



Transport for London  
Surface Transport

# **Cycle Superhighway**

## **North-South route**

### **Environmental Evaluation Report**

Version: Final v2  
Date: January 2015

## Contents

EXECUTIVE SUMMARY .....	4
PROJECT DESCRIPTION & METHODOLOGY .....	7
PROJECT DESCRIPTION.....	7
ENVIRONMENTAL EVALUATION METHODOLOGY .....	8
CONSULTATION.....	8
DETAILED APPRAISAL.....	9
PLANNING AND TRANSPORT POLICY .....	9
BIODIVERSITY .....	9
CULTURAL HERITAGE.....	13
TOWNSCAPE.....	17
NOISE AND VIBRATION .....	19
DUST AND EMISSIONS TO AIR .....	21
WATER RESOURCES.....	23
PHYSICAL FITNESS .....	23
JOURNEY EXPERIENCE.....	24
SUSTAINABLE DESIGN.....	25
ENVIRONMENTAL MANAGEMENT .....	26
APPENDIX A: ENVIRONMENTAL EVALUATION REPORT TEMPLATE .....	27
APPENDIX B: RELEVANT PLANNING AND TRANSPORT POLICIES .....	38
APPENDIX C: EVALUATION OF CONSERVATION AREAS .....	42
APPENDIX D: LIST OF LISTED BUILDINGS AND STRUCTURES .....	49
APPENDIX E: SCHEDULED MONUMENTS.....	52
APPENDIX F: NOISE CALCULATIONS.....	54
APPENDIX G: NO <sub>2</sub> CONCENTRATIONS.....	57
APPENDIX H: ENVIRONMENTAL DATA SOURCES.....	69

### List of Figures

Figure 1 – Geographical illustration of Cycle Superhighway North South.....	7
Figure 2 - Sites of Importance for Nature Conservation.....	10
Figure 3 - Sighting of Protected Species .....	11
Figure 4 - Conservation Areas.....	13
Figure 5 - Archaeological Priority Areas .....	14
Figure 6 - Listed Buildings and Structures.....	15
Figure 7 - World Heritage Sites & Scheduled Monuments.....	16
Figure 8 - Streetscape Character Areas.....	17
Figure 9 - Important Areas for Noise .....	19
Figure 10 - Areas of Air Quality Standard Exceedance.....	21
Figure 11 - Changes in Predicted Annual Mean NO <sub>2</sub> Concentration .....	22
Figure 12 – Flood Risk Zones (dark blue) and River Thames (Light Blue) .....	23

### List of Tables

Table 1: Summary of Environmental Impacts.....	6
Table 2 - Streetscape Character Areas .....	18
Table 3 - Important Areas for Noise.....	20
Table 4 - Noise Impact by Road Length .....	20
Table 5 - NO <sub>2</sub> Impact by Road Length.....	22

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# Executive Summary

## Introduction

This document presents the outcomes of the environmental evaluation of the North-South Cycle Superhighway Route (i.e. the Project). It includes a brief description of the Project, the evaluation methodology that has been used, the likely environmental impacts of the Project and measures to protect the built and natural environment.

The environmental evaluation follows Surface Transport's Project Environmental Evaluation procedure, part of its Environmental Management System. Where applicable, the environmental evaluation is guided by the Department for Transport's Analysis Guidance (TAG) and Design for Roads and Bridges (DMRB).

## Summary of Impacts

### Significance of Impacts

The Project is likely to lead to localised and route-wide beneficial and adverse environmental impacts; these impacts span the whole significance's spectrum from significant, to moderate to slight, including many areas where the Project is likely to have a neutral impact on the environment.

The environmental evaluation has concluded that the Project is unlikely to have significant environmental impacts on the following areas:

- Planning and Transport Policy
- Biodiversity
- Cultural Heritage
- Townscape
- Water Resources
- Physical Fitness
- Journey Experience
- Sustainable Design
- Environment Management

For Dust and Emissions to Air, significant impacts both adverse and beneficial are likely to occur at a localised level only. Overall, substantial beneficial impacts are expected on 1.9km of the wider London road network, moderate beneficial impacts on 5.4km, substantial adverse impacts on 0.46km, and moderate adverse impacts on 5.2km.

For Noise and Vibration, significant impacts both adverse and beneficial are likely to occur at a localised level only. Major positive impacts are expected on 0.42km of the network, moderate beneficial impacts on 0.56km of the network, major adverse impacts on 0.55km of the network and moderate adverse impacts on 0.14km of the network. No moderate or major magnitude changes are expected within the Important Areas for noise.

Air quality and noise impacts are driven by the redistribution of traffic on and around the Route. Traffic redistribution in turn redistributes air and noise emissions across the study area. Overall the Projects will not increase Dust and Air Emissions, or Noise and Vibration.

The next paragraphs and Table 1 below summarise the main environmental impacts of the Project during the construction and operational phase.

### Operational phase

#### *Benefits*

The Project is likely to have a number of route-wide benefits, for instance it supports a number of local, regional and national policies which aim to encourage cycling and the use of more sustainable modes of transport. The Project is also likely to improve cyclists' journey experience and their physical fitness.

The Project is likely to have a number of localised benefits particularly in terms of noise and air quality.

44 road-links are predicted to experience a reduction in noise. Based on a simple comparison of the total length of road links with moderate or major magnitude impacts, it can be seen that the Scheme will bring slightly more beneficial impacts than adverse impacts on the basis of length of road link. No moderate or major magnitude changes are expected within the Important Areas for noise.

In terms of air quality, significant beneficial impacts are expected on 7.3 km of road. A greater length of the road network is predicted to have significant beneficial impacts than significant adverse impacts.

Many of the affected road links with increases or decreases in traffic are within the Air Quality Focus Areas. These are Areas that the GLA has identified as being priority areas for improvements in air quality due to concentrations within those areas and population exposure. Within these Focus Areas, significant beneficial impacts are expected on 3.7 km of road and significant adverse impacts on 1.9 km of road. Within the Focus Areas, a greater length of the road network is predicted to have significant beneficial impacts than significant adverse impacts. Total emissions within the affected Focus Areas are expected to decrease with the Scheme.

#### *Disbenefits*

There are no route-wide disbenefits.

Where disbenefits are likely to arise, these tend to be of a localised nature. For instance localised noise and air quality disbenefits are likely to occur as a result of redistribution of traffic at certain locations. 71 road-links will experience an increase in noise, however the magnitude of these impacts is such that overall the scheme will bring more beneficial localised noise impacts than adverse localised noise impacts.

In terms of air quality, significant adverse impacts are predicted on 5.7 km of road, but again a greater length of the road network is predicted to have a beneficial impact than adverse impacts.

Energy consumption from way-finding monoliths will have a negative impact on energy efficiency objectives.

### Construction phase

During the implementation works, some slight temporary and localised adverse impacts will arise in the form of visual intrusion, energy consumption, waste production, dust, emissions to air, noise, vibration and disruption to the existing and other cycle routes.

**Table 1: Summary of Environmental Impacts**

	<b>Construction Phase</b>	<b>Operational Phase</b>	<b>Scale</b>
Planning and Transport Policy (p.9)	0	+ +	Route-Wide
Biodiversity (p.9)	-	0	Local
Cultural Heritage (p.13)	0 to -	0	Local
Townscape (p.17)	0 to -	0	Local
Noise and Vibration (p.19)	-	+++ to - - -	Local
Dust and Emissions to Air (p.21)	-	+++ to - - -	Local
Water Resources (p.23)	0	0	Route-Wide
Physical Fitness (p.23)	0	+	Route-Wide
Journey Experience (p.24)	-	+ +	Route-Wide
Sustainable Design (p.25)	-	0 to -	Local
<b>Key:</b>			
- Slight Adverse	O Neutral	+ Slight Beneficial	
- - Mode Adverse		++ Moderate Beneficial	
- - - Significant Adverse		+++ Significant Beneficial	

# Project Description & Methodology

## Project Description

The Project is part of the Cycle Superhighways Programme, one of London's key cycling programmes which forms part of the Mayor's Cycle Revolution. The aim of the Programme is to break down the barriers that stop people commuting by bicycle.

The Route (i.e. the geographical area along which the Project will operate) is 5.5km in length and extends from St Georges Road at the Elephant and Castle roundabout, in the south, to York Way at King's Cross Station in the north. The route runs through three Local Authorities which are, from South to North:

- London Borough of Southwark
- City of London
- London Borough of Camden (on the boundary of Camden and Islington on some occasions)

The Route runs on both the Transport for London Road Network (TLRN) and Local Authority roads. Figure 1 shows the geographical extent of the Project.

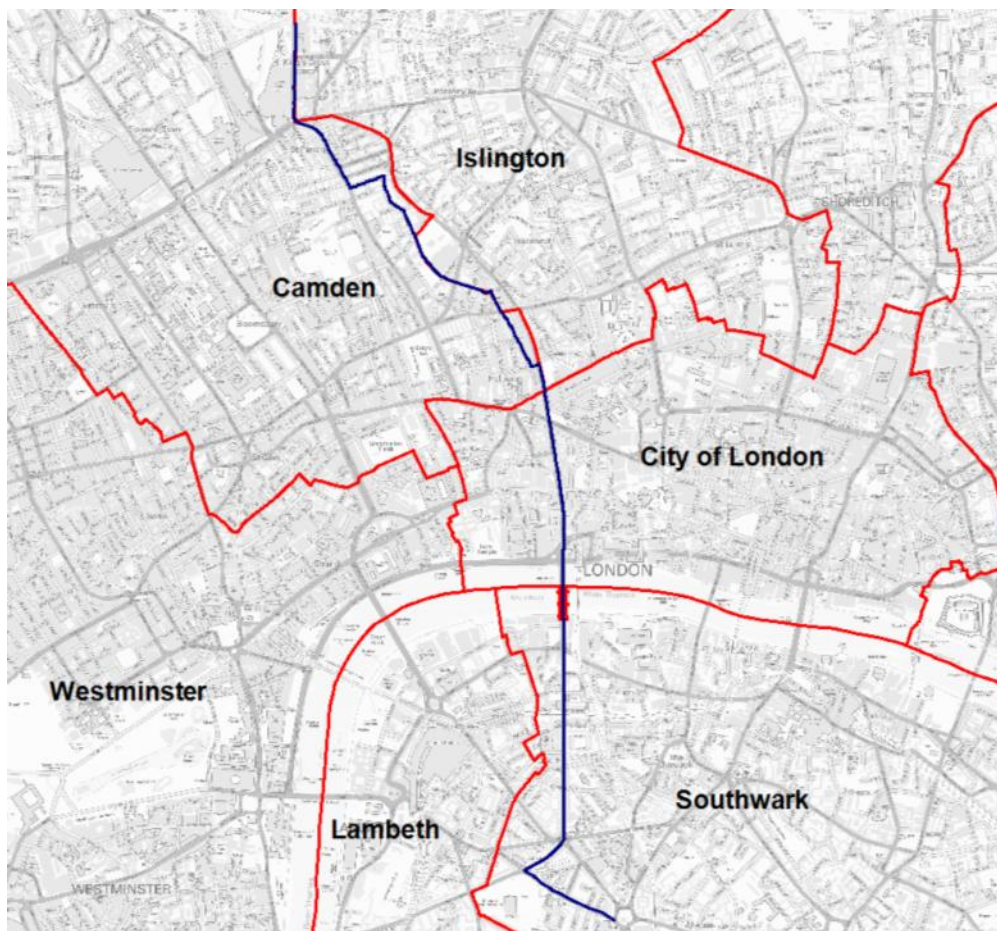


Figure 1 – Geographical illustration of Cycle Superhighway North South

The Project will aim to deliver the following measures where appropriate:

- Cyclist segregation from general traffic on the entire Route

- Advanced Stop Lines (ASLs)
- Safety mirrors at left turns
- De-cluttering
- Improved lighting
- Planting
- Improved pedestrian facilities
- Way-finding
- Cycle Parking
- Early starts for cyclists
- Cycle specific stages at junctions
- Coach and bus stop bypasses
- Two stage right turns for cyclists

## **Environmental Evaluation Methodology**

The environmental evaluation of the Project follows Surface Transport's Project Environmental Evaluation Procedure, part of its Environmental Management System. Where applicable, the environmental evaluation is guided by the Department for Transport's Analysis Guidance (TAG) and the Highway Agency's Design for Roads and Bridges (DMRB). Appraisal methodologies are discussed in more detail under each relevant section.

This Environmental Evaluation Report defines the requirements for achieving the appropriate level of environmental evaluation for a project so that negative environmental impacts are understood and minimised, environmental benefits are enhanced, environmental risks are managed, challenges to the project are reduced and the required relevant environmental opinions, directions, consents, permits and licenses are identified. The Report provides assurance to the Project Manager, Client and Environmental Manager that the project's design and performance, the appraisal, monitoring and sampling methodology used, and other technical and reporting activities are of the required quality and standard to meet TfL's environmental obligations.

This report has been adapted from the Environmental Evaluation Report Template shown in Appendix A.

## **Consultation**

Consultation involving key stakeholder has taken place from the end of September 2014 to the beginning of November 2014.



## Detailed Appraisal

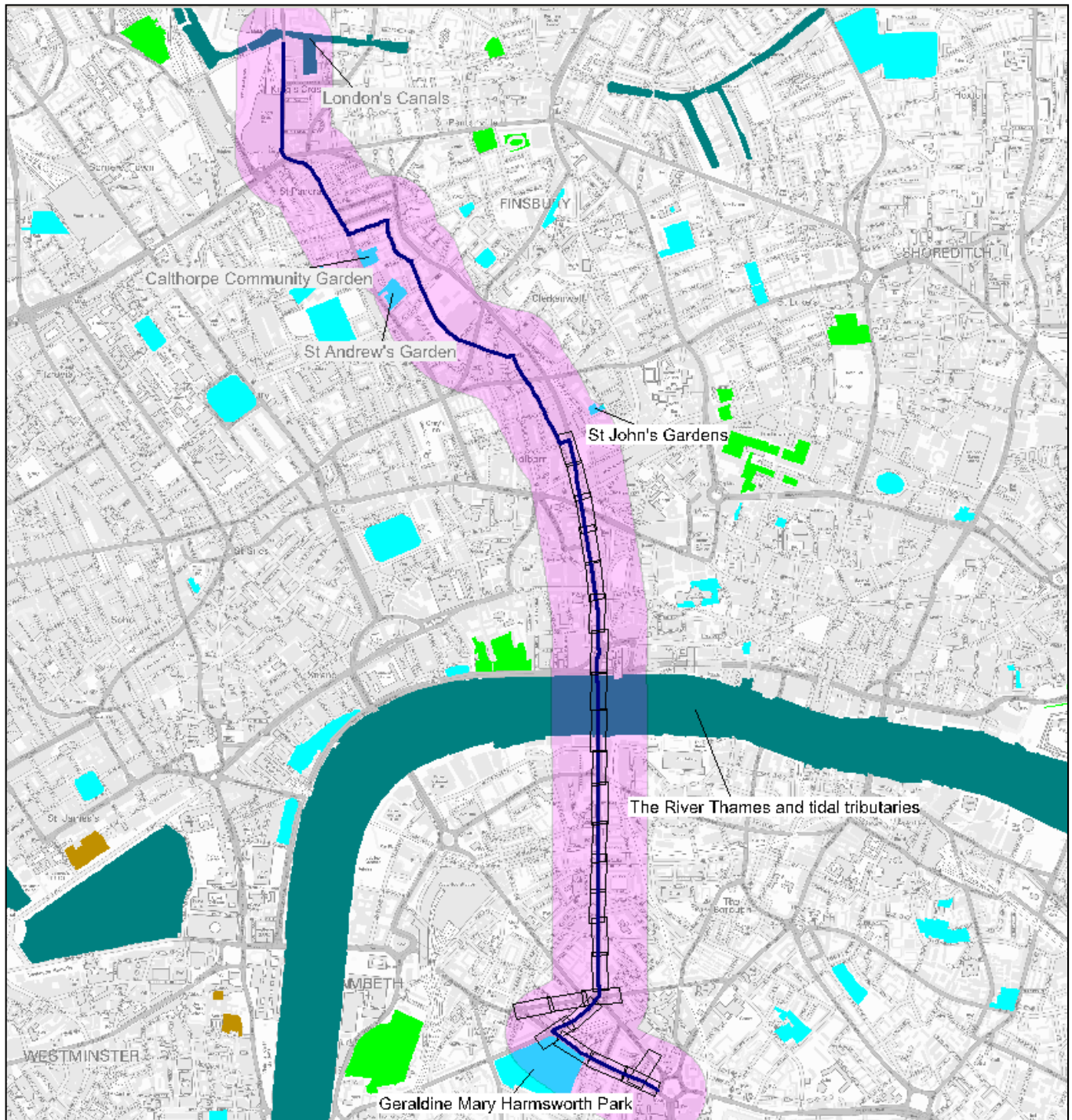
### Planning and Transport Policy

The Project is consistent and in accordance with national, regional and local planning and transport policy objectives which seek to achieve a more sustainable transport system by promoting cycling (Appendix B). The Project complements other existing and proposed initiatives such as other Cycle Superhighways, the London Cycle Network, Legible London, London Cycle Hire Scheme and The Mayor's Vision for Cycling in London. The Project will therefore result in moderate beneficial effects on planning and transport policy.

