4-261) Bourke Close	55.2	32.9	23.5
(4-262) 6 Wulfstan Street	49.8	30.9	21.9
(4-263) 75 Wulfstan Street	49.8	30.9	21.9
(4-264) 108 Wulfstan Street	49.8	30.9	21.9
(4-265) 146 Wulfstan Street	49.8	30.9	21.9

Table 11 : Background 2017 concentrations at assessed receptors

Receptor (or zone of receptors)	Concentrations (µg/m³)		
	NO <sub>x</sub>	NO <sub>2</sub>	PM10
(4-12) 2 Victoria Terrace	50.8	30.5	21.4
(4-16) 84 Shaftesbury Gardens	50.8	30.5	21.4
(4-18) Holbrook House, Victoria Road	54.7	32.6	23.1
(4-19) 116 Wales Farm Road	54.7	32.6	23.1
(4-41) Burlington Danes School, Wood Lane	60.4	36.1	23.9
(4-42) 235A Scrubs Lane	60.4	36.1	23.9
(4-43) 1B Woodmans Mews	60.4	36.1	23.9
(4-44) 235 Scrubs Lane	45.2	28.5	20.8
(4-45) The Production Offices, Old Oak Lane	50.8	30.5	21.4
(4-46) 76 Shaftesbury Gardens	50.8	30.5	21.4
(4-47) 98 Shaftesbury Gardens	50.8	30.5	21.4
(4-48) 3 Shaftesbury Gardens	50.8	30.5	21.4
(4-49) 4 Midland Terrace	50.8	30.5	21.4
(4-50) 152 Victoria Road	54.7	32.6	23.1
(4-51) Ebbett Court, Victoria Road	54.7	32.6	23.1
(4-53) 1 Park Royal Road	54.7	32.6	23.1

Receptor (or zone of receptors)	Concentrations (µg/m³)		
	NO <sub>x</sub>	NO <sub>2</sub>	PM10
(4-54) Trentham Court, Victoria Road	54.7	32.6	23.1
(4-55) 96 Wales Farm Road	54.7	32.6	23.1
(4-69) 179 Church Road	45.9	28.4	22.0
(4-70) The Castle Public House, Victoria Road	54.7	32.6	23.1
(4-71) 50 Old Oak Lane	50.8	30.5	21.4
(4-72) 4 Midland Terrace	50.8	30.5	21.4
(4-73) Lewis House, Victoria Road	50.8	30.5	21.4
(4-74) 37 Old Oak Lane	50.8	30.5	21.4
(4-75) 41 Old Oak Lane	50.8	30.5	21.4
(4-76) The Fishermans Arms Public House, Old Oak Lane	50.8	30.5	21.4
(4-77) 49 Old Oak Lane	50.8	30.5	21.4
(4-78) Webb Place	50.8	30.5	21.4
(4-79) 59 Old Oak Lane	50.8	30.5	21.4
(4-80) 30 Old Oak Lane	50.8	30.5	21.4
(4-81) Station Offices, Station Road	50.3	30.4	22.5
(4-82) 63A-63C Station Road	50.3	30.4	22.5
(4-83) 61C Station Road	50.3	30.4	22.5
(4-84) 4 Acton Lane	50.3	30.4	22.5
(4-85) 245 Wulfstan Street	42.2	26.9	20.5
(4-86) 240 Old Oak Common Lane	42.2	26.9	20.5
(4-87) 1 Wulfstan Street	42.2	26.9	20.5
(4-88) 1 Wulfstan Street (Duplicate)	42.2	26.9	20.5
(4-89) 10 Wulfstan Street	45.2	28.5	20.8

Receptor (or zone of receptors)	Concentrations (μg/m³)		
	NO <sub>x</sub>	NO <sub>2</sub>	PM10
(4-90) 22 Wood Lane	60.4	36.1	23.9
(4-91) Yonex, Wood Lane	60.4	36.1	23.9
(4-92) 41 Scrubs Lane	47.6	29.6	21.2
(4-93) 167 Wells House Road	50.8	30.5	21.4
(4-94) 98 Old Oak Common Lane	42.2	26.9	20.5
(4-95) 2 Western Avenue	47.9	29.6	22.7
(4-96) 76 Old Oak Common Lane	47.9	29.6	22.7
(4-97) 176 Old Oak Road	47.9	29.6	22.7
(4-98) 135 Old Oak Common Lane	42.2	26.9	20.5
(4-99) Banstead Court, Westway	47.9	29.6	22.7
(4-100) 209 Westway	48.4	30.1	22.6
(4-101) 140 Bentworth Road	45.2	28.5	20.8
(4-102) 153 Latimer Road	60.4	36.1	23.9
(4-103) 1 St. Helens Gardens	60.4	36.1	23.9
(4-104) Arthur Court, Bramley Road	60.4	36.1	23.9
(4-105) 17 Bramley Road	52.1	32.0	23.1
(4-106) 91 St. Anns Road	52.1	32.0	23.1
(4-107) 67 St. Anns Road	52.1	32.0	23.1
(4-108) 28 St. Anns Road	52.1	32.0	23.1
(4-109) 10 St. Anns Road	52.1	32.0	23.1
(4-110) 34 St. Anns Road	52.1	32.0	23.1
(4-111) 3 St. Anns Villas	52.1	32.0	23.1
(4-112) Galen House, Du Cane Road	45.2	28.5	20.8

Receptor (or zone of receptors)	Concentrations (μg/m³)		
	NO <sub>x</sub>	NO <sub>2</sub>	PM10
(4-113) Erconwald Street	42.2	26.9	20.5
(4-114) 8 Wulfstan Street	60.4	36.1	23.9
(4-115) 1 Wood Lane	45.2	28.5	20.8
(4-116) 53 Craven Park	45.9	28.4	22.0
(4-117) 85 Church Road	45.9	28.4	22.0
(4-118) 120 Church Road	45.9	28.4	22.0
(4-119) Church Cottages, High Road	45.9	28.4	22.0
(4-120) 2 Donnington Road	42.9	26.9	21.0
(4-121) 247 Ladbroke Grove	61.6	36.5	23.7
(4-122) 282 Ladbroke Grove	61.6	36.5	23.7
(4-123) 336 Ladbroke Grove	48.7	30.1	21.4
(4-124) Steve Biko Court, St. Johns Terrace	48.7	30.1	21.4
(4-125) 142 Western Avenue	42.2	26.9	20.5
(4-126) 15 Bolton Gardens	60.5	36.7	24.0
(4-127) 19 Bramerton Street	47.9	30.5	22.1
(4-128) 30 Bramerton Street	47.9	30.5	22.1
(4-129) 50 Glebe Place	47.9	30.5	22.1
(4-130) 407 Kings Road	53.6	33-3	23.2
(4-131) 100 Craven Park Road	50.3	30.4	22.5
(4-132) Trentham Court, Victoria Road	54.7	32.6	23.1
(4-133) Ebbett Court, Victoria Road	54.7	32.6	23.1
(4-134) 114-120 Victoria Road	52.5	31.4	22.9
(4-135) Webb Place	50.8	30.5	21.4

Receptor (or zone of receptors)	Concentrations (µg/m³)		
	NO <sub>x</sub>	NO₂	PM10
(4-136) 78 Old Oak Lane	50.8	30.5	21.4
(4-137) 58 Station Road	50.3	30.4	22.5
(4-138) 37 Station Road	50.3	30.4	22.5
(4-139) 16 Acton Lane	50.3	30.4	22.5
(4-140) 10 Acton Lane	50.3	30.4	22.5
(4-141) 58 Wendover Road	50.3	30.4	22.5
(4-142) 3 Acton Lane	50.3	30.4	22.5
(4-143) 3 Wells House Road	50.8	30.5	21.4
(4-144) Park Lodge, Old Oak Common Lane	42.2	26.9	20.5
(4-145) 240 Wulfstan Street	42.2	26.9	20.5
(4-146) 159 Wulfstan Street	42.2	26.9	20.5
(4-147) 140 Fitzneal Street	42.2	26.9	20.5
(4-148) 147 Fitzneal Street	42.2	26.9	20.5
(4-149) 49 Wells House Road	42.2	26.9	20.5
(4-150) 51 Wells House Road	42.2	26.9	20.5
(4-151) 36 Wales Farm Road	54.7	32.6	23.1
(4-152) 23 The Approach	54.7	32.6	23.1
(4-153) 127 Perryn Road	54.7	32.6	23.1
(4-154) 108 Western Avenue	47.9	29.6	22.7
(4-155) 207-209 Old Oak Road	47.9	29.6	22.7
(4-156) 74 Old Oak Common Lane	47.9	29.6	22.7
(4-157) 85 Old Oak Common Lane	42.2	26.9	20.5
(4-158) 2 Du Cane Road	42.2	26.9	20.5

Receptor (or zone of receptors)	Concentrations (µg/m³)		
	NO <sub>x</sub>	NO <sub>2</sub>	PM10
(4-159) 223 Du Cane Road	42.2	26.9	20.5
(4-160) 220 Du Cane Road	42.2	26.9	20.5
(4-161) 162 Old Oak Road	47.9	29.6	22.7
(4-162) 1-26 Banstead Court, Westway	47.9	29.6	22.7
(4-163) 55 Westway	47.9	29.6	22.7
(4-164) Wengham House, Sundew Avenue	48.4	30.1	22.6
(4-165) Creighton Close, Bloemfontein Road	48.4	30.1	22.6
(4-166) 207 Westway	48.4	30.1	22.6
(4-167) 245 Westway	45.2	28.5	20.8
(4-168) Browning House, Wood Lane	60.4	36.1	23.9
(4-169) 21 Stable Way	60.4	36.1	23.9
(4-170) 170 Oxford Gardens	60.4	36.1	23.9
(4-171) Goodrich Court, Bramley Road	60.4	36.1	23.9
(4-172) 16-21 Darfield Way	60.4	36.1	23.9
(4-173) Walmer House, 134 Bramley Road	60.4	36.1	23.9
(4-174) Robinson House, Bramley Road	60.4	36.1	23.9
(4-175) 2 St. Helens Gardens	60.4	36.1	23.9
(4-176) 8 St. Helens Gardens	60.4	36.1	23.9
(4-177) 92 Bramley Road	52.1	32.0	23.1
(4-178) Waynflete Square	52.1	32.0	23.1
(4-179) Lancaster West Estate, Bramley Road	52.1	32.0	23.1
(4-180) 128 St. Anns Road	52.1	32.0	23.1
(4-181) Bramley Gardens, 123 St. Anns Road	52.1	32.0	23.1

Receptor (or zone of receptors)	Concentrations (µg/m³)					
	NO <sub>x</sub>	NO <sub>2</sub>	РМ10			
(4-182) 24 St. Anns Road	52.1	32.0	23.1			
(4-183) 1-2 Mortimer Square	52.1	32.0	23.1			
(4-184) St Katherines House, St. Anns Road	52.1	32.0	23.1			
(4-185) Florence House, St. Anns Road	52.1	32.0	23.1			
(4-186) 115 Wilsham Street	52.1	32.0	23.1			
(4-187) 114 Wilsham Street	52.1	32.0	23.1			
(4-188) 14 St. Anns Road	52.1	32.0	23.1			
(4-189) Tabernacle School, St Anns Villas	52.1	32.0	23.1			
(4-190) 4 St. Anns Road	52.1	32.0	23.1			
(4-191) 33 St. Anns Villas	52.1	32.0	23.1			
(4-192) 12 St. Anns Villas	51.6	31.7	22.5			
(4-193) 14 St. Anns Villas	51.6 31.7		22.5			
(4-194) 11 St. Anns Villas	52.1	32.0	23.1			
(4-195) 10 St. Anns Villas	51.6	31.7	22.5			
(4-196) 9 St. Anns Villas	52.1	32.0	23.1			
(4-197) Royal Crescent	51.6	31.7	22.5			
(4-198) Royal Crescent	51.6	31.7	22.5			
(4-199) Weedon House, Du Cane Road	45.2	28.5	20.8			
(4-200) Vellacott House, Du Cane Road	45.2	28.5	20.8			
(4-201) Clement Danes House, Du Cane Road	45.2	28.5	20.8			
(4-202) Christie House, Du Cane Road	45.2	28.5	20.8			
(4-203) 23 Wood Lane	60.4	36.1	23.9			
(4-204) Nightingale House, Du Cane Road	60.4	36.1	23.9			

Receptor (or zone of receptors)	Concentrations (µg/m³)					
	NO <sub>x</sub>	NO <sub>2</sub>	PM10			
(4-205) 129 Scrubs Lane	47.6	29.6	21.2			
(4-206) 97 Scrubs Lane	47.6	29.6	21.2			
(4-207) 26 Scrubs Lane	47.6	29.6	21.2			
(4-208) 46 Scrubs Lane	47.6	29.6	21.2			
(4-209) 873 Harrow Road	47.6	29.6	21.2			
(4-210) 227 Ladbroke Grove	61.6	36.5	23.7			
(4-211) 208 Ladbroke Grove	61.6	36.5	23.7			
(4-212) 218 Ladbroke Grove	61.6	36.5	23.7			
(4-213) 241 Ladbroke Grove	61.6	36.5	23.7			
(4-214) 295 Ladbroke Grove	61.6	36.5	23.7			
(4-215) 250 Ladbroke Grove	61.6	23.7				
(4-216) 1 Trevorton Street	49.8	22.2				
(4-217) 300 Ladbroke Grove	49.8	30.8	22.2			
(4-218) "Cowshed" Apartments, Ladbroke Grove	48.7	30.1	21.4			
(4-219) Kerrington Court, Ladbroke Grove	49.8	30.8	22.2			
(4-220) 341 Ladbroke Grove	49.8	30.8	22.2			
(4-221) 322 Ladbroke Grove	48.7	30.1	21.4			
(4-222) Grand Union Centre, West Row	48.7	30.1	21.4			
(4-223) Canalside House, Ladbroke Grove	48.7	30.1	21.4			
(4-224) 299 Harrow Road	48.7	30.1	21.4			
(4-225) 2 St Johns Terrace	48.7	30.1	21.4			
(4-226) Slaney Court, Chamberlayne Road	42.9	26.9	21.0			
(4-227) Donnington Mansions, Donnington Road	42.9	26.9	21.0			

Receptor (or zone of receptors)	Concentrations (µg/m³)					
	NO <sub>x</sub>	NO <sub>2</sub>	PM10			
(4-228) 163 Chamberlayne Road	42.9	26.9	21.0			
(4-229) 54 Glebe Place	47.9	30.5	22.1			
(4-230) 25 Glebe Place	47.9	30.5	22.1			
(4-231) 32 Glebe Place	47.9	30.5	22.1			
(4-232) 23 Glebe Place	47.9	30.5	22.1			
(4-233) 239 Kings Road	47.9	30.5	22.1			
(4-234) 241-245 Kings Road	47.9	30.5	22.1			
(4-235) 219 Kings Road	47.9	30.5	22.1			
(4-236) 217 Kings Road	47.9	30.5	22.1			
(4-237) 280 Kings Road	47.9 30.5		22.1			
(4-238) 272 Kings Road	54.7 33.9		22.8			
(4-239) Cremorne Estate, West	53.6 33.3		23.2			
(4-240) 466 Kings Road	53.6 33.3		23.2			
(4-241) 406 Kings Road	53.6	33.3	23.2			
(4-242) 355 Kings Road	53.6	33.3	23.2			
(4-243) 385 Kings Road	53.6	33.3	23.2			
(4-244) Park House Hostel, Earls Court Road	60.5	36.7	24.0			
(4-245) 45 Bolton Gardens	60.5	36.7	24.0			
(4-246) 39 Bolton Gardens	60.5	36.7	24.0			
(4-247) 19 Bramham Gardens	60.5	36.7	24.0			
(4-248) 18 Bolton Gardens	60.5	36.7	24.0			
(4-249) 1-2 Bolton Gardens	60.5	36.7	24.0			
(4-250) 24 Bolton Gardens	60.5	36.7	24.0			

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Receptor (or zone of receptors)	Concentrations (µg/m³)				
	NO <sub>x</sub>	NO₂	РМ10		
(4-251) 9 Collingham Gardens	60.5	36.7	24.0		
(4-252) 69 Craven Park Road	50.3	30.4	22.5		
(4-253) 98 St Thomas's Road	50.3	30.4	22.5		
(4-254) Odeon Court, St. Albans Road	50.3	30.4	22.5		
(4-255) 92 Craven Park	50.3	30.4	22.5		
(4-256) 2 Craven Park	50.3	30.4	22.5		
(4-257) 82 Craven Park	50.3	30.4	22.5		
(4-258) 50 Church Road	45.9	28.4	22.0		
(4-259) 165 Church Road	45.9	28.4	22.0		
(4-260) 62 Essex Road	45.9	28.4	22.0		
(4-261) Bourke Close	45.9	28.4	22.0		
(4-262) 6 Wulfstan Street	42.2	26.9	20.5		
(4-263) 75 Wulfstan Street	42.2	26.9	20.5		
(4-264) 108 Wulfstan Street	42.2	26.9	20.5		
(4-265) 146 Wulfstan Street	42.2	26.9	20.5		

# **Detailed modelling results**

3.3.4 This section provides the summary of the modelled pollutant concentrations for the assessed receptors. The magnitude of change and impact descriptor are also derived following the EPUK methodology<sup>4</sup>. Results presented correspond to the greatest impact at each receptor from the construction traffic scenarios assessed.

<sup>&</sup>lt;sup>4</sup> Environmental Protection UK, (2010), Development Control: Planning for Air Quality (2010).

Receptor	NO <sub>2</sub> concent	rations (µg/m <sup>3</sup> )		Change in	Magnitude	Impact	Previously
	2012 baseline	Construction without revised scheme	Construction with revised scheme	concentrations (μg/m <sup>3</sup> )	of change	descriptor	reported main ES impact descriptor
4-12	64.6	52.6	56.0	3.3	Medium	Moderate adverse	Substantial adverse
4-16	60.6	50.0	51.7	1.7	Small	Slight adverse	Substantial adverse
4-18	55.1	47.4	47-3	-0.1	Imperceptible	Negligible	Slight adverse
4-19	66.5	57.7	58.4	0.7	Small	Slight adverse	Moderate adverse
4-41	58.4	50.0	50.5	0.5	Small	Slight adverse	Slight adverse
4-42	71.1	61.1	62.3	1.1	Small	Slight adverse	Slight adverse
4-43	55.2	47.3	47.7	0.4	Small	Slight adverse	Slight adverse
4-44	61.3	52.3	53-4	1.1	Small	Slight adverse	Slight adverse
4-45	64.0	51.9	55-3	3.4	Medium	Moderate adverse	Moderate adverse
4-46	52.5	43-9	44.7	0.8	Small	Slight adverse	Moderate adverse
4-47	51.9	43.4	44.8	1.5	Small	Slight adverse	Moderate adverse
4-48	51.9	43.7	44.1	0.4	Imperceptible	Negligible	Moderate adverse
4-49	47.1	40.9	40.5	-0.4	Small	Slight beneficial	Slight adverse
4-50	53.2	45.4	45.5	0.0	Imperceptible	Negligible	Slight adverse
4-51	53.6	45.4	45.4	0.0	Imperceptible	Negligible	Slight adverse

Table 12 : Summary of ADMS-Roads annual mean NO $_2$  results (construction phase)

Receptor	NO <sub>2</sub> concentr	ations (µg/m³)		Change in	Magnitude	Impact	Previously
	2012 baseline	Construction without revised scheme	Construction with revised scheme	concentrations (µg/m <sup>3</sup> )	of change	descriptor	reported main ES impact descriptor
4-53	67.3	56.9	57.2	0.3	Imperceptible	Negligible	Sligh <del>t</del> adverse
4-54	59.8	51.1	51.3	0.2	Imperceptible	Negligible	Sligh <del>t</del> adverse
4-55	63.7	55.2	55.8	0.6	Small	Slight adverse	Moderate adverse
4-69	56.1	47.9	47.7	-0.1	Imperceptible	Negligible	N/A
4-70	58.7	50.4	50.6	0.2	Imperceptible	Negligible	N/A
4-71	57.2	48.5	48.3	-0.2	Imperceptible	Negligible	N/A
4-72	48.1	42.0	41.4	-0.6	Small	Slight beneficial	N/A
4-73	50.9	44.7	43.9	-0.9	Small	Slight beneficial	N/A
4-74	59.0	50.1	49.8	-0.3	Imperceptible	Negligible	N/A
4-75	62.8	52.5	53.5	1.1	Small	Slight adverse	N/A
4-76	47-3	40.1	40.5	0.4	Small	Slight adverse	N/A
4-77	61.9	52.5	52.3	-0.2	Imperceptible	Negligible	N/A
4-78	58.9	50.1	49.6	-0.5	Small	Slight beneficial	N/A
4-79	55.4	47.1	46.7	-0.3	Imperceptible	Negligible	N/A
4-80	59.4	50.4	50.0	-0.4	Small	Slight beneficial	N/A
4-81	65.8	55.4	55.0	-0.4	Imperceptible	Negligible	N/A
4-82	72.4	61.2	60.7	-0.5	Small	Slight beneficial	N/A

Receptor	NO <sub>2</sub> concentr	ations (µg/m³)		Change in	Magnitude	Impact	Previously
	2012 baseline	Construction without revised scheme	Construction with revised scheme	concentrations (µg/m <sup>3</sup> )	of change	descriptor	reported main ES impact descriptor
4-83	75.8	64.0	63.5	-0.5	Small	Slight beneficial	N/A
4-84	70.0	58.4	58.1	-0.3	Imperceptible	Negligible	N/A
4-85	44.1	37.2	37.0	-0.2	Imperceptible	Negligible	N/A
4-86	58.2	47.9	47.8	-0.1	Imperceptible	Negligible	N/A
4-87	53.1	43-5	44.2	0.7	Small	Slight adverse	N/A
4-88	53.0	43·4	44.1	0.7	Small	Slight adverse	N/A
4-89	49.6	42.7	44-7	2.0	Medium	Moderate adverse	N/A
4-90	80.7	68.9	69.9	1.0	Small	Slight adverse	N/A
4-91	71.6	61.2	61.2	0.0	Imperceptible	Negligible	N/A
4-92	57-5	48.9	50.0	1.0	Small	Slight adverse	N/A
4-93	56.2	47.1	49.2	2.1	Medium	Moderate adverse	N/A
4-94	61.4	52.3	53.6	1.3	Small	Slight adverse	N/A
4-95	101.2	85.3	89.8	4.5	Large	Substantial adverse	N/A
4-96	87.4	74.9	76.3	1.4	Small	Slight adverse	N/A
4-97	73.8	63.3	64.9	1.6	Small	Slight adverse	N/A
4-98	57.7	47.4	47.3	-0.1	Imperceptible	Negligible	N/A
4-99	82.8	70.4	71.1	0.7	Small	Slight adverse	N/A

Receptor	NO <sub>2</sub> concentr	ations (µg/m <sup>3</sup> )		Change in	Magnitude	Impact	Previously
	2012 baseline	Construction without revised scheme	Construction with revised scheme	concentrations (µg/m <sup>3</sup> )	of change	descriptor	reported main ES impact descriptor
4-100	74.8	62.9	62.7	-0.2	Imperceptible	Negligible	N/A
4-101	69.7	58.5	58.3	-0.2	Imperceptible	Negligible	N/A
4-102	67.5	57.5	57-4	-0.1	Imperceptible	Negligible	N/A
4-103	59.2	50.5	51.0	0.4	Small	Slight adverse	N/A
4-104	70.2	60.2	60.9	0.7	Small	Slight adverse	N/A
4-105	53.6	45.8	46.1	0.4	Imperceptible	Negligible	N/A
4-106	54-9	46.9	47.4	0.5	Small	Slight adverse	N/A
4-107	55.6	47.6	48.1	0.5	Small	Slight adverse	N/A
4-108	58.3	49.6	50.3	0.7	Small	Slight adverse	N/A
4-109	61.3	52.3	53.0	0.7	Small	Slight adverse	N/A
4-110	60.4	51.7	52.4	0.7	Small	Slight adverse	N/A
4-111	56.5	48.2	48.7	0.5	Small	Slight adverse	N/A
4-112	58.1	47-7	49.2	1.5	Small	Slight adverse	N/A
4-113	41.5	35.4	35.2	-0.2	Imperceptible	Negligible	N/A
4-114	79.8	68.6	69.5	1.0	Small	Slight adverse	N/A
4-115	61.1	52.1	53.2	1.1	Small	Slight adverse	N/A
4-116	49.3	41.4	41.2	-0.1	Imperceptible	Negligible	N/A

Receptor	NO <sub>2</sub> concentr	ations (µg/m <sup>3</sup> )		Change in	Magnitude Impact		Previously
	2012 baseline	Construction without revised scheme	Construction with revised scheme	concentrations (µg/m <sup>3</sup> )	of change	descriptor	reported main ES impact descriptor
4-117	51.1	42.8	42.6	-0.1	Imperceptible	Negligible	N/A
4-118	59-5	50.1	50.0	-0.1	Imperceptible	Negligible	N/A
4-119	53.2	44.7	44.5	-0.1	Imperceptible	Negligible	N/A
4-120	53.7	46.0	46.5	0.5	Small	Slight adverse	N/A
4-121	59.6	50.8	51.3	0.4	Small	Slight adverse	N/A
4-122	66.1	56.3	57.2	0.9	Small	Slight adverse	N/A
4-123	68.5	57-9	59.1	1.3	Small	Slight adverse	N/A
4-124	73-5	63.2	64.3	1.1	Small	Slight adverse	N/A
4-125	82.3	68.2	71.5	3.3	Medium	Moderate adverse	N/A
4-126	49.6	42.8	42.8	0.0	Imperceptible	Negligible	N/A
4-127	50.2	37.1	37.1	0.0	Imperceptible	Negligible	N/A
4-128	47.6	35.0	35.0	0.0	Imperceptible	Negligible	N/A
4-129	47.8	35.3	35.3	0.0	Imperceptible	Negligible	N/A
4-130	56.4	47.8	47.9	0.0	Imperceptible	Negligible	N/A
4-131	70.0	58.2	58.1	-0.1	Imperceptible	Negligible	N/A
4-132	57.4	48.7	48.8	0.1	Imperceptible	Negligible	N/A
4-133	53.2	45.2	45.2	0.0	Imperceptible	Negligible	N/A
4-134	49.5	43.4	43.1	-0.3	Imperceptible	Negligible	N/A
4-135	59.0	50.2	49.7	-0.5	Small	Slight beneficial	N/A

Receptor	NO <sub>2</sub> concentr	ations (µg/m <sup>3</sup> )		Change in	Magnitude	Impact	Previously
	2012	Construction	Construction	concentrations	of change	descriptor	reported
	Daseine	revised	scheme	(µg/m)			impact
		scheme					descriptor
4-136	60.5	51.4	51.0	-0.4	Small	Slight beneficial	N/A
4-137	59.7	50.2	49.9	-0.3	Imperceptible	Negligible	N/A
4-138	69.4	58.6	58.1	-0.5	Small	Slight beneficial	N/A
4-139	67.7	56.3	56.0	-0.4	Imperceptible	Negligible	N/A
4-140	67.3	56.1	55.8	-0.3	Imperceptible	Negligible	N/A
4-141	75.4	63.0	62.9	-0.1	Imperceptible	Negligible	N/A
4-142	72.3	60.2	60.1	-0.1	Imperceptible	Negligible	N/A
4-143	52.6	45.2	45.3	0.2	Imperceptible	Negligible	N/A
4-144	43·3	36.7	36.6	-0.1	Imperceptible	Negligible	N/A
4-145	42.5	36.0	35.8	-0.3	Imperceptible	Negligible	N/A
4-146	41.2	35.0	34.8	-0.3	Imperceptible	Negligible	N/A
4-147	56.1	46.2	46.1	-0.1	Imperceptible	Negligible	N/A
4-148	56.8	46.7	46.6	-0.1	Imperceptible	Negligible	N/A
4-149	44.0	37.6	37.6	0.0	Imperceptible	Negligible	N/A
4-150	43.7	37-4	37-4	0.0	Imperceptible	Negligible	N/A
4-151	72.2	62.3	63.0	0.6	Small	Slight adverse	N/A
4-152	83.3	69.6	71.1	1.5	Small	Slight adverse	N/A
4-153	69.9	58.7	59.6	0.9	Small	Slight adverse	N/A
4-154	83.2	69.1	72.4	3.3	Medium	Moderate adverse	N/A

Receptor	NO <sub>2</sub> concentr	ations (µg/m³)		Change in	Magnitude	Impact	Previously
	2012	Construction	Construction	concentrations	of change	descriptor	reported
	baseline	without	with revised	(µg/m³)			main ES
		scheme	scheme				descriptor
4-155	88.7	76.0	77.8	1.8	Small	Slight adverse	N/A
4-156	93.6	79.5	80.3	0.8	Small	Slight adverse	N/A
4-157	54.4	45.7	46.6	0.9	Small	Slight adverse	N/A
4-158	60.9	51.0	52.2	1.2	Small	Slight adverse	N/A
4-159	55.0	46.5	47.4	0.8	Small	Slight adverse	N/A
4-160	55.0	46.3	47.2	1.0	Small	Slight adverse	N/A
4-161	70.2	60.0	61.0	1.1	Small	Slight adverse	N/A
4-162	89.4	76.2	77.3	1.1	Small	Slight adverse	N/A
4-163	75.1	63.3	63.3	0.0	Imperceptible	Negligible	N/A
4-164	74.1	62.9	63.4	0.5	Small	Slight adverse	N/A
4-165	76.8	65.2	65.4	0.2	Imperceptible	Negligible	N/A
4-166	75.0	63.1	62.9	-0.2	Imperceptible	Negligible	N/A
4-167	70.0	58.7	58.5	-0.2	Imperceptible	Negligible	N/A
4-168	68.6	58.3	58.3	0.0	Imperceptible	Negligible	N/A
4-169	93.3	80.3	80.2	-0.1	Imperceptible	Negligible	N/A
4-170	61.2	52.2	52.2	0.0	Imperceptible	Negligible	N/A
4-171	68.4	58.4	58.6	0.2	Imperceptible	Negligible	N/A
4-172	61.4	52.6	52.6	0.0	Imperceptible	Negligible	N/A