### Biodiversity

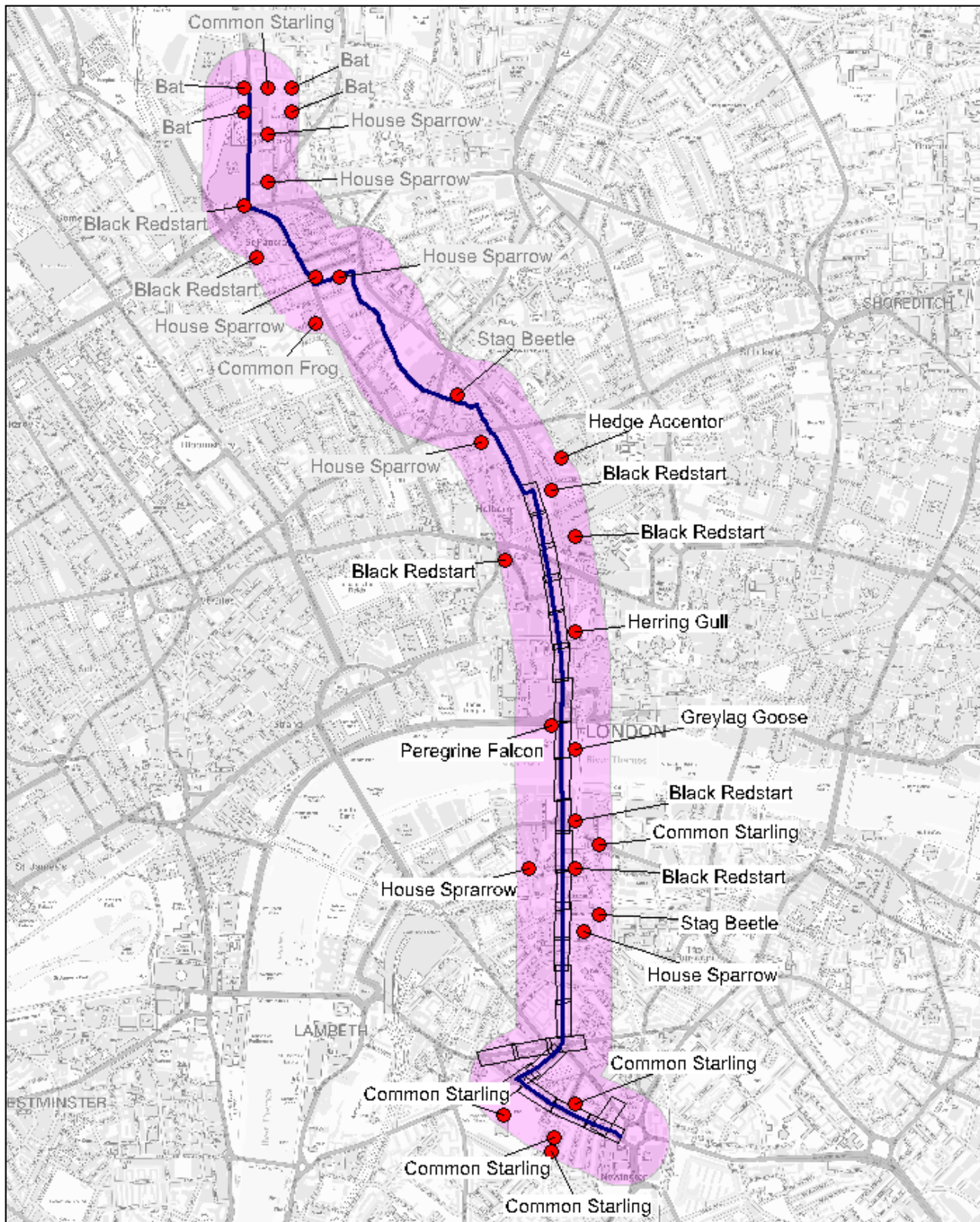
There are three key biodiversity elements along the Route, these are: Sites of Importance for Nature Conservation (SINCs), protected species and street trees.

SINCs are the next most important green spaces along the Route. They form part of a national network of non-statutory valued natural sites of Metropolitan, Borough or Local importance. Figure 2 displays SINCs in the area surrounding the Project.



**Figure 2 - Sites of Importance for Nature Conservation**

A number of protected species have been sighted along the Route (Figure 3). These are animals and plants which, as a result of their rarity, vulnerability or persecution, are given some form of special protection through wildlife legislation. Species which may be found on the highway and therefore at potential impact from the Project are birds and bats which may nest or roost in street trees.



**Figure 3 - Sighting of Protected Species**

There are a large number of street trees along the Route. Trees are extremely important in an urban environment as they not only provide habitat sites for a number of protected species, but they also improve the visual appearance of an area. Trees also contribute towards the reduction of atmospheric particulate matter (PM<sub>10</sub>) and help adapt to climate change. Preliminary design indicates that no street trees will be removed.

TAG helps determine the impact that a project may have on biodiversity by combining the nature conservation value of an environmental feature with the magnitude of a project's impact. The conservation value of the SINCs, protected species and street trees is of high or medium importance at the local scale with a limited potential for substitution, the magnitude of the impact is neutral. Therefore the overall impact is

Value (high or medium) + Magnitude (neutral) = Neutral

There are also a number of trees that whilst not at risk they are in close proximity to the works. The potential adverse impact to these trees must be noted and appraised prior to the commencement of the works. The National Joint Utilities Group's (NJUG) 'Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees' and the British Standard 'BS 5837:2005, Trees in relation to construction – Recommendations' states that within the prohibited zone (i.e. one metre from the tree trunk) excavation of any kind must not be undertaken unless there has been full consultation with the TfL Arboricultural and Landscape Manager.

Removal of trees must be agreed with TfL Arboricultural and Landscape Manager. Trees in Conservation Areas must not be felled unless the Local Authority has been notified.

The contractors will be required to produce an Environmental Management Plan through which they will seek to ensure that biodiversity features along the Route are protected and that a neutral impact on biodiversity is maintained during the implementation of the Project.

If protected species are present during works, TfL will ensure that only Defra licensed ecologists handle protected species. The Project Team has and will be in contact with the TfL Arboriculture and Landscape Manager for the area throughout the development of the Project.

## Cultural Heritage

There are a number of heritage designations, features and assets along the Route. These include Conservation Areas (Figure 4), Archaeological Priority Areas (Figure 5 **Error! Reference source not found.**), Listed Buildings and Structures (Figure 6), Scheduled Monuments and World Heritage Sites (Figure 7).

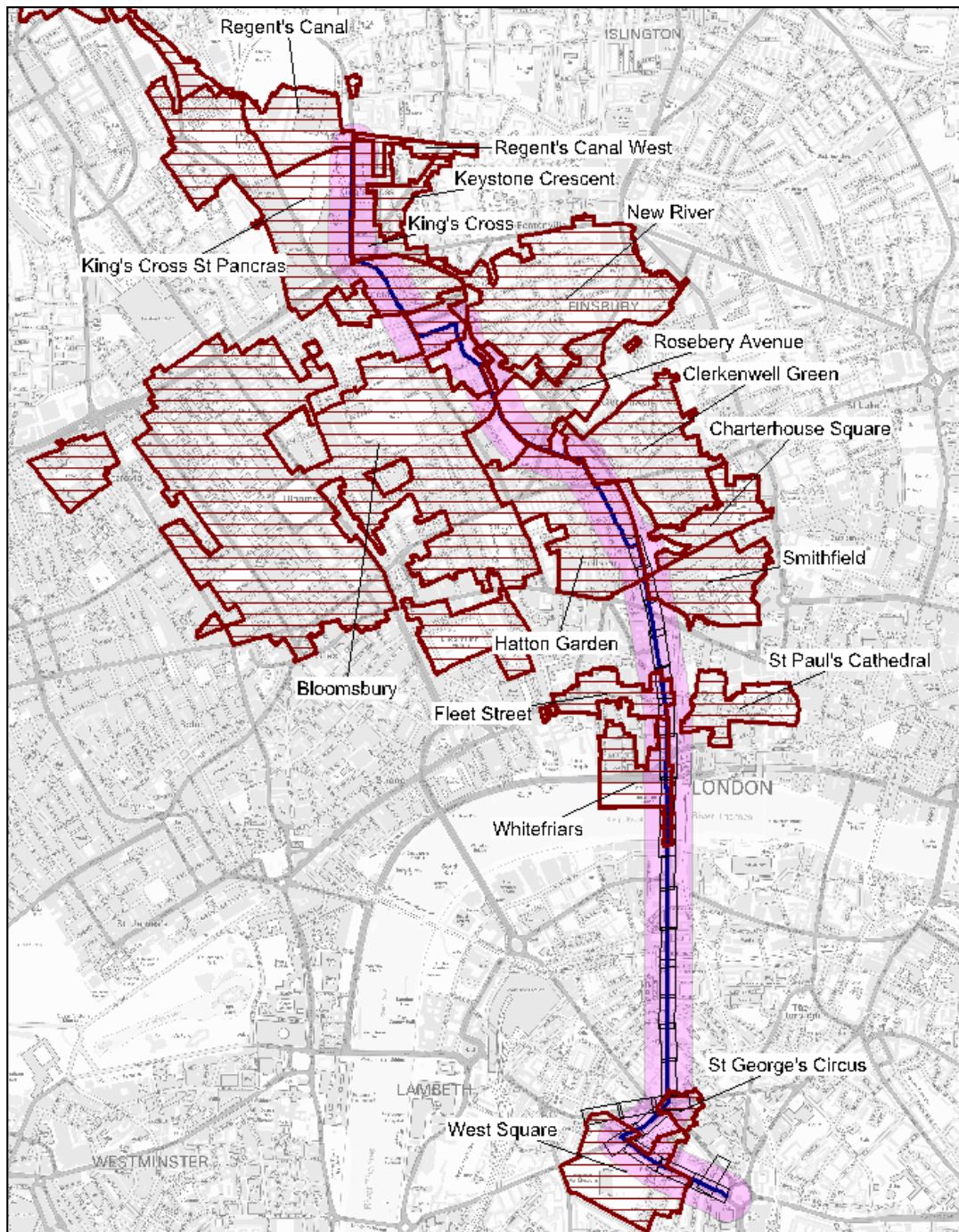


Figure 4 - Conservation Areas

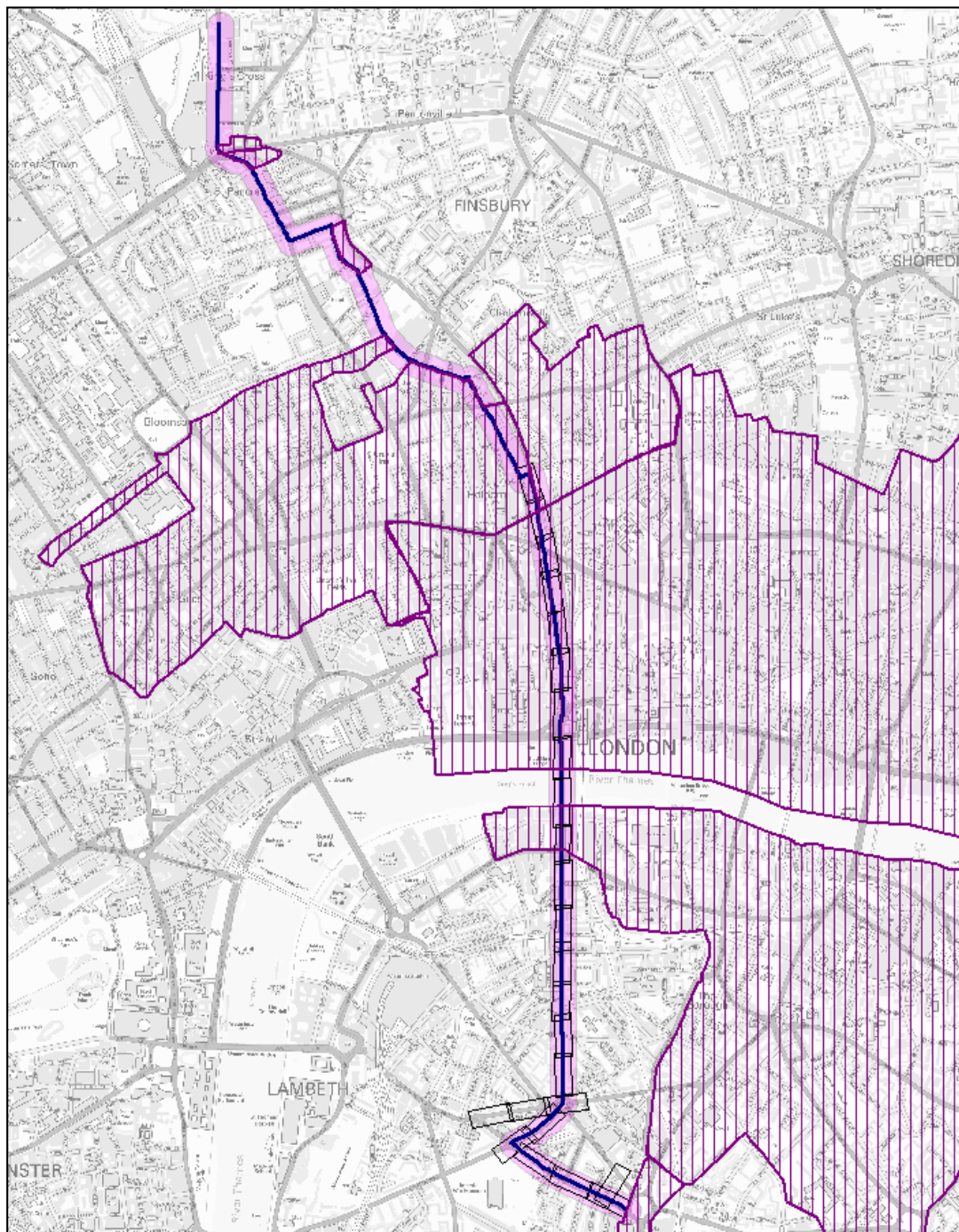


Figure 5 - Archaeological Priority Areas

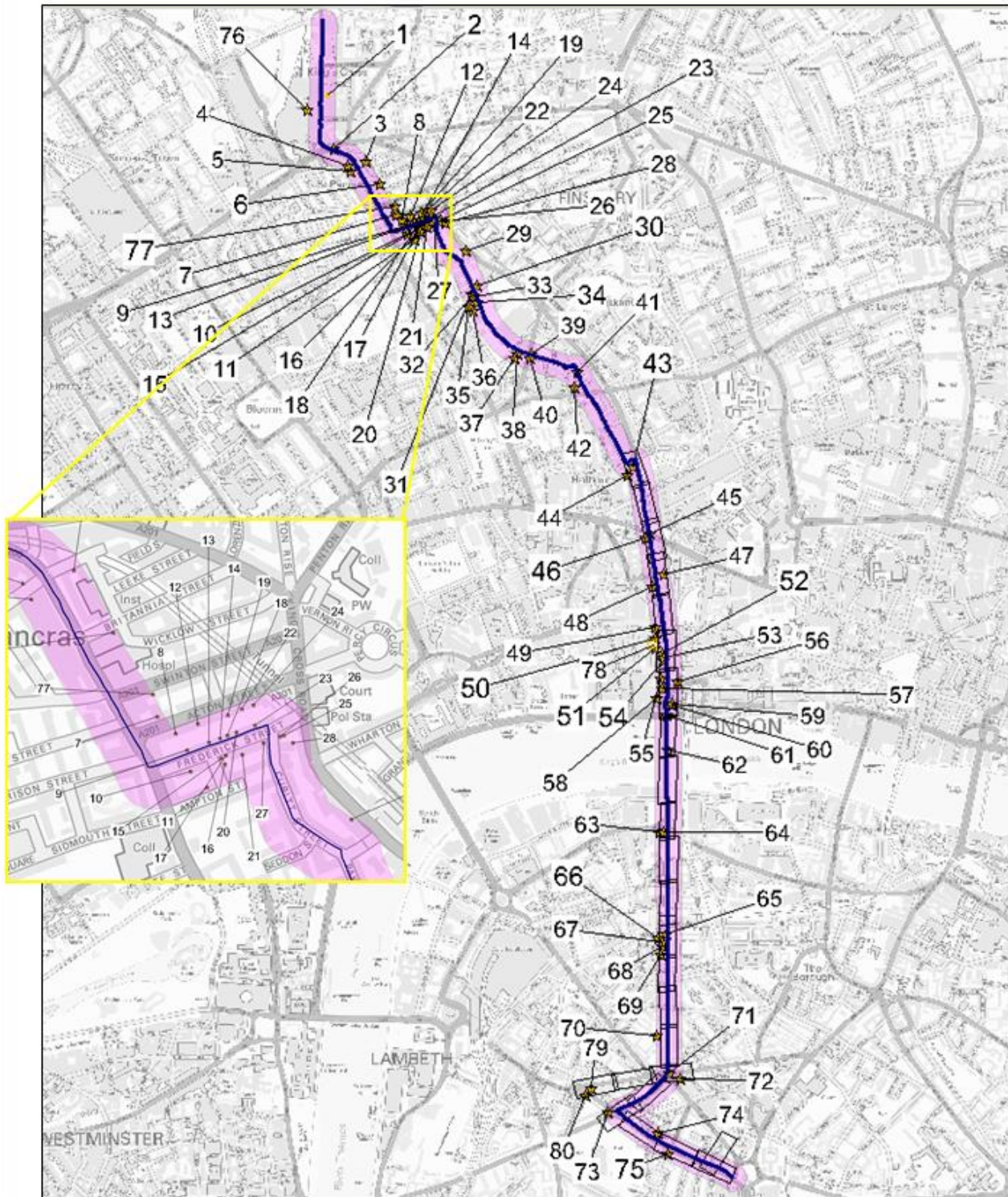
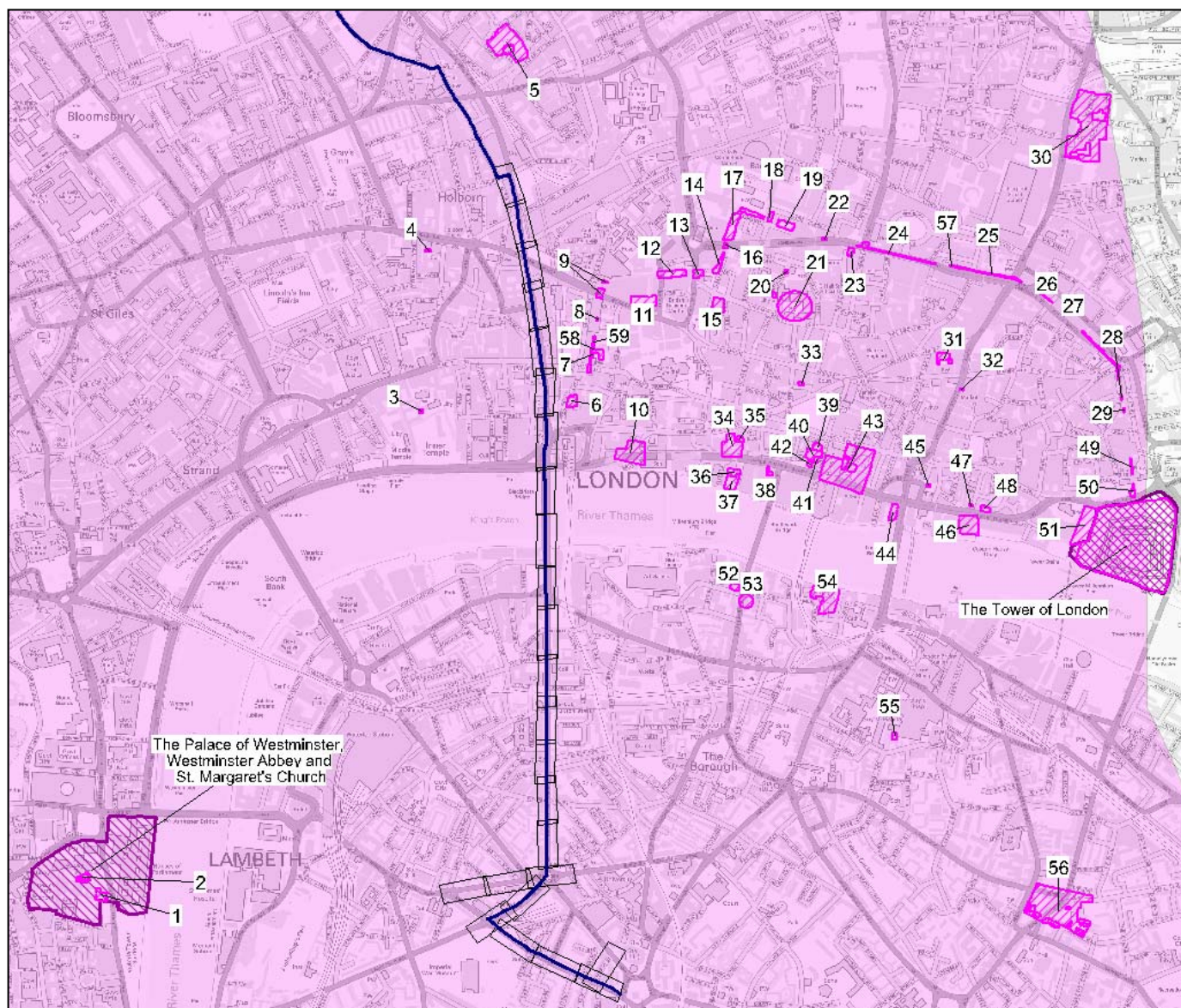