Receptor	NO <sub>2</sub> concentr	ations (µg/m³)		Change in	Magnitude	Impact Previously	
	2012 baseline	Construction without revised scheme	Construction with revised scheme	concentrations (µg/m <sup>3</sup> )	of change	descriptor	reported main ES impact descriptor
4-173	75.2	63.8	64.4	0.5	Small	Slight adverse	N/A
4-174	61.2	52.3	52.7	0.4	Imperceptible	Negligible	N/A
4-175	64.1	54.8	55-4	0.6	Small	Slight adverse	N/A
4-176	62.3	53.2	54.0	0.7	Small	Slight adverse	N/A
4-177	59-3	50.6	51.2	0.6	Small	Slight adverse	N/A
4-178	53.2	45.4	45.6	0.3	Imperceptible	Negligible	N/A
4-179	57.4	49.0	49.6	0.6	Small	Slight adverse	N/A
4-180	61.0	52.2	52.9	0.7	Small	Slight adverse	N/A
4-181	57.0	48.6	49.2	0.5	Small	Slight adverse	N/A
4-182	59.5	50.8	51.5	0.7	Small	Slight adverse	N/A
4-183	57.6	49.2	49-9	0.6	Small	Slight adverse	N/A
4-184	55-9	47.8	48.3	0.5	Small	Slight adverse	N/A
4-185	57.2	48.9	49-5	0.6	Small	Slight adverse	N/A
4-186	59.0	50.3	51.0	0.7	Small	Slight adverse	N/A
4-187	53.1	45.4	45.8	0.4	Small	Slight adverse	N/A
4-188	61.3	52.3	53.0	0.7	Small	Slight adverse	N/A

Receptor	NO <sub>2</sub> concentrations (µg/m <sup>3</sup> )		Change in	Magnitude	e Impact Previously		
	2012 baseline	Construction without revised scheme	Construction with revised scheme	concentrations (µg/m <sup>3</sup> )	of change	descriptor	reported main ES impact descriptor
4-189	62.8	53.8	54.5	0.8	Small	Slight adverse	N/A
4-190	63.1	54.0	54.7	0.7	Small	Slight adverse	N/A
4-191	55.0	47.0	47-5	0.5	Small	Slight adverse	N/A
4-192	60.6	51.7	52.4	0.7	Small	Slight adverse	N/A
4-193	62.3	53.2	54.0	0.8	Small	Slight adverse	N/A
4-194	55-9	47.8	48.3	0.5	Small	Slight adverse	N/A
4-195	59-7	50.9	51.6	0.7	Small	Slight adverse	N/A
4-196	56.1	47-9	48.4	0.5	Small	Slight adverse	N/A
4-197	58.1	49.6	50.1	0.5	Small	Slight adverse	N/A
4-198	64.5	54-9	55.6	0.7	Small	Slight adverse	N/A
4-199	57.8	47.5	49.0	1.5	Small	Slight adverse	N/A
4-200	57.8	47-5	49.1	1.5	Small	Slight adverse	N/A
4-201	51.9	42.9	44.0	1.1	Small	Slight adverse	N/A
4-202	56.9	46.8	48.2	1.4	Small	Slight adverse	N/A
4-203	82.8	70.6	71.5	0.9	Small	Slight adverse	N/A

Receptor	NO <sub>2</sub> concentr	ations (µg/m <sup>3</sup> )		Change in	Magnitude	Previously	
	2012 baseline	Construction without revised scheme	Construction with revised scheme	concentrations (µg/m <sup>3</sup> )	of change	descriptor	reported main ES impact descriptor
4-204	72.1	61.1	61.8	0.7	Small	Slight adverse	N/A
4-205	63.8	54.6	56.2	1.6	Small	Slight adverse	N/A
4-206	64.8	55-3	56.8	1.5	Small	Slight adverse	N/A
4-207	65.9	56.2	57-7	1.5	Small	Slight adverse	N/A
4-208	54.1	46.1	46.9	0.9	Small	Slight adverse	N/A
4-209	68.7	58.5	59.5	1.0	Small	Slight adverse	N/A
4-210	65.8	56.6	57.2	0.5	Small	Slight adverse	N/A
4-211	71.4	60.9	61.5	0.6	Small	Slight adverse	N/A
4-212	68.0	57.8	58.4	0.7	Small	Slight adverse	N/A
4-213	60.3	51.4	51.9	0.5	Small	Slight adverse	N/A
4-214	60.2	51.4	51.9	0.5	Small	Slight adverse	N/A
4-215	65.4	55.6	56.3	0.7	Small	Slight adverse	N/A
4-216	52.6	44-3	44.8	0.5	Small	Slight adverse	N/A
4-217	61.5	51.7	52.6	0.9	Small	Slight adverse	N/A
4-218	68.3	57.4	58.5	1.0	Small	Slight adverse	N/A

Receptor	NO <sub>2</sub> concentr	ations (µg/m³)		Change in	Magnitude	agnitude Impact	
	2012 baseline	Construction without revised scheme	Construction with revised scheme	concentrations (µg/m³)	of change	descriptor	reported main ES impact descriptor
4-219	69.2	58.2	59.3	1.1	Small	Slight adverse	N/A
4-220	60.1	50.5	51.3	0.7	Small	Slight adverse	N/A
4-221	69.5	58.6	60.0	1.3	Small	Slight adverse	N/A
4-222	68.5	57-9	59.1	1.2	Small	Slight adverse	N/A
4-223	50.5	43.1	43.5	0.4	Imperceptible	Negligible	N/A
4-224	71.2	60.9	61.7	0.8	Small	Slight adverse	N/A
4-225	77.1	66.2	67.3	1.0	Small	Slight adverse	N/A
4-226	56.5	48.5	49.0	0.5	Small	Slight adverse	N/A
4-227	51.3	43-9	44-5	0.6	Small	Slight adverse	N/A
4-228	56.9	48.7	49-3	0.6	Small	Slight adverse	N/A
4-229	48.2	35.6	35.6	0.0	Imperceptible	Negligible	N/A
4-230	47.8	35.3	35.3	0.0	Imperceptible	Negligible	N/A
4-231	47.6	35.0	35.0	0.0	Imperceptible	Negligible	N/A
4-232	48.2	35.5	35.5	0.0	Imperceptible	Negligible	N/A
4-233	69.3	53.4	53.5	0.1	Imperceptible	Negligible	N/A
4-234	69.6	53.7	53.8	0.1	Imperceptible	Negligible	N/A
4-235	71.8	55.5	55.6	0.1	Imperceptible	Negligible	N/A
4-236	70.3	54.2	54.3	0.1	Imperceptible	Negligible	N/A

Receptor	NO <sub>2</sub> concentrations (µg/m <sup>3</sup> )		Change in	Impact	Previously		
	2012 baseline	Construction without revised scheme	Construction with revised scheme	concentrations (µg/m <sup>3</sup> )	of change	descriptor	reported main ES impact descriptor
4-237	60.4	45.7	45.7	0.1	Imperceptible	Negligible	N/A
4-238	60.7	51.2	51.3	0.1	Imperceptible	Negligible	N/A
4-239	55.8	46.8	46.8	0.0	Imperceptible	Negligible	N/A
4-240	53.8	45.1	45.1	0.0	Imperceptible	Negligible	N/A
4-241	56.7	48.1	48.1	0.0	Imperceptible	Negligible	N/A
4-242	62.6	53.0	53.0	0.0	Imperceptible	Negligible	N/A
4-243	59.8	50.7	50.7	0.0	Imperceptible	Negligible	N/A
4-244	71.0	61.1	61.1	0.0	Imperceptible	Negligible	N/A
4-245	80.8	69.8	69.8	0.0	Imperceptible	Negligible	N/A
4-246	52.2	45.0	45.0	0.0	Imperceptible	Negligible	N/A
4-247	52.5	45.2	45.2	0.0	Imperceptible	Negligible	N/A
4-248	50.8	43.8	43.9	0.0	Imperceptible	Negligible	N/A
4-249	47.2	40.8	40.8	0.0	Imperceptible	Negligible	N/A
4-250	47.7	41.3	41.3	0.0	Imperceptible	Negligible	N/A
4-251	47.3	40.9	40.9	0.0	Imperceptible	Negligible	N/A
4-252	58.9	49.1	49.1	-0.1	Imperceptible	Negligible	N/A
4-253	70.0	58.2	58.1	0.0	Imperceptible	Negligible	N/A
4-254	52.7	44.0	44.0	0.0	Imperceptible	Negligible	N/A
4-255	63.1	53.1	52.9	-0.2	Imperceptible	Negligible	N/A
4-256	55.1	46.3	46.2	-0.1	Imperceptible	Negligible	N/A
4-257	60.7	51.1	50.9	-0.2	Imperceptible	Negligible	N/A

Receptor	NO <sub>2</sub> concentr	ations (µg/m³)		Change in	Magnitude	Impact	Previously
	2012 baseline	Construction without revised scheme	Construction with revised scheme	concentrations (µg/m³)	of change	descriptor	reported main ES impact descriptor
4-258	54.2	45.3	45.2	-0.2	Imperceptible	Negligible	N/A
4-259	52.0	43.8	43.7	-0.1	Imperceptible	Negligible	N/A
4-260	61.1	51.7	51.5	-0.2	Imperceptible	Negligible	N/A
4-261	47.2	39.9	39.8	-0.1	Imperceptible	Negligible	N/A
4-262	48.1	40.8	42.4	1.6	Small	Slight adverse	N/A
4-263	43.7	37.6	38.9	1.3	Small	Slight adverse	N/A
4-264	43.6	37.6	39.2	1.6	Small	Slight adverse	N/A
4-265	43-3	37.5	38.9	1.4	Small	Slight adverse	N/A

Table 13 : Summary of ADMS-Roads annual mean PM10 results (construction phase)

Receptor	PM10 conce	entrations (μg/m	1 <sup>3</sup> )	Change in	inge in Magnitude		Previously
	2012 baseline	Construction without revised scheme	Construction with revised scheme	concentrations (μg/m³)	of change	descriptor	reported main ES impact descriptor
4-12	26.8	24.7	25.2	0.5	Small	Negligible	Negligible
4-16	26.2	24.2	24.6	0.4	Imperceptible	Negligible	Negligible
4-18	26.8	25.0	25.1	0.1	Imperceptible	Negligible	Negligible
4-19	28.5	26.4	26.8	0.4	Imperceptible	Negligible	Negligible
4-41	28.1	25.9	26.0	0.1	Imperceptible	Negligible	Negligible
4-42	31.3	28.6	28.9	0.3	Imperceptible	Negligible	Negligible
4-43	27.7	25.6	25.7	0.1	Imperceptible	Negligible	Negligible
4-44	27.1	24.9	25.1	0.2	Imperceptible	Negligible	Negligible

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Receptor	PM10 concentrations (µg/m <sup>3</sup> )		Change in	Magnitude	Impact	Previously	
	2012 baseline	Construction without revised scheme	Construction with revised scheme	concentrations (μg/m <sup>3</sup> )	of change	descriptor	reported main ES impact descriptor
4-45	26.5	24.5	24.7	0.2	Imperceptible	Negligible	Negligible
4-46	24.9	23.1	23.3	0.1	Imperceptible	Negligible	Negligible
4-47	24.8	23.0	23.3	0.3	Imperceptible	Negligible	Negligible
4-48	24.8	23.1	23.2	0.1	Imperceptible	Negligible	Negligible
4-49	24.2	22.5	22.6	0.0	Imperceptible	Negligible	Negligible
4-50	26.4	24.6	24.6	0.1	Imperceptible	Negligible	Negligible
4-51	26.4	24.5	24.6	0.0	Imperceptible	Negligible	Negligible
4-53	29.8	27.4	27.6	0.1	Imperceptible	Negligible	Negligible
4-54	27.6	25.6	25.7	0.1	Imperceptible	Negligible	Negligible
4-55	28.3	26.2	26.4	0.2	Imperceptible	Negligible	Negligible
4-69	26.2	24.3	24.3	0.0	Imperceptible	Negligible	Negligible
4-70	27.2	25.2	25.4	0.2	Imperceptible	Negligible	N/A
4-71	25.8	24.0	23.9	-0.1	Imperceptible	Negligible	N/A
4-72	24.4	22.7	22.7	0.0	Imperceptible	Negligible	N/A
4-73	24.9	23.3	23.3	0.0	Imperceptible	Negligible	N/A
4-74	26.1	24.3	24.2	-0.1	Imperceptible	Negligible	N/A
4-75	26.7	24.7	24.7	0.0	Imperceptible	Negligible	N/A
4-76	24.1	22.4	22.5	0.0	Imperceptible	Negligible	N/A
4-77	26.7	24.7	24.6	-0.1	Imperceptible	Negligible	N/A
4-78	26.1	24.2	24.1	-0.1	Imperceptible	Negligible	N/A
4-79	25.4	23.6	23.6	-0.1	Imperceptible	Negligible	N/A

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Receptor	PM10 conce	entrations (µg/m	1 <sup>3</sup> )	Change in	Magnitude	Impact	Previously
	2012 baseline	Construction without revised scheme	Construction with revised scheme	concentrations (µg/m <sup>3</sup> )	of change	descriptor	reported main ES impact descriptor
4-80	26.2	24.3	24.2	-0.1	Imperceptible	Negligible	N/A
4-81	27.1	25.2	25.1	-0.1	Imperceptible	Negligible	N/A
4-82	28.5	26.3	26.1	-0.1	Imperceptible	Negligible	N/A
4-83	28.7	26.5	26.3	-0.1	Imperceptible	Negligible	N/A
4-84	27.4	25.4	25.3	0.0	Imperceptible	Negligible	N/A
4-85	23.3	21.7	21.7	0.0	Imperceptible	Negligible	N/A
4-86	24.9	22.9	22.9	0.0	Imperceptible	Negligible	N/A
4-87	24.1	22.4	22.5	0.1	Imperceptible	Negligible	N/A
4-88	24.1	22.4	22.5	0.1	Imperceptible	Negligible	N/A
4-89	24.4	22.7	23.1	0.4	Imperceptible	Negligible	N/A
4-90	32.2	29.2	29.5	0.3	Imperceptible	Negligible	N/A
4-91	30.7	28.1	28.1	0.0	Imperceptible	Negligible	N/A
4-92	26.0	24.0	24.2	0.2	Imperceptible	Negligible	N/A
4-93	25.5	23.7	24.1	0.5	Small	Negligible	N/A
4-94	25.7	23.8	24.0	0.2	Imperceptible	Negligible	N/A
4-95	37.4	33.6	34.1	0.5	Small	Negligible	N/A
4-96	34.1	31.0	31.1	0.2	Imperceptible	Negligible	N/A
4-97	31.2	28.5	28.8	0.3	Imperceptible	Negligible	N/A
4-98	25.1	23.1	23.0	0.0	Imperceptible	Negligible	N/A
4-99	33.5	30.5	30.5	0.0	Imperceptible	Negligible	N/A
4-100	32.7	29.9	29.9	0.0	Imperceptible	Negligible	N/A

Receptor	PM10 concentrations (μg/m³)		Change in	Magnitude	Impact	Previously	
	2012 baseline	Construction without revised scheme	Construction with revised scheme	concentrations (µg/m <sup>3</sup> )	of change	descriptor	reported main ES impact descriptor
4-101	30.2	27.6	27.6	0.0	Imperceptible	Negligible	N/A
4-102	30.5	28.0	28.0	0.0	Imperceptible	Negligible	N/A
4-103	28.6	26.4	26.5	0.1	Imperceptible	Negligible	N/A
4-104	30.7	28.2	28.4	0.2	Imperceptible	Negligible	N/A
4-105	27.2	25.2	25.3	0.1	Imperceptible	Negligible	N/A
4-106	27.3	25.3	25.4	0.1	Imperceptible	Negligible	N/A
4-107	27.3	25.3	25.4	0.1	Imperceptible	Negligible	N/A
4-108	27.9	25.9	26.0	0.2	Imperceptible	Negligible	N/A
4-109	28.3	26.1	26.3	0.2	Imperceptible	Negligible	N/A
4-110	27.9	25.9	26.0	0.2	Imperceptible	Negligible	N/A
4-111	27.2	25.2	25.3	0.1	Imperceptible	Negligible	N/A
4-112	24.9	23.1	23.4	0.4	Imperceptible	Negligible	N/A
4-113	23.0	21.5	21.5	0.0	Imperceptible	Negligible	N/A
4-114	32.2	29.4	29.6	0.2	Imperceptible	Negligible	N/A
4-115	27.0	24.9	25.1	0.2	Imperceptible	Negligible	N/A
4-116	25.5	23.8	23.8	0.0	Imperceptible	Negligible	N/A
4-117	25.8	24.1	24.0	0.0	Imperceptible	Negligible	N/A
4-118	27.0	25.1	25.1	0.0	Imperceptible	Negligible	N/A
4-119	25.7	23.9	23.9	0.0	Imperceptible	Negligible	N/A
4-120	24.9	23.1	23.2	0.1	Imperceptible	Negligible	N/A
4-121	27.8	25.7	25.8	0.1	Imperceptible	Negligible	N/A

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Receptor	PM10 concentrations (µg/m³)		Change in	Magnitude	Impact	Previously	
	2012 baseline	Construction without revised scheme	Construction with revised scheme	concentrations (µg/m <sup>3</sup> )	of change	descriptor	reported main ES impact descriptor
4-122	28.6	26.5	26.7	0.2	Imperceptible	Negligible	N/A
4-123	27.2	25.3	25.5	0.2	Imperceptible	Negligible	N/A
4-124	28.5	26.4	26.6	0.3	Imperceptible	Negligible	N/A
4-125	32.1	29.0	29.3	0.3	Imperceptible	Negligible	N/A
4-126	26.6	24.7	24.7	0.0	Imperceptible	Negligible	N/A
4-127	24.5	22.8	22.8	0.0	Imperceptible	Negligible	N/A
4-128	24.2	22.5	22.5	0.0	Imperceptible	Negligible	N/A
4-129	24.2	22.6	22.6	0.0	Imperceptible	Negligible	N/A
4-130	27.5	25.3	25.3	0.0	Imperceptible	Negligible	N/A
4-131	29.6	27.2	27.3	0.0	Imperceptible	Negligible	N/A
4-132	27.0	25.0	25.1	0.0	Imperceptible	Negligible	N/A
4-133	26.4	24.5	24.5	0.1	Imperceptible	Negligible	N/A
4-134	26.1	24.4	24.5	0.1	Imperceptible	Negligible	N/A
4-135	26.1	24.2	24.1	-0.1	Imperceptible	Negligible	N/A
4-136	25.8	24.0	23.9	-0.1	Imperceptible	Negligible	N/A
4-137	26.1	24.4	24.3	-0.1	Imperceptible	Negligible	N/A
4-138	27.3	25.4	25.3	-0.1	Imperceptible	Negligible	N/A
4-139	27.4	25.4	25.4	0.0	Imperceptible	Negligible	N/A
4-140	27.2	25.2	25.2	0.0	Imperceptible	Negligible	N/A
4-141	27.9	25.8	25.7	0.0	Imperceptible	Negligible	N/A
4-142	27.6	25.4	25.4	0.0	Imperceptible	Negligible	N/A

Receptor	PM10 concentrations (µg/m³)		Change in	Magnitude	Impact	Previously	
	2012 baseline	Construction without revised scheme	Construction with revised scheme	concentrations (µg/m <sup>3</sup> )	of change	descriptor	reported main ES impact descriptor
4-143	25.1	23.3	23.6	0.3	Imperceptible	Negligible	N/A
4-144	23.2	21.7	21.7	0.1	Imperceptible	Negligible	N/A
4-145	23.1	21.5	21.5	0.0	Imperceptible	Negligible	N/A
4-146	23.0	21.4	21.4	0.0	Imperceptible	Negligible	N/A
4-147	24.7	22.8	22.8	0.0	Imperceptible	Negligible	N/A
4-148	24.9	22.9	22.9	0.0	Imperceptible	Negligible	N/A
4-149	23.4	21.9	22.0	0.2	Imperceptible	Negligible	N/A
4-150	23.4	21.8	22.0	0.2	Imperceptible	Negligible	N/A
4-151	30.2	27.8	28.0	0.3	Imperceptible	Negligible	N/A
4-152	34.2	31.1	31.3	0.2	Imperceptible	Negligible	N/A
4-153	30.8	28.2	28.3	0.1	Imperceptible	Negligible	N/A
4-154	34.0	30.8	31.1	0.3	Imperceptible	Negligible	N/A
4-155	34.8	31.5	31.7	0.3	Imperceptible	Negligible	N/A
4-156	36.6	33.1	33.2	0.0	Imperceptible	Negligible	N/A
4-157	24.8	22.9	23.0	0.1	Imperceptible	Negligible	N/A
4-158	25.2	23.4	23.6	0.2	Imperceptible	Negligible	N/A
4-159	24.6	22.8	23.0	0.1	Imperceptible	Negligible	N/A
4-160	24.5	22.8	23.0	0.2	Imperceptible	Negligible	N/A
4-161	30.3	27.8	27.9	0.2	Imperceptible	Negligible	N/A
4-162	35.1	31.8	31.8	0.0	Imperceptible	Negligible	N/A
4-163	32.3	29.5	29.5	0.0	Imperceptible	Negligible	N/A

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Receptor	PM10 concentrations (μg/m³)		Change in	Magnitude	Impact	Previously	
	2012 baseline	Construction without revised scheme	Construction with revised scheme	concentrations (µg/m <sup>3</sup> )	of change	descriptor	reported main ES impact descriptor
4-164	31.3	28.6	28.6	0.0	Imperceptible	Negligible	N/A
4-165	32.2	29.4	29.4	0.0	Imperceptible	Negligible	N/A
4-166	32.5	29.7	29.6	0.0	Imperceptible	Negligible	N/A
4-167	30.3	27.7	27.7	0.0	Imperceptible	Negligible	N/A
4-168	30.5	28.0	28.0	0.0	Imperceptible	Negligible	N/A
4-169	37.8	34.2	34.2	0.0	Imperceptible	Negligible	N/A
4-170	29.2	26.9	26.9	0.0	Imperceptible	Negligible	N/A
4-171	31.2	28.6	28.7	0.1	Imperceptible	Negligible	N/A
4-172	29.4	27.1	27.1	0.0	Imperceptible	Negligible	N/A
4-173	32.7	29.8	30.0	0.1	Imperceptible	Negligible	N/A
4-174	29.0	26.7	26.8	0.1	Imperceptible	Negligible	N/A
4-175	29.4	27.1	27.2	0.1	Imperceptible	Negligible	N/A
4-176	29.1	26.9	27.1	0.2	Imperceptible	Negligible	N/A
4-177	28.3	26.2	26.3	0.1	Imperceptible	Negligible	N/A
4-178	27.2	25.2	25.3	0.1	Imperceptible	Negligible	N/A
4-179	27.9	25.8	26.0	0.1	Imperceptible	Negligible	N/A
4-180	28.5	26.4	26.5	0.2	Imperceptible	Negligible	N/A
4-181	27.7	25.7	25.8	0.1	Imperceptible	Negligible	N/A
4-182	28.1	26.0	26.1	0.2	Imperceptible	Negligible	N/A
4-183	27.6	25.6	25.7	0.1	Imperceptible	Negligible	N/A
4-184	27.4	25.4	25.5	0.1	Imperceptible	Negligible	N/A

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Receptor	PM10 concentrations (µg/m³)		Change in	Magnitude	Impact	Previously	
	2012 baseline	Construction without revised scheme	Construction with revised scheme	concentrations (µg/m <sup>3</sup> )	of change	descriptor	reported main ES impact descriptor
4-185	27.6	25.5	25.7	0.1	Imperceptible	Negligible	N/A
4-186	28.1	26.0	26.1	0.2	Imperceptible	Negligible	N/A
4-187	26.9	25.0	25.1	0.1	Imperceptible	Negligible	N/A
4-188	28.3	26.2	26.3	0.2	Imperceptible	Negligible	N/A
4-189	28.4	26.2	26.4	0.2	Imperceptible	Negligible	N/A
4-190	28.6	26.4	26.5	0.2	Imperceptible	Negligible	N/A
4-191	27.1	25.1	25.2	0.1	Imperceptible	Negligible	N/A
4-192	27.2	25.1	25.3	0.1	Imperceptible	Negligible	N/A
4-193	27.5	25.4	25.6	0.2	Imperceptible	Negligible	N/A
4-194	27.1	25.1	25.2	0.1	Imperceptible	Negligible	N/A
4-195	27.0	25.0	25.2	0.1	Imperceptible	Negligible	N/A
4-196	27.2	25.2	25.3	0.1	Imperceptible	Negligible	N/A
4-197	26.8	24.8	24.9	0.1	Imperceptible	Negligible	N/A
4-198	27.7	25.5	25.7	0.2	Imperceptible	Negligible	N/A
4-199	24.9	23.0	23.4	0.3	Imperceptible	Negligible	N/A
4-200	24.9	23.0	23.4	0.3	Imperceptible	Negligible	N/A
4-201	24.2	22.5	22.7	0.2	Imperceptible	Negligible	N/A
4-202	24.8	23.0	23.3	0.3	Imperceptible	Negligible	N/A
4-203	32.5	29.5	29.8	0.3	Imperceptible	Negligible	N/A
4-204	30.3	27.7	27.9	0.2	Imperceptible	Negligible	N/A
4-205	27.3	25.1	25.3	0.3	Imperceptible	Negligible	N/A

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Receptor	PM10 concentrations (µg/m³)		Change in	Magnitude	Impact	Previously	
	2012 baseline	Construction without revised scheme	Construction with revised scheme	concentrations (µg/m³)	of change	descriptor	reported main ES impact descriptor
4-206	27.4	25.2	25.4	0.2	Imperceptible	Negligible	N/A
4-207	27.8	25.5	25.8	0.3	Imperceptible	Negligible	N/A
4-208	25.4	23.5	23.6	0.1	Imperceptible	Negligible	N/A
4-209	27.6	25.4	25.6	0.2	Imperceptible	Negligible	N/A
4-210	28.9	26.8	26.9	0.1	Imperceptible	Negligible	N/A
4-211	29.8	27.5	27.7	0.2	Imperceptible	Negligible	N/A
4-212	29.2	27.0	27.2	0.2	Imperceptible	Negligible	N/A
4-213	27.9	25.9	26.0	0.1	Imperceptible	Negligible	N/A
4-214	27.8	25.8	25.9	0.1	Imperceptible	Negligible	N/A
4-215	28.7	26.6	26.7	0.1	Imperceptible	Negligible	N/A
4-216	25.5	23.8	23.9	0.1	Imperceptible	Negligible	N/A
4-217	26.9	24.9	25.1	0.2	Imperceptible	Negligible	N/A
4-218	26.9	25.0	25.1	0.2	Imperceptible	Negligible	N/A
4-219	27.8	25.8	26.0	0.2	Imperceptible	Negligible	N/A
4-220	26.5	24.6	24.7	0.1	Imperceptible	Negligible	N/A
4-221	27.4	25.4	25.6	0.2	Imperceptible	Negligible	N/A
4-222	27.2	25.2	25.4	0.2	Imperceptible	Negligible	N/A
4-223	24.6	22.9	23.0	0.1	Imperceptible	Negligible	N/A
4-224	28.0	25.8	26.0	0.2	Imperceptible	Negligible	N/A
4-225	29.2	26.9	27.1	0.2	Imperceptible	Negligible	N/A
4-226	25.1	23.4	23.4	0.1	Imperceptible	Negligible	N/A
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Receptor	PM10 conce	entrations (µg/m	1 <sup>3</sup> )	Change in	Magnitude	Impact	Previously
	2012 baseline	Construction without revised scheme	Construction with revised scheme	concentrations (µg/m <sup>3</sup> )	of change	descriptor	reported main ES impact descriptor
4-227	25.0	23.2	23.3	0.1	Imperceptible	Negligible	N/A
4-228	25.6	23.7	23.8	0.1	Imperceptible	Negligible	N/A
4-229	24.3	22.7	22.7	0.0	Imperceptible	Negligible	N/A
4-230	24.2	22.6	22.6	0.0	Imperceptible	Negligible	N/A
4-231	24.2	22.5	22.5	0.0	Imperceptible	Negligible	N/A
4-232	24.3	22.6	22.6	0.0	Imperceptible	Negligible	N/A
4-233	27.6	25.4	25.4	0.0	Imperceptible	Negligible	N/A
4-234	27.6	25.4	25.4	0.0	Imperceptible	Negligible	N/A
4-235	28.0	25.7	25.7	0.0	Imperceptible	Negligible	N/A
4-236	27.5	25.3	25.3	0.0	Imperceptible	Negligible	N/A
4-237	26.0	24.1	24.1	0.0	Imperceptible	Negligible	N/A
4-238	27.4	25.2	25.2	0.0	Imperceptible	Negligible	N/A
4-239	27.4	25.2	25.2	0.0	Imperceptible	Negligible	N/A
4-240	27.0	24.8	24.9	0.0	Imperceptible	Negligible	N/A
4-241	27.4	25.2	25.2	0.0	Imperceptible	Negligible	N/A
4-242	28.4	26.0	26.0	0.0	Imperceptible	Negligible	N/A
4-243	28.0	25.7	25.7	0.0	Imperceptible	Negligible	N/A
4-244	30.6	28.1	28.1	0.0	Imperceptible	Negligible	N/A
4-245	31.9	29.0	28.9	0.0	Imperceptible	Negligible	N/A
4-246	27.0	25.1	25.1	0.0	Imperceptible	Negligible	N/A
4-247	27.1	25.1	25.1	0.0	Imperceptible	Negligible	N/A

		SES	and AP2 ES	Appendix AQ	-001-004		
Receptor	PM10 cond	entrations (µg/n	1 <sup>3</sup> )	Change in	Magnitude	Impact	Previously
	2012 baseline	Construction without revised scheme	Construction with revised scheme	n concentrations (μg/m <sup>3</sup> )	of change	descriptor	reported main ES impact descriptor
4-248	26.8	24.9	24.9	0.0	Imperceptible	Negligible	N/A
4-249	26.3	24.5	24.5	0.0	Imperceptible	Negligible	N/A
4-250	26.4	24.5	24.5	0.0	Imperceptible	Negligible	N/A
4-251	26.3	24.5	24.5	0.0	Imperceptible	Negligible	N/A
4-252	27.1	25.1	25.1	0.0	Imperceptible	Negligible	N/A
4-253	29.5	27.2	27.2	0.0	Imperceptible	Negligible	N/A
4-254	26.1	24.3	24.3	0.0	Imperceptible	Negligible	N/A
4-255	28.0	26.0	26.0	0.0	Imperceptible	Negligible	N/A
4-256	26.3	24.5	24.5	0.0	Imperceptible	Negligible	N/A
4-257	27.7	25.8	25.8	0.0	Imperceptible	Negligible	N/A
4-258	26.3	24.6	24.5	0.0	Imperceptible	Negligible	N/A
4-259	25.7	24.0	24.0	0.0	Imperceptible	Negligible	N/A
4-260	27.0	25.1	25.1	0.0	Imperceptible	Negligible	N/A
4-261	24.9	23.2	23.2	0.0	Imperceptible	Negligible	N/A
4-262	24.0	22.3	22.6	0.3	Imperceptible	Negligible	N/A

0.2

0.3

0.2

22.1

22.1

22.1

Imperceptible

Imperceptible

Imperceptible

Negligible

Negligible

Negligible

N/A

N/A

N/A

4-263

4-264

4-265

23.4

23.4

23.4

21.8

21.9

21.8

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Receptor	Number of days exceeding PM10 24-hour		Change in	Magnitude of change	Impact descriptor	Previously reported main	
	2012 baseline	Construction without revised scheme	Construction with revised scheme	uuys	of change	uescriptor	ES impact descriptor
4-12	17	12	13	1	Small	Negligible	Negligible
4-16	15	11	11	1	Imperceptible	Negligible	Negligible
4-18	17	12	13	0	Imperceptible	Negligible	Negligible
4-19	22	16	17	1	Small	Negligible	Negligible
4-41	21	15	15	0	Imperceptible	Negligible	Negligible
4-42	32	23	24	1	Imperceptible	Negligible	Negligible
4-43	20	14	14	0	Imperceptible	Negligible	Negligible
4-44	18	12	13	1	Imperceptible	Negligible	Negligible
4-45	16	11	12	0	Imperceptible	Negligible	Negligible
4-46	12	8	9	0	Imperceptible	Negligible	Negligible
4-47	12	8	9	1	Imperceptible	Negligible	Negligible
4-48	12	8	8	0	Imperceptible	Negligible	Negligible
4-49	11	7	7	0	Imperceptible	Negligible	Negligible
4-50	16	11	12	0	Imperceptible	Negligible	Negligible
4-51	16	11	11	0	Imperceptible	Negligible	Negligible
4-53	27	19	19	0	Imperceptible	Negligible	Negligible
4-54	20	14	14	0	Imperceptible	Negligible	Negligible
4-55	22	15	16	1	Imperceptible	Negligible	Negligible
4-69	15	11	11	0	Imperceptible	Negligible	N/A
4-70	18	13	13	1	Imperceptible	Negligible	N/A

Table 14 : Summary of ADMS-Roads 24-hour mean PM10 results (construction phase)

Receptor	Number of days exceeding PM10 24-hour			Change in	Magnitude	Impact	Previously reported main
	2012 baseline	Construction without revised scheme	Construction with revised scheme	uays	of change	descriptor	ES impact descriptor
4-71	14	10	10	0	Imperceptible	Negligible	N/A
4-72	11	8	8	0	Imperceptible	Negligible	N/A
4-73	12	9	9	0	Imperceptible	Negligible	N/A
4-74	15	11	11	0	Imperceptible	Negligible	N/A
4-75	17	12	12	0	Imperceptible	Negligible	N/A
4-76	10	7	7	0	Imperceptible	Negligible	N/A
4-77	17	12	12	0	Imperceptible	Negligible	N/A
4-78	15	11	10	0	Imperceptible	Negligible	N/A
4-79	13	9	9	0	Imperceptible	Negligible	N/A
4-80	15	11	11	0	Imperceptible	Negligible	N/A
4-81	18	13	13	0	Imperceptible	Negligible	N/A
4-82	22	16	15	0	Imperceptible	Negligible	N/A
4-83	23	16	16	0	Imperceptible	Negligible	N/A
4-84	19	13	13	0	Imperceptible	Negligible	N/A
4-85	9	6	6	0	Imperceptible	Negligible	N/A
4-86	12	8	8	0	Imperceptible	Negligible	N/A
4-87	10	7	7	0	Imperceptible	Negligible	N/A
4-88	10	7	7	0	Imperceptible	Negligible	N/A
4-89	11	8	8	1	Imperceptible	Negligible	N/A
4-90	36	25	26	1	Imperceptible	Negligible	N/A
4-91	30	21	21	0	Imperceptible	Negligible	N/A

Receptor	Number of days exceeding PM10 24-hour standard		M10 24-hour	Change in days	Magnitude of change	Impact descriptor	Previously reported main
	2012 baseline	Construction without revised scheme	Construction with revised scheme		5		ES impact descriptor
4-92	15	10	11	0	Imperceptible	Negligible	N/A
4-93	14	9	10	1	Imperceptible	Negligible	N/A
4-94	14	10	10	0	Imperceptible	Negligible	N/A
4-95	63	43	45	2	Medium	Moderate adverse	N/A
4-96	45	31	32	1	Imperceptible	Negligible	N/A
4-97	32	22	23	1	Imperceptible	Negligible	N/A
4-98	13	8	8	0	Imperceptible	Negligible	N/A
4-99	42	29	29	0	Imperceptible	Negligible	N/A
4-100	39	27	27	0	Imperceptible	Negligible	N/A
4-101	28	20	19	0	Imperceptible	Negligible	N/A
4-102	29	21	21	0	Imperceptible	Negligible	N/A
4-103	23	16	16	0	Imperceptible	Negligible	N/A
4-104	30	21	22	1	Imperceptible	Negligible	N/A
4-105	18	13	13	0	Imperceptible	Negligible	N/A
4-106	19	13	13	0	Imperceptible	Negligible	N/A
4-107	19	13	13	0	Imperceptible	Negligible	N/A
4-108	21	15	15	0	Imperceptible	Negligible	N/A
4-109	22	15	16	0	Imperceptible	Negligible	N/A
4-110	21	15	15	0	Imperceptible	Negligible	N/A
4-111	18	13	13	0	Imperceptible	Negligible	N/A

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Receptor	Number of days exceeding PM10 24-hour standard			Change in davs	Magnitude of change	Impact descriptor	Previously reported main
	2012 baseline	Construction without revised scheme	Construction with revised scheme				ES impact descriptor
4-112	12	8	9	1	Imperceptible	Negligible	N/A
4-113	8	5	5	0	Imperceptible	Negligible	N/A
4-114	36	25	26	1	Imperceptible	Negligible	N/A
4-115	18	12	13	1	Imperceptible	Negligible	N/A
4-116	14	10	10	0	Imperceptible	Negligible	N/A
4-117	14	10	10	0	Imperceptible	Negligible	N/A
4-118	18	13	13	0	Imperceptible	Negligible	N/A
4-119	14	10	10	0	Imperceptible	Negligible	N/A
4-120	12	8	9	0	Imperceptible	Negligible	N/A
4-121	20	14	14	0	Imperceptible	Negligible	N/A
4-122	23	16	17	0	Imperceptible	Negligible	N/A
4-123	18	13	14	1	Imperceptible	Negligible	N/A
4-124	22	16	17	1	Imperceptible	Negligible	N/A
4-125	36	24	25	1	Small	Negligible	N/A
4-126	17	12	12	0	Imperceptible	Negligible	N/A
4-127	11	8	8	0	Imperceptible	Negligible	N/A
4-128	10	7	7	0	Imperceptible	Negligible	N/A
4-129	11	7	7	0	Imperceptible	Negligible	N/A
4-130	19	13	13	0	Imperceptible	Negligible	N/A
4-131	26	18	18	0	Imperceptible	Negligible	N/A
4-132	18	12	13	0	Imperceptible	Negligible	N/A

Receptor	Number of days exceeding PM10 24-hour			Change in	Magnitude of change	Impact	Previously reported main
	2012 baseline	Construction without revised scheme	Construction with revised scheme	uays	of change	descriptor	ES impact descriptor
4-133	16	11	11	0	Imperceptible	Negligible	N/A
4-134	15	11	11	0	Imperceptible	Negligible	N/A
4-135	15	11	10	0	Imperceptible	Negligible	N/A
4-136	14	10	10	0	Imperceptible	Negligible	N/A
4-137	15	11	11	0	Imperceptible	Negligible	N/A
4-138	19	13	13	0	Imperceptible	Negligible	N/A
4-139	19	13	13	0	Imperceptible	Negligible	N/A
4-140	18	13	13	0	Imperceptible	Negligible	N/A
4-141	20	14	14	0	Imperceptible	Negligible	N/A
4-142	19	13	13	0	Imperceptible	Negligible	N/A
4-143	13	9	9	1	Imperceptible	Negligible	N/A
4-144	9	6	6	0	Imperceptible	Negligible	N/A
4-145	8	6	6	0	Imperceptible	Negligible	N/A
4-146	8	5	5	0	Imperceptible	Negligible	N/A
4-147	12	8	8	0	Imperceptible	Negligible	N/A
4-148	12	8	8	0	Imperceptible	Negligible	N/A
4-149	9	6	6	0	Imperceptible	Negligible	N/A
4-150	9	6	6	0	Imperceptible	Negligible	N/A
4-151	28	20	21	1	Imperceptible	Negligible	N/A
4-152	45	32	32	1	Imperceptible	Negligible	N/A
4-153	30	21	22	0	Imperceptible	Negligible	N/A

Receptor	Number of days exceeding PM10 24-hour standard		Change in days	Magnitude of change	Impact descriptor	Previously reported main	
	2012 baseline	Construction without revised scheme	Construction with revised scheme				ES impact descriptor
4-154	45	31	32	1	Small	Negligible	N/A
4-155	49	33	34	1	Small	Slight adverse	N/A
4-156	58	41	41	0	Imperceptible	Negligible	N/A
4-157	12	8	8	0	Imperceptible	Negligible	N/A
4-158	13	9	9	0	Imperceptible	Negligible	N/A
4-159	11	8	8	0	Imperceptible	Negligible	N/A
4-160	11	8	8	0	Imperceptible	Negligible	N/A
4-161	29	20	20	0	Imperceptible	Negligible	N/A
4-162	50	34	35	0	Imperceptible	Negligible	N/A
4-163	37	26	26	0	Imperceptible	Negligible	N/A
4-164	32	23	23	0	Imperceptible	Negligible	N/A
4-165	36	25	25	0	Imperceptible	Negligible	N/A
4-166	37	26	26	0	Imperceptible	Negligible	N/A
4-167	29	20	20	0	Imperceptible	Negligible	N/A
4-168	29	21	21	0	Imperceptible	Negligible	N/A
4-169	65	46	46	0	Imperceptible	Negligible	N/A
4-170	25	17	17	0	Imperceptible	Negligible	N/A
4-171	32	23	23	0	Imperceptible	Negligible	N/A
4-172	25	18	18	0	Imperceptible	Negligible	N/A
4-173	39	27	27	1	Imperceptible	Negligible	N/A

### SES and AP<sub>2</sub> ES Appendix AQ-001-004

Receptor	Number of days exceeding PM10 24-hour			Change in days	Magnitude of change	Impact descriptor	Previously reported main
	2012 baseline	Construction without revised scheme	Construction with revised scheme				ES impact descriptor
4-174	24	17	17	0	Imperceptible	Negligible	N/A
4-175	25	18	18	0	Imperceptible	Negligible	N/A
4-176	24	17	18	0	Imperceptible	Negligible	N/A
4-177	22	15	16	0	Imperceptible	Negligible	N/A
4-178	18	13	13	0	Imperceptible	Negligible	N/A
4-179	20	14	15	0	Imperceptible	Negligible	N/A
4-180	22	16	16	0	Imperceptible	Negligible	N/A
4-181	20	14	14	0	Imperceptible	Negligible	N/A
4-182	21	15	15	0	Imperceptible	Negligible	N/A
4-183	20	14	14	0	Imperceptible	Negligible	N/A
4-184	19	13	14	0	Imperceptible	Negligible	N/A
4-185	19	14	14	0	Imperceptible	Negligible	N/A
4-186	21	15	15	0	Imperceptible	Negligible	N/A
4-187	17	12	13	0	Imperceptible	Negligible	N/A
4-188	22	15	16	0	Imperceptible	Negligible	N/A
4-189	22	15	16	0	Imperceptible	Negligible	N/A
4-190	23	16	16	0	Imperceptible	Negligible	N/A
4-191	18	13	13	0	Imperceptible	Negligible	N/A
4-192	18	13	13	0	Imperceptible	Negligible	N/A
4-193	19	13	14	0	Imperceptible	Negligible	N/A
4-194	18	13	13	0	Imperceptible	Negligible	N/A

Receptor	Number of days exceeding PM10 24-hour			Change in days	Magnitude of change	Impact descriptor	Previously reported main
	2012 baseline	Construction without revised	Construction with revised scheme		orenange	descriptor	ES impact descriptor
		scheme					
4-195	18	12	13	0	Imperceptible	Negligible	N/A
4-196	18	13	13	0	Imperceptible	Negligible	N/A
4-197	17	12	12	0	Imperceptible	Negligible	N/A
4-198	20	14	14	0	Imperceptible	Negligible	N/A
4-199	12	8	9	1	Imperceptible	Negligible	N/A
4-200	12	8	9	1	Imperceptible	Negligible	N/A
4-201	11	7	8	0	Imperceptible	Negligible	N/A
4-202	12	8	9	1	Imperceptible	Negligible	N/A
4-203	38	26	27	1	Imperceptible	Negligible	N/A
4-204	28	20	20	1	Imperceptible	Negligible	N/A
4-205	18	13	13	1	Imperceptible	Negligible	N/A
4-206	19	13	13	1	Imperceptible	Negligible	N/A
4-207	20	14	14	1	Imperceptible	Negligible	N/A
4-208	13	9	9	0	Imperceptible	Negligible	N/A
4-209	20	13	14	0	Imperceptible	Negligible	N/A
4-210	24	17	17	0	Imperceptible	Negligible	N/A
4-211	27	19	20	0	Imperceptible	Negligible	N/A
4-212	25	18	18	0	Imperceptible	Negligible	N/A
4-213	20	15	15	0	Imperceptible	Negligible	N/A
4-214	20	14	15	0	Imperceptible	Negligible	N/A
4-215	23	16	17	0	Imperceptible	Negligible	N/A

Receptor	Number of days exceeding PM10 24-hour			Change in	Magnitude of change	Impact descriptor	Previously reported main
	2012 baseline	Construction without revised scheme	Construction with revised scheme	uays	of change	uescriptor	ES impact descriptor
4-216	14	10	10	0	Imperceptible	Negligible	N/A
4-217	17	12	13	0	Imperceptible	Negligible	N/A
4-218	17	12	13	0	Imperceptible	Negligible	N/A
4-219	20	14	15	0	Imperceptible	Negligible	N/A
4-220	16	11	12	0	Imperceptible	Negligible	N/A
4-221	19	13	14	1	Imperceptible	Negligible	N/A
4-222	18	13	13	0	Imperceptible	Negligible	N/A
4-223	11	8	8	0	Imperceptible	Negligible	N/A
4-224	21	14	15	0	Imperceptible	Negligible	N/A
4-225	25	17	18	1	Imperceptible	Negligible	N/A
4-226	13	9	9	0	Imperceptible	Negligible	N/A
4-227	12	8	9	0	Imperceptible	Negligible	N/A
4-228	14	10	10	0	Imperceptible	Negligible	N/A
4-229	11	7	7	0	Imperceptible	Negligible	N/A
4-230	11	7	7	0	Imperceptible	Negligible	N/A
4-231	10	7	7	0	Imperceptible	Negligible	N/A
4-232	11	7	7	0	Imperceptible	Negligible	N/A
4-233	20	13	13	0	Imperceptible	Negligible	N/A
4-234	19	13	13	0	Imperceptible	Negligible	N/A
4-235	21	14	14	0	Imperceptible	Negligible	N/A
4-236	19	13	13	0	Imperceptible	Negligible	N/A

Receptor	Number of da	ays exceeding Pl	M10 24-hour	Change in	Magnitude	Impact	Previously reported main	
	2012 baseline	Construction without revised scheme	Construction with revised scheme	uays	of change	descriptor	ES impact descriptor	
4-237	15	10	10	0	Imperceptible	Negligible	N/A	
4-238	19	13	13	0	Imperceptible	Negligible	N/A	
4-239	19	13	13	0	Imperceptible	Negligible	N/A	
4-240	18	12	12	0	Imperceptible	Negligible	N/A	
4-241	19	13	13	0	Imperceptible	Negligible	N/A	
4-242	22	15	15	0	Imperceptible	Negligible	N/A	
4-243	21	14	14	0	Imperceptible	Negligible	N/A	
4-244	30	21	21	0	Imperceptible	Negligible	N/A	
4-245	35	24	24	0	Imperceptible	Negligible	N/A	
4-246	18	13	13	0	Imperceptible	Negligible	N/A	
4-247	18	13	13	0	Imperceptible	Negligible	N/A	
4-248	17	12	12	0	Imperceptible	Negligible	N/A	
4-249	16	11	11	0	Imperceptible	Negligible	N/A	
4-250	16	11	11	0	Imperceptible	Negligible	N/A	
4-251	16	11	11	0	Imperceptible	Negligible	N/A	
4-252	18	13	13	0	Imperceptible	Negligible	N/A	
4-253	26	18	18	0	Imperceptible	Negligible	N/A	
4-254	15	11	11	0	Imperceptible	Negligible	N/A	
4-255	21	15	15	0	Imperceptible	Negligible	N/A	
4-256	16	11	11	0	Imperceptible	Negligible	N/A	
4-257	20	14	14	0	Imperceptible	Negligible	N/A	

Receptor	Number of da standard	ays exceeding PI	M10 24-hour	Change in days	Magnitude of change	Impact descriptor	Previously reported main
	2012 baseline	Construction without revised scheme	Construction with revised scheme				ES impact descriptor
4-258	16	11	11	0	Imperceptible	Negligible	N/A
4-259	14	10	10	0	Imperceptible	Negligible	N/A
4-260	18	13	13	0	Imperceptible	Negligible	N/A
4-261	12	9	9	0	Imperceptible	Negligible	N/A
4-262	10	7	7	1	Imperceptible	Negligible	N/A
4-263	9	6	6	0	Imperceptible	Negligible	N/A
4-264	9	6	7	0	Imperceptible	Negligible	N/A
4-265	9	6	6	0	Imperceptible	Negligible	N/A

#### Assessment of significance

- 3.3.5 The significance of the impacts on air quality from construction traffic associated with the AP2 revised scheme has been assessed in accordance with the EPUK methodology<sup>4</sup>. AQMAs cover the study area, and pollution levels exceed air quality standards in many locations, particularly along major roads.
- 3.3.6 The ADMS-Roads assessment predicted that there will be numerous locations where air quality standards are exceeded, with and without the AP<sub>2</sub> revised scheme. Many receptor locations will also experience an increase in concentrations of NO<sub>2</sub> and PM<sub>10</sub> with the AP<sub>2</sub> revised scheme.
- 3.3.7 The construction vehicle flows at peak periods and consequential changes to general traffic flows in CFA4 will give rise to new significant effects at new receptors.
- 3.3.8 A substantial adverse impact is predicted at the junction of the A40 and Old Oak Common Lane.
- 3.3.9 Moderate adverse impacts are predicted at:
  - the southern end of Wulfstan Street;
  - Old Oak Common Lane, at the junction with Wells House Road; and
  - along the A40 Western Avenue in the area of Templemead Close.
- 3.3.10 Impacts on air quality at all other receptors on roads affected by the SES scheme will be lower than reported in the main ES as a consequence of the SES changes (including the use of Euro VI vehicles). The proposed changes will give rise to a different

(reduced) significant effect at one receptor at the southern end of Old Oak Lane. This will change the magnitude of impact from substantial adverse to moderate adverse.

3.3.11 At other receptors in the main ES where significant effects were identified, including receptors on A4000 Wales Farm Road, Victoria Road and Shaftesbury Gardens, the proposed changes will remove significant effects by reducing the magnitude of impact from moderate or substantial adverse (significant) in the main ES to slight adverse (not significant).

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Environmental topic:	Cultural heritage	СН
Appendix name:	Gazetteer of heritage	002
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	Common community	
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### Table 1 : Gazetteer of heritage assets for CFA4 2

### 1 Introduction

1.1.1 This appendix provides an update to Appendix CH-002-004 Cultural heritage gazetteer of heritage assets to the main Environmental Statement (ES) as a result of design changes assessed as part of the Supplementary Environmental Statement (SES) and the Additional Provision 2 Environmental Statement (AP2ES). This update should be read in conjunction with Appendix CH-002-004 Cultural heritage gazetteer of heritage assets from the main ES.

### 2 Gazetteer

Table 1 : Gazetteer of heritage assets for CFA4

Unique ID	Мар	Asset	Name	Description	Period	Designation	Grade	Significance/value	NHL	HER reference
	reference	type							reference	
KIL133	CH-01-12	Built heritage	Acton Canal Wharf signal box	A Midland Railways signal box built in 1895 to the standardised Midland 2b type. There is special interest in the box retaining mechanical levers and its association with semaphore signals. The box structure was extended and refurbished in 2004 altering the historic appearance.	Post- mediev al	Locally listed	N/A	Low	N/A	N/A
KIL134	CH-01-0 12	Built heritage	Plantagenet House, Victoria Road	A factory built in 1923 by the Chesebrough Manufacturing Co. as their UK Vaseline Works. Importantly located adjacent to the railway with its own sidings for goods distribution. The building has been extended and altered throughout the twentieth century but retains original	Modern	Non designated	N/A	Low	N/A	N/A

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				building fabric.						
KIL135	CH-01-0 12	Built heritage	Second World War pillbox	A World War II hexagonal pillbox located next to the Parliamentary line south of the Wells house Road estate.	Modern	Non designated	N/A	Low	N/A	N/A
KIL136	CH-01-0 12	Built heritage	Canterbury House	A mid nineteenth century factory built by Saxby and Farmer, railway signal manufacturers; constructing railway signalling for the London and North Western Railway until 1903. Later used for light industrial works and currently converted for residential.	Post- mediev al	Locally listed	N/A	Low	N/A	N/A

### SES and AP<sub>2</sub> ES Appendix CH-003-004

Environmental topic:	Cultural heritage	СН
Appendix name:	Impact assessment table	003
Community forum area:	CFA4	004

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### 1 Introduction

1.1.1 This appendix provides an update to Appendix CH-003-004 cultural heritage impact assessment to the main Environmental Statement (ES) as a result of additional survey data collected since the main ES and design changes assessed as part of the Supplementary Environmental Statement (SES) and the Additional Provision 2 Environmental Statement (AP2 ES). This update should be read in conjunction with Appendix CH-003-004 cultural heritage impact assessment from the main ES.

## 2 Impact assessment

Table 1 : Impact assessment for CFA4

Unique	Name	Designation(s)	Value	Construction imp	bact		Operation impact			New or different likely
identification				Nature of impact including mitigation	Scale of impact	Effect	Nature of impact including mitigation	Scale of impact	Effect	significant environmental effect from that reported in the main ES or the Additional Provision (AP1) ES
KIL133	Acton Canal Wharf signal box	Locally listed	Low	The asset is not within the land required for construction of the scheme. The development does not, therefore, affect the value of the asset.	No change	Neutral	No impact on value of asset	No change	Neutral	New effect
KIL134	Number 55 Victoria Road	Non designated	Low	The asset will be demolished as a result of land requirements at Atlas Road (AP- C221-006).	High adverse	Moderate adverse	No impact on value of asset.	No change	Neutral	New effect - change to ES
KIL135	Second World War pillbox	Non designated	Low	The asset will be demolished as a result of land requirements at the satellite compound	High adverse	Moderate adverse	No impact on value of asset.	No change	Neutral	New effect - change to ES

Unique	Name	Designation(s)	Value	Construction impact			Operation impact			New or different likely
identification				Nature of impact	Scale of impact	Effect	Nature of impact	Scale of impact	Effect	significant environmental effect from that reported in the main ES or the Additional
				mitigation			mitigation			Provision (AP1) ES
				south of Well House Road.						

Environmental topic:	Land quality	LQ
Appendix name:	Data appendix	001
Community forum area:	Kilburn (Brent) to Old Oak	004
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## 1 Introduction

- 1.1.1 The land quality appendix for the Kilburn (Brent) to Old Oak Common community forum area (CFA4) comprises:
  - detailed risk assessment (Section 2); and
  - References (Section 3).
- 1.1.2 Maps referred to throughout the land quality appendix are contained in Maps LQ-01-004 LQ-01-004-L1 and LQ-01-005 in Volume 5, Land Quality Map Book.

## 2 Detailed risk assessment

#### 2.1 Introduction

- 2.1.1 This appendix presents assessments for areas potentially posing a contaminative risk for the scheme within the study area. For each site the following data is presented:
  - baseline risk assessment;
  - construction risk assessment;
  - post-construction risk assessment; and
  - assessment of temporary (construction) and permanent (post-construction) effects.
- 2.1.2 This risk assessment incorporates the following assumptions:
  - construction workers are not included within this assessment;
  - higher risk, potentially contaminated sites have been grouped and considered together where appropriate. It should be noted that some parcels of land may have had several land uses from different epochs;
  - during construction standard mitigation procedures will be in place in accordance with the draft Code of Construction Practice (CoCP) (Volume 5: Appendix CT-003-000); and
  - during the post-construction condition it is assumed that all required remediation has been undertaken and carried out.
- 2.1.3 The sites assessed in this study area are set out in Table 2 and are shown on Maps LQ-01-004, LQ-01-004-L1 and LQ-01-005 (Volume 5, land quality map book).

#### SES and AP2 ES Appendix LQ-001-004

Site reference	Land use	Table reference
AP2-4-66	Onsite former mattress works	2, 4, 6, 8
AP2-4-75	Onsite former chemical works	2, 4, 6, 8
AP2-4-72	Onsite former petroleum jelly works	2, 4, 6, 8
AP2-4-401	Onsite electricity sub-station compound	3, 5, 7, 9
AP2-4-402	Onsite electricity sub-station compound	3, 5, 7, 9

Table 1 : Detailed risk assessment for areas potentially posing a contaminative risk within the study area

- 2.1.4 Contaminant types included within the risk assessments are based on the Priority Contaminants Report CLR 81. Although withdrawn, this appendix is still commonly used and is considered good practice.
- 2.1.5 The remainder of this appendix presents the risk assessment for the sites set out in Table2. The following abbreviations are used in these tables:
  - CSM conceptual site model;
  - MTBE methyl tert butyl ether;
  - PAH polycyclic aromatic hydrocarbons;
  - PCB polychlorinated biphenyls; and
  - VOC volatile organic compounds.

<sup>&</sup>lt;sup>1</sup> Defra and Environment Agency, (2002), Potential contaminants for the assessment of land- R&D Publication, Bristol, Environment Agency.