Figure 6 - Listed Buildings and Structures



**Figure 7 - World Heritage Sites & Scheduled Monuments**

Appendix C lists all Conservation Areas along the route and provides a brief description of each together with an appraisal of the likely impacts of the Project. Appendix D lists nationally and locally Listed Buildings and Structures along the Route. Appendix E lists all Scheduled Monuments. There are two World Heritage Sites (WHS) within 2 kilometres of the Route, these are The Tower of London and The Palace of Westminster, Westminster Abbey with St Margaret's Church.

Overall, the impact of the Project on cultural heritage during implementation and operation is expected to be neutral. This conclusion was derived by applying professional judgment guided by TAG.

The impact is likely to be neutral as the project maintains the existing historic character of the townscape; has no appreciable impacts, either positive or negative, on any known or potential heritage assets; and does not result in severance or loss of integrity, context or understanding within the historic landscape.

New way-finding street furniture, blue Cycle Superhighway branding and lighting upgrades are not likely to impact on the current heritage status of the Conservation Areas.



Some excavation may be required particularly when relocating stats and utilities. Required excavation is likely to be under 45cm and therefore have a neutral impact on archaeological remains. In London, archaeological remains tend to be found at a depth greater than one metre from the surface (with the exception of some ancient walls and Scheduled Ancient Monuments which are protected from the surface). If any excavation is to be over one metre, then the contractors will be expected to hand-dig the site if in an archaeological priority area. If archaeological remains are found, work shall stop and will only resume after approval from the relevant Local Authority Conservation Officer is received.

The contractors will be required to produce an Environmental Management Plan through which they will seek to ensure that cultural heritage features along the Route are protected and that a neutral impact on cultural heritage is maintained during the construction of the Project.

**Townscape**

The Project is located in a number of townscape character areas identified in Figure 8 and described in Table 2.

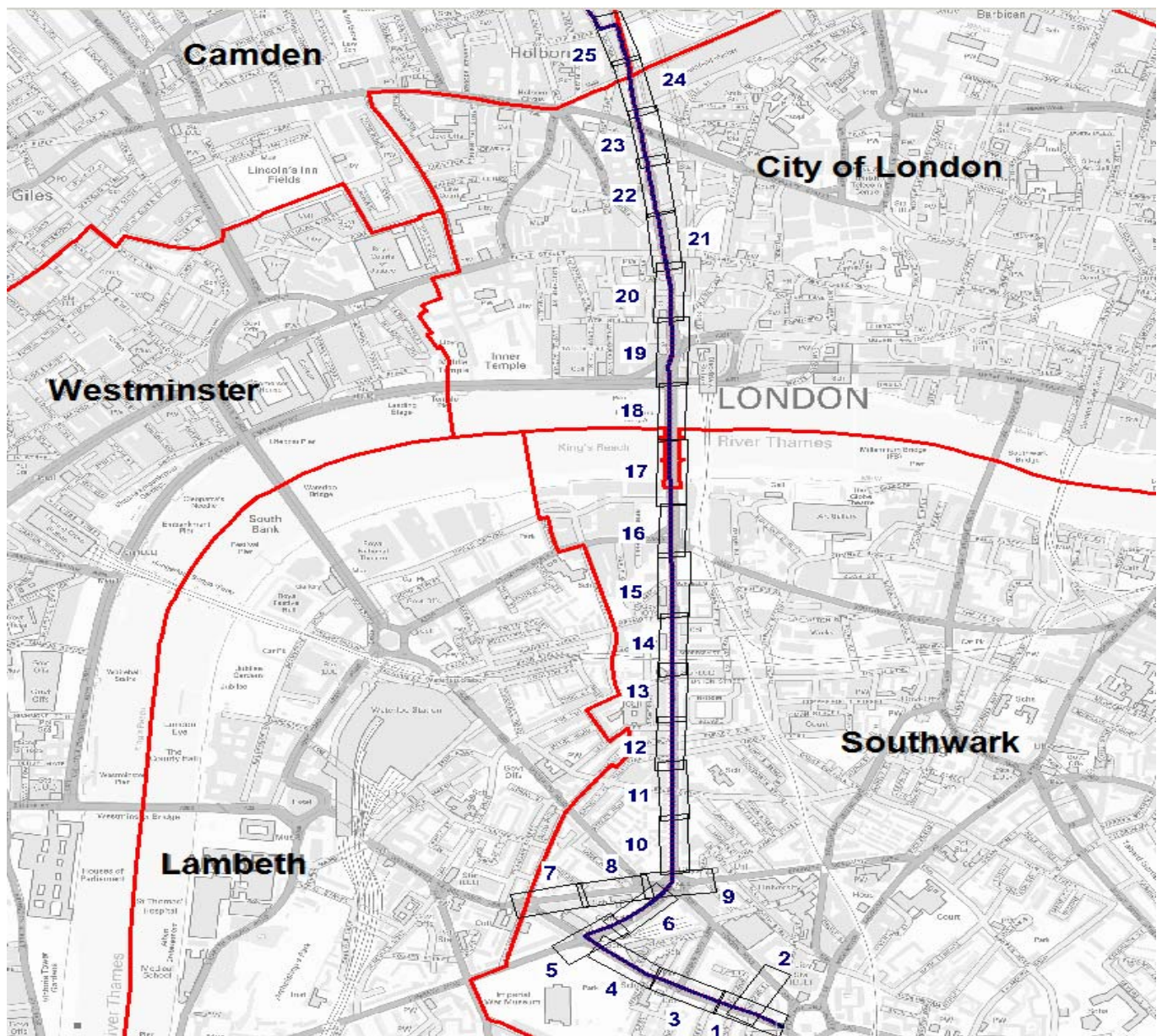


Figure 8 - Streetscape Character Areas

**Table 2 - Streetscape Character Areas**

Section	Streetscape	Definition
1-8	Urban Residential	Privately owned properties face directly onto the street, the streets may be enclosed by buildings of significant stature, both historic and contemporary in style.
9-13	Urban Civic and Residential	Dominated by substantial governmental and commercial office buildings of both contemporary and traditional style. In addition to this there are privately owned properties facing directly onto the street
14-16	Urban Civic	Dominated by substantial governmental and commercial office buildings of both contemporary and traditional style
17 & 18	River	-
19	Urban Civic	Dominated by substantial governmental and commercial office buildings of both contemporary and traditional style
20 & 21	Urban Civic and Commercial	Dominated by substantial governmental and commercial office buildings of both contemporary and traditional style. In addition there are purpose-built retail outlets.
22-25	Urban Civic	Dominated by substantial governmental and commercial office buildings of both contemporary and traditional style

Overall, the impact of the Project on the townscape during the operational phase is expected to be neutral. This conclusion was derived by applying professional judgement guided by TAG.

TAG describes a project to have a neutral effect on townscape when it:

- Avoids neither being visually intrusive nor has an adverse effect on the current level of tranquillity (where these exist) of the townscape through which the route passes.
- Maintains existing townscape character in an area which is not a designated townscape, that is, neither national nor local high quality, nor is it vulnerable to change.
- Avoids conflict with government policy towards enhancing urban environments.

The townscape is already subject to stress conditions and the proposed measures are not expected to worsen them.

Some temporary and localised visual intrusion from the construction phase will have a slight adverse impact on townscape.

Overall the Project is expected to have a neutral slight adverse impact on townscape during the construction phase due to the traffic diversions and the consequent disruption to travel. In addition disruption could be worsened as a result of cumulative impacts from the simultaneous implementation of other projects in the area. During the operational phase, the Project is expected to have a neutral impact.

## Noise and Vibration

The Route passes through some densely populated areas; some of which have been identified by Defra as Important Areas for Noise. These are areas where high traffic volumes meet high numbers of noise sensitive receptors (Figure 9 and Table 3).

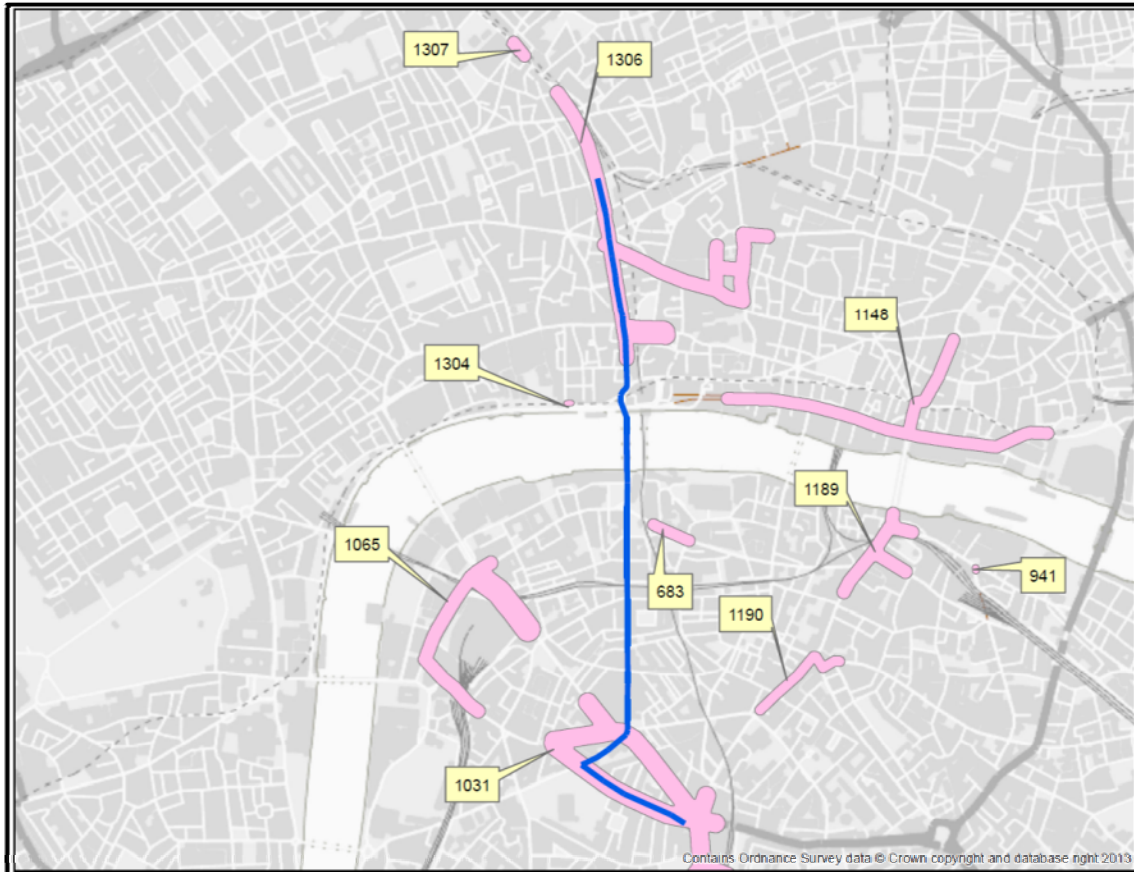


Figure 9 - Important Areas for Noise

**Table 3 - Important Areas for Noise**

Important Area ID	London Borough	Road Links	Length (km)
1031	Lambeth & Southwark	Westminster Bridge Road, A302, A3 Kennington Park Road	3.65
1065	Lambeth	A301 Waterloo Road, A3200 York Road, Addington Street	1.17
1190	Southwark	A3 Borough High Street, A2198 Long Lane	0.45
1306	Camden & City of London & Islington	A201 Farringdon Street, Ludgate Hill, A40 Newgate Street, Angel Street	2.63
683	Southwark	A3200 Southwark Street	0.18
941	Southwark	A200 Tooley Street	0.01
1148	City of London	A3211 Lower Thames Street, A1213 Gracechurch Street	1.85
1189	Southwark	A3 Borough High Street, A200 St Thomas Street, A200 Tooley Street	0.64
1304	City of London	A3211 Victoria Embankment	0.02
1307	Islington	A201 Farringdon Street	0.07

A high level noise assessment for short term impacts was carried out by Aecom following DMRB. Results show that the likely impact of the Project on noise ranges from Major Beneficial to Major Adverse as shown in Table 4 and Appendix F. The table shows road links where there is a change in Basic Noise Level (BNL) of over 1dB. Changes less than 1dB are deemed to be negligible. Changes between 1dB and 2.9dB are deemed to be minor. Changes between 3dB and 4.9dB are deemed to be moderate. Changes above 5dB are deemed to be major.

**Table 4 - Noise Impact by Road Length**

Type of Impact	Magnitude of Impact	Number of Links	Total Length of Links (km)	Number of Links within IAs	Total Length of Links within IAs (km)
Beneficial	Major	3	0.416	0	0
	Moderate	5	0.556	0	0
	Minor	36	5.138	2	0.38
Adverse	Minor	67	7.135	16	0.70
	Moderate	2	0.137	0	0
	Major	2	0.549	0	0

In total there are 115 links where noise changes by more than 1dB, 71 links will experience an increase in noise whilst 44 links would experience a reduction in noise. The magnitude of these increases however is such that overall the Project will bring more beneficial impacts than adverse impacts. Moderate or major beneficial impacts are expected on 8 links (0.97km) and moderate or major adverse impacts on 4 links (0.69km). No moderate or major magnitude changes are expected within the Important Areas for noise. The noise assessment at this stage has not identified the location of sensitive receptors and the impact of noise on those sensitive receptors.

Some localised short-term slight adverse impacts on noise and vibration can be expected during the construction phase from the use of plant and vehicles.

Appropriate mitigation measures that seek to minimise noise during this phase will be put in place by the contractors. The contractors will be required to produce an Environmental Management Plan through which they will seek to minimise noise and vibration during the implementation phase.

### Dust and Emissions to Air

Part of the Route passes through areas which exceed air quality standards (Figure 10).