### 2.2 Baseline risk assessment

Table 2 : Summary CSM for on-site former mattress works, chemical works and petroleum jelly works at baseline (Area ref: AP2-4-66, AP2-4-75, AP2-4-72)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Residual contamination from previous activities – oil/fuel hydrocarbons, acetones, PAH, aromatic hydrocarbons, chlorinated hydrocarbons, PCB, cyanide, organotin compounds, heavy metals and semi-metals and asbestos	Site users - workers in businesses	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Unlikely	Medium	Low
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and volatile organic compounds (by diffusion or due to wind)	Low likelihood	Minor	Low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations, and water supply pipes)	Low likelihood	Minor	Low

Table 3 : Summary CSM for an on-site sub-station at baseline (Area ref: AP2-4-401, AP2-4-402)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Contamination from on-going and former activities including: hydrocarbons, waste oils, phenols, PAH, PCB, heavy metals and semi-metals and asbestos	Site users - workers in businesses	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
	Adjacent site users, such as those within residential properties and workers in the	Off-site migration of soil vapours and volatile organic compounds (by diffusion or due to wind)	Unlikely	Minor	Very low
	industrial/residential areas and rail areas	Off-site migration of wind-blown dust	Low likelihood	Minor	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations, and water supply pipes)	Low likelihood	Minor	Low

### 2.3 Construction risk assessment

Table 4 : Summary CSM for on-site former mattress works, chemical works and petroleum jelly works during construction (Area ref: AP2-4-66, AP2-4-75, AP2-4-72)

Source	Receptor	Pathway	Probability	Consequence	Risk with construction phase mitigation
Residual contamination from previous activities – oil/fuel hydrocarbons, acetones, PAH, aromatic hydrocarbons, chlorinated hydrocarbons, PCB, cyanide, organotin compounds, heavy metals and semi-metals and asbestos	Site users - workers in businesses	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Not present during construction		
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and volatile organic compounds (by diffusion or due to wind)	Low likelihood	Minor	Low
		Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations, and water supply pipes)	Low likelihood	Minor	Low

Table 5 : Summary CSM for an on-site sub-station during construction (Area ref: AP2-4-001, AP2-4-002)

Source	Receptor	Pathway	Probability	Consequence	Risk at baseline without mitigation
Contamination from on-going and former activities including: hydrocarbons, waste oils, phenols, PAH, PCB, heavy metals and semi-metals and asbestos	Site users - workers in businesses	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Not present during construction		
	Adjacent site users, such as those within residential properties and workers in the surrounding light industrial/residential areas and rail areas	Off-site migration of soil vapours and volatile organic compounds (by diffusion or due to wind)	Unlikely	Minor	Very low
		Off-site migration of wind-blown dust	Low likelihood	Minor	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations, and water supply pipes)	Low likelihood	Minor	Low

### 2.4 **Post-construction risk assessment**

Table 6 : Summary CSM for on-site former mattress works, chemical works and petroleum jelly works during post-construction (Area ref: AP2-4-66, AP2-4-75, AP2-4-72)

Source	Receptor	Pathway	Probability	Consequence	Risk with permanent works mitigation
Residual contamination from previous activities – oil/fuel hydrocarbons, acetones, PAH, aromatic hydrocarbons, chlorinated hydrocarbons, PCB, organotin compounds, heavy metals and semi-metals and asbestos	Site end users	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Unlikely	Minor	Very low
	Adjacent site users, such as those within residential properties and workers in the surrounding light	Off-site migration of soil vapours and volatile organic compounds (by diffusion or due to wind)	Unlikely	Minor	Very low
	industrial/residential areas and rail areas	Off-site migration of wind-blown dust	Unlikely	Minor	Very low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations, and water supply pipes)	Unlikely	Minor	Very low
Table 7: Summary CSM for an on-site sub-station during post-construction (Area ref: AP2-4-401, AP2-4-402)

Source	Receptor	Pathway	Consequence	Risk at baseline without mitigation	
Contamination from on-going and former activities including: hydrocarbons, waste oils, phenols PAH PCB heavy	Site users - workers in businesses	Human uptake through: dermal contact, ingestion or inhalation of soil/dust, volatilised compounds	Low likelihood	Medium	Moderate/low
metals and semi-metals and asbestos Adjacent site users, such as those within residential properties and workers in the	djacent site users, such as nose within residential organic compounds (by diffusion or due to wind)		Minor	Very low	
	industrial/residential areas and rail areas	Off-site migration of wind-blown dust	Low likelihood	Minor	Low
	Buildings/underground structures and services	Direct contact of fabric of buildings and services (e.g. foundations, and water supply pipes)	Low likelihood	Minor	Low

### 2.5 Assessment of temporary (construction) and permanent (post-construction) effects

Table 8 : Significance of effect assessment for on-site former mattress works, chemical works and petroleum jelly works (Area ref: AP2-004-66, AP2-004-75, AP2-004-72)

Contaminant linkage	Baseline	Construction	Post-construction	Construction effect	Post-construction effect
Exposure of on-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in soil, soil-derived dust or contaminated water	Low	N/A	Very low	Negligible	Minor beneficial
Exposure of adjacent human receptors (residents) to contamination by inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Low	Low	Very low	Negligible	Minor beneficial
Exposure of adjacent human receptors (in commercial properties) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust	Very low	Very low	Very low	Negligible	Negligible
Migration of contamination and direct contact of fabric of buildings and services (e.g. foundations, and water supply pipes)	Low	Low	Very low	Negligible	Minor beneficial
Overall significance				Negligible effect	Negligible to minor beneficial effect

Table 9 : Significance of effect assessment for an on-site sub-station (Area ref: AP2-004-401, AP2-004-402)

Contaminant linkage	Baseline	Construction	Post-construction	Construction effect	Post-construction effect
Exposure of on-site human receptors to contamination by direct contact, ingestion and inhalation of contaminants in soil, soil-derived dust or contaminated water	Moderate/low	N/A	Very Low	Negligible	Moderate beneficial
Exposure of adjacent human receptors (residents) to contamination by inhalation of migrating ground-gas and volatile vapours from contaminated soil/water	Very low	Very low	Very low	Negligible	Negligible
Exposure of adjacent human receptors (in commercial properties) to contamination by direct contact, ingestion and inhalation of contaminants in windblown, soil-derived dust	Low	Low	Very low	Negligible	Minor beneficial
Migration of contamination and direct contact of fabric of buildings and services (e.g. foundations, and water supply pipes)	Low	Low	Very low	Negligible	Negligible
Overall significance				Negligible	Negligible to moderate beneficial effect

### 3 References

Defra and Environment Agency, (2002), *Potential contaminants for the assessment of land- R&D Publication*, Bristol, Environment Agency.

*Environmental Protection Act 1990*, Part IIA, Introduced in England on 1 April 2000, London, Her Majesty's Stationary Office.

Environmental topic:	Landscape and visual assessment	LV
Appendix name:	Landscape report	001
Community forum area:	4	004

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#### Introduction 1

- This appendix provides an update to Appendix LV-001-004 landscape report from the main Environmental Statement (ES) (Volume 5, CFA4 Kilburn (Brent) to Old Oak Common) as a result of design changes 1.1.1 AP2-004-003, AP-004-004, AP2-004-006 and AP2-004-007 part of the Supplementary Environmental Statement (SES) and the Additional Provision 2 Environmental Statement (AP2 ES). This details the baseline for all significantly effected landscape character areas (LCA) and represented viewpoints that are new or different to those reported in the main ES. It should be read in conjunction with Appendix LV-001-004 Landscape report from the main ES, which provides baseline descriptions for all landscape character areas (LCA) and representative viewpoints.
- The landscape and visual AP<sub>2</sub> ES map series as referred to throughout this landscape and visual assessment appendix, these are contained in the SES and AP<sub>2</sub> ES Appendix Volume 5 landscape and visual map 1.1.2 book and these should be read in conjunction with the original Volume 5 landscape and visual assessment map book in the main ES.

#### **Environmental baseline report** 2

- This section describes new visual assessment viewpoints located within the study area for this CFA, which has been identified to inform the SES and AP<sub>2</sub> ES and are ordered from south to north along the 2.1.1 route of the scheme.
- 2.1.2 A summary of the landscape and visual baseline is provided in CFA4 of the SES and AP2 ES.

#### **Visual baseline** 3

- For some visual receptors, no appropriate location from which to capture a representative photograph of the view was available, therefore no photograph has been included and the assessment has been 3.1.1 undertaken based on professional judgement.
- The number identifies the viewpoint locations which are shown on the landscape and visual maps. New receptors identified in this assessment are shown on the landscape and visual maps. In each case, the 3.1.2 middle number (xxx.x.xx) identifies the type of receptor as described below.
  - 1. protected views these relate to those viewpoints, panoramas and viewing corridors that have been designated by local planning authorities, county councils or other relevant stakeholders. Protected views have a high sensitivity to change. None of these receptor types have been identified within the study area.
  - 2. residential views these have a high sensitivity to change, as attention is often focused on the landscape surrounding the property, rather than on another focused activity (as will be the case in predominantly employment or industrial areas);
  - 3. recreational views these receptors (apart from those engaged in active sports) generally have a high sensitivity to change, as attention is focused on enjoyment of the landscape. Tourists engaged in activities whereby attention is focused on the surrounding landscape or townscape also have a high sensitivity to change;
  - 4. transport views travel through an area is often the means by which the greatest numbers of people view the landscape. Because of the glimpsed nature of the view from trains or road vehicles, people travelling through an area on main roads have a low sensitivity to change. People travelling through urban areas (including pedestrians where the focus is not in recreation) also generally have a low sensitivity to change;
  - 5. hotels and healthcare institutions people staying in hotels and healthcare institutions have periods of time when their attention may be focused on the landscape, whilst at other times attention is more likely to be focused on other activities. Based on the level of interaction with the surrounding landscape, these receptors have a medium sensitivity to change. None of these receptor types have been identified within the study area or, where present, they have been represented by other viewpoint categories;
  - 6. employment people at work and within educational institutions are the least sensitive receptors, as their attention is likely to be focused on their work activity. These receptors have a low sensitivity to change. None of these receptor types have been identified within the study area or, where present, they have been represented by other viewpoint categories; and
  - 7. active sports people engaged in active sports have a low sensitivity to change as their attention is likely to be focused on their activity. None of these receptor types have been identified within the study area or, where present, they have been represented by other viewpoint categories.

### Viewpoint AP2.019.2.005: View south-east from dwellings on the south-eastern corner of Wells House Road

It was not possible to capture a view from this viewpoint due to the lack of site access.

#### Winter

This view is from the properties in the south-eastern corner of Wells House Road. The foreground view is of the back gardens, boundary fencing and vegetation growing on the railway embankment south of the houses. Beyond, to the south, is railway land crossed by railway lines, and largely covered in self-sown vegetation. In the background the industrial estate on Telford Way and Jenner Avenue can be seen. The middle ground of the view east is over Old Oak Common Lane crossed by railway bridges with trees growing on Wormwood Scrubs visible beyond.

#### Summer

Garden vegetation in leaf will filter longer views from ground floor windows and gardens but taller elements will remain visible from upper floor windows.

### SES and AP2 ES Appendix SV-002-004

Environmental topic:	Sound, noise and vibration	SV
Appendix name:	Baseline sound, noise and vibration report	002
Community forum area:	Kilburn (Brent) to Old Oak Common	004

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### 1 Introduction

1.1.1 This appendix provides an update to Appendix SV-002-004 baseline sound, noise and vibration report for community forum area (CFA) 04 from the main Environmental Statement (ES) as a result of design changes as part of the Supplementary Environmental Statement (SES) and the Additional Provision 2 Environmental Statement (AP2 ES). This update should be read in conjunction with Appendix SV-002-004 baseline sound, noise and vibration report from the main ES.

### 1.2 Existing acoustic environment

- 1.2.1 Additional baseline sound measurements have been completed in Kilburn (Brent) to Old Oak Common community forum area (CFA4) to inform the assessment of the grade-separated junction to provide three turnback sidings for the Crossrail service and passive provision for a WCML Crossrail Link (AP2-004-004) amendment. The existing baseline sound environment around the site consists of a mixture of transportation, industrial and commercial sources. The railway lines here include the West Coast Main Line, Great Western Main Line, Acton Main Line and North London Line. In addition, the London Underground Central and Bakerloo lines also run above ground through this area.
- 1.2.2 In much of the Old Oak Common area, the sound environment is dominated by nearby road and rail traffic, with distant road traffic from the A4o audible in some locations. This leads to a large variation in sound level dependent upon location, and daytime sound levels typically range between approximately 55dB when distant and/or screened from these sources and approximately 75dB when nearby. During less busy periods of road and rail traffic flow, natural sound sources can become apparent.
- 1.2.3 Night-time sound levels in this area are typically 5 to 10dB lower than those during the day; with the greater reduction in the locations furthest or screened from the main transportation sources. At some locations close to railway lines which are used less frequently during the day but operate freight trains at night, similar sound levels have been measured at night as during the day.
- 1.2.4 At the southern aspect of Wells House Road, in the period between the baseline sound measurements being completed and the commencement of the operation of the turnback sidings it is expected that the Crossrail scheme will come into operation. This will alter the ambient sound environment in the locale of the route. As reported within the Crossrail Environmental Statement the change in local sound levels due to the introduction of this scheme will be less than 3dB.

### 2 Scope, assumptions and limitations

### 2.1 Changes of relevance to this assessment

2.1.1 The assessment of construction and operational sound, noise and vibration for the grade-separated junction to provide three turnback sidings for the Crossrail service and passive provision for a WCML Crossrail Link amendment (AP2-004-004) involves assessment in a new geographical area to those previously assessed in the main ES.

This appendix includes details of the existing and future baseline sound environment within the area.

2.1.2 Maps showing the baseline sound monitoring locations and assessment locations within this area are included in SES and AP<sub>2</sub> ES Map Series SV-03 and SV-04 (Volume 5 sound, noise and vibration map book).

### 3 Environmental baseline

### 3.1 Existing baseline data collection methodology

- 3.1.1 The overall approach to baseline data collection for sound noise and vibration is described in Volume 5 Appendix SV-001-000 from the main ES.
- 3.1.2 In the vicinity of the WCML Crossrail Link (AP2-004-004) amendment, baseline sound measurements have been undertaken at fifteen new locations including nine long term measurements and six short term measurements.
- 3.1.3 The other measurements undertaken over the Kilburn (Brent) to Old Oak Common area are described in Appendix SV-002-004 from the main ES.

### 3.2 Existing baseline sound levels

- 3.2.1 From the measurements described in Section 3.1, baseline sound levels have been ascertained for each new assessment location within this area. These levels are presented in terms of the following key sound indicators:
  - for the operational sound assessment:
    - L<sub>pAeq,16hr weekday</sub> daytime (07:00-23:00) sound pressure level;
    - LpAeq,8hrweekday night-time (23:00-07:00) sound pressure level;
    - arithmetic average of L<sub>pAFmax,smin</sub> night-time sound pressure level; and
    - highest L<sub>pAFmax,5min</sub> night-time sound pressure level; and
  - for the construction sound assessment:
    - daytime L<sub>pAeq</sub> sound pressure level (Monday to Friday 07:00-19:00; Saturday 07:00-13:00);
    - evening/weekend L<sub>pAeq</sub> sound pressure level (Monday to Friday 19:00-23:00; Saturday 13:00- 23:00; Sunday 07:00 to 23:00); and
    - night-time L<sub>pAeq</sub> sound pressure level (Monday to Sunday 23:00-07:00).
- 3.2.2 These values a are presented in Table 1. The data source coding included within this table details how the baseline sound levels allocated to each assessment location have been derived. This coding is summarised in Table 2 and explained in detail in Volume 5 Appendix SV-001-000 from the main ES.

Table 1 : Existing baseline sound levels

Assessment	Area Represented	Measurement	Existing base	Existing baseline sound level (dB)			Data source			
location ID		location	For operation	nal sound asse	essment		For constr	ruction sound	ł	coding[1]
			Daytime LpAeq,16hr	Night- time LpAeq,8hr	Arithmetic average of night-time LpAFmax,5min	Highest night- time LpAFmax,5min	assessmen Daytime LpAeq	nt Evening / Weekend LpAeq	Night- time LpAeq	
901100	Heather Park Drive, Wembley	LM7051	63.1	55.3	61.3	83.8	63.2	61.2	53.5	1,A,i,a
901102	First Drive, London	LM7053	56.8	54.6	62.7	88.3	57.2	55.8	54.2	1,A,i,a
901103	Albert Terrace, London	LM7054	60.0	56.4	62.1	83.8	60.1	59.6	55.1	1,A,i,a
901104	Milton Avenue, London	LM7055	64.0	59.0	62.8	86.o	64.1	63.5	57.8	1,A,i,a
901105	Mordaunt Road, London	LM7056	50.2	46.2	52.7	67.1	50.3	50.5	45.5	1,A,ii,b
901106	Midland Terrace, London	LM7057	49.7	47·9	60.8	97.1	49.0	45.0	47.0	1,BC,ii,b
901107	Bashley Road Caravan Site, London	LM7060	51.0	52.9	59.9	105.9	50.6	43.9	48.8	1,BC,ii,b
901108	Heather Park Drive, Wembley	LM7070	65.4	54.1	66.3	88.9	65.5	63.5	52.3	2,A,i,a
901109	Heather Park Drive, Wembley	LM7071	63.6	55.8	60.3	82.9	63.7	61.7	60.2	2,A,ii,b
901111	Beresford Drive, Wembley	LM7073	53.4	54.9	60.3	82.9	53.5	51.5	53.1	2,A,i,a
901112	First Drive, London	LM7074	60.1	55.2	62.1	87.7	60.5	59.1	54.8	2,A,i,a
901113	Milton Avenue, London	LM7075	53.6	49.9	54.9	78.1	53.7	53.1	48.7	2,A,i,a

Assessment	Area Represented	Measurement	Existing baseline sound level (dB)					Data source		
location ID		location	For operatior	nal sound asse	essment		For constr assessme	ruction sound	1	coding[1]
			Daytime LpAeq,16hr	Night- time LpAeq,8hr	Arithmetic average of night-time LpAFmax,5min	Highest night- time LpAFmax,5min	Daytime LpAeq	Evening / Weekend LpAeq	Night- time LpAeq	
901114	Business Park off Abbey Road, London	LM7076	59.2	57.0	59.9	85.5	59.6	58.2	56.6	3,A,i,a
901115	Townsend Industrial Estate	LM7054	60.0	56.4	62.1	83.8	60.1	59.6	55.1	1,A,ii,b
901100	Heather Park Drive, Wembley	LM7051	63.1	55.3	61.3	83.8	63.2	61.2	53.5	1,A,i,a
901102	First Drive, London	LM7053	56.8	54.6	62.7	88.3	57.2	55.8	54.2	1,A,i,a
901103	Albert Terrace, London	LM7054	60.0	56.4	62.1	83.8	60.1	59.6	55.1	1,A,i,a
901104	Milton Avenue, London	LM7055	64.0	59.0	62.8	86.0	64.1	63.5	57.8	1,A,i,a

Table 2 : Data source coding key

Code	Data source type
1	Long-term measurement location
2	Short-term (linked to simultaneous long-term)
3	Short-term (using profile from non-simultaneous long-term)
4	Short-term using standard (National Noise Incidence Study <sup>1</sup> or other) 24hr profile
5	Specific validated prediction
6	Predictions from other sources (Defra noise maps <sup>2</sup> , etc.).
7	Generic levels

Code	Corrections applied
А	Data from above source applied directly
В	Correction applied for screening
С	Correction applied for distance from source
D	Minimum level cut-off applied.

Code	Distance from measurement
i	Data applied from a measurement at or very close to the assessment location.
ii	Data applied from a local measurement location at a greater distance but noted to have equivalent acoustic climate.
iii	Data applied from a distant measurement location where sound levels would be expected to be similar.

Code	Uncertainty
а	Data are considered highly representative of the prevailing sound climate
b	Data are considered representative of the prevailing sound climate, but variations in measured levels indicate that there may be a higher degree of uncertainty than for (a).
С	Data are considered to be an estimate of the sound climate, (e.g. taken from Defra noise maps, etc.).

### 3.3 Future baseline methodology

### Construction

- 3.3.1 The assessment of noise from construction activities assumes a baseline year of 2017. As a conservative assumption, it has been assumed that no change in baseline sound levels will occur between the existing baseline (2015) and the future baseline year of 2017.
- 3.3.2 Due to the duration of the construction work and as the precise timing of the highest sound levels would be different in each location, using baseline sound levels for 2017 as the start of the construction period, provides a reasonable worst case assessment.

<sup>&</sup>lt;sup>1</sup> Building Research Establishment, (2002), *National Noise Incidence Study 2000/2001*.

<sup>&</sup>lt;sup>2</sup> Defra, Noise Mapping England, <u>http://services.defra.gov.uk/wps/portal/noise/;</u> accessed 26 July 2013.

3.3.3 The assessment of construction traffic is based on future baseline traffic flows for 2021, as a year which is representative of the middle of the construction period.

### Operation

- 3.3.4 There is potential for future baseline sound levels for operation (2026) to change when compared to the existing baseline sound levels (2015) as a result of changes in baseline sound sources.
- 3.3.5 In the vast majority of cases where change might occur it is expected that baseline sound levels will increase at assessment locations due to increases in vehicle movements on roads. It is therefore considered that the use of the 2015 baseline levels in the operational assessment will result in a worst case assessment of the impact of changes in the future baseline sound levels in the majority of locations.
- 3.3.6 Therefore for the purposes of this assessment future baseline levels have been assumed to be identical to those identified in Table 1 of this appendix for 2015.
- 3.3.7 In addition, based on available road traffic information a screening exercise has been undertaken to identify any areas in which a reduction in baseline sound level might be likely. Where reductions in baseline sound level have been identified a further screening assessment has been completed to identify if these changes would be likely to materially affect the operational sound assessment.
- 3.3.8 The screening assessment has not identified any locations in this area where a decrease in future baseline (2026), compared to existing baseline (2015), is likely to materially affect the operational sound assessment.

### SES and AP<sub>2</sub> ES Appendix SV-003-004

Environmental topic:	Sound, noise and vibration	SV
Appendix name:	Construction assessment report	003
Community forum area:	Kilburn (Brent) to Old Oak Common	004

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### 1 Introduction

- 1.1.1 This appendix provides an update to Appendix SV-003-004 construction assessment report for Kilburn (Brent) to Old Oak Common community forum area (CFA4) from the main Environmental Statement (ES) as a result of design changes as part of the Supplementary Environmental Statement (SES) and the Additional Provision 2 Environmental Statement (AP2 ES). This update should be read in conjunction with Appendix SV-003-004 Construction assessment report from the main ES.
- 1.1.2 Section 3 provides assessment of effects arising during construction including the supplementary environmental information (SES design changes).
- 1.1.3 Section 4 provides assessment of effects arising during construction including the AP2 amendments.

### 2 Scope, assumptions and limitations

### 2.1 Changes of relevance to this assessment

- 2.1.1 The assessment scope, key assumptions and limitations for sound, noise and vibration are as set out in Volume 1, the SMR (Volume 5: Appendix CT-001-000) and the SMR Addendum (Volume 5: Appendix CT-001-000) of the main ES.
- 2.1.2 The following SES design changes have the potential to lead to changes in significant noise effects within CFA 4:
  - removal of proposed HEx Depot at North Pole (East) (SES-004-002);
  - review of construction programme for Heathrow Express (Hex) Depot relocation (SES-004-004); and
  - consequential use of revised WeLHAM model and potential changes to traffic flows.
- 2.1.3 In some cases, these SES design changes have resulted in a change in traffic flow on roads within this CFA.
- 2.1.4 The following AP<sub>2</sub> amendments have the potential to lead to changes in significant noise effects within CFA 4:
  - additional land for the Scrubs Lane sewer diversion AP2-004-003;
  - grade separated junction to provide three turnback sidings for the Crossrail service and passive provision for a WCML Crossrail Link AP2-004-004;
  - Atlas Road to Old Oak Common Box Temporary Logistics Tunnel AP2-004-005; and
  - alteration of land requirements at Atlas Road to maintain operation of bus depots AP2-004-006.
- 2.1.5 An assessment of these changes is presented in this appendix.

### 3 Supplementary environmental information - effects arising during construction

### 3.1 Avoidance and mitigation measures

3.1.1 The avoidance and mitigation measures are presented in the main ES Volume 2: CFA Report 04.

### 3.2 Quantitative identification of impacts and effects

### Ground-borne sound and vibration

3.2.1 No impacts have been predicted as the result of construction ground-borne sound and vibration in this area.

### Airbourne sound: direct impacts and effects

3.2.2 The assessment results, impact criteria and significance criteria for the assessment of the SES design changes listed in section 2 at residential and non-residential receptors are presented in Table 2 and Table 3 respectively. These tables present only those assessment locations for which the assessment has changed compared with the main ES. For additional information see the Main ES, Volume 5, CFA04, Appendix SV-003-004.

Table 1: Assessment of construction noise at residential receptors

Assessm	nent location	Impact cr	iteria			Sign	ificance	criter	ia						Significan
ID	Area represented	Typical/h outdoor L facade [Assessm Day 0700- 1900	ighest mon .pAeq [dB] : ent categor Evening 1900- 2300	thly at the y A/B/C] Night 2300- 0700	Construction activity resulting in highest forecast noise levels	Type of effect	Number of impacts represented	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Impact duration [months]	Mitigation effect	t effect
516711	Park Royal Road, London	40/49 [B]	<40/<40 [>C]	<35/38 [>C]	Day: Victoria Road Crossover Box Compound - Victoria Road Crossover Box Compound - Demolitions, Night: - Northolt (East) Tunnels Construction (Victoria Road Crossover Box Main Compound)	NA	9	R	т	Н	-	-	-	-	
518427	Wells House Road, London	65/71 [>C]	48/50 [>C]	48/50 [>C]	Day: Old Oak Common Lane Summary - OOC Lane lowering works, Evening: Old Oak Common - Old Oak Common - General Works, Night: Old Oak Common - Old Oak Common - General Works	NA	6	R	т	н	-	-	-	-	CSV04- Co7*
519065	Midland Terrace, London	60/67 [A]	47/50 [B]	47/50 [>C]	Day: Old Oak Common - Old Oak Common - DEMOLITION & SITE PREP, Evening: Old Oak Common - Old Oak Common - General Works, Night: Old Oak Common - Old Oak Common - General Works	А	74	R	т	н	-	-	Dg	-	CSVo4- Co6
700048	Braybrook Street, London	53/60 [A]	<40/<40 [A]	36/39 [B]	Day: Old Oak Common Lane Summary - OOC Lane lowering works, Night: Old Oak Common - Old Oak Common - General Works	NA	15	R	т	-	-	-	-	-	

Assessm	ssessment location Impact criteria				Significance criteria							Significan			
ID	Area	Typical/hi	ighest mon	thly	Construction activity resulting in highest forecast										t effect
	represented	outdoor L	pAeq [dB]	at the	noise levels		S			ent					
		facade					pact	٥	uť	L L L	e	act	E	ť	
		[Assessm	ent categor	y A/B/C]		ect	E p	cept	lesiç	viro	atur	imp	atic	effe	
		Day	Evening	Night		feff	er of ente	frec	ord	g er	e fei	ned	יטם : [sr	tion	
		0700-	1900-	2300-		o e o	mbo	o e o	cept	stin	ique	mbi	pact	iga.	
		1900	2300	0700		1 <u>7</u> 1	Nu rep	Ţ	Re	ĒXi	Ľ	Ŝ	ĒĔ	Ξ	
70004 9	Braybrook Street, London	52/58 [A]	<40/<40 [A]	37/39 [B]	Day: Old Oak Common Lane Summary - OOC Lane lowering works, Night: Old Oak Common - Old Oak Common - General Works	NA	17	R	т	-	-	-	-	-	
700053	Wells House Road, London	68/74 [A]	<40/43 [B]	39/43 [C]	Day: Design Element Summary (G-001-S1~Old Oak Common Lane Overbridge) - OOC area bridge works (Old Oak Common Lane and Central Line Bridge Satellite Compounds), Evening: Victoria Road Tunnel Drive Compound - Victoria Road Tunnel Drive Compound - General Works, Night: Victoria Road Tunnel Drive Compound - Victoria Road Tunnel Drive Compound - Victoria Road Tunnel Drive Compound - Works	A	17	R	т	-	-	-	D 60	-	CSV04- Co7
700055	Old Oak Common Lane, London	53/60 [A]	41/45 [B]	41/45 [>C]	Day: Old Oak Common - Old Oak Common - D-Wall Construction (West End Box), Evening: Old Oak Common - Old Oak Common - General Works, Night: Old Oak Common - Old Oak Common - General Works	NA	25	R	т	н	-	-	-	-	
700056	Midland Terrace, London	63/72 [A]	51/57 [B]	51/57 [>C]	Day: Victoria Road Tunnel Drive Compound - Victoria Road Tunnel Drive Compound - Demolitions and Site Preperation, Evening: Victoria Road Tunnel Drive Compound - Victoria Road Tunnel Drive Compound - General	S	25	R	т	Н	-	-	D 29; N 20	NI	CSVo4- Co6

Assessm	nent location	Impact criteria Typical/highest monthly				Sign	ificance	criter	ia						Significan
ID	Area represented	Typical/hi outdoor L facade [Assessm Day 0700- 1900	ighest mon .pAeq [dB] ent categor Evening 1900- 2300	thly at the y A/B/C] Night 2300- 0700	Construction activity resulting in highest forecast noise levels	Type of effect	Number of impacts represented	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Impact duration [months]	Mitigation effect	t effect
					Works, Night: Victoria Road Tunnel Drive Compound - Victoria Road Tunnel Drive Compound - General Works										
700405	Shaftesbury Gardens, London	77/80 [>C]	43/49 [>C]	43/49 [>C]	Day: OOC Highway Works - Victoria Road North and South Widening Works, Evening: Atlas Road Pre- Casting Satellite Compound - Atlas Road Pre- Casting Satellite Compound - General Works, Night: Atlas Road Pre- Casting Satellite Compound - Atlas Road Pre- Casting Satellite Compound - General Works	s	74	R	т	н	-	-	D 44	NI	CSVo4- Co5
70040 6	Shaftesbury Gardens, London	77/78 [>C]	52/54 [>C]	52/54 [>C]	Day: OOC Highway Works - Victoria Road North and South Widening Works, Evening: Atlas Road Pre- Casting Satellite Compound - Atlas Road Pre- Casting Satellite Compound - General Works, Night: Atlas Road Pre- Casting Satellite Compound - Atlas Road Pre- Casting Satellite Compound - General Works	S	24	R	т	н	-	-	D 44	NI	CSV04- Co5

Assessm	ssessment location Impact criteria				Significance criteria									Significan	
ID	Area	Typical/hi	ighest mon <sup>-</sup>	thly	Construction activity resulting in highest forecast										t effect
	represented	outdoor L	.pAeq [dB] a	at the	noise levels		cts			ment		H			
		[Assessm	ent categor	y A/B/C]		ಕ	impa	ptor	sign	viron	Ure	npac	tion	iffect	
		Day	Evening	Night		effe	r of nted	rece	or de	g env	feat	ned in	dura s]	ion e	
		0700-	1900-	2300-		e of	mbe rese	e of	ept	stine	que	nbir	act	igat	
		1900	2300	0700		Тур	N UI rep	Тур	Rec	Exis	Uni	Cor	lmp [md	Mit	
720002	School Road, London	75/80 [B]	61/66 [>C]	61/66 [>C]	Day: Victoria Road Tunnel Drive Compound - Victoria Road Tunnel Drive Compound - Demolitions and Site Preperation, Evening: - Euston and HS1 Link Tunnels Construction (Victoria Road Tunnel Drive Main Compound), Night: - Euston and HS1 Link Tunnels Construction (Victoria Road Tunnel Drive Main Compound)	S	2	R	т	н	-	-	D 54; E 38; N 6o	NI	CSV04- D01
720011	Portal Way, London	57/65 [A]	42/48 [A]	42/48 [B]	Day: OOC Highway Works - Victoria Road North and South Widening Works, Evening: - Northolt (East) Tunnels Construction (Victoria Road Crossover Box Main Compound), Night: - Northolt (East) Tunnels Construction (Victoria Road Crossover Box Main Compound)	NA	1	R	т	-	-	-	-	-	
720013	Garrett Close, London	48/54 [A]	<40/41 [A]	37/41 [B]	Day: Old Oak Common - Old Oak Common - DEMOLITION & SITE PREP, Evening: - Euston and HS1 Link Tunnels Construction (Victoria Road Tunnel Drive Main Compound), Night: - Euston and HS1 Link Tunnels Construction (Victoria Road Tunnel Drive Main Compound)	NA	1	R	т	-	-	-	-	-	
720014	Victoria Road, London	65/74 [C]	54/59 [>C]	54/59 [>C]	Day: Victoria Road Crossover Box Compound - Victoria Road Crossover Box Compound - Demolitions, Evening: - Northolt (East) Tunnels Construction (Victoria Road Crossover Box Main Compound), Night: - Northolt (East) Tunnels Construction	NA	150	R	т	Н	-	-	-	-	

Assessm	sessment location Impact criteria				Significance criteria									Significan	
ID	Area	Typical/hi	ighest mon	thly	Construction activity resulting in highest forecast										t effect
	represented	outdoor L	_pAeq [dB]	at the	noise levels		ts			ient					
		facade					ıpac	tor	gn	uuo	e	pact	u	ect	
		[Assessm	ent categoi	ry A/B/C]		ffect	of in ied	ecep	desi	invir	eatu	d in	Jrati	n eff	
		Day	Evening	Night		of e	oer o sent	ofre	otor	nge	Je fe	oine	ct dı ths]	atio	
		1000	1900-	2300-		ype	lum Pre	ype	ecel	xisti	niqu	omt	non	litig	
		1900	2300	0,00	(Victoria Road Crossover Box Main Compound)				~~	ш	<u> </u>	0	<u> </u>	2	
720016	Chase Road, London	47/57 [A]	41/46 [A]	41/46 [B]	Day: Victoria Road Crossover Box Compound - Victoria Road Crossover Box Compound - Demolitions, Evening: - Northolt (East) Tunnels Construction (Victoria Road Crossover Box Main Compound), Night: - Northolt (East) Tunnels Construction (Victoria Road Crossover Box Main Compound)	NA	2	R	т	-	-	-	-	-	
720023	Telford Way, London	51/55 [A]	<40/41 [A]	37/41 [B]	Day: Old Oak Common Lane Summary - OOC Lane lowering works, Evening: Old Oak Common - Old Oak Common - General Works, Night: Old Oak Common - Old Oak Common - General Works	NA	4	R	т	-	-	-	-	-	
720037	Telford Way, London	54/58 [A]	<40/42 [A]	38/42 [B]	Day: Design Element Summary (G-001-S2~Central Line Overbridge Phases 1 to 3) - OOC area bridge works (Old Oak Common Lane and Central Line Bridge Satellite Compounds), Evening: Old Oak Common - Old Oak Common - General Works, Night: Old Oak Common - Old Oak Common -	NA	4	R	т	-	-	-	-	-	

Assessm	nent location	Impact cr	iteria			Sign	ificance	criter	ia					Significan	
ID	Area represented	Typical/h outdoor L facade [Assessm Day 0700- 1900	ighest mon -pAeq [dB] a ent categor Evening 1900- 2300	thly at the y A/B/C] Night 2300- 0700	Construction activity resulting in highest forecast noise levels General Works	Type of effect	Number of impacts represented	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Impact duration [months]	Mitigation effect	t effect
720038	Telford Way, London	56/65 [A]	<40/40 [A]	36/40 [B]	Day: Old Oak Common Lane Summary - OOC Lane lowering works, Night: Old Oak Common - Old Oak Common - General Works	NA	1	R	т	-	-	-	-	-	

Table 2 : Assessment of construction noise at non-residential receptors

Assessme	ent location	Impact	criteria			Signi	ficance	e criter	ia						Significant
ID	Area represented	Typical/ outdoor the faça	'highest mo r LpAeq [dE ide	onthly 3] at	Construction activity resulting in highest forecast noise levels		מרוז	r	_	nment		ict		Ħ	effect
		Day 0700- 1900	Evening 1900- 2300	Night 2300- 0700		Type of effect	represented	Type of recepto	Receptor design	Existing enviro	Unique feature	Combined impa	Impact duratior [months]	Mitigation effe	
720020	Sunbeam Road, London	50/61	-	-	Day: Victoria Road Crossover Box Compound - Victoria Road Crossover Box Compound - Demolitions	В	8	G5	т	-	-	-	-	-	

### Airbourne sound: indirect effects

- 3.2.3 Construction road traffic associated with the construction phases of the scheme will generate airborne noise. The change in traffic noise level at a reference distance of 10m from the edge of the nearside carriageway resulting from the presence of construction traffic for a given road has been predicted, based upon traffic information for the scheme. The results for the roads where additional potentially significant effects could arise as a result of SES design changes are presented in Table 3.
- 3.2.4 Explanation of the information within Table 3 is provided in the main ES Volume 5: Appendix SV-001-000, with the following additional notes:

Where the significant effect column is highlighted in dark red, then a significant effect is identified on nearby communities or individual receptors.