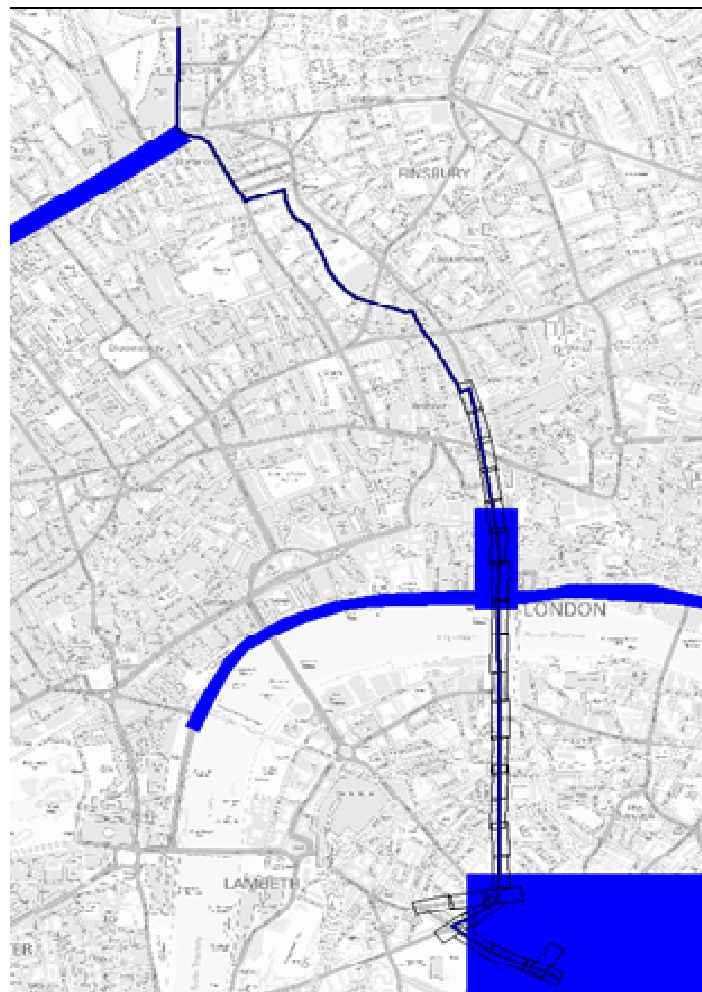
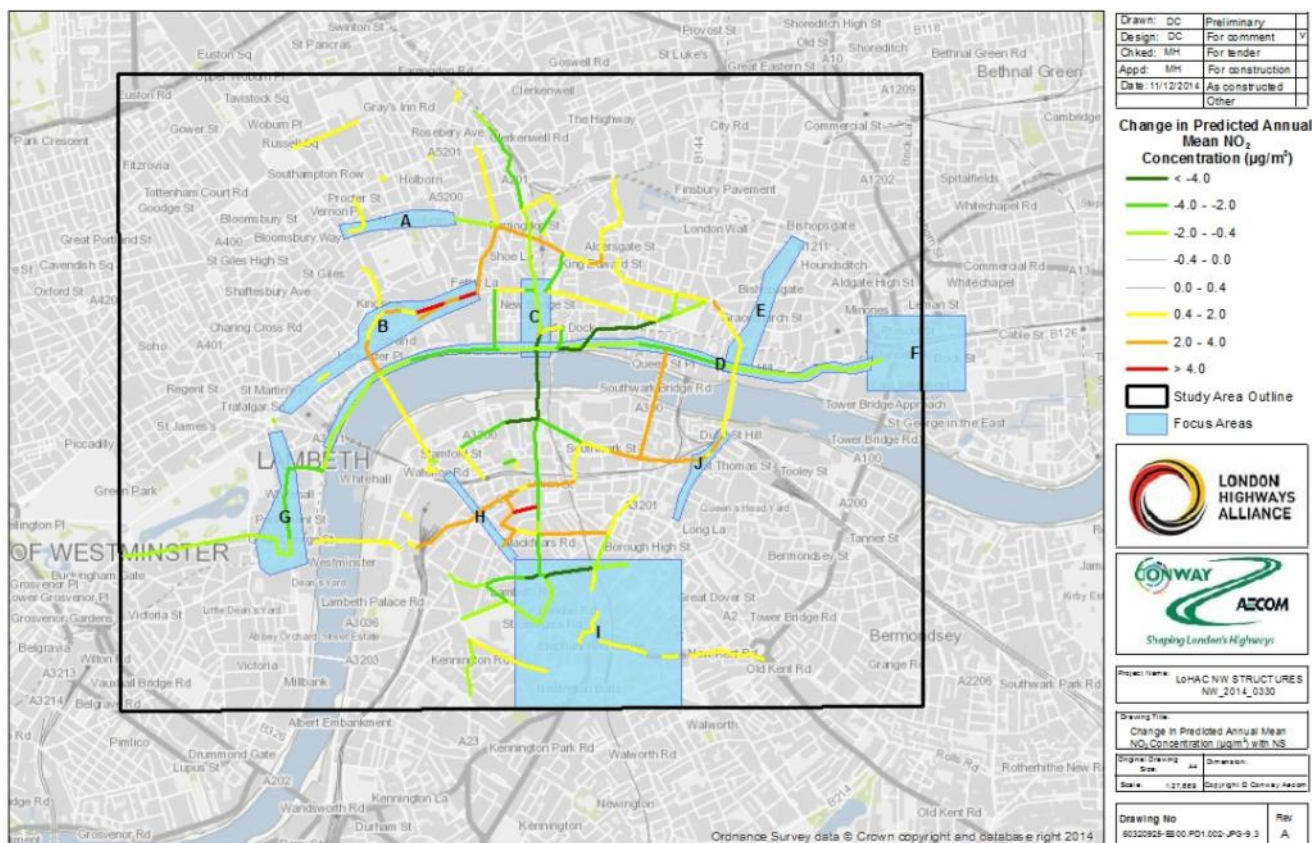


Figure 10 - Areas of Air Quality Standard Exceedance

A high level air quality assessment was carried out by Aecom following DMRB. Results show that the likely impact of the Project on air quality ranges from Significant Adverse to Significant Beneficial as shown in Table 5, Figure 11 and Appendix G. A significant impact is one of moderate or substantial impact.

**Table 5 - NO<sub>2</sub> Impact by Road Length**

Significance of Impact	Number of Links	Road Length (m)
Substantial adverse	3	461
Moderate adverse	46	5,214
Minor adverse	120	10,802
Negligible	6	287
Minor beneficial	71	7,773
Moderate beneficial	43	5,364
Substantial beneficial	17	1,888



**Figure 11 - Changes in Predicted Annual Mean NO<sub>2</sub> Concentration**

The assessment focuses on the road links with a change of more than 1,000 AADT, as changes below this threshold are likely to be negligible (Source: DMRB).

Overall, 16.5 km of road are expected to have adverse impacts and 15.0 km to have beneficial impacts. Significant beneficial impacts are expected on 7.3 km of road and significant adverse impacts on 5.7 km of road. The study shows that changes in traffic will redistribute emissions across the study area but will not increase overall emission levels.

Some localised short-term slight impacts on local air quality can be expected during the implementation phase from the use of plant and vehicles.

The contractors will be required to produce an Environmental Management Plan through which they will seek to minimise dust and emissions to air during the implementation phase. TfL will require the contractor to comply with the Greater London Authority and London Councils' Control of Dust and Emissions from Construction and Demolition Best Practice Guidance.

## Water Resources

The southern part of the Route lies in areas identified by the Environment Agency as being at risk of flooding. Parts of the route are adjacent to the River Thames. Figure 12 displays Flood Risk Zones.

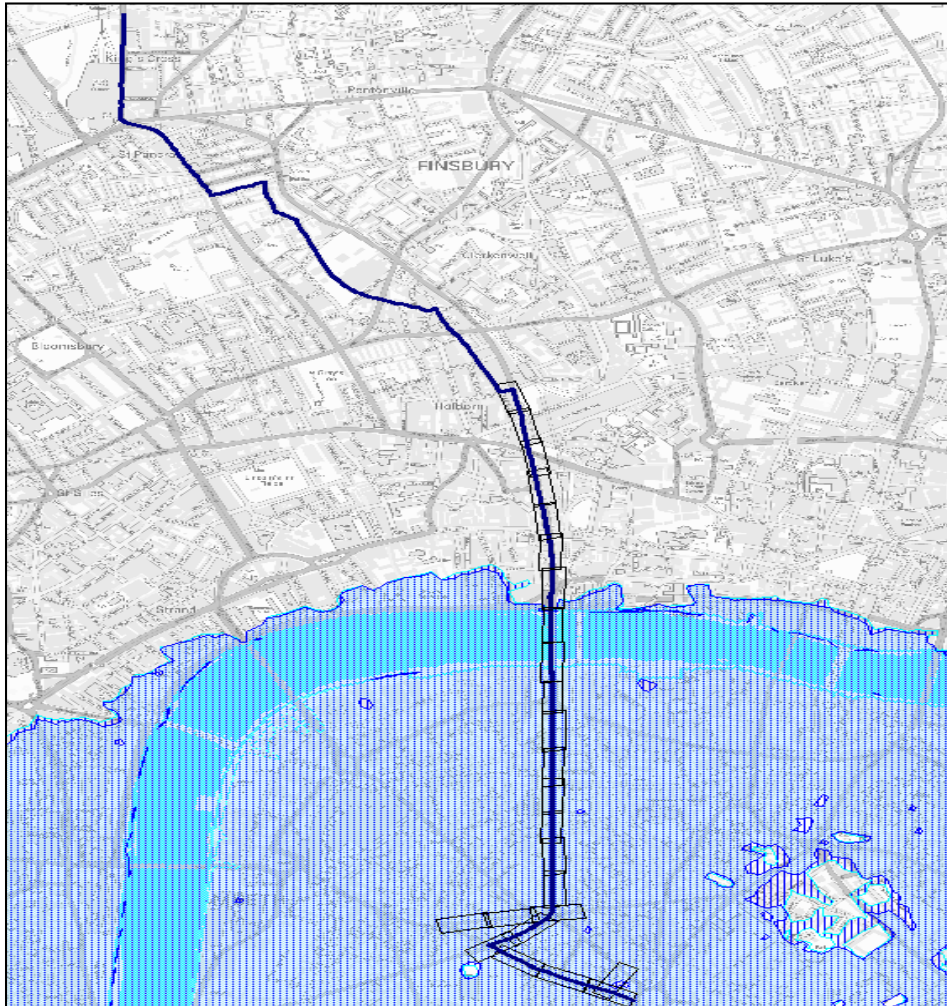


Figure 12 – Flood Risk Zones (dark blue) and River Thames (Light Blue)

The Route runs over the River Thames when passing over Blackfriars Bridge. The Environment Agency has confirmed that Flood Defence Consent is not required. The project will have no impact on flood defence structures. The risk to flooding along the Route will remain unchanged.

Overall the impact of the Project on the water environment is expected to be neutral. TAG describes a project to have a neutral impact on water when there is no appreciable effect, either positive or negative, on the identified attributes.

The contractors will be required to produce an Environmental Management Plan through which they will seek to avoid any impact to the water environment during the construction phase.

## Physical Fitness

TAG advises that significant improvements in fitness and well-being are most evident in those who cycle 30km or more per week and that those people taking up physical activities will receive greater health benefits than those partaking in physical activities already.

The Project will complement other cycling initiatives but will not lead to an immediate increase in cycling trips; therefore the Project will have an initial neutral effect upon physical fitness. However, increased health benefits can be expected as the Project generates additional cycling trips in future.

TAG does not provide a seven point impact appraisal scale for Physical Fitness. However, using professional judgment a conservative slight beneficial impact of the Project upon physical fitness can be expected. The number of cycling trips and associated health benefits will ultimately depend upon individuals' personal choices. Nonetheless, the overall potential health benefit of the Project is clear, especially if the cycling activity is complemented with other physical daily activities such as walking.

## **Journey Experience**

Different types of townscapes and the cycle routes in them provide different journey experiences to cyclists. For example canal, park and off-carriageway routes provide a better journey experience compared to on-carriageway routes.

Journey experience of cyclists along the Route is evaluated in accordance with TAG Journey Ambience methodology.

TAG identifies three components that contribute to journey experience. These are Traveller Care (cleanliness, facilities, information and environment), Traveller Views and Traveller Stress (frustration, fear of potential accidents and route uncertainty).

It is expected that Traveller Care along the Route will be improved during the operational phase of the Project, in particular:

- Cleanliness – The Route will benefit from the proposed enhanced maintenance and enforcement measures. Local Authorities will continue to be responsible for litter collection and cleansing along the Route.
- Facilities – The route will now be fully segregated and resurfaced. It will be maintained to a high standard.
- Information – Way-finding monoliths and additional signage will be out in place to provide information about the Route and the local area. Maps of the Route will be available online to help cyclists plan their journeys.
- Environment – The overall condition and smoothness of cycle rides is expected to be improved from the resurfacing of the Route and Route segregation

Views along the Route range from “restricted” (views are obscured by vegetation, fencing or buildings) to “no view” in more built up areas (views are obscured either side of the road by buildings).

Overall, it is expected that the Project will have a neutral effect on Travellers Views during the operational phase. The majority of the route is on carriageway and the route will not improve views of the area or hinder them. Travellers Views in the more built up areas may be further improved through measures such as landscape improvements and tree planting if possible.



It is expected that during the operational phase the Project will have a positive effect on Traveller Stress. The positive benefits are identified through the alleviation of three recognised causes of travel stress:

- Frustration – Congestion, road layout and geometry and the inability to make good progress along the route are usually causes of frustration. Route resurfacing and segregation will help to reduce frustration.
- Fear of potential accidents – One of the key objectives of the Project is to improve the image and perception of cycling, safety and the perception of safety. These objectives will be achieved by implementing measures such as Cycle Superhighway branding and segregation that will increase visibility of the Route to other road users. These measures combined with Smarter Travel measures such as led rides, cycle support for school leavers and HGV and freight driver training will help reduce fear of potential accidents.
- Route uncertainty – Route uncertainty would be improved through the implementation of distinctive blue branding and segregation. The Route will be signed with way-finding monoliths providing key information such as route number and average journey times to destinations. Proposed landscape improvements and lighting features are desired to provide continuity to the route but again the implementation of these is uncertain at present.

Overall the Project is going to be moderate beneficial to journey experience for cyclists

During the construction phase Traveller Views, Facilities and Frustration are expected to worsen due to the restriction or diversion of existing routes as the measures are implemented.

### **Sustainable Design**

TfL will encourage the use of sustainable materials, particularly in the design of the street furniture. TfL will require the contractor to reduce, reuse or recycle the waste that is generated and to record quantities of all waste streams. The contractor will also be required to comply with current legislation relating to the handling, transfer and disposal of all waste materials.

TfL will seek to locate street furniture in well lit areas where no additional street lighting is required. All lighting along the route will be replaced and upgraded to current standards; however it is uncertain at this stage whether LED will be implemented. In the event that additional street lighting is needed to provide light to street furniture, the lighting will be designed and located to minimise the visual intrusion of lighting columns into the daytime streetscape and to minimise light pollution at night-time.

Despite the use of sustainable materials, adopting the waste hierarchy and promoting the use of renewable energy, a slight adverse impact in respect of greenhouse gas emissions (due to an increase in energy use during implementation and operation and fuel use during construction) and the production of waste materials, is likely.

## Environmental Management

TfL will ensure that the contractors hold and maintain an environmental management system independently certified to ISO 14001:2004.

TfL will require the contractors to produce an Environmental Management Plan for the construction phase. The Environmental Management Plan will demonstrate how the contractors are going to implement appropriate environmental procedures, including preventative measures and controls for dealing with the unlikely event of environmental incidents. The contractors shall ensure that the Environmental Management Plan covers the whole of the works and highlight any site specific issues.

TfL will require the contractors to comply with current legislation relating to the handling, transfer and disposal of all waste materials including requirements set by the Waste Management Plans Regulations 2008 and Waste Electrical and Electronic Equipment Regulations 2006.

TfL will require the contractors to comply with the *Greater London Authority and London Councils' Control of Dust and Emissions from Construction and Demolition Best Practice Guidance*.

TfL will require the contractors to follow the British Standard *BS 5837:2005, Trees in relation to construction – Recommendations* and NJUG's *Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees* and that Local Authority Tree Officers and TfL Arboricultural and Landscape Managers are consulted about the potential impact that the Project can have on trees along the Route.

In the unlikely event that excavation for the installation of way-finding monoliths is over one metre in depth, TfL will require the contractors to hand-dig the site if in an archaeological priority area and if archaeological remains are found, work shall stop and will only resume after approval from the relevant Local Authority conservation officer and / or English Heritage is received.

In the unlikely event that protected species are present on site during works, TfL will ensure that only Defra licensed ecologists handle protected species.

To ensure compliance, TfL will monitor the performance of the contractors as works progress.

## Appendix A: Environmental Evaluation Report Template

### Environmental Evaluation Report - Improvement Projects and Capital Renewal Schemes

The Environmental Evaluation Report defines the requirements for achieving the appropriate level of environmental evaluation for a project so that negative environmental impacts are understood and minimised, environmental benefits are enhanced, environmental risks are managed, challenges to the project are reduced and the required relevant environmental consents, permits and licenses are identified.

The Report provides assurance to the Project Manager, Client and Environmental Manager that the project's design and performance, the appraisal, monitoring and sampling methodology used, and other technical and reporting activities are of the required quality and standard to meet TfL's environmental obligations.

**Contents:**

Project Information .....	2
Appraisal Summary .....	3
Impacts and Further Appraisal .....	3
Required Actions .....	4
Appraisal .....	7
Determination of need for Environmental Impact Assessment (EIA) – ONLY FOR IMPROVEMENT PROJECTS .....	7
Natural Environment .....	7
Cultural Heritage .....	10
Air Quality (PM <sub>10</sub> & NO <sub>2</sub> ) .....	11
Climate Change Mitigation (CO <sub>2</sub> ) .....	12
Climate Change Adaptation .....	13
Noise .....	14
Soil and Water .....	15
Community .....	16
Built Environment .....	17
Cumulative Impacts .....	18
Hazardous Substances .....	19
Waste .....	20
Environmental Incidents .....	21
Approvals .....	22
Supporting Information (e.g. drawing, maps) .....	23

The Report contains a number of questions and bullet points which are intended to be key prompts. These do not represent an exhaustive list of best available practice or required consents, permits and licences. As such, expert environmental advice should be sought from the relevant expert if in doubt.

Version 4

**Project Information**

<b>Project / Scheme Name:</b>	
<b>Project Code:</b>	
<b>Description of site, project / scheme and construction activities:</b>	

**Appraisal Summary**

**Impacts and Further Appraisal**

Comment:

	TfL (Planning and Design Stage)							Contractor (Design and Construction Stage)						
	Adverse			Neutral	Beneficial			Adverse			Neutral	Beneficial		
	Large	Moderate	Slight		Slight	Moderate	Large	Large	Moderate	Slight		Slight	Moderate	Large
Natural Environment														
Cultural Heritage														
Air Quality (NO <sub>2</sub> & PM <sub>10</sub> )														
Climate Change Mitigation (CO <sub>2</sub> )														
Climate Change Adaptation														
Noise and Vibration														
Soil and Water														
Community														
Built Environment														
Cumulative Impacts														

C – Construction O – Operation

	TfL	Contractor
The Project/Scheme has no significant impacts on the environment - No further appraisal is required		
The Project/Scheme may have significant impacts on the environment - Further appraisal is required		

**Required Actions**

Control, Mitigation and Enhancement Measures (list measures aimed at mitigating against negative environmental impacts, enhance environmental benefits and control environmental risks)			
	Measure	TfL	Contractor
2.1,2.3,2.4, 2.5,2.6,2.7, 6.1,6.3	Contact the TfL Arboriculture and Landscape Route Manager if likely to impact any element of the green estate		
2.1, 2.2, 6.2	Follow British Standard BS 5837:2005, 'Trees in relation to construction – Recommendations' and the 'National Joint Utilities Group's Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees'.		
2.1	Removal of any green estate asset requires approval via SQA99. This includes affected 3 <sup>rd</sup> party assets.		
2.3	Injurious weeds shall be treated as controlled waste unless herbicide is present, in which case they shall be treated as hazardous waste		
2.7,3.1,3.2, 8.3,8.5,8.6, 13.1	Contact TfL Environmental Manger		
4.4	Works should be carried out in accordance with the Greater London Authority and London Councils 'The Control of Dust and Emissions from Construction and Demolition; Best Practice Guidance (2006)'.		
4.4	Contractors should be encouraged to fit emission controls to all vehicles, plant and equipment where possible		
4.4,5.3,7.1	Vehicles, plant and equipment should be turned off when not in use.		
4.4,5.3	Vehicles, plant and equipment should be inspected and maintained regularly.		
5.2	A Carbon and Energy Efficiency Plan (CCEP) may be required		
5.3	The Contractor should be encouraged to use energy and fuel efficient vehicles, plant and equipment where possible		
7.1	BS5228 Parts 1 and 2 – Noise and vibration control on construction and open sites should be adhered to		
7.1	Consider alternative 'quiet' running plant and equipment.		
7.1	Noisiest activities should be planned during 'normal working hours'		
7.3	Obtain Section 61 consent from the local authority environmental health officer.		
8.3	Consent for Works Affecting Watercourse and / or Flood Defences is required from the Environment Agency.		
8.3	Prepare a detailed Method Statement to support application for consent.		
8.3	Adhere to the Environment Agency's Pollution Prevention Guidelines.		
8.5	Environmental Permit is required from the Environment Agency.		
8.6	Trade Effluent consent is required from Thames Water.		
9.2	The worksite should be kept tidy and in good order, with minimal disturbance and footprint.		
9.2	The use of floodlights and flashing lights should be minimised, where possible and positioned away from residences and oncoming traffic.		