#### Change values

Yellow denotes a minor impact – a change is of 3-5 dB or 1-3dB where a high existing sound level is identified.

Orange denotes a moderate impact – a change is of 5-10 dB or 3-5dB where a high existing sound level is identified.

Red denotes a major impact – a change is of >10 dB or >5dB where a high existing sound level is identified.

#### Table 3 : Assessment of construction traffic noise levels

Road name	Link	Future baseline sound level (dB)	Future baseline sound level + construction traffic (dB)	Change (dB)	Significant effect
		0700-23:00 free-field	0700-2300 free-field		
Erconwald Street	Between Wulfstan Street and Fitzneal Street	52.1	56.1	+4.0	*
Atlas Road	Off Old Oak Common Lane, Old Oak Common	48.4	64.3	+15.9	*
Old Oak Common Lane	Between Victoria road and Wells house Road	67.4	70.8	+3.4	*
Channel Gate Road	Off Old Oak Common Lane, Old Oak Common	48.9	54-9	+6	*
Friars Way	Between St Dunstable's Avenue and Horn Lane	52.1	56.1	+4.0	*

### 3.3 Assessment of significance of effects

### Residential receptors: direct effects- individual dwellings

- 3.3.1 Taking account of the avoidance and mitigation measures and SES design changes, two buildings (approximately 25 dwellings) on Midland Terrace are forecast to experience noise levels higher than the noise insulation trigger levels, as defined in the draft CoCP, and higher than described in the main ES. For daytime construction the trigger level is 75dB measured outdoors, or the existing ambient noise level if it is already above the 75dB level. The equivalent night-time trigger level is 55dB.
- 3.3.2 The mitigation measures, including noise insulation, will reduce noise inside all dwellings such that it does not reach a level where it will significantly affect residents.

### Residential receptors: direct effects- communities

- 3.3.3 With regard to noise outside dwellings, the assessment of temporary effects takes account of construction noise relative to existing sound levels.
- 3.3.4 In locations with lower existing sound levels, construction noise adverse effects are likely to be caused by changes to noise levels outside dwellings. These may be considered by the local community as an effect on the acoustic character of the area and hence be perceived as a change in the quality of life. These adverse effects are considered to be significant when assessed on a community basis taking account of the local context.
- 3.3.5 The proposed changes including the review of the construction programme for Heathrow Express (Hex) Depot relocation (SES-004-004) will give rise to different direct adverse effects on residential communities and shared open areas that are considered to be significant when assessed on a community basis. This different adverse effect arises because works associated with the Victoria Road widening occur later in the program so that the peak noise generating activities from these works and the demolition works at the Victoria Road compound do not now coincide; hence the highest total monthly noise level from construction has decreased at some receptors. The main ES identified a significant adverse noise effect in the vicinity of 175 dwellings at Victoria Road/Chase Road roundabout, North Acton (CSV04-C08). The SES changes will reduce the number of properties that are predicted to be adversely affected at CSV04-C08 in comparison to the main ES. The different significant adverse noise effects are presented in Table 4.

Significant effect number	Type of significant effect	Time of Day	Location	Cause (construction activities)	Assumed duration of impact and details.
CSV04-Co8	Construction noise	Daytime	Approximately 25 dwellings on Victoria Road/Chase Road roundabout, North Acton (AL	Victoria Road crossover box main compound demolitions and general works. Typical and	One year and 7 months

Table 4 : Significant adverse noise effects from construction activities on residential communities that are different to those reported in main ES.

	700417)	highest monthly noise levels of 6o- 65dB and 75dB	

3.3.6 At Assessment Location 518427 the quantitative assessment has not indicated that a significant effect is likely at six dwellings on the north end of Wells House Road. However, on a precautionary basis dwellings in this location have been included within the CSV04-Co7 community effect.

### **Residential receptors: indirect effects**

- 3.3.7 There are no new or different indirect construction noise effects on residential receptors as a result of the SES design changes, in comparison with the main ES.
- 3.3.8 Changes in noise level due construction traffic have been identified on the following roads, however, taking into account the number of sensitive receptors likely to be exposed to these changes, significant effects are unlikely to occur:
  - Atlas Road off Old Oak Common Lane, Old Oak Common; and
  - Old Oak Common Lane between Victoria road and Wells house Road.
- 3.3.9 Changes in noise level due construction traffic have also been identified in further locations where taking into account the orientation of the nearby buildings and the existing baseline sound levels from other sources in the area a significant effect is unlikely at residential properties close to the following roads:
  - Erconwald Street between Wulfstan Street and Fitzneal Street;
  - Channel Gate Road off Old Oak Common Lane, Old Oak Common; and
  - Friars Way between St Dunstable's Avenue and Horn Lane.

### Non-residential receptors- direct effects

3.3.10 There are no new or different direct construction noise effects on non-residential receptors as a result of the SES design changes, in comparison with the main ES.

### Non-residential receptors: indirect effects

3.3.11 There are no new or different indirect construction noise effects on non-residential receptors as a result of the SES design changes, in comparison with the main ES.

# Cumulative effects from the scheme and other committed development

- 3.3.12 There are a number of developments in the area that will result in cumulative construction adverse noise or vibration effects at nearby receptors if they are built at the same time as the scheme:
  - further development of the land at the junction of Chase Road and Victoria Road, North Acton; and
  - extension of the existing Ramada Hotel to south of the Victoria Road/Chase Road roundabout, North Acton.

3.3.13 This assessment has considered the potential cumulative construction noise effects of the scheme and other committed developments. In this area, no further committed developments are due to be built at the same time as the scheme and accordingly, construction noise or vibration from the scheme is unlikely to result in any significant cumulative noise effects.

# 4 Assessment of amendments - effects arising during construction

### 4.1 Avoidance and mitigation measures

4.1.1 The avoidance and mitigation measures are presented in the main ES Volume 2: CFA Report 04.

### 4.2 Quantitative identification of impacts and effects

### Ground-borne sound and vibration

4.2.1 No impacts have been predicted as the result of construction ground-borne sound and vibration in this area.

### Airbourne sound: direct impacts and effects

4.2.2 The assessment results, impact criteria and significance criteria for the assessment of the AP2 amendments listed in section 2 at residential and non-residential receptors are presented in Table 5 and Table 6 respectively. These tables present only those assessment locations for which the assessment has changed compared with the SES and main ES. For additional information see the Main ES, Volume 5, CFA04, Appendix SV-003-004.

Table 5 : Assessment of construction noise at residential receptors

Assessm	nent location	Impact cr	iteria			Signi	ificance	e criter	ia						Significant								
ID	Area represented	Area Typical/highest monthly represented outdoor LpAeq [dB] at th facade [Assessment category A		ypical/highest monthly Construction activity resulting in highest forecast   utdoor LpAeq [dB] at the noise levels   acade Assessment category A/B/C]		ect	ect II I		ect mip <del>acus</del> d		ect minpaces		ict II		unpacts B	eptor	esign	vironment	ture	mpact	ation	effect	effect
		Day 0700- 1900	Evening 1900- 2300	Night 2300- 0700		Type of eff	represente	Type of rec	Receptor d	Existing en	Unique fea	Combined i	lmpact dura [months]	Mitigation									
510425	Wales Farm Road, London	66/70 [C]	42/48 [>C]	38/43 [>C]	Day: OOC Highway Works - Victoria Road North and South Widening Works, Evening: GWML Up Relief Viaduct - Construct GWML up relief approach viaduct - Ch. 1754 to 1833, Night: Victoria Road Crossover Box Compound - Victoria Road Crossover Compound - General Works	NA	72	R	т	н	-	-	-	-									
516773	Gorst Road, London	45/54 [B]	<40/45 [>C]	38/42 [>C]	Day: Victoria Road Crossover Box Compound - Victoria Road Crossover Box Compound - Demolitions, Evening: GWML Up Relief Viaduct - Construct GWML up relief approach viaduct - Ch. 1553 to 1593, Night: - Northolt (East) Tunnels Construction (Victoria Road Crossover Box Main Compound)	NA	5	R	т	н	-	-	-	-									
516964	Cullen Way, East Acton	46/56 [>C]	42/47 [>C]	37/44 [>C]	Day: Victoria Road Crossover Box Compound - Victoria Road Crossover Box Compound - Demolitions, Evening: GWML Up Relief Viaduct - Construct GWML up relief approach viaduct - Ch. 1754 to 1833, Night: - Northolt (East) Tunnels Construction (Victoria Road Crossover Box Main Compound)	NA	10	R	т	Н	-	-	-	-									

Assessment location		Impact criteria					Significance criteria								
ID	Area	Typical/hi	ghest mon	thly	Construction activity resulting in highest forecast										effect
	represented	outdoor LpAeq [dB] at the		at the	noise levels		ç			ient					
		facade					had	tor	ц	uuo	ē	pact	u	ect	
		[Assessm	ent categor	ry A/B/C]		ffect	ed	ecep	desi	invir	eatu	d in	Irati	n eff	
		Day	Evening	Night		ofel	sent	ofre	otor	ng e	le fe	inec	tt du ths]	atio	
		0700-	1900-	2300-		ype	pre	ype	ecep	xisti	niqu	dmo	non	litig	
		1900	2300	0700		Γ.	r e	- Ê	Ř	ш	<u> </u>	Ŭ	<u> </u>	Σ	
518427	Wells House Road, London	66/71 [>C]	51/58 [>C]	48/51 [>C]	Day: Old Oak Common Lane Summary - OOC Lane lowering works, Evening: GWML Up Relief Viaduct - Construct GWML up relief two span viaduct over OOCL - Ch.1696 to 1754, Night: Old Oak Common - Old Oak Common - General Works	NA	6	R	т	н	-	-	-	-	
519065	Midland Terrace, London	60/67 [A]	49/55 [B]	47/50 [>C]	Day: Old Oak Common - Old Oak Common - DEMOLITION & SITE PREP, Evening: GWML Up Relief Viaduct - Construct GWML up relief two span viaduct over OOCL - Ch.1696 to 1754, Night: Old Oak Common - Old Oak Common - General Works	A	74	R	т	н	-	-	Dg	-	CSVo4- Co6
700045	Wells House Road, London	77/85 [A]	63/72 [B]	48/51 [C]	Day: Old Oak Common Lane Summary - OOC Lane lowering works, Evening: GWML Up Relief Viaduct - Construct GWML up relief intermediate viaduct - Ch. 1616 to 1696, Night: Old Oak Common - Old Oak Common - General Works	s	13	R	т	-	-	-	D 69; E 23	NI	CSV04-C07
700047	Wells House Road, London	74/83 [A]	54/62 [B]	50/53 [C]	Day: Old Oak Common Lane Summary - OOC Lane lowering works, Evening: GWML Up Relief Viaduct - Construct GWML up relief two span viaduct over OOCL - Ch.1696 to 1754,	S	23	R	т	-	-	-	D 70; E 8	NI	CSV04-C07

Assessm	ent location	Impact criteria					Significance criteria								
ID	Area represented	Typical/highest monthly outdoor LpAeq [dB] at the facade [Assessment category A/B/C] Day Evening Night 0700- 1900- 2300- 1900 2300 0700		thly at the ry A/B/C] Night 2300- 0700	Construction activity resulting in highest forecast noise levels	Type of effect	represented	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Impact duration [months]	Mitigation effect	effect
					Night: Old Oak Common - Old Oak Common - General Works										
700048	Braybrook Street, London	54/61 [A]	42/53 [A]	36/40 [B]	Day: Old Oak Common Lane Summary - OOC Lane lowering works, Evening: GWML Up Relief Viaduct - Construct GWML up relief two span viaduct over OOCL - Ch.1696 to 1754, Night: Old Oak Common - Old Oak Common - General Works	NA	15	R	т	-	-	-	-	-	
700049	Braybrook Street, London	53/59 [A]	42/53 [A]	37/40 [B]	Day: Old Oak Common Lane Summary - OOC Lane lowering works, Evening: GWML Up Relief Viaduct - Construct GWML up relief two span viaduct over OOCL - Ch.1696 to 1754, Night: Old Oak Common - Old Oak Common - General Works	NA	17	R	Т	-	-	-	-	-	
700050	Braybrook Street, London	52/57 [A]	42/51 [A]	38/40 [B]	Day: Old Oak Common Lane Summary - OOC Lane lowering works, Evening: GWML Up Relief Viaduct - Construct GWML up relief two span viaduct over OOCL - Ch.1696 to 1754, Night: Old Oak Common - Old Oak Common -	NA	11	R	т	-	-	-	-	-	

Assessm	ent location	Impact criteria 5					Significance criteria								
ID	Area represented	Typical/highest monthlyoutdoor LpAeq [dB] at thefacade[Assessment category A/B/C]DayEvening0700-1900-190023000700-1900-		thly at the ry A/B/C] Night 2300- 0700	Construction activity resulting in highest forecast noise levels	Type of effect	represented	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Impact duration [months]	Mitigation effect	effect
					General Works										
700051	Braybrook Street, London	50/55 [A]	41/50 [A]	36/40 [B]	Day: Old Oak Common Lane Summary - OOC Lane lowering works, Evening: GWML Up Relief Viaduct - Construct GWML up relief two span viaduct over OOCL - Ch.1696 to 1754, Night: Old Oak Common - Old Oak Common - General Works	NA	23	R	т	-	-	-	-	-	
700052	Wells House Road, London	57/63 [A]	52/62 [B]	41/46 [>C]	Day: GWML Up Relief Viaduct - Construct GWML up relief two span viaduct over OOCL - Ch.1696 to 1754, Evening: GWML Up Relief Viaduct - Construct GWML up relief two span viaduct over OOCL - Ch.1696 to 1754, Night: GWML Up Relief Viaduct - Enabling works within HEx land	A	26	R	т	Н	-	-	E 7	-	CSV04-C07
700053	Wells House Road, London	69/75 [A]	63/69 [B]	39/47 [C]	Day: Design Element Summary (G-001-S1~Old Oak Common Lane Overbridge) - OOC area bridge works (Old Oak Common Lane and Central Line Bridge Satellite Compounds), Evening: North Acton Retained Fill - Construct retaining walls / embankment - Ch. 820 to 970, Night: GWML Up Relief Viaduct - OOC GWML	s	17	R	т	-	-	-	D 65; E 29	NI	CSV04-C07
Assessm	ent location	Impact cri	iteria			Signi	ficance	e criter	ia						Significant
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ID	Area represented	Typical/hi outdoor L facade [Assessm Day 0700- 1900	ghest mon pAeq [dB] ent categor Evening 1900- 2300	thly at the ry A/B/C] Night 2300- 0700	Construction activity resulting in highest forecast noise levels	Type of effect	represented	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Impact duration [months]	Mitigation effect	effect
					Satellite Compound - Site clearance & enabling works										
700403	Wells House Road, London	65/76 [A]	56/63 [B]	55/6o [>C]	Day: Victoria Road Tunnel Drive Compound - Victoria Road Tunnel Drive Compound - Demolitions and Site Preperation, Evening: North London Line Overbridge - NLL bridge - Underpin abutments, new bearing plinths, assemble & replace deck, remove pier, Night: Victoria Road Tunnel Drive Compound - Victoria Road Tunnel Drive Compound - General Works	S	28	R	т	н	-	-	D 13; E 23; N 59	ZI	CSV04-C07
700404	Wells House Road, London	63/73 [A]	55/60 [B]	54/59 [>C]	Day: Victoria Road Tunnel Drive Compound - Victoria Road Tunnel Drive Compound - Demolitions and Site Preperation, Evening: Victoria Road Tunnel Drive Compound - Victoria Road Tunnel Drive Compound - General Works, Night: Victoria Road Tunnel Drive Compound - Victoria Road Tunnel Drive Compound - Works	5	11	R	т	Н	-	-	D 9; N 39	NI	CSVo4-Co7

Assessm	ent location	Impact cr	iteria			Signi	ificance	e criter	ia						Significant
ID	Area represented	Typical/hi outdoor L facade [Assessm Day 0700- 1900	ghest mon pAeq [dB] ent categor Evening 1900- 2300	thly at the ry A/B/C] Night 2300- 0700	Construction activity resulting in highest forecast noise levels	Type of effect	represented	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Impact duration [months]	Mitigation effect	effect
700405	Shaftesbury Gardens, London	77/80 [>C]	44/50 [>C]	43/49 [>C]	Day: OOC Highway Works - Victoria Road North and South Widening Works, Evening: GWML Up Relief Viaduct - Construct GWML up relief approach viaduct - Ch. 1754 to 1833, Night: Atlas Road Pre- Casting Satellite Compound - Atlas Road Pre- Casting Satellite Compound - General Works	S	74	R	т	н	-	-	D 44	NI	CSVo4- Co5
700406	Shaftesbury Gardens, London	77/78 [>C]	52/54 [>C]	52/54 [>C]	Day: OOC Highway Works - Victoria Road North and South Widening Works, Evening: Atlas Road Pre- Casting Satellite Compound - Atlas Road Pre- Casting Satellite Compound - General Works, Night: Atlas Road Pre- Casting Satellite Compound - Atlas Road Pre- Casting Satellite Compound - General Works	S	24	R	т	Н	-	-	D 44	NI	CSVo4- Co5
700407	Hythe Road, London	52/60 [A]	42/46 [B]	41/44 [>C]	Day: Old Oak Common - Old Oak Common - DEMOLITION & SITE PREP, Evening: GWML Up Relief Viaduct - HEx Demolition, Night: Old Oak Common - Old Oak Common - General Works	NA	1	R	Т	н	-	-	-	-	
700408	Scrubs Lane, London	43/50 [A]	<40/42 [B]	<35/39 [>C]	Day: Old Oak Common - Old Oak Common - DEMOLITION & SITE PREP, Evening: GWML Up Relief Viaduct - HEx Demolition, Night: - Euston and HS1 Link Tunnels Construction	NA	4	R	т	н	-	-	-	-	

Assessm	nent location	Impact cr	iteria			Sign	ificanc	e criter	ia						Significant
ID	Area represented	Typical/h outdoor I facade [Assessm Day 0700- 1900	ighest mon .pAeq [dB] ent catego Evening 1900- 2300	thly at the ry A/B/C] Night 2300- 0700	Construction activity resulting in highest forecast noise levels	Type of effect	represented	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	mpact duration [months]	Mitigation effect	effect
					(Victoria Road Tunnel Drive Main Compound)										
700409	Salter Street, London	50/56 [A]	41/47 [B]	39/44 [>C]	Day: Old Oak Common - Old Oak Common - DEMOLITION & SITE PREP, Evening: GWML Up Relief Viaduct - HEx Demolition, Night: - Euston and HS1 Link Tunnels Construction (Victoria Road Tunnel Drive Main Compound)	NA	2	R	т	н	-	-	-	-	
720004	Victoria Road, London	51/56 [A]	44/54 [A]	37/41 [B]	Day: GWML Up Relief Viaduct - Construct GWML up relief approach viaduct - Ch. 1754 to 1833, Evening: GWML Up Relief Viaduct - Construct GWML up relief intermediate viaduct - Ch. 1616 to 1696, Night: GWML Up Relief Viaduct - OOC GWML Satellite Compound - Site clearance & enabling works	NA	1	R	т	-	-	-	-	-	
720007	Harley Road, London	44/53 [B]	<40/44 [C]	37/42 [>C]	Day: Atlas Road Site - Atlas Road Site - Demolitions and Site Preperation, Evening: GWML Up Relief Viaduct - Construct GWML up relief intermediate viaduct - Ch. 1616 to 1696, Night: Willesden Euroterminal Sidings Main Compound - Willesden Euroterminal Sidings Main Compound	NA	52	R	т	н	-	-	-	-	

Assessm	ent location	Impact cr	iteria		-	Sign	ificanc	e criter	ia	-		-			Significant
ID	Area represented	Typical/hi outdoor L facade [Assessm Day 0700- 1900	ighest mon -pAeq [dB] ent categor Evening 1900- 2300	thly at the Y A/B/C] Night 2300- 0700	Construction activity resulting in highest forecast noise levels	Type of effect	represented	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Impact duration [months]	Mitigation effect	effect
720011	Portal Way, London	57/65 [A]	44/50 [A]	42/48 [B]	Day: OOC Highway Works - Victoria Road North and South Widening Works, Evening: GWML Up Relief Viaduct - Construct GWML up relief intermediate viaduct - Ch. 1616 to 1696, Night: - Northolt (East) Tunnels Construction (Victoria Road Crossover Box Main Compound)	NA	1	R	Т	-	-	-	-	-	
720012	Seacole Close, London	45/50 [A]	<40/47 [A]	<35/38 [B]	Day: OOC Highway Works - Victoria Road North and South Widening Works, Evening: GWML Up Relief Viaduct - Construct GWML up relief two span viaduct over OOCL - Ch.1696 to 1754, Night: - Northolt (East) Tunnels Construction (Victoria Road Crossover Box Main Compound)	NA	1	R	т	-	-	-	-	-	
720013	Garrett Close, London	49/54 [A]	40/51 [A]	37/41 [B]	Day: Old Oak Common - Old Oak Common - DEMOLITION & SITE PREP, Evening: GWML Up Relief Viaduct - Construct GWML up relief approach viaduct - Ch. 1754 to 1833, Night: - Euston and HS1 Link Tunnels Construction (Victoria Road Tunnel Drive Main Compound)	NA	1	R	т	-	-	-	-	-	
720042	Hythe Road, London	47/54 [A]	<40/46 [A]	37/42 [B]	Day: Old Oak Common - Old Oak Common - DEMOLITION & SITE PREP, Evening: GWML Up Relief Viaduct - HEx Demolition, Night: - Euston and HS1 Link Tunnels Construction (Victoria Road Tunnel Drive Main Compound)	NA	1	R	Т	-	-	-	-	-	

Assessm	ent location	Impact cr	iteria			Signi	ficanc	e criter	ia						Significant
ID	Area represented	Typical/hi outdoor L facade [Assessm Day 0700-	ghest mon pAeq [dB] ent categor Evening 1900-	thly at the ry A/B/C] Night 2300-	Construction activity resulting in highest forecast noise levels	e of effect	ווטפר טר וווו <del>טמכנס</del> resented	e of receptor	eptor design	sting environment	que feature	nbined impact	act duration onths]	igation effect	effect
		1900	2300	0700		TYF	rep	TYF	Rec	Exi	-iu C	Cor	lmp Imp	Mit	
720104	Seacole Close, London	44/48 [A]	<40/46 [A]	<35/36 [B]	Day: GWML Up Relief Viaduct - Construct GWML up relief approach viaduct - Ch. 1754 to 1833, Evening: GWML Up Relief Viaduct - Construct GWML up relief approach viaduct - Ch. 1754 to 1833, Night: - Northolt (East) Tunnels Construction (Victoria Road Crossover Box Main Compound)	NA	58	R	т	-	-	-	-	-	
720115	Fortune Way, London	42/49 [A]	<40/43 [A]	36/40 [B]	Day: Atlas Road Site - Atlas Road Site - Demolitions and Site Preperation, Evening: GWML Up Relief Viaduct - Construct GWML up relief approach viaduct - Ch. 1754 to 1833, Night: Willesden Euroterminal Sidings Main Compound - Willesden Euroterminal Sidings Main Compound	NA	13	R	Т	-	-	-	-	-	
720116	Enterprise Way, London	41/49 [A]	<40/43 [A]	<35/40 [B]	Day: Atlas Road Site - Atlas Road Site - Demolitions and Site Preperation, Evening: GWML Up Relief Viaduct - Construct GWML up relief intermediate viaduct - Ch. 1616 to 1696, Night: Logistics Tunnel at Atlas Road Satellite Compound - Logistics Tunnel at Atlas Road Satellite Compound	NA	6	R	т	-	-	-	-	-	

Assessm	nent location	Impact cri	iteria			Sign	ficance	e criter	ia						Significant
ID	Area represented	Typical/hi outdoor L facade [Assessm Day	ighest mon .pAeq [dB] ent catego Evening	thly at the Y A/B/C] Night	Construction activity resulting in highest forecast noise levels	ıf effect	ented	ıf receptor	tor design	ig environment	e feature	ned impact	t duration hs]	tion effect	effect
		0700- 1900	1900- 2300	2300- 0700		ype o	epres	ype o	secep	Existir	Jniqu	Combi	mpac mont	Aitiga	
720142	Gorst Road, London	44/53 [A]	<40/45 [A]	37/42 [B]	Day: Victoria Road Crossover Box Compound - Victoria Road Crossover Box Compound - Demolitions, Evening: GWML Up Relief Viaduct - Construct GWML up relief intermediate viaduct - Ch. 1616 to 1696, Night: - Northolt (East) Tunnels Construction (Victoria Road Crossover Box Main Compound)	NA	2	R	T	-	-	-	-	- -	
720143	Standard Road, London	43/51 [A]	<40/43 [A]	37/41 [B]	Day: Victoria Road Crossover Box Compound - Victoria Road Crossover Box Compound - Demolitions, Evening: GWML Up Relief Viaduct - Construct GWML up relief intermediate viaduct - Ch. 1616 to 1696, Night: Willesden Euroterminal Sidings Main Compound - Willesden Euroterminal Sidings Main Compound	NA	7	R	т	-	-	-	-	-	
720256	Station Road, London	47/54 [B]	43/47 [C]	41/46 [>C]	Day: Atlas Road Site - Atlas Road Site - Demolitions and Site Preperation, Evening: Willesden Euroterminal Sidings Main Compound - Willesden Euroterminal Sidings Main Compound, Night: Willesden Euroterminal Sidings Main Compound - Willesden Euroterminal Sidings Main Compound	NA	14	R	т	Н	-	-	-	-	