<b>Control, Mitigation and Enhancement Measures</b> (list measures aimed at mitigating against negative environmental impacts, enhance environmental benefits and control environmental risks)			
	<b>Measure</b>	<b>TfL</b>	<b>Contractor</b>
9.4	Traffic management measures should be timed to minimise disruptions and should be clearly signed.		
12.1	Hazardous substances must be stored away from sensitive receptors such as watercourses, habitat areas and residences.		
12.1	Outside storage of oil (i.e. fuel) over 200 litres must comply with the Oil Storage Regulations		
12.1	Hazardous substances must be stored in a secure location within drip trays and/or bunds.		
12.1	Refuelling should be undertaken within a designated impermeable, bunded area or undertaken off site.		
12.1	Spill kits must be readily available.		
13.1	Site Waste Management Plan (SWMP) is required. Use TfL SWMP Template		
13.2	Ensure waste containers are not damaged and are suitable and safe for the type of waste.		
13.2	Ensure that all waste containers are clearly labelled		
13.2	Prevent dispersal of waste by wind, rain, animals or people.		
13.2	Store waste away from drains, water courses and trees		
13.2	Reduce the amount of waste created on site.		
13.2	Reuse materials on site wherever possible.		
13.2	Segregate waste for recycling		
13.2	Ensure that the company removing waste is registered as a Waste Carrier.		
13.2	Ensure that the waste is taken to an authorised waste facility		
13.3	All hazardous waste must be segregated from general waste.		
13.3	Ensure that consignment notes are retained.		
13.3	If more than 500 KGs of hazardous waste is produced each year, then the site must be registered as a hazardous waste premises with the Environment Agency.		

	<b>TfL</b>	<b>Contractor</b>
<p><b>Monitoring Systems</b> (Describe the checks that are in place to ensure that the control and mitigation measures outlined above are implemented correctly)</p>		
<p><b>Environmental Consents, Licenses and Permits</b> (List any environmental consent, license and permit required for the works and explain how these will be obtained)</p>		
<p><b>Staff environmental training</b> (List any staff environmental training required to ensure that control, mitigation and enhancement measures are carried out in a suitable manner. Describe timing and frequency of training)</p>		

**Appraisal**

1	Determination of need for Environmental Impact Assessment (EIA) – ONLY FOR IMPROVEMENT PROJECTS	TfL	
		YES	NO
1.1	Is the project listed in Schedule 1 of the EIA Regulations? If so which section and paragraph?		
1.2	As defined in the EIA Regulations, is the project an Urban Development over 0.5 hectare (5,000m <sup>2</sup> ) (Schedule 2 10(b)) or the Construction of a Road exceeding 1 hectare (10,000m <sup>2</sup> ) (Schedule 2 10(f))?		
1.3	Is the project in or within 2km of a sensitive site, as defined by the EIA Regulations i.e. National Nature Reserve, Scheduled Monument, SAC, SPA, SSSI, World Heritage Site? If so, which?		
1.4	<b>Does the project require EIA?</b>		

Comments and Recommendations	None
------------------------------	------

2	Natural Environment	TfL		Contractor	
		YES	NO	YES	NO
	Will works affect grassed or planted areas as a result of land-take, excavation or temporary use of the grassed or planted areas?				
	<u>If YES:</u>				
2.1	<ul style="list-style-type: none"> <li>Contact the TfL Arboriculture and Landscape Route Manager</li> <li>Removal of any green estate asset requires approval via SQA99. This includes affected 3<sup>rd</sup> party assets.</li> <li>Follow British Standard BS 5837:2005, Trees in relation to construction – Recommendations' and the 'National Joint Utilities Group's Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees'.</li> </ul>				
	Will the works be in close proximity to grassed or planted areas or trees?				
	<u>If YES:</u>				
2.2	<ul style="list-style-type: none"> <li>Follow British Standard BS 5837:2005, Trees in relation to construction – Recommendations' and the 'National Joint Utilities Group's Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees'.</li> </ul>				

2	Natural Environment	TfL		Contractor	
		YES	NO	YES	NO
	Are there any known injurious weeds in the vicinity of the works?				
	<u>If YES:</u>				
2.3	<ul style="list-style-type: none"> <li>Contact the TfL Arboriculture and Landscape Route Manager</li> <li>Injurious weeds shall be treated as controlled waste unless herbicide is present, in which case they shall be treated as hazardous waste</li> </ul>				
	Is new or replacement planting proposed?				
	<u>If YES:</u>				
2.4	<ul style="list-style-type: none"> <li>Contact the TfL Arboriculture and Landscape Route Manager</li> </ul>				
	Is there scope for new or enhanced planting in the area? E.g. empty planters or tree pits, unused land, room on the footway for street trees, existing green space in poor condition.				
	<u>If YES:</u>				
2.5	<ul style="list-style-type: none"> <li>Contact the TfL Arboriculture and Landscape Route Manager</li> </ul>				
	Are protected species, sightings of protected species or areas of habitat potential present with 200 metres of the works?				
	<u>If YES:</u>				
2.6	<ul style="list-style-type: none"> <li>Contact the TfL Arboriculture and Landscape Route Manager</li> <li>Contact the TfL Environmental Manager</li> </ul> <p>Note: Only Defra licensed ecologists are to handle protected species</p>				
	Are designated landscape sites (i.e. Metropolitan Open Land, Green Belt, Commons), Sites of Importance for Nature Conservation (SINC) or areas of habitat potential present with 200 metres of the works?				
	<u>If YES:</u>				
2.7	<ul style="list-style-type: none"> <li>Contact the TfL Arboriculture and Landscape Route Manager</li> <li>Contact the TfL Environmental Manager</li> </ul> <p>Note: biodiversity features must be protected in accordance with the requirements of the relevant authority (e.g. Natural England or Local Authority).</p>				

Key: 0=Neutral, 1=Slight, 2=Moderate, 3=Large

<b>Impact on the Natural Environment</b>		0	1	2	3	0	1	2	3
		+							

C – Construction O – Operation

<b>Is further appraisal required?</b>	
<b>Control, Mitigation and Enhancement Measures</b> (list measures aimed at mitigating against negative environmental impacts, enhance environmental benefits and control environmental risks)	
<b>Monitoring Systems</b> (Describe the checks that are in place to ensure that the control and mitigation measures outlined above are implemented correctly)	
<b>Environmental Consents, Licenses and Permits</b> (List any environmental consent, license and permit required for the works and explain how these will be obtained)	
<b>Staff environmental training</b> (List any staff environmental training required to ensure that control, mitigation and enhancement measures are carried out in a suitable manner. Describe timing and frequency of training)	

3	Cultural Heritage	TfL		Contractor	
		YES	NO	YES	NO
3.1	<p>Are heritage features such as a Conservation Area within 100m, listed buildings within 50m, registered park and garden within 200m, London Square or archaeological features (e.g. London Wall) within 50m from the works.</p> <p>Are the works within an archaeological priority area?</p> <p><u>If YES:</u></p> <ul style="list-style-type: none"> <li>Contact the TfL Environmental Manager</li> </ul> <p>Note: Heritage or archaeological feature must be protected in accordance with the requirements of the relevant authority (e.g. English Heritage or Local Authority).</p>				
3.2	<p>Are heritage or archaeological artefacts encountered on site during the works?</p> <p><u>If YES:</u></p> <ul style="list-style-type: none"> <li>Works should cease immediately.</li> <li>Consult the relevant authority (e.g. English Heritage or Local Authority).</li> <li>Contact the TfL Environmental Manager</li> </ul>	n/a	n/a		

Key: 0=Neutral, 1=Slight, 2=Moderate, 3=Large

<b>Impact on Cultural Heritage</b>		0	1	2	3	0	1	2	3
		+							

C – Construction O – Operation

<b>Is further appraisal required?</b>	
<b>Control, Mitigation and Enhancement Measures</b> (list measures aimed at mitigating against negative environmental impacts, enhance environmental benefits and control environmental risks)	
<b>Monitoring Systems</b> (Describe the checks that are in place to ensure that the control and mitigation measures outlined above are implemented correctly)	
<b>Environmental Consents, Licenses and Permits</b> (List any environmental consent, license and permit required for the works and explain how these will be obtained)	
<b>Staff environmental training</b> (List any staff environmental training required to ensure that control, mitigation and enhancement measures are carried out in a suitable manner. Describe timing and frequency of training)	

4	Air Quality (PM <sub>10</sub> & NO <sub>2</sub> )	TfL				Contractor			
		YES	NO			YES	NO		
4.1	Upon completion, will the project /scheme generate additional stop and start traffic conditions?								
4.2	Is the project /scheme in a road flanked by tall buildings on either side (i.e. street canyon) which prevent pollutants from dispersing?								
4.3	Will dust be generated as a result of the works? <u>If YES:</u>								
	<ul style="list-style-type: none"> <li>Works should be carried out in accordance with the Greater London Authority and London Councils 'The Control of Dust and Emissions from Construction and Demolition; Best Practice Guidance (2006)'. </li> </ul>								
4.4	Are vehicles, plant and equipment to be used? <u>If YES:</u>								
	<ul style="list-style-type: none"> <li>Contractors should be encouraged to fit emission controls to all vehicles, plant and equipment where possible</li> <li>Vehicles, plant and equipment should be turned off when not in use.</li> <li>Vehicles, plant and equipment should be inspected and maintained regularly.</li> </ul>								
4.5	Is the project in an air quality management area, in a focus (NO <sub>2</sub> ) area or in an air quality priority area (PM <sub>10</sub> )? Specify								

Key: 0=Neutral, 1=Slight, 2=Moderate, 3=Large

Impact on Air Quality		0	1	2	3	0	1	2	3
		+							
		-							

C – Construction O – Operation

<b>Is further appraisal required?</b>			
<b>Control, Mitigation and Enhancement Measures</b> (list measures aimed at mitigating against negative environmental impacts, enhance environmental benefits and control environmental risks)			
<b>Monitoring Systems</b> (Describe the checks that are in place to ensure that the control and mitigation measures outlined above are implemented correctly)			
<b>Environmental Consents, Licenses and Permits</b> (List any environmental consent, license and permit required for the works and explain how these will be obtained)			
<b>Staff environmental training</b> (List any staff environmental training required to ensure that control, mitigation and enhancement measures are carried out in a suitable manner. Describe timing and frequency of training)			

5	Climate Change Mitigation (CO <sub>2</sub> )	TfL				Contractor			
		YES	NO			YES	NO		
5.1	Upon completion, will the project/scheme increase congestion?								
5.2	Will the project/scheme affect energy consumption? <u>If YES:</u>								
	<ul style="list-style-type: none"> <li>A Carbon and Energy Efficiency Plan (CEEP) may be required</li> </ul>								
5.3	Are vehicles, plant and equipment to be used? <u>If YES:</u>								
	<ul style="list-style-type: none"> <li>The Contractor should be encouraged to use energy and fuel efficient vehicles, plant and equipment where possible</li> <li>Vehicles, plant and equipment should be turned off when not in use.</li> <li>Vehicles, plant and equipment should be inspected and maintained regularly.</li> </ul>								

Key: 0=Neutral, 1=Slight, 2=Moderate, 3=Large

Impact on Climate Change Mitigation		0	1	2	3	0	1	2	3
		+							
		-							

C – Construction O – Operation

<b>Is further appraisal required?</b>			
<b>Control, Mitigation and Enhancement Measures</b> (list measures aimed at mitigating against negative environmental impacts, enhance environmental benefits and control environmental risks)			
<b>Monitoring Systems</b> (Describe the checks that are in place to ensure that the control and mitigation measures outlined above are implemented correctly)			
<b>Environmental Consents, Licenses and Permits</b> (List any environmental consent, license and permit required for the works and explain how these will be obtained)			
<b>Staff environmental training</b> (List any staff environmental training required to ensure that control, mitigation and enhancement measures are carried out in a suitable manner. Describe timing and frequency of training)			



6	Climate Change Adaptation	TfL				Contractor			
		YES	NO	YES	NO	YES	NO	YES	NO
6.1 (2.1)	Will works require land take, excavation or temporary use of the grassed verge or planted areas which will increase hard surfaced area and/or surface water run-off?  <u>If YES:</u> <ul style="list-style-type: none"><li>Contact the TfL Arboriculture and Landscape Route Manager</li></ul>								
6.2 (2.2)	Will the works be in close proximity to or require the removal or disturbance of street trees?  <u>If YES:</u> <ul style="list-style-type: none"><li>Contact the TfL Arboriculture and Landscape Route Manager</li><li>Follow British Standard BS 5837:2005, Trees in relation to construction – Recommendations' and the 'National Joint Utilities Group's Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees'.</li></ul>								
6.3 (2.4)	Is new or replacement planting proposed?  <u>If YES:</u> <ul style="list-style-type: none"><li>Contact the TfL Arboriculture and Landscape Route Manager</li></ul>								
6.4 (8.1)	Upon completion, will the project/scheme increase hard surfaced area and/or surface water run-off?  <u>If YES:</u> <ul style="list-style-type: none"><li>Consider the introduction of Sustainable Urban Drainage Systems (SUDS)</li></ul>								

Key: 0=Neutral, 1=Slight, 2=Moderate, 3=Large

Impact on Climate Change Adaptation		TfL				Contractor			
		0	1	2	3	0	1	2	3
		+							
		-							

C – Construction O – Operation

<b>Is further appraisal required?</b>	
<b>Control, Mitigation and Enhancement Measures</b> (list measures aimed at mitigating against negative environmental impacts, enhance environmental benefits and control environmental risks)	
<b>Monitoring Systems</b> (Describe the checks that are in place to ensure that the control and mitigation measures outlined above are implemented correctly)	
<b>Environmental Consents, Licenses and Permits</b> (List any environmental consent, license and permit required for the works and explain how these will be obtained)	
<b>Staff environmental training</b> (List any staff environmental training required to ensure that control, mitigation and enhancement measures are carried out in a suitable manner. Describe timing and frequency of training)	

7	Noise	TfL				Contractor			
		YES	NO	YES	NO	YES	NO	YES	NO
7.1	Are works likely to create noise and vibration that will disturb residences, schools, hospitals, places of worship, sensitive habitats or other sensitive receptors?  <u>If YES:</u> <ul style="list-style-type: none"><li>BS5228 Parts 1 and 2 – <i>Noise and vibration control on construction and open sites</i> should be adhered to.</li><li>Vehicles, plant and equipment should be turned off when not in use.</li><li>Consider alternative 'quiet' running plant and equipment.</li><li>Noisiest activities should be planned during 'normal working hours'</li></ul>								
7.2	Are the works in an Important Area for noise?								
7.3	Are works required to be carried out at night or outside of 'normal working hours'?  <u>If YES:</u> <ul style="list-style-type: none"><li>Obtain Section 61 consent from the local authority environmental health officer.</li></ul>								
7.4	Upon completion will the project move traffic closer to residences, schools, hospitals, places of worship, sensitive habitats or other sensitive receptors?								

Key: 0=Neutral, 1=Slight, 2=Moderate, 3=Large

Impact on Noise and Vibration		TfL				Contractor			
		0	1	2	3	0	1	2	3
		+							
		-							

C – Construction O – Operation

<b>Is further appraisal required?</b>	
<b>Control, Mitigation and Enhancement Measures</b> (list measures aimed at mitigating against negative environmental impacts, enhance environmental benefits and control environmental risks)	
<b>Monitoring Systems</b> (Describe the checks that are in place to ensure that the control and mitigation measures outlined above are implemented correctly)	
<b>Environmental Consents, Licenses and Permits</b> (List any environmental consent, license and permit required for the works and explain how these will be obtained)	
<b>Staff environmental training</b> (List any staff environmental training required to ensure that control, mitigation and enhancement measures are carried out in a suitable manner. Describe timing and frequency of training)	

8	Soil and Water	TfL				Contractor			
		YES	NO	YES	NO	YES	NO	YES	NO
8.1	Upon completion, will the project/scheme increase hard surfaced area or water run-off? <u>If YES:</u> • Consider the introduction of Sustainable Urban Drainage Systems (SUDS)								
8.2	Is the project/scheme within a flood risk area? <u>If YES:</u> • Consider the introduction of Sustainable Urban Drainage Systems (SUDS)								
8.3	Are the works in, over or under a watercourse or within 16 metres of a tidal river or 8 metres from a non tidal river, river bank, river wall, embankment or flood defence structure? <u>If YES:</u> • Contact the TfL Environmental Manager. • Consent for Works Affecting Watercourse and / or Flood Defences is required from the Environment Agency. • Prepare a detailed Method Statement to support application for consent. • Adhere to the Environment Agency's Pollution Prevention Guidelines.								
8.4	Have there been instances of blocked gullies or drainage issues?								
8.5	Is discharge to a watercourse or waterbody required? Are any dewatering activities required? <u>If YES:</u> • Contact the TfL Environmental Manager. • Environmental Permit is required from the Environment Agency.								
8.6	Is discharge to a sewer required? <u>If YES:</u> • Contact the TfL Environmental Manager. • Trade Effluent consent is required from Thames Water.								