Assessm	ent location	Impact cr	iteria		-	Signi	ficanc	e criter	ia		-	-			Significant
ID	Area represented	Typical/hi outdoor L facade [Assessm Day 0700-	ighest mon .pAeq [dB] ent categor Evening 1900-	thly at the ry A/B/C] Night 2300-	Construction activity resulting in highest forecast noise levels	ype of effect	omoer or impaces presented	ype of receptor	eceptor design	xisting environment	nique feature	ombined impact	npact duration nonths]	litigation effect	effect
720257	Station Road, London	42/48 [B]	<40/43 [C]	37/42 [>C]	Day: Atlas Road Site - Atlas Road Site - Demolitions and Site Preperation, Evening: Willesden Euroterminal Sidings Main Compound - Willesden Euroterminal Sidings Main Compound, Night: Willesden Euroterminal Sidings Main Compound - Willesden Euroterminal Sidings Main Compound	NA	3	R	T	н		-	<u> </u>	- -	
720259	Tubbs Road, London	47/55 [A]	41/47 [A]	40/45 [B]	Day: Atlas Road Site - Atlas Road Site - Demolitions and Site Preperation, Evening: Willesden Euroterminal Sidings Main Compound - Willesden Euroterminal Sidings Main Compound, Night: Willesden Euroterminal Sidings Main Compound - Willesden Euroterminal Sidings Main Compound	NA	5	R	т	-	-	-	-		
720260	Ranelagh Road, London	44/50 [A]	<40/44 [A]	38/43 [B]	Day: Atlas Road Site - Atlas Road Site - Demolitions and Site Preperation, Evening: Willesden Euroterminal Sidings Main Compound - Willesden Euroterminal Sidings Main Compound, Night: Willesden Euroterminal Sidings Main Compound - Willesden Euroterminal Sidings Main Compound	NA	18	R	т	-	-	-	-	-	

Assessm	nent location	Impact cri	iteria			Signi	ficanc	e criter	ia						Significant
ID	Area represented	Typical/hi outdoor L facade [Assessm Day 0700- 1900	ghest mon pAeq [dB] ent categoi Evening 1900- 2300	thly at the ry A/B/C] Night 2300- 0700	Construction activity resulting in highest forecast noise levels	Type of effect	represented	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Impact duration [months]	Mitigation effect	effect
720261	Wendover Road, London	46/53 [A]	40/46 [A]	39/44 [B]	Day: Atlas Road Site - Atlas Road Site - Demolitions and Site Preperation, Evening: Willesden Euroterminal Sidings Main Compound - Willesden Euroterminal Sidings Main Compound, Night: Willesden Euroterminal Sidings Main Compound - Willesden Euroterminal Sidings Main Compound	NA	26	R	т	-	-	-	-	-	
720262	Wendover Road, London	<40/43 [A]	<40/40 [A]	<35/37 [B]	Day: Atlas Road Site - Atlas Road Site - Demolitions and Site Preperation, Night: Willesden Euroterminal Sidings Main Compound - Willesden Euroterminal Sidings Main Compound	NA	25	R	т	-	-	-	-	-	
720263	Tubbs Road, London	47/55 [A]	41/47 [A]	40/45 [B]	Day: Atlas Road Site - Atlas Road Site - Demolitions and Site Preperation, Evening: Willesden Euroterminal Sidings Main Compound - Willesden Euroterminal Sidings Main Compound, Night: Willesden Euroterminal Sidings Main Compound - Willesden Euroterminal Sidings Main Compound	NA	15	R	т	-	-	-	-	-	

Assessm	nent location	Impact cr	iteria			Sign	ificance	e criter	ia						Significant
ID	Area represented	Typical/hi outdoor L facade [Assessm Day 0700-	ghest mon pAeq [dB] ; ent categor Evening 1900-	thly at the y A/B/C] Night 2300-	Construction activity resulting in highest forecast noise levels	ype of effect	omoer or mpaces presented	ype of receptor	eceptor design	xisting environment	nique feature	ombined impact	npact duration nonths]	litigation effect	effect
720265	Wendover Road, London	45/52 [A]	<40/45 [A]	38/43 [B]	Day: Atlas Road Site - Atlas Road Site - Demolitions and Site Preperation, Evening: Willesden Euroterminal Sidings Main Compound - Willesden Euroterminal Sidings Main Compound, Night: Willesden Euroterminal Sidings Main Compound - Willesden Euroterminal Sidings Main Compound	NA	21	R	T	<u> </u>		-	<u> </u>	-	

Table 6 : Assessment of construction noise at non-residential receptors

Assessmer	nt location	Impact crit	eria			Sign	ificance	e criteria							Significan
ID	Area represented	Typical/hig LpAeq [dB]	hest monthly o   at the façade	outdoor	Construction activity resulting in highest forecast noise levels		מרנס			iment		t		t	t effect
		Day 0700- 1900	Evening 1900-2300	Night 2300- 0700		Type of effect	represented	Type of recepto	Receptor design	Existing environ	Unique feature	Combined impa	Impact duration [months]	Mitigation effec	
508272	Portal Way, London	50/62	44/47	41/45	Day: Victoria Road Crossover Box Compound - Victoria Road Crossover Box Compound - Demolitions, Evening: GWML Up Relief Viaduct - Construct GWML up relief intermediate viaduct - Ch. 1616 to 1696, Night: Victoria Road Crossover Box Compound - Victoria Road Crossover Compound - General Works	В	1	G4	т	Н	-	-	-	-	
700408	Scrubs Lane, London	43/50	<40/42	<35/39	Day: Old Oak Common - Old Oak Common - DEMOLITION & SITE PREP, Evening: GWML Up Relief Viaduct - HEx Demolition, Night: - Euston and HS1 Link Tunnels Construction (Victoria Road Tunnel Drive Main Compound)	В	1	G4	т	Н	-	-	-	-	
720037	Telford Way, London	56/62	-	-	Day: GWML Up Relief Viaduct - Construct GWML up relief approach viaduct - Ch. 1754 to 1833	В	8	G5	т	-	-	-	-	-	
720265	Wendover Road, London	45/52	<40/45	38/43	Day: Atlas Road Site - Atlas Road Site - Demolitions and Site Preperation, Evening: Willesden Euroterminal Sidings	В	1	G4	т	-	-	-	-	-	

Assessmen	nt location	Impact crite	eria			Signi	ficance	e criteria							Significan
ID	Area represented	Typical/hig LpAeq [dB]	hest monthly c at the façade	outdoor	Construction activity resulting in highest forecast noise levels		מכניס	r	c	nment		act	L	đ	t effect
		Day 0700- 1900	ay 00- 00 1900-2300 Night 2300- 0700 0			Type of effect	represented	Type of recepto	Receptor desig	Existing enviro	Unique feature	Combined impa	Impact duratio [months]	Mitigation effe	
					Main Compound - Willesden Euroterminal Sidings Main Compound, Night: Willesden Euroterminal Sidings Main Compound - Willesden Euroterminal Sidings Main Compound										

#### 4.3 Assessment of significance of effects

#### Residential receptors: direct effects- individual dwellings

- 4.3.1 Taking account of the avoidance and mitigation measures as outlined in the main ES (Volume 2, CFA4, Section 11) and the amendment to construct a grade separated junction to provide three turnback sidings for the Crossrail service and passive provision for a WCML Crossrail Link (AP2-004-004), 17 dwellings on Wells House Road (in addition to approximately 100 dwellings identified in the main ES) facing south are forecast to experience noise levels higher than the noise insulation trigger levels, as defined in the draft CoCP, and higher than described in the main ES and the SES.
- 4.3.2 The mitigation measures, including noise insulation, will reduce noise inside all dwellings such that it does not reach a level where it will significantly affect residents.

#### Residential receptors: direct effects- communities

- 4.3.3 With regard to noise outside dwellings, the assessment of temporary effects takes account of construction noise relative to existing sound levels.
- 4.3.4 In locations with lower existing sound levels, construction noise adverse effects are likely to be caused by changes to noise levels outside dwellings. These may be considered by the local community as an effect on the acoustic character of the area and hence be perceived as a change in the quality of life. These adverse effects are considered to be significant when assessed on a community basis taking account of the local context.
- 4.3.5 The proposed amendment to construct a grade separated junction to provide three turnback sidings for the Crossrail service and passive provision for a WCML Crossrail Link (AP2-004-004) will give rise to different direct adverse effects on residential communities and shared open areas that are considered to be significant on a community basis. The main ES identified a likely significant effect in the vicinity of approximately 30 dwellings on Wells House Road during the evening for 15 months (CSV04-Co7). The amendment will increase the number of properties that are predicted to be adversely affected to 110 during the evening at CSV04-Co7; the number adversely affected during the daytime and night-time will not change as a result of the amendment. The amendment will increase the duration of the impact in comparison to the main ES and SES during the daytime and evening. The different significant adverse noise effects are presented in Table 7.

Significant effect number	Type of significant effect	Time of Day	Location	Cause (construction activities)	Assumed duration of impact and details.
CSV04-C07	Construction noise	Daytime	Approximately 100 dwellings on Wells House Road	Old Oak Common lane Lowering Works, GWML up relief viaduct over old oak common lane, Victoria Road Tunnel Drive Compound works. Typical and highest	Between nine months and up to five years and ten months

Table 7 : Significant adverse construction noise effects on residential communities that are different to those reported in main ES.

			monthly noise levels of 65- 8odB and 75-85dB	
	Evening	Approximately 110 dwellings on Wells House Road	GWML up relief viaduct over old oak common lane, North London line Overbridge, Victoria Road Tunnel Drive Compound works. Typical and highest monthly noise levels of 55-65dB and 6o- 75dB	Between eight months and up to three years and three months
	Night-time	Approximately 40 dwellings on Wells House Road	Victoria Road Tunnel Drive Compound works. Typical and highest monthly noise levels of 55dB and 6odB	Three years and three months to four years and eleven months

#### **Residential receptors: indirect effects**

4.3.6 There are no new or different indirect construction noise effects on residential receptors as a result of the AP<sub>2</sub> amendments, in comparison with the main ES and the SES.

#### Non-residential receptors- direct effects

4.3.7 There are no new or different direct construction noise effects on non-residential receptors as a result of the AP<sub>2</sub> amendments, in comparison with the main ES and the SES.

#### Non-residential receptors: indirect effects

4.3.8 There are no new or different indirect construction noise effects on non-residential receptors as a result of the AP<sub>2</sub> amendments, in comparison with the main ES and the SES.

## Cumulative effects from the scheme and other committed development

4.3.9 This assessment has considered the potential cumulative construction noise effects of the scheme and other committed developments. In this area, no committed developments are due to be built at the same time as the scheme and accordingly, construction noise or vibration from the scheme is unlikely to result in any significant cumulative noise effects.



# HIGH SPEED RAIL (LONDON - WEST MIDLANDS)

Supplementary Environmental Statement and Additional Provision 2 Environmental Statement

Volume 5 | CFA6 | South Ruislip to Ickenham

SES AND AP2 ES – VOLUME 5

www.gov.uk/hs2

#### SES and AP2 Appendix AQ-001-006

Environmental topic:	Air quality	AQ
Appendix name:	Data appendix	001
Community forum area:	South Ruislip to Ickenham	006

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### 1 Introduction

#### 1.1 Structure of this air quality assessment appendix

- 1.1.1 This appendix provides an update to Appendix AQ-001-006 from the main Environmental Statement (ES) (Volume 5, Appendix AQ-001-006). This update should be read in conjunction with Appendix AQ-001-006 from the main ES.
- 1.1.2 This appendix is structured as follows:
  - baseline air quality data (Section 2);
  - dust impact evaluation and risk rating (Section 3); and
  - air quality assessment road traffic (Section 4).
- 1.1.3 Maps referred to throughout this air quality appendix are contained in the Volume 5 air quality map book, within this Supplementary Environmental Statement (SES) and Additional Provision 2 ES (AP2 ES).

#### 1.2 Scope of this assessment

- 1.2.1 This air quality assessment considers changes to local air quality as a result of :
  - corrections to Appendix AQ-001-006 from the main ES;
  - changes to the design or construction assumptions which do not require changes to the Bill;
  - changes to the design of the scheme that are outside the existing limits of the Bill (i.e. AP2 amendments); and
  - updates to traffic models.

#### Methodology, data sources and design criteria

1.2.2 The assessment scope, key assumptions and limitations for air quality are set out in Volume 1, the Scope and Methodology Report (SMR) (Volume 5: Appendix CT-001 -000/1) and the SMR Addendum (Volume 5: Appendix CT-001-000/2) of the main ES as amended by the SMR Addendum 2 (Volume 5: Appendix CT-001 -000/3 of the SES and AP2 ES), which was produced to specifically amend and advance the SMR for AP2. The SMR Addendum 2 focuses on updates and refinements to: the establishment of the baseline and definition of the survey; the scope of the air quality assessment; and the assessment methodology.

### 2 Air quality assessment - road traffic

#### 2.1 Overall assessment approach

2.1.1 The overall assessment approach remains the same as described in Appendix AQ-001-006 of the main ES. Where changes to this approach have been employed, these are detailed in section 2.2.

#### 2.2 Model inputs and verification

#### Model parameters for detailed assessment

2.2.1 The Atmospheric Dispersion Modelling System (ADMS) Roads model was used for the detailed assessment. A surface roughness length of 1.5m, surface roughness at meteorological site of 0.2m, minimum Monin Obukhov length of 100m and latitude of 51.5 degrees were used in the detailed assessment. All other model parameters were model default settings. Meteorological data from the London Heathrow monitoring site was used.

#### **Model verification**

- 2.2.2 Since the model predicts nitrogen oxide (NO<sub>x</sub>) contributions for the modelled roads, this was initially compared to the NO<sub>x</sub> road contribution derived from NO<sub>x</sub> concentrations (where available) measured at monitoring sites and Defra background maps.
- 2.2.3 Roadside monitoring sites were chosen from across the traffic model area, which extends west of the study area. This allowed a greater number of sites to be included in the verification. Sites where nearby busy roads were not included in the traffic model data set (and which, therefore, could not be modelled correctly as roadside sites with the traffic data set) or where monitored road NO<sub>x</sub> was found to be negative were excluded from assessment. The results of this comparison are shown in Table 1.

Site	Ordnance Survey co- ordinates	Monitored total NO <sub>2</sub>	Monitored total NO <sub>x</sub>	Background NO <sub>2</sub>	Background NO <sub>x</sub>	Monitored road NO <sub>x</sub>	Modelled road NO <sub>x</sub>	Monitored /modelled road NO <sub>x</sub>
LLB - lkea (AURN)	520866, 185169	76.0	257.4	33.4	56.1	201.3	51.5	3.9
LLB - John Keble Primary School	521619, 183554	41.1	86.7	35.1	60.3	26.4	22.8	1.2
LBE - Hangar Lane Gyratory (AURN)	518537, 182708	95.0	324.6	37.0	63.4	261.2	72.3	3.6
LBE - Western Avenue (AURN)	520430, 181950	73-3	184.8	37-3	64.7	120.2	30.0	4.0
LBHi - South Ruislip	510835, 184916	52.1	111.7	27.1	42.7	69.0	18.5	3.7

Table 1: Comparison of monitored and modelled NO<sub>x</sub> concentrations for verification

Site	Ordnance Survey	Monitored total NO <sub>2</sub>	Monitored total NO <sub>x</sub>	Background NO₂	Background NO <sub>x</sub>	Monitored road NO <sub>x</sub>	Modelled road NO <sub>x</sub>	Monitored /modelled
	co- ordinates							road NO <sub>x</sub>
(AURN)								
LBHi - Oxford Avenue	509551,		-0					
(AURN)	176974	44.1	78.4	37.1	66.0	12.4	5.5	2.2
LBHa - Pinner Road (AURN)	513504, 188998	46.8	110.4	23.9	36.8	73.5	8.6	8.6
RBKC - Cromwell Road (AURN)	526524, 178965	69.1	155.9	39.8	66.2	89.7	30.7	2.9
RBKC - Kings Road	527268,							
(AURN)	178089	92.6	224.3	39.1	64.8	159.4	17.2	9.2
LLB - Junction of Kingsbury Road / Edgware Road	521447, 188730	54.0	Not measured	29.2	47.4	55.9	18.8	3.0
LLB - Junction North Circular Road / Chartley Avenue	521222, 186122	93.0	Not measured	36.6	62.2	184.4	61.7	3.0
LLB - Dudden Hill Lane junction with High Road	522191, 184821	60.0	Not measured	31.5	52.1	69.2	37.4	1.8
LLB - Junction Dollis Hill Lane / Cricklewo od	523180, 186590	76.0	Not measured	31.3	51.5	128.6	33.6	3.8

Site	Ordnance Survey co- ordinates	Monitored total NO <sub>2</sub>	Monitored total NO <sub>x</sub>	Background NO <sub>2</sub>	Background NO <sub>x</sub>	Monitored road NO <sub>x</sub>	Modelled road NO <sub>x</sub>	Monitored /modelled road NO <sub>x</sub>
LLB - Chichele Road near Melrose Avenue	523692, 185372	65.0	Not measured	31.1	51.1	87.7	21.2	4.1
LLB - IKEA, North Circular Road	520866, 185173	103.0	Not measured	33.4	56.1	237.6	42.0	5.7
LLB - High Street, Harlesden	521743, 183361	76.0	Not measured	35.1	60.3	116.6	34.7	3.4
LLB - Kilburn Bridge	525461, 183558	101.0	Not measured	35.1	59.5	223.6	28.1	7.9
LLE - Ealing Horn Lane AQMS (co- located triplicate)	520432, 181428	52.0	Not measured	37-3	64.7	30.1	18.8	1.6
LLE - 326 Western Avenue	520424, 181957	59.0	Not measured	37-3	64.7	50.8	28.7	1.8
LLE - 57 - 75 Old Oak Common Lane (PO)	521557, 180996	49.0	Not measured	34.1	57.0	30.2	14.8	2.0
LLE - 39 Old Oak Lane	521587, 182684	50.0	Not measured	34-7	59.9	29.8	14.5	2.1
LLE - 5 Leamingt on Park	520532, 181517	46.0	Not measured	37-3	64.7	14.1	21.4	0.7
LBHF - Westway	522548, 180960	77.0	Not measured	34.9	57-4	124.4	41.9	3.0

Site	Ordnance Survey co- ordinates	Monitored total NO <sub>2</sub>	Monitored total NO <sub>x</sub>	Background NO <sub>2</sub>	Background NO <sub>x</sub>	Monitored road NO <sub>x</sub>	Modelled road NO <sub>x</sub>	Monitored /modelled road NO <sub>x</sub>
LBHF - Hammers mith Broadway	523327, 178484	77.0	Not measured	45.7	79.6	95.0	41.8	2.3
LBHF - Talgarth Road	524150, 178363	56.0	Not measured	40.3	67.3	38.7	55.5	0.7
LBHF - Uxbridge Road	522861, 180061	43.0	Not measured	34-9	57-4	14.2	8.8	1.6
RBKC - Chatswor th Court	525263, 178936	51.0	Not measured	42.3	71.4	20.0	16.5	1.2
RBKC - Sloane Square	528011, 178675	81.0	Not measured	40.0	66.1	128.5	22.8	5.6
RBKC - Chelsea Physic Garden (Gate)	527726, 177727	59.0	Not measured	40.0	56.7	60.3	17.1	3.5
RBKC - Sloane Avenue	527411, 178659	56.0	Not measured	39.1	64.8	41.5	8.1	5.1
RBKC - Cromwell Road/ Natural History Museum	526550, 178968	70.0	Not measured	39.8	66.2	86.1	25.7	3.3
RBKC - Pavillion Street/ Sloane Avenue	527889, 179145	54.0	Not measured	43.1	72.5	27.2	13.2	2.1
RBKC - Kensingto n High Street/Ke nsington Church	525630, 179674	62.0	Not measured	38.6	63.8	61.5	16.6	3.7

Site	Ordnance Survey co- ordinates	Monitored total NO <sub>2</sub>	Monitored total NO <sub>x</sub>	Background NO <sub>2</sub>	Background NO <sub>x</sub>	Monitored road NO <sub>x</sub>	Modelled road NO <sub>x</sub>	Monitored /modelled road NO <sub>x</sub>
Street								
RBKC - Fulham Road/ Limerston Street	526377, 177867	55.0	Not measured	38.5	63.5	40.0	18.6	2.1
RBKC - Warwick Road	524825, 178902	50.0	Not measured	40.3	67.3	21.8	15.9	1.4
RBKC - Ladbroke Grove / North Ken Library	524342, 181271	53.0	Not measured	41.7	72.1	24.7	26.6	0.9
RBKC - Cromwell Road/ Earls Court Road	525355, 178841	84.0	Not measured	42.3	71.4	133.4	69.4	1.9

### 2.2.4 The calculated model adjustment factor for the road contribution of NO<sub>x</sub> was 3.21. This was applied to all NO<sub>x</sub> results from the ADMS-Roads modelling. This is in accordance with Defra guidance<sup>1</sup> on model verification.

## 2.2.5 A final check was then made to compare the total NO<sub>2</sub> concentrations from the modelling to the monitored data. This is shown in Table 2.

Table 2: Comparison of monitored and modelled annual average  $\mathsf{NO}_2$  concentrations

Site	Monitored concentration (µg/m <sup>3</sup> )	Modelled concentration (µg/m <sup>3</sup> )	Difference ((modelled - monitored)/monitored) x 100
LLB - Ikea (AURN)	76.0	86.5	14%
LLB - John Keble Primary School	41.1	64.2	56%
LBE - Hangar Lane Gyratory (AURN)	95.0	104.2	10%

<sup>1</sup> Department for Environment, Food and Rural Affairs (2009) Technical Guidance Note LAQM TG(09)

Site	Monitored concentration (µg/m <sup>3</sup> )	Modelled concentration (µg/m³)	Difference ((modelled - monitored)/monitored) x 100
LBE - Western Avenue (AURN)	73.3	72.2	-1%
LBHi - South Ruislip (AURN)	52.1	53-3	2%
LBHi - Oxford Avenue (AURN)	44.1	47-9	9%
LBHa - Pinner Road (AURN)	46.8	39-5	-16%
RBKC - Cromwell Road (AURN)	69.1	73-4	6%
RBKC - Kings Road (AURN)	92.6	60.5	-35%
LLB - Junction of Kingsbury Road / Edgware Road	54.0	55-5	3%
LLB - Junction North Circular Road / Chartley Avenue	93.0	96.1	3%
LLB - Dudden Hill Lane junction with High Road	60.0	74.1	23%
LLB - Junction Dollis Hill Lane / Cricklewood	76.0	70.6	-7%
LLB - Chichele Road near Melrose Avenue	65.0	59-3	-9%
LLB - IKEA, North Circular Road	103.0	79.1	-23%
LLB - High Street, Harlesden.	76.0	74.6	-2%
LLB - Kilburn Bridge	101.0	68.8	-32%
LLE - Ealing Horn Lane AQMS (co-located triplicate)	52.0	62.0	19%
LLE - 326 Western Avenue	59.0	71.1	21%
LLE - 57 - 75 Old Oak Common Lane (PO)	49.0	55.0	12%
LLE - 39 Old Oak Lane	50.0	55.8	12%
LLE - 5 Leamington Park	46.0	64.5	40%

Site	Monitored concentration (µg/m <sup>3</sup> )	Modelled concentration (µg/m <sup>3</sup> )	Difference ((modelled - monitored)/monitored) x 100
LBHF - Westway	77.0	79.5	3%
LBHF - Hammersmith B'way	77.0	86.9	13%
LBHF - Talgarth Road	56.0	93.3	67%
LBHF - Uxbridge Road	43.0	48.5	13%
RBKC - Chatsworth Court	51.0	62.2	22%
RBKC - Sloane Square	81.0	66.3	-18%
RBKC - Chelsea Physic Garden (Gate)	59.0	57-3	-3%
RBKC - Sloane Avenue	56.0	50.6	-10%
RBKC - Cromwell Road/ Natural History Museum	70.0	69.0	-1%
RBKC - Pavillion Street/ Sloane Avenue	54.0	59.2	10%
RBKC - Kensington High Street/Kensington Church Street	62.0	59.5	-4%
RBKC - Fulham Road/ Limerston Street	55.0	61.4	12%
RBKC - Warwick Road	50.0	60.0	20%
RBKC - Ladbroke Grove / Nth Ken Library	53.0	71.8	36%
RBKC - Cromwell Road/ Earls Court Road	84.0	104.8	25%

2.2.6 As the majority of modelled NO<sub>2</sub> concentrations were within 25% of the monitored concentrations, no further adjustment was undertaken.

#### 2.3 Construction traffic

- 2.3.1 Construction traffic data used in this assessment are detailed in Volume 5 Appendix TR-001-000.
- 2.3.2 Scenarios assessed correspond to two peak phases of construction:

- test 1, representing construction traffic movements in late 2017/early 2018, taking into account the major movement of excavated material by road, with Old Oak Common Lane open, but without the Willesden railhead open; and
- test 2, representing construction traffic in late 2021/early 2022, with the major movement of excavated material by road still assumed to be taking place, with Old Oak Common Lane closed, and with Willesden railhead open.

#### **Receptors assessed**

2.3.3 Receptors assessed are presented in Table 3 and in Map AQ-01-006 (Volume 5, Air Quality Map Book). The background concentrations used in the ADMS-Roads assessments are also shown in Table 3, taken from the Defra maps<sup>2</sup>.

Table 3: Modelled receptors (construction phase)

Receptor	Description/location	Ordnance Survey (OS) coordinates
6-5	2 Swakeleys Road	507942, 186227
6-8	195 Swakeleys Road	506601, 186094
6-10	9 Woodhall Close	506013, 185521
6-18	253 Park Road	506166, 185475
6-20	218 Swakeleys Road	506574, 186136
6-21	205 Swakeleys Road	506574, 186059
6-22	16 Shorediche Close	506644, 186133
6-23	Woodside, Park Road	506220, 185452
6-24	Oakwood, Warren Road	506231, 185626
6-25	8A Woodhall Close	505943, 185516
6-26	247 Harefield Road	506166, 185424
6-27	4 Long Lane	507938, 186190
6-28	2-4 High Road	507993, 186204
6-29	6-8 Swakeleys Road	507883, 186253
6-30	15A Swakeleys Road	507883, 186218

<sup>&</sup>lt;sup>2</sup> Department for Environment, Food and Rural Affairs (Defra) (2011) Defra background maps 2011; http://laqm.defra.gov.uk/maps/maps2010.html

Receptor	Description/location	Ordnance Survey (OS) coordinates
6-31	279 Swakeleys Road	506246, 185665
6-32	259 Swakeleys Road	506334, 185818
6-33	1 Roker Park Avenue	506443, 185961
6-34	211 Swakeleys Road	506522, 186026
6-35	The Pavilions, High Street, Ickenham	505438, 184242
6-36	126 High Street, Ickenham	505416, 184346
6-37	Fountains Mill Young People Centre, Oxford Road	505275, 184465
6-38	93-96 Highbridge House, Oxford Road	505185, 184559
6-39	Swan and Bottle Public House, Oxford Road	505147, 184630
6-40	White Bear Public House, Ickenham Road	508825, 187066
6-41	337 Long Lane	507613, 184828
6-42	57 The Chase	507610, 185096
6-43	Vyners School, Warren Road	506717, 185460
6-44	46 The Grove	507168, 185223
6-45	333 Long Lane	507622, 184812
6-46	Belmont Road	505466, 184248
6-47	66 High Street, Ickenham	505385, 184377
6-48	215 Park Road	506095, 184745
6-49	200 Harefield Road	506177, 185385
6-50	Shorthill Cottage, Harvil Road	506332, 187132
6-51	181 Swakeleys Road	506729, 186208
6-52	West Ruislip Court, Ickenham Road	508530, 186945
6-53	West Ruislip Station, Ickenham Road	508355, 186798
6-54	23-27 High Road, Ickenham	508023, 186374

Receptor	Description/location	Ordnance Survey (OS) coordinates
6-55	Priors Farm, West End Road	511070, 184567
6-56	201 Park Road	506102, 184654
6-57	Brearley Close	506176, 184665
6-58	1 North Common Road	506152, 185098
6-59	Woodside, Park Road	506218, 185448
6-60	Woodside, Park Road	506220, 185421
6-61	253 Park Road	506166, 185426
6-62	190 Swakeleys Road	506728, 186268
6-63	168 Swakeleys Road	506864, 186267
6-64	163 Swakeleys Road	506923, 186234
6-65	30 Swakeleys Road	507780, 186314
6-66	58 Swakeleys Road	507766, 186282
6-67	Melthorne Court, High Road, Ickenham	508054, 186434
6-68	61 High Road, Ickenham	508120, 186587
6-69	71 High Road, Ickenham	508178, 186651
6-70	Aylsham Drive	508187, 186603
6-71	Station Parade, Ickenham Road	508496, 186921
6-72	116 Ickenham Road	508474, 186933
6-73	1 Harwell Close	508535, 186996
6-74	85 Sharps Lane	508785, 187087
6-75	18 Shorediche Close	506657, 186149
6-76	Highway Farm, Harvil Road	506085, 188057
6-77	41 The Grove	507218, 185200
6-78	Hillingdon Lodge, Hercies Road	507525, 184860

Receptor	Description/location	Ordnance Survey (OS) coordinates
6-79	404 Long Lane	507672, 184797

#### **Background concentrations**

## 2.3.4 The background concentrations used in the assessment are shown in Table 4 and Table 5 taken from the Defra maps.