Key: 0=Neutral, 1=Slight, 2=Moderate, 3=Large

Impact on Soil and Water		0				1				2				3			
		+				-											

C – Construction O – Operation

<b>Is further appraisal required?</b>	
<b>Control, Mitigation and Enhancement Measures</b> (list measures aimed at mitigating against negative environmental impacts, enhance environmental benefits and control environmental risks)	
<b>Monitoring Systems</b> (Describe the checks that are in place to ensure that the control and mitigation measures outlined above are implemented correctly)	
<b>Environmental Consents, Licenses and Permits</b> (List any environmental consent, license and permit required for the works and explain how these will be obtained)	
<b>Staff environmental training</b> (List any staff environmental training required to ensure that control, mitigation and enhancement measures are carried out in a suitable manner. Describe timing and frequency of training)	

9	Community	TfL				Contractor			
		YES	NO	YES	NO	YES	NO	YES	NO
9.1	Upon completion, will the project/scheme be visually intrusive or cause light pollution to residences, schools, hospitals, places of worship, sensitive habitats or other sensitive receptors?								
9.2	Can residents and users of nearby premises view the works? <u>If YES:</u> • The worksite should be kept tidy and in good order, with minimal disturbance and footprint. • The use of floodlights and flashing lights should be minimised, where possible and positioned away from residences and oncoming traffic.								
9.3	Upon completion, will the project/scheme have moved traffic closer to residences, schools, hospitals, places of worship, sensitive habitats or other sensitive receptors?								
9.4	Will the works require diversion routes or temporary alterations to accesses? <u>If YES:</u> • Traffic management measures should be timed to minimise disruptions and should be clearly signed.								

Key: 0=Neutral, 1=Slight, 2=Moderate, 3=Large

Impact on Community		0				1				2				3			
		+				-											

C – Construction O – Operation

<b>Is further appraisal required?</b>	
<b>Control, Mitigation and Enhancement Measures</b> (list measures aimed at mitigating against negative environmental impacts, enhance environmental benefits and control environmental risks)	
<b>Monitoring Systems</b> (Describe the checks that are in place to ensure that the control and mitigation measures outlined above are implemented correctly)	
<b>Environmental Consents, Licenses and Permits</b> (List any environmental consent, license and permit required for the works and explain how these will be obtained)	
<b>Staff environmental training</b> (List any staff environmental training required to ensure that control, mitigation and enhancement measures are carried out in a suitable manner. Describe timing and frequency of training)	

10	Built Environment	TfL				Contractor			
		YES	NO			YES	NO		
10.1	Would the project impact on the townscape?								
10.2	Would the project/scheme benefit from a Design Review and/or surgery? <i>Note: Design Review for projects over £2m is compulsory</i>								
10.3	Is the project/scheme compliant with TfL Streetscape Guidance?								

Key: 0=Neutral, 1=Slight, 2=Moderate, 3=Large

Impact on Community		C – Construction				O – Operation			
		0	1	2	3	0	1	2	3
		+							
		-							

<b>Is further appraisal required?</b>			
<b>Control, Mitigation and Enhancement Measures</b> (list measures aimed at mitigating against negative environmental impacts, enhance environmental benefits and control environmental risks)			
<b>Monitoring Systems</b> (Describe the checks that are in place to ensure that the control and mitigation measures outlined above are implemented correctly)			
<b>Environmental Consents, Licenses and Permits</b> (List any environmental consent, license and permit required for the works and explain how these will be obtained)			
<b>Staff environmental training</b> (List any staff environmental training required to ensure that control, mitigation and enhancement measures are carried out in a suitable manner. Describe timing and frequency of training)			

11	Cumulative Impacts	TfL				Contractor			
		YES	NO			YES	NO		
11.1	Will the project cumulatively cause adverse or positive impacts to any of the above if the evaluation took account of any other related project and / or schemes in the area?								

Key: 0=Neutral, 1=Slight, 2=Moderate, 3=Large

Impact on Community		C – Construction				O – Operation			
		0	1	2	3	0	1	2	3
		+							
		-							

<b>Is further appraisal required?</b>			
<b>Control, Mitigation and Enhancement Measures</b> (list measures aimed at mitigating against negative environmental impacts, enhance environmental benefits and control environmental risks)			
<b>Monitoring Systems</b> (Describe the checks that are in place to ensure that the control and mitigation measures outlined above are implemented correctly)			
<b>Environmental Consents, Licenses and Permits</b> (List any environmental consent, license and permit required for the works and explain how these will be obtained)			
<b>Staff environmental training</b> (List any staff environmental training required to ensure that control, mitigation and enhancement measures are carried out in a suitable manner. Describe timing and frequency of training)			

12	Hazardous Substances	TfL		Contractor	
		YES	NO	YES	NO
12.1	Will the works require the use of fuels, chemicals or other hazardous substances?				
	<b>If YES:</b> <ul style="list-style-type: none"> <li>Hazardous substances must be stored away from sensitive receptors such as watercourses, habitat areas and residences.</li> <li>Outside storage of oil (i.e. fuel) over 200 litres must comply with the Oil Storage Regulations</li> <li>Hazardous substances must be stored in a secure location within drip trays and/or bunds.</li> <li>Refuelling should be undertaken within a designated impermeable, bunded area or undertaken off site.</li> <li>Spill kits must be readily available.</li> </ul>				

<b>Is further appraisal required?</b>			
<b>Control, Mitigation and Enhancement Measures</b> (list measures aimed at mitigating against negative environmental impacts, enhance environmental benefits and control environmental risks)			
<b>Monitoring Systems</b> (Describe the checks that are in place to ensure that the control and mitigation measures outlined above are implemented correctly)			
<b>Environmental Consents, Licenses and Permits</b> (List any environmental consent, license and permit required for the works and explain how these will be obtained)			
<b>Staff environmental training</b> (List any staff environmental training required to ensure that control, mitigation and enhancement measures are carried out in a suitable manner. Describe timing and frequency of training)			

13	Waste	TfL		Contractor	
		YES	NO	YES	NO
13.1	<p>Will the works cost in excess of £300,000?</p> <p><u>If YES:</u></p> <ul style="list-style-type: none"> <li>Follow the relevant Pathway Waste Management product</li> <li>Contact the TfL Environmental Manager</li> <li>Site Waste Management Plan (SWMP) is required.</li> <li>Use the TfL Site Waste Management Plan Template</li> </ul>				
13.2	<p>Will the works generate waste?</p> <p><u>If YES:</u></p> <ul style="list-style-type: none"> <li>Ensure waste containers are not damaged and are suitable and safe for the type of waste.</li> <li>Ensure that all waste containers are clearly labelled</li> <li>Prevent dispersal of waste by wind, rain, animals or people.</li> <li>Store waste away from drains, water courses and trees</li> <li>Reduce the amount of waste created on site.</li> <li>Reuse materials on site wherever possible.</li> <li>Segregate waste for recycling</li> <li>Ensure that the company removing waste is registered as a Waste Carrier.</li> <li>Ensure that the waste is taken to an authorised waste facility</li> </ul>				
13.3	<p>Will the works generate hazardous waste, including contaminated soil?</p> <p><u>If YES:</u></p> <ul style="list-style-type: none"> <li>All hazardous waste must be segregated from general waste.</li> <li>Ensure that consignment notes are retained.</li> <li>If more than 500 KGs of hazardous waste is produced each year, then the site must be registered as a hazardous waste premises with the Environment Agency.</li> </ul>				

<b>Is further appraisal required?</b>		
<b>Control, Mitigation and Enhancement Measures</b> (list measures aimed at mitigating against negative environmental impacts, enhance environmental benefits and control environmental risks)		
<b>Monitoring Systems</b> (Describe the checks that are in place to ensure that the control and mitigation measures outlined above are implemented correctly)		
<b>Environmental Consents, Licenses and Permits</b> (List any environmental consent, license and permit required for the works and explain how these will be obtained)		
<b>Staff environmental training</b> (List any staff environmental training required to ensure that control, mitigation and enhancement measures are carried out in a suitable manner. Describe timing and frequency of training)		

14	Environmental Incidents	TfL		Contractor	
		YES	NO	YES	NO
14.1	<p>Has any polluting substance been spilled over land, into a drain or watercourse?</p> <p><u>If YES:</u></p> <ul style="list-style-type: none"> <li>Contact the Environment Agency</li> <li>Inform the TfL Environmental Manager</li> </ul>	n/a	n/a		
14.2	<p>Has any protected animal or habitat been harmed or damaged during the works?</p> <p><u>If YES:</u></p> <ul style="list-style-type: none"> <li>Contact the TfL Environmental Manager</li> <li>Contact the TfL Arboriculture and Landscape Manager</li> </ul>	n/a	n/a		
14.3	<p>Has any tree, planted area or grassed area been harmed or damaged during the works?</p> <p><u>If YES:</u></p> <ul style="list-style-type: none"> <li>Contact the TfL Arboriculture and Landscape Manager</li> </ul>	n/a	n/a		

<b>Is further appraisal required?</b>	n/a
<b>Control, Mitigation and Enhancement Measures</b> (list measures aimed at mitigating against negative environmental impacts, enhance environmental benefits and control environmental risks)	n/a
<b>Monitoring Systems</b> (Describe the checks that are in place to ensure that the control and mitigation measures outlined above are implemented correctly)	n/a
<b>Environmental Consents, Licenses and Permits</b> (List any environmental consent, license and permit required for the works and explain how these will be obtained)	n/a
<b>Staff environmental training</b> (List any staff environmental training required to ensure that control, mitigation and enhancement measures are carried out in a suitable manner. Describe timing and frequency of training)	n/a

**Approvals**

TfL				Contractor		
	Date		Completed by		Date	
TfL Environmental Manager				Contractor Environmental Manager		
	Date		Confirmed by		Date	
TfL Project Manager				Contractor Project Manager		
	Date		Issued to		Date	
TfL Arboriculture and Landscape Route Manager				TfL Arboriculture and Landscape Route Manager		
			Issued to		Date	
				Contractor Landscape Advisor		
			Issued to		Date	
				TfL Environmental Manager		

<p>Note to TfL Project Manager: Contact the TfL Environmental Manager if details of the project change.</p>	<p>Note to Contractor Project Manager: Contact the Contractor Environmental Advisor if the details of the project change</p>
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**Supporting Information (e.g. drawing, maps)**

## Appendix B: Relevant Planning and Transport Policies

The table below outlines the national, regional and local planning and transport policy documents which the Project supports.

Policy Document	Scale	Conformity with Policy
National Planning Policy Framework 2012	National	<p><b>Sustainable Development:</b> The planning system should secure more sustainable patterns of transport development. Improved accessibility to facilities such as walking, cycling and public transport should be encouraged. The Project will encourage access to cycling facilities.</p> <p><b>Planning and Climate Change:</b> Spatial planning should contribute to reducing carbon emissions and stabilising climate change (mitigation) and take into account the unavoidable consequences (adaptation). The Project will promote cycling which has no carbon emissions.</p> <p><b>Biodiversity and Geological Conservation:</b> Planning policies on the protection of biodiversity and geological conservation through planning decisions aim to maintain, enhance, restore or add to biodiversity and geological conservation interests. The Project's design will seek to maintain biodiversity and ensure that no adverse impacts on biodiversity will occur. Tree planting and landscape improvements are planned where possible.</p> <p><b>Transport:</b> Requirement to promote accessibility to jobs, shopping, leisure facilities and services by way of public transport, walking and cycling. The policy supports solutions to reduce greenhouse gas emissions and congestion giving priority to pedestrian and cycle movements. The policy also states that developments should create safe and secure layouts which minimise conflicts between traffic and cyclists or pedestrians; which this project clearly sets out to do. The Project is consistent with the aims of the policy as it will promote accessibility to jobs, shopping, leisure facilities and services by way of cycling.</p> <p><b>Planning and the Historic Environment:</b> There is a requirement that special attention should be paid to the desirability of preserving or enhancing the character or appearance of any conservation area. Developments with less than substantial harm to the significance of a designated heritage asset should be weighed against the public benefits of the proposal. This development will not cause an adverse negative impact on the conservation areas and there will be great benefits to the public. It is advised that development within the historic environment should be of a high quality design. The Project is to consider the preservation of the appearance of conservation areas and where possible aims to ensure that street furniture will be of a high quality design. There is a need to assess the possibility of archaeological remains being found if excavations are set to be carried out. Works on site must stop immediately if archaeology is found.</p> <p><b>Planning and Noise:</b> This policy framework guides local authorities on the use of their planning powers to minimise the adverse impact of noise. It outlines the considerations to be taken into account in determining planning applications both for noise-sensitive developments and for those activities which generate noise. The Contractors appointed to deliver the Project will be required to produce an Environmental Management Plan which amongst other things will need to address how noise is to be minimised during the Project's implementation phase.</p> <p><b>Development and Flood Risk:</b> The Policy framework ensures that flood risk is taken into account at all stages in the planning process to avoid inappropriate development in areas at risk of flooding, and to direct development away from areas at highest risk. The Project should seek to obtain the relevant Flood Defence consent if required.</p>

Policy Document	Scale	Conformity with Policy
Planning Policy Statement 10: Planning for Sustainable Waste Management (PPS10)	National	PPS10 helps deliver sustainable development through driving waste management up the waste hierarchy, addressing waste as a resource and looking to disposal as the last option, but one which must be adequately catered for. The Contractors appointed to deliver the Project will be required to produce a Site Waste Management Plan.
White Paper: The Future of Transport: A Network for 2030	National	The Paper, amongst other things, aims to make cycling a real alternative for local trips. The Project is designed to facilitate and promote bicycle trips, which would have otherwise been made by bus, tube or car.
The Eddington Transport Strategy	National	The Report examines the long-term links between transport and the UK's economic productivity, growth and stability, within the context of the Government's broader commitment to sustainable development. The Report demonstrates that small-scale interventions such as cycling are often the most cost-effective solutions.
Sustainable Future for Cycling	National	The Report recognises the important contribution of cycling as a sustainable form of transport and how cycling contributes to every one of the five goals set out in Towards a Sustainable Transport System: Supporting Economic Growth in a Low Carbon World, namely: competitiveness and productivity, climate change; health, security and safety; quality of life; and equality of opportunity.
The Mayor's Transport Strategy (March 2012)	Regional (London)	The Strategy recognises that transport investment in new major projects such as those that promote and encouraging cycling is required to achieve sustainable growth. The Strategy also recognises the health benefits of cycling.
Way to Go! (November 2008)	Regional (London)	Publication which outlines the Mayor's vision for transport and intended revisions to the Transport Strategy. The Publication makes specific reference to the previous and ongoing Cycle Superhighway projects.
The Mayor's Transport Strategy (Public Draft, October 2009-January 2010)	Regional (London)	Publication which outlines London's transport strategy. The Publication makes specific reference to the previous and ongoing Cycle Superhighway projects.
London Cycle Action Plan (February 2004)	Regional (London)	The Plan sets out measures to help achieve the Mayor's vision of developing London as an exemplary sustainable world city. In particular the Plan seeks to increase cycle accessibility, safety and priority. It gives support to innovative cycle Projects and it seeks to promote cycling and its status.
Living Well in London – The Mayor's Draft Health Equalities Strategy for London (January 2008)	Regional (London)	The Draft Strategy sets out a framework to reduce health inequalities. In doing so it seeks to develop and promote London as a healthy place for all through the provision of high quality cycling opportunities, continued investment in sustainable modes of transport and the planning of developments that are sustainable.
The London Plan 2011 (revised early minor alterations REMA 2013)	Regional (London)	The Plan places importance on sustainable development that takes into account impacts on natural resources, environmental and cultural assets and the health of local people. REMA states that new development should be supported by necessary and accessible health and social infrastructure. The Plan also seeks to achieve an increase in the capacity, quality and integration of public transport in London, support shifts to more sustainable modes of transport and improve the provision of cycling facilities.

Policy Document	Scale	Conformity with Policy
<i>Planning for a Better London</i> (published July 2008)	Regional (London)	The Report sets out the Mayor's strategic thinking and outlines key areas to be covered in what is now the new revision of the London Plan (2011). The Report further highlights the importance of establishing a strategic planning framework supportive of cycling.
The London Plan (Consultation draft replacement plan, October 2009)	Regional (London)	Publication which outlines London's land-use strategy. The Publication makes specific reference to the previous and ongoing Cycle superhighway projects.
The Mayor of London Air Quality Strategy	Regional (London)	The Strategy presents policies and proposals aimed at improving London's air quality. Measures seek to facilitate a major improvement in public transport capacity, and encourage a shift from car travel towards cycling and other sustainable forms of travel. The Project will promote cycling and as such will support the Strategy.
Clearing the air (The Mayor's draft Air Quality Strategy for consultation with the London Assembly and functional bodies, October 2009)	Regional (London)	The Strategy sets measures to reduce concentrations of particulate matter (PM10) and nitrogen dioxide (NO2). The Publication makes specific reference to the previous and ongoing Cycle Superhighway projects.
The Mayor of London Noise Ambient Strategy	Regional (London)	The Strategy seeks to actively manage long term noise, mainly from transport sources. The Strategy recognises that modal shift away from motorised vehicles, towards cycling for instance, can contribute to a reduction of transport related noise. The Project will promote cycling and as such will support the Strategy.
The Mayor of London Biodiversity Strategy	Regional (London)	The Strategy seeks to ensure that there is no overall loss of wildlife habitats in London, and that more open spaces are created and made accessible to all Londoners. The Project will not take away green areas but has an aim of introducing improvements to urban realm (including 'greening').
The Mayor of London Climate Change Action Plan	Regional (London)	The Plan recommends key actions to help London and Londoners tackle climate change. Cycling is recognised as one measure that can help reduce transport related carbon emissions. The Project will promote cycling and in doing so it will support the Plan.
The Mayors vision of cycling in London	Regional (London)	The Mayor wants to attract and encourage cycling in London. By planning to create segregated cycle lanes the protection of cyclists, through their own dedicated space along the route, is seen as attractive, comfortable and safe. The cycle superhighway routes are labelled as "a Crossrail for the bike". The project will adhere to the Mayors vision of cycling in London.
Cycling Revolution London strategy, published in 2010	Regional (London)	This strategy advertises cycling as a major transport mode right across the capital, from central London to the outer boroughs. It supports the creation of streets and spaces where everyone respects each other's right to use the road and as a result reduce cycling casualties. It aims to promote cycling as an enjoyable, everyday, healthy activity. It states that cycling needs to be embedded into the way the city is planned and run. The project will accomplish these points.



Policy Document	Scale	Conformity with Policy
The Southwark Plan	Local (Southwark)	The Plan sets out to provide adequate conditions for pedestrians and cyclists including restrictions to parking and the promotion of walking and cycling. The Plan includes providing more direct, safe and secure walking and cycling routes, integrating with surrounding networks where possible and furthering the delivery of the London Cycle Network.
London Borough of Southwark Unitary Development Plan (UDP)	Local (Southwark)	The Plan seeks to encourage cycling and improve conditions for cyclists. It states that cycling is a convenient, healthy, non-polluting and non-congesting means of travel which should be encouraged and positive action is needed to make it attractive, and, above all, safe. The Plan also seeks to provide for the needs of essential road traffic, improve road safety and reduce the impacts on the environment. Therefore the Plan seeks to restrain the unnecessary use of the private car in order to achieve a more balanced road space between users. The Project has the potential to reduce traffic through encouraging and promoting cycling and thus is consistent with the Plan.
City of London Unitary Development Plan (UDP)	Local (City of London)	The Plan seeks to achieve a reduction in the overall level of traffic in the City in order to allow for more efficient public transport operations and improve air quality, the general environment and safety. The Plan also encourages additional and improved capacity in public transport services. The Project, by providing for a sustainable mode of travel is consistent with the UDP's public transport strategy.
City of London Local Development Framework (LDF)	Local (City of London)	The Preferred Options Paper outlines a number of preferred policy approaches for the future development of the City of London. Some approaches seek to ensure that the impact on the environment of travel in and through the City is minimised. Other options seek to improve sustainability, integration, reliability, safety, capacity and accessibility of all modes of public transport. The Project, through providing for a sustainable mode of transport is thus consistent with the Plan.
City of London Local Implementation Plan (LIP)	Local (City of London)	The Plan highlights a need to promote and encourage cycling and improvements to cycling facilities. The Project, through promoting cycling and improving cycling facilities is consistent with the Plan.
Camden Local Development Framework (LDF) (replacing UDP) Includes Core Strategy, Development Policies	Local (Camden)	Camden wants to have a safe and healthy population. Walking and cycling should be easier and safer; the public transport system will continue to be improved; and congestion and high levels of pollution will continue to be reduced. The Framework reads that development should make suitable provision for pedestrians, cyclists and public transport. Within the framework the Core Strategy promotes the use of walking, cycling, low emission vehicles, car clubs and pool cars as alternatives to the use of private cars. The Project has the potential to encourage cycling thereby contributing to improving the air quality; therefore this project is consistent with the plan.

**Appendix C: Evaluation of Conservation Areas**

<b>Conservation Area</b>	<b>Conservation Area Key Characteristics (Source Local Authority)</b>	<b>Impact on Conservation Area's Character</b>
<p><b>West Square</b> (TLRN Southwark)</p>	<p>The West Square Conservation Area was designated by Southwark Council on 17th September 1971 as a conservation area, under the Civic Amenities Act of 1967. The West Square Conservation Area is a mixed area containing a number of notable terraces of good quality late Georgian and mid-19th century houses, with a number of significant public buildings. The Imperial War Museum, with its surrounding parkland; Geraldine Mary Harmsworth Park, is the centrepiece of the conservation area. St George's Roman Catholic Cathedral is another important building.</p>	<p>Overall, the impact of the Project on this conservation area is <u>neutral</u> as the project maintains the existing historic character of the townscape; has no appreciable impacts, either positive or negative, on any known or potential heritage assets; and does not result in severance or loss of integrity, context or understanding within the historic landscape.</p>
<p><b>St George's Circus</b> (TLRN Southwark)</p>	<p>This area was originally an area of common marshland known as Southwark Fields and then St George's Fields after the nearby church of St. George the Martyr. It remained as agricultural land until the end of the 18th century until housing was built. St. George's Circus is important historically as forming part of an example of Georgian town planning on the grand scale. The development of St. George's Circus followed the opening of Blackfriars Bridge in 1769. The conservation area was designated on 23 October 2000.</p>	<p>Overall, the impact of the Project on this conservation area is <u>neutral</u> as the project maintains the existing historic character of the townscape; has no appreciable impacts, either positive or negative, on any known or potential heritage assets; and does not result in severance or loss of integrity, context or understanding within the historic landscape.</p>

Conservation Area	Conservation Area Key Characteristics (Source Local Authority)	Impact on Conservation Area's Character
<p style="text-align: center;"><b>Whitefriars</b> (TLRN City of London)</p>	<p>The area was designated a Conservation Area in 1981 and extended in 1991. From the 12th century the western boundary was established by the Temple. The earliest established occupation of the area was by the Carmelite Friary (Whitefriars) from c.1250. From the 12th Century the area has been used and developed to accommodate the changing commerce of the area; providing Embankments and workshop buildings.</p>	<p>Overall, the impact of the Project on this conservation area is <u>neutral</u> as the project maintains the existing historic character of the townscape; has no appreciable impacts, either positive or negative, on any known or potential heritage assets; and does not result in severance or loss of integrity, context or understanding within the historic landscape.</p>
<p style="text-align: center;"><b>Fleet Street</b> (TLRN City of London)</p>	<p>Part of the present Fleet Street Conservation Area was designated in 1971 as 'Fleet Street South' and was extended substantially in 1981 to include the whole length of Fleet Street. It is likely that the alignment of Fleet Street originates from the Roman period. Fleet Street has always been a highly important route and from the 13th century was flanked by ecclesiastical land and 'inns'. The street itself soon became lined with houses, shops and taverns. There was a gradual rebuilding of properties after the fire with the increasing introduction of architectural variety leading to some of the richest and most elaborate buildings in Fleet Street being constructed in the late 19th and early 20th centuries. Consequently the area contains buildings of distinction, many of which are listed, and encompassing a wide range of periods, designs and materials.</p>	<p>Overall, the impact of the Project on this conservation area is <u>neutral</u> as the project maintains the existing historic character of the townscape; has no appreciable impacts, either positive or negative, on any known or potential heritage assets; and does not result in severance or loss of integrity, context or understanding within the historic landscape.</p>

Conservation Area	Conservation Area Key Characteristics (Source Local Authority)	Impact on Conservation Area's Character
<p style="text-align: center;"><b>Smithfield</b> (TLRN City of London)</p>	<p>Formed from a combination of smaller conservation areas becoming Smithfield Conservation Area by the Corporation in 1991. Originally known as 'Smoothfield', it was a flat grassy area of high ground to the north-west of the City outside the City walls. Smithfield became one of several locations for cemeteries during the Roman occupation. Smithfield Conservation Area is notable in that, to the present day, much of its physical character is derived not just from its topography, but also the presence of institutions and activities which have been associated with the area for several centuries-building of St Bartholomew's Hospital, Meat Markets, and replacement of buildings with Victorian and Edwardian buildings.</p>	<p>Overall, the impact of the Project on this conservation area is <u>neutral</u> as the project maintains the existing historic character of the townscape; has no appreciable impacts, either positive or negative, on any known or potential heritage assets; and does not result in severance or loss of integrity, context or understanding within the historic landscape.</p>
<p style="text-align: center;"><b>Charterhouse Square</b> (TLRN City of London)</p>	<p>Originally designated in 1994 and then re-designated in 2007.</p> <p>The area comprises of a range of buildings that act as an important transition between the varied and richly historic character of Charterhouse Square, the railway infrastructure and large modern buildings to the south. The area incorporates the cutting, platforms and associated structure of the former Aldersgate Street Station (now Barbican Station), part of a major Victorian engineering project associated with London's first underground railway line. The area is focused on an intact group of Victorian buildings with a distinctive industrial character illustrated by their large windows and a range of surviving features. The streetscape is defined by robust brick and Portland Stone masonry buildings with consistent building heights and rooflines.</p>	<p>Overall, the impact of the Project on this conservation area is <u>neutral</u> as the project maintains the existing historic character of the townscape; has no appreciable impacts, either positive or negative, on any known or potential heritage assets; and does not result in severance or loss of integrity, context or understanding within the historic landscape.</p>

Conservation Area	Conservation Area Key Characteristics (Source Local Authority)	Impact on Conservation Area's Character
<p><b>Hatton Garden</b> (LA Road Camden)</p>	<p>A number of features from the 13th-16th century are still present. 17th century construction of the Hatton Estate which contained streets laid out in an intersecting grid pattern. After the estate became occupied by prosperous merchants (properties consisted of regular brick face Georgian terraces). 19th century- was mainly a residential area. Late 19th century- jewellery and diamond trade and clock and watch industries. 20th century high quality buildings built</p>	<p>Overall, the impact of the Project on this conservation area is <u>neutral</u> as the project maintains the existing historic character of the townscape; has no appreciable impacts, either positive or negative, on any known or potential heritage assets; and does not result in severance or loss of integrity, context or understanding within the historic landscape.</p>
<p><b>Bloomsbury</b> (LA Road Camden)</p>	<p>Bloomsbury is widely considered to be an internationally significant example of town planning. The original street layouts, which employed the concept of formal landscaped squares and an interrelated grid of streets to create an attractive residential environment, remain a dominant characteristic of the area. The building of Covent Garden was a key architectural development which strongly influenced the form of Bloomsbury.</p>	<p>Overall, the impact of the Project on this conservation area is <u>neutral</u> as the project maintains the existing historic character of the townscape; has no appreciable impacts, either positive or negative, on any known or potential heritage assets; and does not result in severance or loss of integrity, context or understanding within the historic landscape.</p>
<p><b>King's Cross St Pancras</b> (LA Road Camden)</p>	<p>The Conservation Area contains some of the most important historic buildings and structures in the country and has areas of great interest and variety. The area is known for its residential developments. Kings cross station was completed mid-1800s and when it opened it was the largest railway station in Britain. Midland Railway began the development of St Pancras Station soon after. Whilst parts of the King's Cross Conservation Area are dominated by the stations and the area's function as a gateway to Central London, there is great variety in the character and appearance of the area as a whole.</p>	<p>Overall, the impact of the Project on this conservation area is <u>neutral</u> as the project maintains the existing historic character of the townscape; has no appreciable impacts, either positive or negative, on any known or potential heritage assets; and does not result in severance or loss of integrity, context or understanding within the historic landscape.</p>

Conservation Area	Conservation Area Key Characteristics (Source Local Authority)	Impact on Conservation Area's Character
<p><b>Keystone Crescent</b> (LA Road Islington)</p>	<p>The area was developed with terraces of housing between 1830 and 1850, partly in response to the new link (Caledonian Road) between the New Road (Euston Road - Pentonville Road) and the Holloway area. Much of the development is contemporary with this and also with the coming of the Regent's Canal (1820) and King's Cross Railway Station (1852), both of which acted as stimuli to industrial development to the north and west of the area. This area remains visually of undoubted coherent character and is largely unchanged since it was first laid out.</p>	<p>Overall, the impact of the Project on this conservation area is <u>neutral</u> as the project maintains the existing historic character of the townscape; has no appreciable impacts, either positive or negative, on any known or potential heritage assets; and does not result in severance or loss of integrity, context or understanding within the historic landscape.</p>
<p><b>Rosebery Avenue</b> (LA Road Islington)</p>	<p>The conservation area is centred around Rosebery Avenue, which was constructed in 1896 as a new diagonal road artery from Central London, although the conservation area also includes Exmouth Market which is a much older street. From the Warner Street bridge to the New River Head, Rosebery Avenue is lined by many excellent examples of fin-de-siècle and Edwardian architecture, including Finsbury Town Hall (1896), the original fire station (1897) and its LCC replacement (1911). Several residential blocks have impressive gables and pinnacles and a fine metropolitan scale.</p>	<p>Overall, the impact of the Project on this conservation area is <u>neutral</u> as the project maintains the existing historic character of the townscape; has no appreciable impacts, either positive or negative, on any known or potential heritage assets; and does not result in severance or loss of integrity, context or understanding within the historic landscape.</p>

Conservation Area	Conservation Area Key Characteristics (Source Local Authority)	Impact on Conservation Area's Character
<p style="text-align: center;"><b>King's Cross</b> (LA Road Camden)</p>	<p>The area is a reflection of the contemporary impact of the railways as much development is of a similar period to King's Cross Station (1852), and some parts of the area (particularly in York Way) clearly reflect the impact of the arrival of the canal and the railways. There is a variety of buildings in terms of architectural styles and scales. The buildings have a variety of uses, especially at ground level. In Islington the Set Piece includes the junctions with York Way and Caledonian Road, the Lighthouse block and the curve of Grays Inn Road as it meets Euston Road. It is a remarkable survival of a complete early to mid-19th Century central area townscape. The area can be seen as an intact Victorian 'town centre' displaying a hierarchy of buildings and uses from offices, flats, larger shops and entertainment, via local shops with accommodation above, down to terraces of small houses and industrial premises.</p>	<p>Overall, the impact of the Project on this conservation area is <u>neutral</u> as the project maintains the existing historic character of the townscape; has no appreciable impacts, either positive or negative, on any known or potential heritage assets; and does not result in severance or loss of integrity, context or understanding within the historic landscape.</p>
<p style="text-align: center;"><b>New River</b> (LA Road Islington)</p>	<p>The New River Conservation Area is one of the largest in Islington, and is of outstanding importance. The area includes the site of the New River Head, with its historic industrial and water buildings and Sadler's Wells Theatre, while the rest of the area mainly comprises late 18th and early 19th century residential estates built by the New River Company, the Brewer's Company and the Lloyd Baker Estate. These include some of the finest terraces and squares in the Borough. The area has a rare quality and consistency of scale, materials, design and detailing which require careful and sensitive policies for its protection and enhancement.</p>	<p>Overall, the impact of the Project on this conservation area is <u>neutral</u> as the project maintains the existing historic character of the townscape; has no appreciable impacts, either positive or negative, on any known or potential heritage assets; and does not result in severance or loss of integrity, context or understanding within the historic landscape.</p>

Conservation Area	Conservation Area Key Characteristics (Source Local Authority)	Impact on Conservation Area's Character
<p><b>Regent's Canal West</b> (LA Road Islington)</p>	<p>The Regent's Canal was completed in 1820 and forms part of the first industrial transport network constructed to serve wide areas of the country. It met with immediate success and resulted in the construction of wharves along most of one bank and around Battlebridge Basin (opened in the same year as the canal). The other bank had to accommodate a towpath for the horses to pull the canal boats. The warehouses and industrial buildings reached the water's edge for the most part, facilitating the hoisting of goods and materials directly into or out of the canal boats. It is these characteristics - the wharf buildings rising sheer from the canal's edge and the canal towpath clearly separated from adjoining development - that still mark out the special character of the canal and basin today.</p>	<p>Overall, the impact of the Project on this conservation area is <u>neutral</u> as the project maintains the existing historic character of the townscape; has no appreciable impacts, either positive or negative, on any known or potential heritage assets; and does not result in severance or loss of integrity, context or understanding within the historic landscape.</p>
<p><b>Clerkenwell Green</b> (LA Road Islington)</p>	<p>The Clerkenwell and Smithfield area has the longest history of any part of the borough. It has a special character and appearance which stems from its mix of uses, its architecture and its history, which justifies its conservation area status. The Government Office for London has accepted that this area has a special character, which is of importance to London as a whole.</p>	<p>Overall, the impact of the Project on this conservation area is <u>neutral</u> as the project maintains the existing historic character of the townscape; has no appreciable impacts, either positive or negative, on any known or potential heritage assets; and does not result in severance or loss of integrity, context or understanding within the historic landscape.</p>



**Appendix D: List of Listed Buildings and Structures**

<b>ID</b>	<b>Building or Structure</b>	<b>Street</b>	<b>Grade</b>
1	NUMBER 34B	YORK WAY	II
2	NUMBERS 295 AND 297	PENTONVILLE ROAD	II
3	WILLING HOUSE AND ATTACHED WALL WITH RAILINGS	GRAYS INN ROAD	II
4	NUMBERS 1-7 AND ATTACHED RAILINGS INCLUDING MIDLAND HOTEL (NUMBERS 2-5) AND CLIFTON HOTEL (NUMBER 7)	ST CHADS STREET	II
5	NUMBERS 13 AND 14 AND ATTACHED RAILINGS	ST CHADS STREET	II
6	NUMBER 75	WICKLOW STREET	II
7	NUMBER 64, QUEENS HEAD PUBLIC HOUSE (NUMBER 66), NUMBER 68 AND ATTACHED RAILINGS	ACTON STREET	II
8	NUMBERS 53 AND 55 AND ATTACHED RAILINGS	ACTON STREET	II
9	NUMBERS 54-72 AND ATTACHED RAILINGS	FREDERICK STREET	II
10	NUMBERS 33-49 AND ATTACHED RAILINGS	FREDERICK STREET	II
11	NUMBERS 18-36 AND ATTACHED RAILINGS	AMPTON STREET	II
12	NUMBERS 31-51 AND ATTACHED RAILINGS	ACTON STREET	II
13	NUMBERS 48, 50 AND 52 AND ATTACHED RAILINGS	FREDERICK STREET	II
14	NUMBERS 42, 44 AND 46 AND ATTACHED RAILINGS	FREDERICK STREET	II
16	NUMBERS 4, 5 AND 6 AND ATTACHED RAILINGS	AMPTON PLACE	II
17	NUMBER 29 AND ATTACHED RAILINGS	FREDERICK STREET	II
18	NUMBERS 34-40 AND ATTACHED RAILINGS	FREDERICK STREET	II
19	NUMBERS 19-29 AND ATTACHED RAILINGS	ACTON STREET	II
20	NUMBERS 28, 30 AND 32 AND ATTACHED RAILINGS	FREDERICK STREET	II
21	NUMBERS 9-27 AND ATTACHED RAILINGS	FREDERICK STREET	II
22	NUMBERS 15 AND 17 AND ATTACHED RAILINGS	ACTON STREET	II
23	NUMBERS 12-26 AND ATTACHED RAILINGS	FREDERICK STREET	II
24	NUMBERS 7-13 AND ATTACHED RAILINGS	ACTON STREET	II
25	NUMBERS 1-7 AND ATTACHED RAILINGS	FREDERICK STREET	II
26	NUMBER 34 AND ATTACHED RAILINGS	CUBITT STREET	II
27	NUMBER 65 AND ATTACHED RAILINGS	CUBITT STREET	II
28	FIELD LANE FOUNDATION CENTRE	CUBITT STREET	II
29	NUMBERS 45-63 AND ATTACHED RAILINGS	KINGS CROSS ROAD	II
30	NUMBERS 45, 47 AND 49	CALTHORPE STREET	II
31	NUMBER 3 AND ATTACHED RAILINGS	STAMFORD STREET	II
32	NUMBER 2 AND ATTACHED RAILINGS	PAKENHAM STREET	II
33	PAKENHAM ARMS PUBLIC HOUSE	PAKENHAM STREET	II
34	NUMBER 50	CALTHORPE STREET	II
35	NUMBERS 23-43 AND ATTACHED RAILINGS	CALTHORPE STREET	II
36	NUMBERS 28-48 AND ATTACHED RAILINGS	CALTHORPE STREET	II
37	NUMBERS 47-57 AND ATTACHED RAILINGS	MOUNT PLEASANT	II