Table 4: Background 2012 concentrations at assessed receptors

Receptor (or zone of receptors)	Concentrations (µg/m <sup>3</sup> )			
	NO <sub>x</sub>	NO <sub>2</sub>	РМ10	
(6-5) 2 Swakeleys Road	36.4	23.5	19.5	
(6-8) 195 Swakeleys Road	33.0	21.6	19.1	
(6-10) 9 Woodhall Close	45.6	28.5	22.0	
(6-18) 253 Park Road	45.6	28.5	22.0	
(6-20) 218 Swakeleys Road	33.0	21.6	19.1	
(6-21) 205 Swakeleys Road	33.0	21.6	19.1	
(6-22) 16 Shorediche Close	33.0	21.6	19.1	
(6-23) Woodside, Park Road	45.6	28.5	22.0	
(6-24) Oakwood, Warren Road	45.6	28.5	22.0	
(6-25) 8A Woodhall Close	46.4	28.3	21.7	
(6-26) 247 Harefield Road	45.6	28.5	22.0	
(6-27) 4 Long Lane	36.4	23.5	19.5	
(6-28) 2-4 High Road	36.4	23.5	19.5	
(6-29) 6-8 Swakeleys Road	36.4	23.5	19.5	
(6-30) 15A Swakeleys Road	36.4	23.5	19.5	
(6-31) 279 Swakeleys Road	45.6	28.5	22.0	
(6-32) 259 Swakeleys Road	45.6	28.5	22.0	
(6-33) 1 Roker Park Avenue	45.6	28.5	22.0	
(6-34) 211 Swakeleys Road	49.3	29.8	21.7	

Receptor (or zone of receptors)	Concentrations (µg/m³)		
	NO <sub>x</sub>	NO <sub>2</sub>	РМ10
(6-35) The Pavilions, High Street, Ickenham	49.3	29.8	21.7
(6-36) 126 High Street, Ickenham	49.3	29.8	21.7
(6-37) Fountains Mill Young People Centre, Oxford Road	49.3	29.8	21.7
(6-38) 93-96 Highbridge House, Oxford Road	49.3	29.8	21.7
(6-39) Swan and Bottle Public House, Oxford Road	33.0	21.6	19.1
(6-40) White Bear Public House, Ickenham Road	32.4	21.3	18.9
(6-41) 337 Long Lane	39.8	25.4	20.7
(6-42) 57 The Chase	43.9	27.6	21.8
(6-43) Vyners School, Warren Road	45.6	28.5	22.0
(6-44) 46 The Grove	43.9	27.6	21.8
(6-45) 333 Long Lane	39.8	25.4	20.7
(6-46) Belmont Road	49.3	29.8	21.7
(6-47) 66 High Street, Ickenham	49.3	29.8	21.7
(6-48) 215 Park Road	37.5	24.0	19.8
(6-49) 200 Harefield Road	45.6	28.5	22.0
(6-50) Shorthill Cottage, Harvil Road	28.2	18.8	18.2
(6-51) 181 Swakeleys Road	33.0	21.6	19.1
(6-52) West Ruislip Court, Ickenham Road	34.4	22.4	19.2
(6-53) West Ruislip Station, Ickenham Road	34.4	22.4	19.2
(6-54) 23-27 High Road, Ickenham	34.4	22.4	19.2
(6-55) Priors Farm, West End Road	44.9	28.3	21.9
(6-56) 201 Park Road	37.5	24.0	19.8
(6-57) Brearley Close	37.5	24.0	19.8

Receptor (or zone of receptors)	eptor (or zone of receptors) Concentrations (μg/m <sup>3</sup> )		
	NO <sub>x</sub>	NO <sub>2</sub>	РМ10
(6-58) 1 North Common Road	45.6	28.5	22.0
(6-59) Woodside, Park Road	45.6	28.5	22.0
(6-60) Woodside, Park Road	45.6	28.5	22.0
(6-61) 253 Park Road	45.6	28.5	22.0
(6-62) 190 Swakeleys Road	33.0	21.6	19.1
(6-63) 168 Swakeleys Road	33.0	21.6	19.1
(6-64) 163 Swakeleys Road	33.0	21.6	19.1
(6-65) 30 Swakeleys Road	36.4	23.5	19.5
(6-66) 58 Swakeleys Road	36.4	23.5	19.5
(6-67) Melthorne Court, High Road, Ickenham	34.4	22.4	19.2
(6-68) 61 High Road, Ickenham	34.4	22.4	19.2
(6-69) 71 High Road, Ickenham	34.4	22.4	19.2
(6-70) Aylsham Drive	34.4	22.4	19.2
(6-71) Station Parade, Ickenham Road	34.4	22.4	19.2
(6-72) 116 Ickenham Road	34.4	22.4	19.2
(6-73) 1 Harwell Close	34.4	22.4	19.2
(6-74) 85 Sharps Lane	32.4	21.3	18.9
(6-75) 18 Shorediche Close	33.0	21.6	19.1
(6-76) Highway Farm, Harvil Road	26.7	18.0	17.9
(6-77) 41 The Grove	43.9	27.6	21.8
(6-78) Hillingdon Lodge, Hercies Road	39.8	25.4	20.7
(6-79) 404 Long Lane	39.8	25.4	20.7

Table 5: Background 2017 concentrations at assessed receptors

Receptor (or zone of receptors)	Concentrations (µg/m³)			
	NO <sub>x</sub>	NO <sub>2</sub>	PM10	
(6-5) 2 Swakeleys Road	31.0	20.5	18.3	
(6-8) 195 Swakeleys Road	28.1	18.9	17.9	
(6-10) 9 Woodhall Close	38.3	24.6	20.6	
(6-18) 253 Park Road	38.3	24.6	20.6	
(6-20) 218 Swakeleys Road	28.1	18.9	17.9	
(6-21) 205 Swakeleys Road	28.1	18.9	17.9	
(6-22) 16 Shorediche Close	28.1	18.9	17.9	
(6-23) Woodside, Park Road	38.3	24.6	20.6	
(6-24) Oakwood, Warren Road	38.3	24.6	20.6	
(6-25) 8A Woodhall Close	38.5	24.9	20.3	
(6-26) 247 Harefield Road	38.3	24.6	20.6	
(6-27) 4 Long Lane	31.0	20.5	18.3	
(6-28) 2-4 High Road	31.0	20.5	18.3	
(6-29) 6-8 Swakeleys Road	31.0	20.5	18.3	
(6-30) 15A Swakeleys Road	31.0	20.5	18.3	
(6-31) 279 Swakeleys Road	38.3	24.6	20.6	
(6-32) 259 Swakeleys Road	38.3	24.6	20.6	
(6-33) 1 Roker Park Avenue	38.3	24.6	20.6	
(6-35) The Pavilions, High Street, Ickenham	41.1	25.8	20.0	
(6-36) 126 High Street, Ickenham	41.1	25.8	20.0	
(6-37) Fountains Mill Young People Centre, Oxford Road	41.1	25.8	20.0	
(6-38) 93-96 Highbridge House, Oxford Road	41.1	25.8	20.0	

Receptor (or zone of receptors)	Concentrations (µg/m³)			
	NO <sub>x</sub>	NO <sub>2</sub>	РМ10	
(6-39) Swan and Bottle Public House, Oxford Road	28.1	18.9	17.9	
(6-40) White Bear Public House, Ickenham Road	27.6	18.5	17.8	
(6-41) 337 Long Lane	33.8	22.1	19.3	
(6-42) 57 The Chase	36.8	23.8	20.4	
(6-43) Vyners School, Warren Road	38.3	24.6	20.6	
(6-44) 46 The Grove	36.8	23.8	20.4	
(6-45) 333 Long Lane	33.8	22.1	19.3	
(6-46) Belmont Road	41.1	25.8	20.0	
(6-47) 66 High Street, Ickenham	41.1	25.8	20.0	
(6-48) 215 Park Road	31.9	20.9	18.5	
(6-49) 200 Harefield Road	38.3	24.6	20.6	
(6-50) Shorthill Cottage, Harvil Road	24.2	16.5	17.2	
(6-51) 181 Swakeleys Road	28.1	18.9	17.9	
(6-52) West Ruislip Court, Ickenham Road	29.4	19.6	18.0	
(6-53) West Ruislip Station, Ickenham Road	29.4	19.6	18.0	
(6-54) 23-27 High Road, Ickenham	29.4	19.6	18.0	
(6-55) Priors Farm, West End Road	37-9	24.5	20.5	
(6-56) 201 Park Road	31.9	20.9	18.5	
(6-57) Brearley Close	31.9	20.9	18.5	
(6-58) 1 North Common Road	38.3	24.6	20.6	
(6-59) Woodside, Park Road	38.3	24.6	20.6	
(6-6o) Woodside, Park Road	38.3	24.6	20.6	
(6-61) 253 Park Road	38.3	24.6	20.6	

Receptor (or zone of receptors)	Concentrations (µg/m³)			
	NO <sub>x</sub>	NO <sub>2</sub>	PM10	
(6-62) 190 Swakeleys Road	28.1	18.9	17.9	
(6-63) 168 Swakeleys Road	28.1	18.9	17.9	
(6-64) 163 Swakeleys Road	28.1	18.9	17.9	
(6-65) 30 Swakeleys Road	31.0	20.5	18.3	
(6-66) 58 Swakeleys Road	31.0	20.5	18.3	
(6-67) Melthorne Court, High Road, Ickenham	29.4	19.6	18.0	
(6-68) 61 High Road, Ickenham	29.4	19.6	18.0	
(6-69) 71 High Road, Ickenham	29.4	19.6	18.0	
(6-70) Aylsham Drive	29.4	19.6	18.0	
(6-71) Station Parade, Ickenham Road	29.4	19.6	18.0	
(6-72) 116 Ickenham Road	29.4	19.6	18.0	
(6-73) 1 Harwell Close	29.4	19.6	18.0	
(6-74) 85 Sharps Lane	27.6	18.5	17.8	
(6-75) 18 Shorediche Close	28.1	18.9	17.9	
(6-76) Highway Farm, Harvil Road	22.9	15.7	16.9	
(6-77) 41 The Grove	36.8	23.8	20.4	
(6-78) Hillingdon Lodge, Hercies Road	33.8	22.1	19.3	
(6-79) 404 Long Lane	33.8	22.1	19.3	

#### **Detailed modelling results**

2.3.5 This section provides the summary of the modelled pollutant concentrations for the assessed receptors. The magnitude of change and impact descriptor are also derived following the EPUK methodology<sup>3</sup>. Results presented correspond to the greatest impact at each receptor from the construction traffic scenarios assessed.

<sup>&</sup>lt;sup>3</sup> Environmental Protection UK, (2010), Development Control: Planning for Air Quality (2010).

Receptor	NO <sub>2</sub> concer	ntrations (µg/m	<sup>3</sup> )	Change in	Magnitude of	Impact descriptor	Previously
	2012 baseline	Future baseline, i.e. without revised scheme	Construction scenario, with revised scheme	concentrations (μg/m <sup>3</sup> )	change		reported main ES impact descriptor
6-5	44.1	37-9	37.6	-0.3	Imperceptible	Negligible	Slight adverse
6-8	46.8	40.6	40.4	-0.1	Imperceptible	Negligible	Substantial adverse
6-10	56.7	48.6	48.7	0.2	Imperceptible	Negligible	Moderate adverse
6-18	69.8	59.4	59.0	-0.4	Imperceptible	Negligible	Moderate adverse
6-20	45.3	39.2	39.1	-0.1	Imperceptible	Negligible	Substantial adverse
6-21	42.6	36.8	37.1	0.3	Imperceptible	Negligible	Substantial adverse
6-22	50.3	43.8	43.3	-0.4	Small	Slight beneficial	Substantial adverse
6-23	75.5	64.9	63.8	-1.1	Small	Slight beneficial	Slight adverse
6-24	74.8	65.3	66.1	0.8	Small	Slight adverse	Substantial adverse
6-25	51.3	43.7	43.9	0.1	Imperceptible	Negligible	Moderate adverse
6-26	64.8	54-7	54.0	-0.7	Small	Slight beneficial	Slight adverse
6-27	41.4	35.6	35.5	-0.1	Imperceptible	Negligible	Slight adverse
6-28	47.1	40.7	40.8	0.1	Imperceptible	Negligible	Slight adverse
6-29	39.1	33-5	33.1	-0.5	Small	Negligible	Slight adverse
6-30	37.5	32.2	31.8	-0.4	Imperceptible	Negligible	Slight adverse
6-31	68.1	59.5	60.6	1.1	Small	Slight adverse	Substantial adverse

Table 6: Summary of ADMS-Roads annual mean NO $_{2}$  results (construction phase)
Receptor	NO₂ concentrations (μg/m <sup>3</sup> )		Change in	Magnitude of	Impact descriptor	Previously	
	2012 baseline	Future baseline, i.e. without revised scheme	Construction scenario, with revised scheme	concentrations (µg/m³)	change		reported main ES impact descriptor
6-32	60.0	52.4	53.7	1.3	Small	Slight adverse	Substantial adverse
6-33	54.6	47.7	48.4	0.7	Small	Slight adverse	Substantial adverse
6-34	48.9	42.7	43.3	0.7	Small	Slight adverse	Substantial adverse
6-35	47.2	38.7	39.3	0.5	Small	Slight adverse	N/A
6-36	61.9	49.9	51.2	1.3	Small	Slight adverse	N/A
6-37	64.4	55.3	56.6	1.3	Small	Slight adverse	N/A
6-38	57.2	47.9	48.8	1.0	Small	Slight adverse	N/A
6-39	46.4	38.6	39.1	0.5	Small	Slight adverse	N/A
6-40	50.7	43.8	44.0	0.1	Imperceptible	Negligible	N/A
6-41	66.7	57.2	57.6	0.4	Imperceptible	Negligible	N/A
6-42	52.6	44.0	44.1	0.1	Imperceptible	Negligible	N/A
6-43	45.5	39.1	39.2	0.2	Imperceptible	Negligible	N/A
6-44	46.4	38.9	38.9	0.1	Imperceptible	Negligible	N/A
6-45	59.6	51.1	51.4	0.3	Imperceptible	Negligible	N/A
6-46	62.2	50.0	51.5	1.5	Small	Slight adverse	N/A
6-47	62.0	50.5	51.4	1.0	Small	Slight adverse	N/A
6-48	45.4	37.2	36.9	-0.3	Imperceptible	Negligible	N/A
6-49	68.4	57.2	56.4	-0.8	Small	Slight beneficial	N/A
6-50	28.0	24.2	24.3	0.1	Imperceptible	Negligible	N/A
6-51	44.8	38.7	38.3	-0.4	Small	Slight beneficial	N/A
6-52	60.4	52.7	52.7	0.0	Imperceptible	Negligible	N/A

Receptor	NO₂ concer	NO₂ concentrations (μg/m <sup>3</sup> )		Change in	Magnitude of	Impact descriptor	Previously
	2012 baseline	Future baseline, i.e. without revised scheme	Construction scenario, with revised scheme	concentrations (µg/m³)	change		reported main ES impact descriptor
6-53	51.7	44.5	44.1	-0.3	Imperceptible	Negligible	N/A
6-54	43.7	37.6	37-7	0.1	Imperceptible	Negligible	N/A
6-55	67.1	55.7	55.7	0.0	Imperceptible	Negligible	N/A
6-56	46.5	38.4	37-9	-0.5	Small	Slight beneficial	N/A
6-57	37.5	31.5	31.2	-0.2	Imperceptible	Negligible	N/A
6-58	51.6	42.5	42.1	-0.4	Imperceptible	Negligible	N/A
6-59	75-7	65.1	64.0	-1.2	Small	Slight beneficial	N/A
6-60	66.7	56.8	56.0	-0.9	Small	Slight beneficial	N/A
6-61	64.5	54.5	53.8	-0.7	Small	Slight beneficial	N/A
6-62	52.1	45.5	45.1	-0.4	Imperceptible	Negligible	N/A
6-63	36.4	31.1	30.8	-0.4	Imperceptible	Negligible	N/A
6-64	34-9	29.9	29.6	-0.3	Imperceptible	Negligible	N/A
6-65	38.4	33.0	32.4	-0.6	Small	Negligible	N/A
6-66	34-7	29.8	29.5	-0.3	Imperceptible	Negligible	N/A
6-67	47.0	40.5	40.6	0.1	Imperceptible	Negligible	N/A
6-68	42.4	36.3	36.1	-0.2	Imperceptible	Negligible	N/A
6-69	44.7	38.2	38.0	-0.3	Imperceptible	Negligible	N/A
6-70	43.0	36.8	36.6	-0.2	Imperceptible	Negligible	N/A
6-71	58.2	50.4	50.1	-0.3	Imperceptible	Negligible	N/A
6-72	45.6	39.0	38.8	-0.2	Imperceptible	Negligible	N/A
6-73	45.9	39.4	39.6	0.2	Imperceptible	Negligible	N/A
6-74	45.8	39.2	39.8	0.5	Small	Slight adverse	N/A

Receptor	NO₂ concer 2012 baseline	ntrations (µg/m Future baseline, i.e. without revised scheme	<sup>3</sup> ) Construction scenario, with revised scheme	Change in concentrations (µg/m <sup>3</sup> )	Magnitude of change	Impact descriptor	Previously reported main ES impact descriptor
6-75	54.4	47.5	46.9	-0.6	Small	Slight beneficial	N/A
6-76	25.1	21.7	21.8	0.1	Imperceptible	Negligible	N/A
6-77	47.2	39.5	39.5	0.1	Imperceptible	Negligible	N/A
6-78	49.9	41.9	42.2	0.2	Imperceptible	Negligible	N/A
6-79	50.1	42.7	42.9	0.2	Imperceptible	Negligible	N/A

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Table 7: Summary of ADMS-Roads annual mean PM10 results (construction phase)

Receptor	PM10 concentrations (μg/m <sup>3</sup> )		Change in	Magnitude of	Impact	Previously	
	2012 baseline	Construction without revised scheme	Construction with revised scheme	concentrations (µg/m <sup>3</sup> )	change	descriptor	reported main ES impact descriptor
6-5	22.0	20.5	20.6	0.1	Imperceptible	Negligible	Negligible
6-8	22.1	20.6	20.9	0.3	Imperceptible	Negligible	Negligible
6-10	27.0	25.2	25.4	0.2	Imperceptible	Negligible	Negligible
6-18	29.0	26.8	26.9	0.1	Imperceptible	Negligible	Negligible
6-20	22.0	20.5	20.8	0.3	Imperceptible	Negligible	Negligible
6-21	21.5	20.1	20.4	0.3	Imperceptible	Negligible	Negligible
6-22	22.7	21.0	21.3	0.3	Imperceptible	Negligible	Negligible
6-23	29.8	27.5	27.5	0.0	Imperceptible	Negligible	Negligible
6-24	29.8	27.4	28.3	0.9	Small	Negligible	Negligible
6-25	25.3	23.6	23.8	0.2	Imperceptible	Negligible	Negligible
6-26	27.4	25.3	25.2	0.0	Imperceptible	Negligible	Negligible
6-27	21.6	20.1	20.2	0.1	Imperceptible	Negligible	Negligible
6-28	22.7	21.0	21.1	0.1	Imperceptible	Negligible	Negligible
6-29	21.2	19.8	19.9	0.1	Imperceptible	Negligible	Negligible

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Receptor	PM10 concentrations (μg/m <sup>3</sup> )		Change in	Magnitude of	Impact	Previously	
	2012 baseline	Construction without revised scheme	Construction with revised scheme	concentrations (µg/m <sup>3</sup> )	change	descriptor	reported main ES impact descriptor
6-30	20.9	19.6	19.6	0.1	Imperceptible	Negligible	Negligible
6-31	28.5	26.3	27.1	0.8	Small	Negligible	Negligible
6-32	26.7	24.8	25.4	0.7	Small	Negligible	Negligible
6-33	25.7	23.8	24.4	0.6	Small	Negligible	Negligible
6-34	22.6	21.0	21.6	0.6	Small	Negligible	Negligible
6-35	23.2	21.2	21.3	0.1	Imperceptible	Negligible	N/A
6-36	25.1	22.8	23.0	0.2	Imperceptible	Negligible	N/A
6-37	25.8	23.5	23.7	0.2	Imperceptible	Negligible	N/A
6-38	25.2	23.0	23.2	0.1	Imperceptible	Negligible	N/A
6-39	23.8	21.9	22.0	0.1	Imperceptible	Negligible	N/A
6-40	23.2	21.3	21.3	0.0	Imperceptible	Negligible	N/A
6-41	26.4	24.3	24.3	0.0	Imperceptible	Negligible	N/A
6-42	26.4	24.6	24.7	0.1	Imperceptible	Negligible	N/A
6-43	24.5	22.9	23.0	0.1	Imperceptible	Negligible	N/A
6-44	24.9	23.2	23.3	0.0	Imperceptible	Negligible	N/A
6-45	25.3	23.4	23.4	0.0	Imperceptible	Negligible	N/A
6-46	25.2	22.8	23.1	0.3	Imperceptible	Negligible	N/A
6-47	25.2	22.9	23.1	0.2	Imperceptible	Negligible	N/A
6-48	22.8	21.1	21.0	-0.1	Imperceptible	Negligible	N/A
6-49	28.9	26.6	26.4	-0.2	Imperceptible	Negligible	N/A
6-50	19.1	18.0	18.2	0.2	Imperceptible	Negligible	N/A
6-51	21.8	20.3	20.5	0.2	Imperceptible	Negligible	N/A
6-52	25.2	23.0	23.2	0.1	Imperceptible	Negligible	N/A

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Receptor	PM10 concentrations (μg/m³)		Change in	Magnitude of	Impact	Previously	
	2012 baseline	Construction without revised scheme	Construction with revised scheme	concentrations (µg/m <sup>3</sup> )	change	descriptor	reported main ES impact descriptor
6-53	23.9	22.0	22.2	0.1	Imperceptible	Negligible	N/A
6-54	21.8	20.2	20.3	0.1	Imperceptible	Negligible	N/A
6-55	28.6	26.4	26.4	0.0	Imperceptible	Negligible	N/A
6-56	22.8	21.0	20.9	-0.1	Imperceptible	Negligible	N/A
6-57	21.2	19.7	19.6	0.0	Imperceptible	Negligible	N/A
6-58	25.7	23.8	23.7	-0.1	Imperceptible	Negligible	N/A
6-59	29.8	27.4	27.4	0.0	Imperceptible	Negligible	N/A
6-60	27.9	25.8	25.7	0.0	Imperceptible	Negligible	N/A
6-61	27.3	25.2	25.2	0.0	Imperceptible	Negligible	N/A
6-62	23.9	22.1	22.4	0.2	Imperceptible	Negligible	N/A
6-63	20.6	19.2	19.3	0.1	Imperceptible	Negligible	N/A
6-64	20.3	19.0	19.1	0.1	Imperceptible	Negligible	N/A
6-65	21.0	19.7	19.8	0.1	Imperceptible	Negligible	N/A
6-66	20.5	19.2	19.3	0.1	Imperceptible	Negligible	N/A
6-67	22.4	20.7	20.8	0.1	Imperceptible	Negligible	N/A
6-68	21.9	20.3	20.4	0.1	Imperceptible	Negligible	N/A
6-69	22.4	20.7	20.8	0.1	Imperceptible	Negligible	N/A
6-70	22.0	20.4	20.5	0.1	Imperceptible	Negligible	N/A
6-71	25.3	23.3	23.4	0.2	Imperceptible	Negligible	N/A
6-72	22.5	20.8	20.9	0.1	Imperceptible	Negligible	N/A
6-73	22.1	20.4	20.5	0.1	Imperceptible	Negligible	N/A
6-74	22.0	20.3	20.3	0.0	Imperceptible	Negligible	N/A
6-75	23.4	21.6	21.9	0.3	Imperceptible	Negligible	N/A

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Receptor	PM10 conce	PM10 concentrations (μg/m <sup>3</sup> )			Magnitude of	Impact	Previously
	2012	Construction	Construction	concentrations	change	descriptor	reported
	baseline	without	with revised	(µg/m³)			main ES
		revised	scheme				impact
		scheme					descriptor
6-76	18.5	17.4	17.5	0.1	Imperceptible	Negligible	N/A
6-77	25.1	23.4	23.5	0.1	Imperceptible	Negligible	N/A
6-78	23.7	21.9	21.9	0.0	Imperceptible	Negligible	N/A
6-79	23.8	22.1	22.1	0.0	Imperceptible	Negligible	N/A

Table 8: Summary of ADMS-Roads 24-hour mean PM10 results (construction phase)

Receptor	Number of days exceeding PM10 24-hour standard			Change in days	Magnitude of change	Impact descriptor	Previously reported
	2012 baseline	Construction without revised scheme	Construction with revised scheme				main ES impact descriptor
6-5	6	4	4	0	Imperceptible	Negligible	Negligible
6-8	7	4	5	0	Imperceptible	Negligible	Negligible
6-10	18	13	13	1	Imperceptible	Negligible	Negligible
6-18	24	17	18	0	Imperceptible	Negligible	Negligible
6-20	6	4	4	0	Imperceptible	Negligible	Negligible
6-21	5	3	4	0	Imperceptible	Negligible	Negligible
6-22	8	5	5	0	Imperceptible	Negligible	Negligible
6-23	27	19	19	0	Imperceptible	Negligible	Negligible
6-24	27	19	22	3	Medium	Negligible	Negligible
6-25	13	9	10	0	Imperceptible	Negligible	Negligible
6-26	19	13	13	0	Imperceptible	Negligible	Negligible
6-27	6	4	4	0	Imperceptible	Negligible	Negligible
6-28	8	5	5	0	Imperceptible	Negligible	Negligible
6-29	5	3	3	0	Imperceptible	Negligible	Negligible

Receptor	Number of days exceeding PM10 24-hour			Change in	Magnitude of	Impact	Previously
	standard 2012 baseline	Construction without revised scheme	Construction with revised scheme	days	change	descriptor	reported main ES impact descriptor
6-30	5	3	3	0	Imperceptible	Negligible	Negligible
6-31	22	16	18	2	Medium	Negligible	Negligible
6-32	17	12	13	2	Small	Negligible	Negligible
6-33	14	10	11	1	Small	Negligible	Negligible
6-34	7	5	6	1	Imperceptible	Negligible	Negligible
6-35	8	5	5	0	Imperceptible	Negligible	N/A
6-36	13	8	8	0	Imperceptible	Negligible	N/A
6-37	14	9	9	0	Imperceptible	Negligible	N/A
6-38	13	8	8	0	Imperceptible	Negligible	N/A
6-39	10	6	6	0	Imperceptible	Negligible	N/A
6-40	9	5	5	0	Imperceptible	Negligible	N/A
6-41	16	11	11	0	Imperceptible	Negligible	N/A
6-42	16	12	12	0	Imperceptible	Negligible	N/A
6-43	11	8	8	0	Imperceptible	Negligible	N/A
6-44	12	9	9	0	Imperceptible	Negligible	N/A
6-45	13	9	9	0	Imperceptible	Negligible	N/A
6-46	13	8	8	1	Imperceptible	Negligible	N/A
6-47	13	8	8	0	Imperceptible	Negligible	N/A
6-48	8	5	5	0	Imperceptible	Negligible	N/A
6-49	24	16	16	0	Imperceptible	Negligible	N/A
6-50	2	1	2	0	Imperceptible	Negligible	N/A

Receptor	ptor Number of days exceeding PM10 24-hour standard			Change in days	Magnitude of change	Impact descriptor	Previously reported
	2012 baseline	Construction without revised scheme	Construction with revised scheme				main ES impact descriptor
6-51	6	4	4	0	Imperceptible	Negligible	N/A
6-52	13	8	8	0	Imperceptible	Negligible	N/A
6-53	10	6	7	0	Imperceptible	Negligible	N/A
6-54	6	4	4	0	Imperceptible	Negligible	N/A
6-55	23	16	16	0	Imperceptible	Negligible	N/A
6-56	8	5	5	0	Imperceptible	Negligible	N/A
6-57	5	3	3	0	Imperceptible	Negligible	N/A
6-58	14	10	10	0	Imperceptible	Negligible	N/A
6-59	27	19	19	0	Imperceptible	Negligible	N/A
6-60	20	14	14	0	Imperceptible	Negligible	N/A
6-61	19	13	13	0	Imperceptible	Negligible	N/A
6-62	10	7	7	0	Imperceptible	Negligible	N/A
6-63	4	3	3	0	Imperceptible	Negligible	N/A
6-64	4	2	2	0	Imperceptible	Negligible	N/A
6-65	5	3	3	0	Imperceptible	Negligible	N/A
6-66	4	2	3	0	Imperceptible	Negligible	N/A
6-67	7	4	4	0	Imperceptible	Negligible	N/A
6-68	6	4	4	0	Imperceptible	Negligible	N/A
6-69	7	4	4	0	Imperceptible	Negligible	N/A
6-70	6	4	4	0	Imperceptible	Negligible	N/A
6-71	13	9	9	0	Imperceptible	Negligible	N/A

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Receptor	Number of o standard	days exceeding F	M10 24-hour	Change in days	Magnitude of change	Impact descriptor	Previously reported
	2012 baseline	Construction without revised scheme	Construction with revised scheme				main ES impact descriptor
6-72	7	4	5	0	Imperceptible	Negligible	N/A
6-73	7	4	4	0	Imperceptible	Negligible	N/A
6-74	6	4	4	0	Imperceptible	Negligible	N/A
6-75	9	6	6	0	Imperceptible	Negligible	N/A
6-76	2	1	1	0	Imperceptible	Negligible	N/A
6-77	13	9	9	0	Imperceptible	Negligible	N/A
6-78	9	6	6	0	Imperceptible	Negligible	N/A
6-79	10	6	6	0	Imperceptible	Negligible	N/A

#### Assessment of significance

- 2.3.6 The significance of the impacts on air quality from construction traffic associated with the AP2 revised scheme has been assessed in accordance with the EPUK methodology<sup>3</sup>. AQMAs cover the study area, and pollution levels exceed air quality standards in many locations, particularly along major roads.
- 2.3.7 The ADMS-Roads assessment predicted that there will be numerous locations where air quality standards are exceeded, with and without the revised scheme. Many receptor locations will also experience an increase in concentrations of NO<sub>2</sub> and PM10 with the revised scheme.
- 2.3.8 NO<sub>2</sub> impacts during the construction phase were predicted in the main ES to be substantial adverse at receptors on:
  - Swakeleys Road, between the A40 Western Avenue and Breakspear Road (multiple receptors);
  - Warren Road, close to the junction with Swakeleys Road;
  - Roker Park Avenue, close to the junction with Swakeleys Road; and
  - Shorediche Close, at the façade closest to Swakeleys Road.
- 2.3.9 NO<sub>2</sub> impacts during the construction phase were predicted in the main ES to be moderate adverse at receptors on:
  - Woodhall Close, at two properties with rear facades close to the A40 Western Avenue; and

- Park Road, close to the junction with the A40 Western Avenue.
- 2.3.10 In this revised assessment, largely because of changes to the mass haul traffic flows and use of Euro VI compliant vehicles for the transport of excavated materials, the impacts have decreased and are predicted to be slight adverse, negligible or slight beneficial at these receptors. This is no longer a significant effect.

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## SES and AP<sub>2</sub> ES Appendix CH-002-006

Environmental topic:	Cultural heritage	СН
Appendix name:	Gazetteer of heritage	002
	assets	
Community forum area:	6	006

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# 1 Introduction

1.1.1 This appendix provides an update to Appendix CH-002-006 cultural heritage gazetteer of heritage assets to the main Environmental Statement (ES) as a result of design changes, assessed as part of the Supplementary Environmental Statement (SES) and the Additional Provision 2 Environmental Statement (AP2 ES). This update should be read in conjunction with Appendix CH-002-006 cultural heritage gazetteer of heritage assets from the main ES.

## 2 Gazetteer

Table 1: Gazetteer of heritage assets for CFA6

Unique ID	Map reference	Asset type	Name	Description	Period	Designation	Grade	Significance/value	NHL reference	HER reference
RUI076	Ch-01-022	Earthwork	Linear Earthwork west of Breakspear Road South	Linear earthwork parallel to Breakspear Road probably a relict field Boundary, Identified as Fo7 in CFA 6 Vol 5 004.	Medieval to Modern	Not designated	N/A	Insignificant	N/A	N/A
RUI 077	Ch-01-022	Earthwork	Linear Earthwork west of Breakspear Road South	Linear earthwork Breakspear Road probably a relict field Boundary Identified as Fog in CFA 6 Vol 5 004.	Medieval to Modern	Not designated	N/A	Insignificant	N/A	N/A
RUI078	Ch-01-022	Earthwork	Linear Earthwork west of Breakspear Road South	Linear earthwork parallel to Breakspear Road probably a relict field Boundary Identified as F10 in CFA 6 Vol 5 004.	Medieval to Modern	Not designated	N/A	Insignificant	N/A	N/A
RUI 079	Ch-01-022	Earthwork	Earthwork resembling eroded lynchet type terracing of a slope east of Harvil Road and south of Highway	Possibly archaeological but possibly natural slumping down the hillside Identified as F1RUI086 in CFA 6 Vol 5 004.	Medieval to Modern	Not designated	N/A	Insignificant	N/A	N/A

## SES and AP<sub>2</sub> ES Appendix CH-002-006

			Farm							
RUI o8o	Ch-01-022	Earthworks	Earthwork south of Copthall Covert	Possibly levelled medieval ridge and furrow. Identified as F15 in CFA 6 Vol 5 004	Medieval to Modern	Not designated	N/A	Insignificant	N/A	N/A
RUI 081		Documentary Evidence	Newyears Covert	Potential ancient woodland, which is shown on the first edition Ordnance Survey (1881) but not shown on the Harfield tithe map (1813) or the Uxbridge Windsor Ordnance Survey Map (1811).	High	Designated	N/A	High	N/A	N/A

## SES and AP<sub>2</sub> ES Appendix CH-003-006

Environmental topic:	Cultural heritage	СН
Appendix name:	Impact assessment table	003
Community forum area:	6	006

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# 1 Introduction

1.1.1 This appendix provides an update to Appendix CH-003-006 cultural heritage impact assessment to the main Environmental Statement (ES) as a result of design changes, assessed as part of the Supplementary Environmental Statement (SES) and the Additional Provision 2 Environmental Statement (AP2ES). This update should be read in conjunction with Appendix CH-003-006 cultural heritage impact assessment from the main ES.

# 2 Impact assessment

Table 1 : Impact assessment for CFA6

Unique	Name	Designation(s)	Value	Construction	impact		Operation im	n impact		New or different	
identification				Nature of impact including mitigation	Scale of impact	Effect	Nature of impact including mitigation	Scale of impact	Effect	environmental effect from that reported in the main ES or the Additional Provision (AP1) ES	
RUI076	Linear Earthwork west of Breakspear Road South and running parallel to it, likely to be a field boundary.	Non designated.	Not significant.	The asset is situated partially within the area required to construct the scheme. It will be partially removed. Since it will be partially removed the impact is medium.	Medium	Negligible	No impact on value of asset.	No change.	Neutral	Omitted from original ES but included in ES map book Ch-o1- 022.	
RUI 077	Linear Earthwork west of Breakspear Road South, likely to be a field boundary.	Non designated.	Not significant.	The asset is situated partially within the are required to construct the scheme. It will be partially	Medium	Negligible	No impact on value of asset.	No change.	Neutral	Omitted from original ES but included in ES map book Ch-01- 022.	

Unique	Name	Designation(s)	Value	Construction	impact		Operation im	Operation impact		New or different
identification				Nature of impact including mitigation	Scale of impact	Effect	Nature of impact including mitigation	Scale of impact	Effect	environmental effect from that reported in the main ES or the Additional Provision (AP1) ES
				removed. Since it will be partially removed the impact is medium.						
RUI078	Linear Earthwork west of Breakspear Road South parallel to RUI 076.	Non designated.	Not significant	No impact on value of asset.	No change.	Neutral	No impact on value of asset.	No change.	Neutral	Omitted from original ES but included in ES map book Ch-o1- 022.
RUI 079	Earthwork resembling terracing of a slope east of Harvil road and south of Highway Farm,. May be natural slumping of hillside.	Non designated.	Not significant.	The asset is situated wholly within the area required to construct the scheme. It will be removed. Since it will be removed the impact is high.	High	Negligible	No impact on value of asset.	No change	Neutral	Omitted from original ES but included in ES map book Ch-o1- 022.

Unique	Name	Designation(s)	Value	Construction	impact		Operation im	pact	act New or differen	
identification				Nature of impact including mitigation	Scale of impact	Effect	Nature of impact including mitigation	Scale of impact	Effect	environmental effect from that reported in the main ES or the Additional Provision (AP1) ES
RUI o8o	Possibly levelled medieval ridge and furrow.	Non designated.	Not significant.	The asset is situated wholly within the area required to construct the scheme. It will be removed. Since it will be removed the impact is high.	High	Negligible	No impact on value of asset.	No change	Neutral	Omitted from original ES but included in ES map book Ch-o1- 022.
RUI 081	Newyears Covert.	Designated.	High	The asset is situated wholly within the area required to construct the scheme but will not be removed.	No change	Neutral	No impact on value of asset.	No change	Neutral	New asset.

## SES and AP<sub>2</sub> ES Appendix SV-004-006

Environmental topic:	Sound, noise and vibration	SV
Appendix name:	Operational assessment report	004
Community forum area:	South Ruislip to Ickenham	006

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# 1 Introduction

1.1.1 This appendix provides an update to Appendix SV-004-006 operational assessment report for community forum area (CFA) South Ruislip to Ickenham (CFA6) from the main Environmental Statement (ES) as a result of an ES correction, as part of the Supplementary Environmental Statement (SES) and the Additional Provision 2 Environmental Statement (AP2 ES). This update should be read in conjunction with Appendix SV-004-006 operational assessment report from the main ES.

# 2 Scope, assumptions and limitations

### 2.1 Changes of relevance to this assessment

### **ES** Correction

2.1.1 Operational sound, noise and vibration assessments have been undertaken for the following ES correction: the attenuation provided by the noise fence barrier located between the proposed route and the residential properties in the vicinity of Greenway and Hoylake Crescent was incorrect. The sound levels have been recalculated with the correct barrier attenuation.

# 3 Effects arising during operation

## 3.1 Avoidance and mitigation measures

- 3.1.1 These are set out in main ES, Volume 2, Report CFA6, Section 11.
- 3.2 Quantitative identification of impacts and effects

#### Ground-borne sound and vibration

3.2.1 The amendments do not alter the assessment of operational ground-borne sound and vibration identified in main ES Appendix SV-004-006.

### Airborne sound: direct impacts and effects

- 3.2.2 The direct effects from the operation of the scheme including altered roads and railway lines are presented in Table 1 for the CFA6 airborne sound assessment locations.
- 3.2.3 The assessment information, impact criteria and significance criteria for the assessment of the incorporated mitigation case at residential and non-residential receptors are presented in Table 1. The results should be considered in conjunction with the information contained in main ES map series SV-02 in the CFA06 Volume 5 sound, noise and vibration map book.
- 3.2.4 Explanation of the Table 3 information is provided in main ES, Volume 5: Appendix SV001-000 and Appendix Sv-004-006.

#### Table 1 : Operational noise – detailed results (AP2 ES amended)

Assessmen	t Location	Impact	criteria									Significance criteria									
ID	Area represented	HS2 sc traffic)	heme only	(Year 15	Do not year ba	hing (Oper aseline)	ning	Do sor (Open baselir traffic)	nething ing year ne + Year 15 ****	Chang	e	ect	<sup>c</sup> impacts :d	ceptor	lesign	ivironment	iture	impact	of effect	: effect	
		Day *	Night **	Max ***	Day *	Night **	Max ***	Day *	Night **	Day *	Night **	Type of eff	Number of represente	Type of rec	Receptor c	Existing er	Unique fea	Combined	Mitigation	Significant	
401424	Harvil Road, Harefield	58	49	71/74	55	50	58	58	52	4	2	A	1		Т	-	-	-	-	~	
402608	Harvil Road, Harefield	50	41	63/66	72	68	81	72	68	0	0	NA	2		Т	Н	-	-	-		
405821	St. Georges Drive, Ickenham	41	32	54/57	46	41	49	47	42	1	0	NA	53		Т	-	-	-	-		
405890	Breakspear Road South, Ickenham	42	33	55/58	58	50	62	58	50	0	0	NA	30		Т	-	-	-	-		
408586	New Years Green Lane, Harefield	46	37	57/60	50	45	49	51	45	1	0	NA	6		Т	-	-	-	-		
408671	New Years Green Lane, Harefield	47	39	61/64	50	45	49	52	46	2	1	NA	1		Т	-	-	-	-		
408811	Havil Road, Harefield	55	47	66/68	61	53	63	61	53	0	0	NA	1		Т	-	-	-	-		
410569	The Greenway, Ickenham	57	48	71/74	59	53	57	61	54	2	1	NA	11		Т	-	-	-	-		
410650	The Greenway, Ickenham	55	45	68/71	48	45	53	55	48	7	3	A	16		Т	-	-	-	-	OSV06-C01	
410706	Oak Avenue, Ickenham	48	39	61/64	60	55	60	60	55	0	0	NA	24		Т	Н	-	-	-		
410739	Oak Avenue, Ickenham	45	36	59/62	60	55	60	60	55	0	0	NA	20		Т	Н	-	-	-		
410896	Parkfield Road, Ickenham	43	34	57/59	60	55	60	60	55	0	0	NA	27		Т	Н	-	-	-		
410980	Parkfield Road, Ickenham	47	37	59/63	60	55	60	60	55	0	0	NA	35		Т	Н	-	-	-		
411779	Rectory Way, Ickenham	44	35	56/59	60	55	60	60	55	0	0	NA	72		Т	Н	-	-	-		
411869	Charlton Close, Ickenham	41	32	53/56	56	51	64	56	51	0	0	NA	95		Т	-	-	-	-		
412015	Hoylake Crescent, Ickenham	49	40	61/64	49	44	47	52	46	3	1	NA	19		Т	-	-	-	-	#	
412058	Hoylake Crescent, Ickenham	51	42	63/66	49	44	47	53	46	4	2	А	11		Т	-	-	-	-	OSV06-C01	
412180	Hoylake Crescent, Ickenham	47	38	59/63	49	47	57	51	47	2	1	NA	29		Т	-	-	-	-		
412363	Bushey Road, Ickenham	45	36	58/61	56	51	64	56	51	0	0	NA	27		Т	-	-	-	-		
412918	Bushey Road, Ickenham	45	36	56/59	56	51	64	56	51	0	0	NA	56		Т	-	-	-	-		
413031	Hoylake Crescent, Ickenham	48	39	61/64	49	47	44	51	47	2	1	NA	12		Т	-	-	-	-		
413114	Pynchester Close, Ickenham	49	40	61/64	47	39	44	51	42	4	3	NA	20		Т	-	-	-	-	#	

Assessmen	t Location	Impact	criteria								Significance criteria									
ID	Area represented	HS2 sc traffic)	heme only	(Year 15	Do not year ba	nothing (Opening r baseline)		Do something (Opening year baseline + Year 15 traffic) ****		Chang	e I	effect	r of impacts nted	receptor	or design	environment	feature	ed impact	on of effect	ant effect
		Day *	Night **	Max ***	Day *	Night **	Max ***	Day *	Night **	Day *	Night **	Type of	Numbei represei	Type of	Receptc	Existing	Unique .	Combin	Mitigati	Significa
413146	Bushey Road, Ickenham	50	41	62/65	49	47	44	52	48	3	1	A	17		Т	-	-	-	-	OSV06-C01
413332	Copthall Road East, Ickenham	41	32	53/55	56	51	64	56	51	0	0	NA	99		Т	-	-	-	-	
413480	Hoylake Crescent, Ickenham	45	36	58/61	52	45	52	53	46	1	0	NA	28		Т	-	-	-	-	
413536	Hoylake Crescent, Ickenham	48	39	62/65	52	45	52	54	46	2	1	NA	12		Т	-	-	-	-	
413556	Copthall Road West, Ickenham	49	40	63/66	58	50	62	58	51	1	0	NA	8		Т	-	-	-	-	
413594	Copthall Road West, Ickenham	47	37	60/63	46	41	49	49	43	3	1	NA	29		Т	-	-	-	-	#
413856	Elgar Close, Ickenham	43	33	56/58	46	41	49	47	42	2	1	NA	44		Т	-	-	-	-	
414117	St. Georges Drive, Ickenham	45	35	58/60	46	41	49	48	42	2	1	NA	46		Т	-	-	-	-	
414183	Breakspear Road South, Ickenham	48	39	63/65	58	50	62	58	51	0	0	NA	37		Т	-	-	-	÷	
415660	Rectory Way, Ickenham	40	31	53/55	56	51	64	56	51	0	0	NA	91		Т	-	-	-	-	
416858	Kenbury Close, Ickenham	39	30	53/55	50	45	53	50	45	0	0	NA	130		Т	-	-	-	-	
417742	Swakeleys Road, Ickenham	37	28	50/53	47	39	44	47	39	0	0	NA	98		Т	-	-	-	-	
418434	Breakspear Road South, Harefield	43	34	56/59	57	49	61	57	49	0	0	NA	4		Т	-	-	-	-	
418507	Tile Kiln Lane, Harefield	48	38	64/66	52	46	54	53	47	1	1	NA	6		Т	-	-	-	-	
418583	Tile Kiln Lane, Harefield	43	34	56/59	52	46	54	52	46	1	0	NA	1		Т	-	-	-	-	
418730	Allonby Drive, Ruislip	41	32	54/57	56	50	62	56	50	0	0	NA	147		Т	-	-	-	-	
418969	Tile Kiln Lane, Harefield	49	40	61/64	52	46	54	53	47	2	1	NA	8		Т	-	-	-	-	
419116	Breakspear Road South, Ickenham	57	47	70/73	50	48	53	57	51	8	2	А	3		Т	-	-	-	-	~
419154	Hoylake Crescent, Ickenham	51	42	65/68	52	44	44	54	46	3	2	A	25		Т	-	-	-	÷	OSV06-C01
419186	Hoylake Crescent, Ickenham	51	42	65/68	52	45	52	54	47	2	2	NA	8		Т	-	-	-	-	
419214	Hoylake Crescent, Ickenham	53	43	66/70	54	48	53	56	49	2	1	NA	10		Т	-	-	-	-	
419263	Hoylake Crescent, Ickenham	52	43	64/67	49	47	57	54	48	5	1	A	11		Т	-	-	-	-	OSV06-C01
419323	Breakspear Road South, Harefield	56	47	68/72	57	49	61	59	50	2	1	NA	8		Т	-	-	-	-	

Assessmen	t Location	Impact	t criteria									Significance criteria								
ID	Area represented	HS2 sc traffic)	heme only	(Year 15	Do nothing (Opening year baseline) Day Night Max			Do something (Opening year baseline + Year 15 traffic) ****		Chang	e	effect	of impacts ited	eceptor	r design	environment	eature	ed impact	on of effect	nt effect
		Day *	Night **	Max ***	Day *	Night **	Max ***	Day *	Night **	Day *	Night **	Type of (	Number represen	Type of r	Recepto	Existing	Unique f	Combine	Mitigatio	Significa
420281	New Years Green Lane, Harefield	40	32	55/58	54	44	48	55	44	0	0	NA	9	•	Т	-	-	-	-	
420688	Cordingley Road, Ruislip (Military Youth Club)	39	30	59/62	57	51	69	57	51	0	0	NA	25		Т	-	-	-	-	
420766	Ickenham Close, Ruislip	39	30	61/64	49	43	56	49	43	0	0	NA	28		Т	-	-	-	-	
420916	Ickenham Close, Ruislip	28	19	59/61	49	43	56	49	43	0	0	NA	49		Т	-	-	-	-	
421034	Cranston Close, Ickenham	36	27	57/60	58	50	54	58	50	0	0	NA	166		Т	-	-	-	-	
421089	Aylsham Drive, Ickenham	36	27	54/56	55	47	62	55	47	0	0	NA	179		Т	-	-	-	-	
421774	Lysander Road, Ruislip	37	27	59/61	57	51	69	57	51	0	0	NA	130		Т	-	-	-	-	
422160	Ickenham Close, Ruislip	31	21	61/64	49	43	56	49	43	0	0	NA	19		Т	-	-	-	-	
422482	Oak Avenue, Ickenham	42	33	57/60	48	40	46	49	41	1	1	NA	20		Т	-	-	-	-	
422588	The Greenway, Ickenham	45	36	61/64	50	45	53	51	45	1	1	NA	16		Т	-	-	-	-	
422618	The Greenway, Ickenham	48	39	64/67	48	40	46	51	42	3	3	NA	6		Т	-	-	-	-	#
422671	The Greenway, Ickenham	53	44	68/70	48	45	53	54	47	6	2	А	11		Т	-	-	-	-	OSV06-C01
422883	Haslam Close, Ickenham	39	30	56/59	55	47	62	55	47	0	0	NA	111		Т	-	-	-	-	
422977	The Greenway, Ickenham	47	38	64/67	50	45	53	52	46	2	1	NA	20		Т	-	-	-	-	
422998	Pond House, High Road, Ickenham (Estate Agency)	52	43	68/70	59	53	57	60	53	1	0	NA	10		Т	-	-	-	-	
423037	The Greenway, Ickenham	57	48	72/75	59	53	57	61	54	2	1	NA	10		Т	-	-	-	-	
423100	Ickenham Road, Ruislip	42	33	63/66	73	67	79	73	67	0	0	NA	12		Т	Н	-	-	-	
423112	Ickenham Road, Ruislip	43	34	63/66	53	50	67	53	50	0	0	NA	10		Т	-	-	-	-	
423340	The Greenway, Ickenham	48	39	68/71	58	50	54	58	51	0	0	NA	12		Т	-	-	-	-	
423354	The Greenway, Ickenham	50	41	68/71	58	50	54	58	51	1	0	NA	12		Т	-	-	-	-	
423385	The Greenway, Ickenham	50	40	65/68	48	40	46	52	43	4	3	NA	11		Т	-	-	-	-	#
423730	Parkfield Road, Ickenham	39	30	54/56	48	40	46	49	40	1	0	NA	25		Т	-	-	-	-	

Assessmen	t Location	Impact	criteria									Significance criteria								
ID	Area represented	HS2 sc traffic)	heme only	(Year 15	Do not year ba	Do nothing (Opening year baseline) Day Night Max			Do something (Opening year baseline + Year 15 traffic) ****		e	effect	r of impacts nted	receptor	or design	l environment	feature	ied impact	ion of effect	ant effect
		bay *	Night **	Max ***	bay *	Night **	Max ***	bay *	Night **	bay *	Night **	Type of	Numbei represei	Type of	Recepto	Existing	Unique	Combin	Mitigati	Signific
426310	Ravenscourt Close, Ruislip	42	33	56/59	52	46	54	52	46	0	0	NA	52		T	-	-	-	-	· · · ·
426811	Woodville Gardens, Ruislip	43	34	57/60	52	46	54	52	46	1	0	NA	23		Т	-	-	-	-	
427629	Larkspur Close, Ruislip	41	32	54/57	52	46	54	52	46	0	0	NA	69		Т	-	-	-	-	
428888	Harwell Close, Ruislip	42	33	60/63	55	50	67	55	50	0	0	NA	10		Т	-	-	-	-	
428937	Ickenham Road, Ruislip	39	30	58/60	53	50	67	53	50	0	0	NA	34		Т	-	-	-	-	
429574	Glenhurst Avenue, Ruislip	45	36	59/62	52	46	54	52	46	1	0	NA	46		Т	-	-	-	-	
429655	Glenhurst Avenue, Ruislip	43	34	58/61	52	46	54	52	46	1	0	NA	84		Т	-	-	-	-	
429776	Field Way, Ruislip	45	36	59/62	52	46	54	52	46	1	0	NA	36		Т	-	-	-	-	
429830	Hill Rise, Ruislip	43	34	58/61	52	46	54	52	46	1	0	NA	28		Т	-	-	-	-	
433144	Ickenham Road, Ruislip	40	32	73/75	73	67	79	73	67	0	0	NA	3		Т	Н	-	-	-	
433365	Aylsham Drive, Ickenham	41	32	57/60	55	47	62	55	47	0	0	NA	78		Т	-	-	-	-	
700377	The Greenway, Ickenham	58	49	72/75	59	53	57	61	54	3	1	А	5		Т	-	-	-	-	OSV06-C01
401424	Harvil Road, Harefield, (Office)	58	49	71/74	55	50	58	58	52	4	2	В	1	G5	Т	-	-	-	-	٨
411869	Hall, Swakeleys Road, Ickenham (Hall)	41	32	53/56	56	51	64	56	51	0	0	В	1	G3	Т	-	-	-	-	
411869	Ickenham United Reformed Church (Church)	41	32	53/56	56	51	64	56	51	0	0	В	1	G3	Т	-	-	-	-	
412363	Breakspear Junior School, Ickenham (Junior School)	45	36	58/61	56	51	64	56	51	0	0	В	1	G4	Т	-	-	-	-	
413332	Wallasey Medical Centre, Ickenham (Health Centre)	41	32	53/55	56	51	64	56	51	0	0	В	1	G4	Т	-	-	-	-	
414183	Copthall Farm, Breakspear Road South (General Commercial)	48	39	63/65	58	50	62	58	51	0	0	В	2	G5	Т	-	-	-	-	
414183	The Old Courtyard, Breakspear Road South (Office)	48	39	63/65	58	50	62	58	51	0	0	В	1	G5	Т	-	-	-	-	
416858	Greenwood Veterinary Clinic (Veterinary Surgery)	39	30	53/55	50	45	53	50	45	0	0	В	1	G5	Т	-	-	-	-	
416858	Swakeleys Dental Practice (Dental Surgery)	39	30	53/55	50	45	53	50	45	0	0	В	1	G4	Т	-	-	-	-	

Assessmen	t Location	Impact	t criteria									Signifi								
ID	Area represented	HS2 sc traffic)	heme only	(Year 15	Do not year ba	hing (Oper aseline)	ning	Do sor (Open baselir traffic)	mething ing year ne + Year 15 ) ****	Chang	e	ffect	of impacts ed	sceptor	design	nvironment	ature	d impact	ו of effect	it effect
		Day *	Night **	Max ***	Day *	Night **	Max ***	Day *	Night **	Day *	Night **	Type of ef	Number c represent	Type of re	Receptor	Existing e	Unique fe	Combined	Mitigatior	Significan
417742	Swakeleys Road, Ickenham (Office)	37	28	50/53	47	39	44	47	39	0	0	В	16	G5	Т	-	-	-	-	
417742	The Dental Surgery, Swakeleys Road (Dental Surgery)	37	28	50/53	47	39	44	47	39	0	0	В	1	G4	Т	-	-	-	-	
417742	Swakeleys Medical Centre, Swakeleys Road (Health Centre)	37	28	50/53	47	39	44	47	39	0	0	В	1	G4	Т	-	-	-	-	
418434	Crow's-nest Farm, Breakspear Road South (General Commercial)	43	34	56/59	57	49	61	57	49	0	0	В	1	G5	Т	-	-	-	-	
420281	Bray, New Years Green Lane (General Commercial)	40	32	55/58	54	44	48	55	44	0	0	В	1	G5	Т	-	-	-	-	
420281	St. Leonards Farm, New Years Green Lane (Office)	40	32	55/58	54	44	48	55	44	0	0	В	2	G5	Т	-	-	-	-	
420688	Cordingley Road, Ruislip (Military Youth Club)	39	30	59/62	57	51	69	57	51	0	0	В	1	G3	Т	-	-	-	-	
420916	Station Yard, Ickenham Road (General Commercial)	28	19	59/61	49	43	56	49	43	0	0	В	3	G5	Т	-	-	-	-	
421089	St. Martin's Medical Centre (Health Centre)	36	27	54/56	55	47	62	55	47	0	0	В	2	G4	Т	-	-	-	-	
422588	The Green, High Road (General Commercial)	45	36	61/64	50	45	53	51	45	1	1	В	1	G5	Т	-	-	-	-	
422977	Pond House, High Road, Ickenham (Estate Agency)	47	38	64/67	50	45	53	52	46	2	1	В	1	G5	Т	-	-	-	-	
422977	High Road, Ickenham (General Commercial)	47	38	64/67	50	45	53	52	46	2	1	В	1	G5	Т	-	-	-	-	
422977	High Road, Ickenham (General Commercial)	47	38	64/67	50	45	53	52	46	2	1	В	1	G5	Т	-	-	-	-	
423100	Knights Court, Ickenham Road, Ruislip (Shopping)	42	33	63/66	73	67	79	73	67	0	0	В	1	G5	Т	Н	-	-	-	
423100	Station Parade, Ickenham Road, Ruislip (Post Office)	42	33	63/66	73	67	79	73	67	0	0	В	5	G5	Т	Н	-	-	-	
423730	High Road, Ickenham (Car Dealer)	39	30	54/56	48	40	46	49	40	1	0	В	1	G5	Т	-	-	-	-	
423730	High Road, Ickenham (General Commercial)	39	30	54/56	48	40	46	49	40	1	0	В	1	G5	Т	-	-	-	-	
428937	Ickenham Road, Ruislip (Club)	39	30	58/60	53	50	67	53	50	0	0	В	1	G5	Т	-	-	-	-	
428937	Ickenham Road, Ruislip (General Commercial)	39	30	58/60	53	50	67	53	50	0	0	В	1	G5	Т	-	-	-	-	

Assessmen	t Location	Impact	t criteria																	
ID	Area represented	HS2 sc traffic)	heme only	(Year 15	Do not year ba	hing (Oper aseline)	ning	Do son (Openi baselir traffic)	nething ing year ie + Year 15 ****	Chang	e	fect	f impacts ed	ceptor	design	nvironment	ature	limpact	l of effect	t effect
		Day *	Night **	Max ***	Day *	Night **	Max ***	Day *	Night **	Day *	Night **	Lype of ef	Number o	Lype of re	Receptor (	Existing ei	Jnique fea	Combined	<b>Mitigation</b>	õignifican
433144	West Ruislip Station, Ickenham Road (Shopping)	40	32	73/75	73	67	79	73	67	0	0	В	1	G5	T	Н	-	-	-	
433144	Blenheim Care Centre, Ickenham Road (Day Care)	40	32	73/75	73	67	79	73	67	0	0	В	1	G4	Т	Н	-	-	-	
700378	Ickenham Road, Ruislip (Shopping)	49	40	71/73	58	50	54	58	51	1	0	В	1	G5	Т	-	-	-	-	
709518	Research Farm, Ickenham (Research facility)	76	67	89/91	50	48	53	76	67	26	18	В	3	G5	Т	-	-	Y	-	OSV06-N01
709519	Research Farm, Ickenham (Research facility)	68	59	86/89	50	48	53	68	59	19	11	В	1	G5	Т	-	-	Y	-	OSV06-N01

#### Direct impact - Summary

# 3.2.6 The operational airborne noise impacts identified in Table 1 are summarised in Table 2.

Table 2 : Summary of operational airborne sound impacts

Receptor	Number of Impacts		
	Minor	Moderate	Major
Residential properties	59	41	0
Non-residential properties	1	0	4
Quiet Areas	None	None	None

## 3.3 Assessment of significance of effects

#### Residential receptors: direct effects- individual dwellings

- 3.3.1 The main ES identified approximately 200 dwellings and associated shared community open areas in the vicinity of the Greenway, Hoylake Crescent, Pynchester Close, Bushey Road and Copthall Road West in the community of Ickenham. Forecast increases in sound due to the railway are likely to cause a moderate adverse effect on the acoustic character of the area around the closest properties. The effect on the acoustic character of residential areas that are located further from the railway would be a minor effect.
- 3.3.2 However, the ES correction has reduced the extent of those properties to approximately 100 dwellings and associated shared community open areas in the vicinity of the Greenway, Hoylake Crescent and Bushey Road in the community of Ickenham. As identified in the main ES, forecast increases in sound due to the railway are likely to cause a moderate adverse effect on the acoustic character of the area around the closest properties. The effect on the acoustic character of residential areas that are located further from the railway would be a minor effect.
- 3.3.3 The residual significant operational airborne noise effect remains as a result of the ES correction.

#### Non-residential receptors: direct effects

- 3.3.4 The research facility at Ickenham was identified in the main ES as being subject to a significant operational groundborne vibration effect, however, as the property is also subject to a major airborne noise impact, it should have been identified as a significant operational combined airborne noise and groundborne vibration effect.
- 3.3.5 The main ES has identified the property as being subject to a significant adverse effect denoted by OSVo6-No1 in Table 1 and map SV-02-009 in the SES and AP2 ES, Appendix 5: Sound, Noise and Vibration Map Book.

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# SES AND AP2 ES – VOLUME 5