ID	Building or Structure	Street	Grade
38	APPLE TREE PUBLIC HOUSE	MOUNT PLEASANT	II
39	ROSEBERY AVENUE BRIDGE VIADUCT (THAT PART IN ISLINGTON)	WARNER STREET	II
40	ROSEBERY AVENUE VIADUCT, THAT PART IN THE LONDON BOROUGH OF CAMDEN	WARNER STREET	II
41	BOLLARD ADJACENT TO NUMBER 1	HERBAL HILL	II
42	ROMAN CATHOLIC ITALIAN CHURCH OF ST PETER	CLEKENWELL ROAD	II*
43	NUMBERS 25 AND 27	FARRINGDON ROAD	II
44	ST ANDREWS HOUSE	SAFFRON HILL	II
45	BRIDGE OR VIADUCT OVER FARRINGDON STREET	HOLBORN VIADUCT EC1	II
46	NUMBERS 24 AND 25	HOLBORN VIADUCT EC1	II
47	NUMBER 26 (FORMERLY KNOWN AS NUMBERS 26 AND 27)	FARRINGDON STREET EC4	II
48	HOOP AND GRAPES PUBLIC HOUSE	FARRINGDON STREET	II
49	THE PUNCH TAVERN AND OFFICES ABOVE	FLEET STREET	II
50	NUMBERS 16 AND 17	BRIDGE LANE EC4	II
51	NUMBER 2	BRIDEWELL PLACE EC4	II
52	NUMBER 12	BRIDEWELL PLACE EC4	II
53	FORMER OFFICES OF THE BRIDEWELL HOSPITAL	NEW BRIDGE STREET EC4	II*
54	NUMBER 15	NEW BRIDGE STREET EC4	II
55	BLACKFRIARS HOUSE	NEW BRIDGE STREET EC4	II
56	THE BLACK FRIAR PUBLIC HOUSE	QUEEN VICTORIA STREET EC4	II*
57	UNILEVER HOUSE	NEW BRIDGE STREET EC4	II
58	UNILEVER HOUSE	VICTORIA EMBANKMENT EC4	II
59	DRINKING FOUNTAIN ON EAST SIDE OF ROAD AT NORTH END OF BRIDGE	BLACKFRIARS BRIDGE	II
60	K2 TELEPHONE KIOSK	BLACKFRIARS BRIDGE	II
61	STATUE OF QUEEN VICTORIA AT APPROACH TO BLACKFRIARS BRIDGE	VICTORIA EMBANKMENT EC4	II
62	BLACKFRIARS BRIDGE	BLACKFRIARS BRIDGE EC4	II
63	NUMBER 3 AND ATTACHED RAILINGS	PAKENHAM STREET	II
64	NUMBER 1 AND ATTACHED RAILINGS	STAMFORD STREET	II
65	GATEPOSTS AND RAILINGS AT NUMBER 74	BLACKFRIARS ROAD	II
66	NUMBER 74	BLACKFRIARS ROAD	II
67	NUMBERS 75-78 AND ATTACHED RAILINGS	BLACKFRIARS ROAD	II
68	NUMBERS 81, 82 AND 8 AND ATTACHED RAILINGS	BLACKFRIARS ROAD	II

<b>ID</b>	<b>Building or Structure</b>	<b>Street</b>	<b>Grade</b>
69	NUMBERS 85 AND 86 INCLUDING RAILINGS	BLACKFRIARS ROAD	II
70	PEABODY ESTATE	BLACKFRIARS ROAD	II
71	OBELISK AT THE CENTRE OF ST GEORGE'S CIRCUS	ST GEORGE'S CIRCUS	II*
72	THE DUKE OF CLARENCE PUBLIC HOUSE	LONDON ROAD	II
73	THE ELIZABETH BAXTER HOSTEL AND ATTACHED RAILINGS	LAMBETH ROAD	II
74	FORMER CHURCH OF ST JUDE	ST GEORGES ROAD	II
75	NUMBERS 63-83	ST GEORGES ROAD	II
76	KINGS CROSS STATION	EUSTON ROAD	I
77	NUMBERS 55-67 AND ATTACHED RAILINGS INCLUDING THE KINGS HEAD PUBLIC HOUSE (NUMBERS 61-63)	SWINTON STREET	II
78	ST BRIDES FOUNDATION INSTITUTE AND LIBRARY	BRIDE LANE	II
79	K2 TELEPHONE KIOSK AT JUNCTION WITH ST GEORGES ROAD	WESTMINSTER BRIDGE ROAD	II
80	LAURIE TERRACE AND RAILINGS	ST GEORGES ROAD	II

**Appendix E: Scheduled Monuments**

ID	Scheduled Monument
1	The Jewel Tower
2	The Chapter House and Pyx Chamber in the abbey cloisters, Westminster Abbey
2	The Chapter House and Pyx Chamber in the abbey cloisters, Westminster Abbey
3	Inner Temple Hall Buttery
4	Barnard's Inn Hall (Mercers' School)
5	Benedictine nunnery of St Mary, Clerkenwell
6	Apothecaries' Hall
7	Stationers' Hall
8	London Wall: section of Roman wall at the Central Criminal Court, Old Bailey
9	London Wall: site of Newgate and 121-124 Newgate Street, remains of Roman and Bastion
9	London Wall: site of Newgate and 121-124 Newgate Street, remains of Roman and Bastion
10	Baynard's Castle, 78m south-west of St Benet Metropolitan Welsh Church
11	The London Greyfriars, site of, Newgate Street, Farringdon
12	London Wall: section of Roman wall and medieval bastion in Postman's Park and King Edward Street
13	London Wall: section of Roman wall and Roman, medieval and post-medieval gateway at Aldersgate
14	London Wall: section of Roman and medieval wall and bastion at Noble Street
15	Goldsmiths' Hall
16	London Wall: the west gate of Cripplegate fort and a section of Roman wall in London Wall underground car park, adjacent to Noble Street
17	London Wall: section of Roman and medieval wall and bastions, west and north of Monkwell Square
18	London Wall: site of the Roman and medieval gateway of Cripple Gate
19	London Wall: section of Roman and medieval wall at St Alphage Garden, incorporating remains of St Alphage's Church
20	London Wall: remains of Roman fort wall and east gate under Aldermanbury
20	London Wall: remains of Roman fort wall and east gate under Aldermanbury
21	Roman amphitheatre, Guildhall Yard
22	London Wall: section of Roman wall within the London Wall underground car park, 25m north of Austral House and 55m north west of Coleman Street
23	Armourers' and Brasiers' Hall
24	London Wall: remains of Roman wall and conduit and medieval postern, Bloomfield House to site of Moor Gate

ID	Scheduled Monument
25	London Wall: remains of Roman and medieval wall from W end of All Hallows Church to 38 Camomile Street
26	London Wall: remains of Roman wall and bastion, Camomile Street
27	London Wall: remains of Roman wall and bastion, Goring Street
28	London Wall: remains of Roman wall from Sir John Cass College to Bevis Marks
28	London Wall: remains of Roman wall from Sir John Cass College to Bevis Marks
29	London Wall: section in Roman Wall House, Crutched Friars
30	Priory and Hospital of St Mary Spital
31	Merchant Taylors' Hall
31	Merchant Taylors' Hall
33	Remains of St Pancras Church, Pancras Lane
34	Huggin Hill Roman bath house, 120m WNW of St James's Church
35	Painter Stainers' Hall
36	Smiths' Wharf
37	Queenhithe dock
38	Vintners' Hall
39	Tallow Chandlers' Hall
40	Skinners' Hall
41	Dyers' Hall
42	Innholders' Hall
43	Roman governor's palace (site of)
44	Fishmongers' Hall
45	Monument
46	Structures of archaeological interest below Billingsgate Market
47	Watermen's Hall
48	Roman hypocaust and building on site of Coal Exchange
49	London Wall: remains of medieval and Roman wall extending 75yds (68m) N from Trinity Place to railway
50	London Wall (remains of medieval wall by Tower Hill station)
51	Tower Hill West
51	Tower of London
52	Rose Court, Southwark
53	The Globe Theatre
54	Remains of Winchester Palace, Clink Street and waterfront
55	Roman riverboat, 136m west of Greenwood Theatre
56	Abbey buildings, Bermondsey
57	London Wall: section bounding All Hallows Churchyard
58	Remains of Roman and medieval wall and gateway W of boundary of Stationers' Hall to Ludgate Hill
59	London Wall: section in Amen Court

## Appendix F: Noise Calculations

ID	Length (km)	Do-Minimum (DM)				Do-Something (DS)				Difference DS- DM (L <sub>A10 18h</sub> dB)	Type of Impact
		AAWT	%H GV	Speed (km/h)	BNL L <sub>A10 18h</sub> dB	AAWT	%H GV	Speed (km/h)	BNL L <sub>A10 18h</sub> dB		
0	0.144	5525	3	20*	63	1214	1	24	52.9	-9.7	Major Beneficial
1	0.176	5525	3	36	63	1214	1	36	53.5	-9.0	Major Beneficial
2	0.096	2666	3	20*	60	1176	3	20*	54.4	-5.2	Major Beneficial
3	0.083	6172	6	20*	65	3279	5	20*	61.5	-3.6	Moderate Beneficial
4	0.236	2931	6	22	61	2546	1	24	57.9	-3.4	Moderate Beneficial
5	0.056	6172	6	36	64	3279	5	36	61.0	-3.4	Moderate Beneficial
6	0.034	28414	5	20*	71	12184	5	20*	67.6	-3.3	Moderate Beneficial
7	0.147	2999	3	20*	60	1936	2	20*	56.7	-3.1	Moderate Beneficial
8	0.098	10014	5	20*	66	4224	7	20*	63.5	-2.8	Minor Beneficial
9	0.08	13922	5	20*	68	7486	5	20*	65.3	-2.6	Minor Beneficial
10	0.34	29284	5	34	71	16452	5	36	68.2	-2.4	Minor Beneficial
11	0.256	4624	4	26	62	2163	6	20*	59.9	-2.4	Minor Beneficial
12	0.126	12873	4	41	67	8666	2	41	64.8	-2.2	Minor Beneficial
13	0.08	2804	5	29	60	1512	10	29	58.3	-2.1	Minor Beneficial
14	0.017	23760	5	20*	70	15245	5	20*	68.4	-2.0	Minor Beneficial
15	0.13	6238	4	23	63	3908	4	22	61.5	-2.0	Minor Beneficial
16	0.131	2811	5	22	61	1520	10	23	58.9	-1.9	Minor Beneficial
17	0.249	9381	4	21	66	5364	6	21	63.9	-1.9	Minor Beneficial
18	0.018	2811	5	20*	61	1520	10	20*	59.3	-1.8	Minor Beneficial
19	0.159	8431	5	20*	66	4869	6	20*	63.9	-1.8	Minor Beneficial
20	0.05	17356	5	35	68	10275	6	35	66.6	-1.8	Minor Beneficial
21	0.179	17353	5	33	68	10269	6	34	66.6	-1.7	Minor Beneficial
22	0.05	17359	5	32	68	10281	6	32	66.6	-1.7	Minor Beneficial
23	0.103	1249	15	20*	59	1246	9	20*	57.6	-1.7	Minor Beneficial
24	0.051	17359	5	21	69	10281	6	21	67.1	-1.7	Minor Beneficial
25	0.074	5803	4	20*	64	3453	5	20*	61.9	-1.6	Minor Beneficial
26	0.04	5803	4	20*	64	3453	5	20*	61.9	-1.6	Minor Beneficial
27	0.101	17061	5	20*	69	10237	6	20*	67.2	-1.6	Minor Beneficial
28	0.088	4208	4	22	62	2999	4	22	60.5	-1.5	Minor Beneficial
29	0.149	10018	4	35	66	6305	5	35	64.0	-1.5	Minor Beneficial
30	0.083	6163	4	31	63	4144	4	31	61.8	-1.5	Minor Beneficial
31	0.04	7024	3	20*	64	4803	3	20*	62.3	-1.4	Minor Beneficial
32	0.254	1249	15	35	58	1246	9	35	56.8	-1.4	Minor Beneficial
33	0.119	10018	4	24	65	6305	5	25	64.0	-1.4	Minor Beneficial
34	0.198	3827	4	20*	62	2769	5	20*	60.6	-1.3	Minor Beneficial
35	0.177	16802	5	22	68	12664	5	23	67.1	-1.2	Minor Beneficial
36	0.053	10673	4	21	66	6800	5	20*	64.9	-1.2	Minor Beneficial
37	0.476	21847	5	31	69	16816	5	28	68.1	-1.1	Minor Beneficial
38	0.156	5330	2	28	62	3678	3	28	60.7	-1.1	Minor Beneficial
39	0.308	10182	3	35	65	8354	3	35	64.3	-1.1	Minor Beneficial
40	0.186	2646	6	20*	61	2317	5	20*	60.0	-1.0	Minor Beneficial
41	0.249	29136	4	26	70	21040	5	30	69.1	-1.0	Minor Beneficial

ID	Length (km)	Do-Minimum (DM)				Do-Something (DS)				Difference DS- DM (L <sub>A10 18h</sub> dB)	Type of Impact
		AAWT	%H GV	Speed (km/h)	BNL L <sub>A10, 18h</sub> dB	AAWT	%H GV	Speed (km/h)	BNL L <sub>A10, 18h</sub> dB		
42	0.22	5005	2	26	62	4280	2	26	60.7	-1.0	Minor Beneficial
43	0.05	5729	3	20*	63	4943	2	20*	61.8	-1.0	Minor Beneficial
44	0.05	4571	5	28	62	5342	5	28	63.3	1.0	Minor Adverse
45	0.043	7782	2	20*	64	8418	3	20*	64.6	1.0	Minor Adverse
46	0.01	7782	2	20*	64	8418	3	20*	64.6	1.0	Minor Adverse
47	0.11	8266	4	30	65	8703	4	20*	65.6	1.0	Minor Adverse
48	0.01	4509	2	20*	61	5156	3	20*	62.3	1.0	Minor Adverse
49	0.036	1806	5	27	58	2181	5	26	59.0	1.0	Minor Adverse
50	0.034	13950	5	36	67	17464	5	36	68.4	1.0	Minor Adverse
51	0.06	3621	2	26	60	4522	2	26	61.0	1.0	Minor Adverse
52	0.01	4582	5	20*	63	5353	5	20*	63.9	1.0	Minor Adverse
53	0.013	13964	5	20*	68	17491	5	20*	68.9	1.0	Minor Adverse
54	0.026	4574	5	20*	63	5347	5	20*	63.9	1.0	Minor Adverse
55	0.013	13963	5	27	67	17498	5	27	68.3	1.0	Minor Adverse
56	0.086	7392	2	33	63	9104	2	33	64.1	1.0	Minor Adverse
57	0.093	2292	5	25	59	2743	5	25	60.1	1.0	Minor Adverse
58	0.164	5222	7	20*	65	7837	6	20*	65.7	1.0	Minor Adverse
59	0.18	2298	10	20	62	2589	11	21	62.6	1.0	Minor Adverse
60	0.335	2852	4	24	60	2746	7	24	61.0	1.0	Minor Adverse
61	0.062	4042	2	20*	61	5673	1	20*	61.9	1.1	Minor Adverse
62	0.076	5122	8	20*	65	6568	8	20*	66.0	1.1	Minor Adverse
63	0.149	7392	2	22	63	9104	2	21	64.1	1.1	Minor Adverse
64	0.073	4874	2	36	62	5875	3	36	63.0	1.1	Minor Adverse
65	0.113	2852	4	21	60	2746	7	21	61.3	1.1	Minor Adverse
66	0.32	2847	4	20*	60	2740	7	20*	61.4	1.2	Minor Adverse
67	0.083	8270	3	20*	65	11017	3	20*	65.7	1.2	Minor Adverse
68	0.217	7392	2	23	63	9104	2	21	64.1	1.2	Minor Adverse
69	0.075	3812	7	31	63	5195	7	30	63.8	1.2	Minor Adverse
70	0.051	5087	2	22	62	6096	3	22	63.0	1.2	Minor Adverse
71	0.026	5086	2	21	62	6096	3	21	63.1	1.2	Minor Adverse
72	0.119	1866	1	20*	56	2117	2	20*	57.4	1.3	Minor Adverse
73	0.016	3615	6	39	62	4839	6	39	63.4	1.3	Minor Adverse
74	0.01	3626	6	20	62	4851	6	20*	63.7	1.3	Minor Adverse
75	0.059	3626	6	23	62	4852	6	23	63.4	1.3	Minor Adverse
76	0.31	4296	5	24	62	5580	5	24	63.6	1.3	Minor Adverse
77	0.061	4004	8	20*	64	6075	6	20*	65.0	1.3	Minor Adverse
78	0.137	2520	3	28	59	3379	2	28	59.9	1.4	Minor Adverse
79	0.075	3116	4	24	60	4102	4	24	61.7	1.4	Minor Adverse
80	0.051	3116	4	20*	61	4102	4	20*	62.1	1.4	Minor Adverse
81	0.042	6874	4	24	64	8678	4	24	65.2	1.4	Minor Adverse
82	0.028	6874	4	20*	64	8678	4	20*	65.6	1.4	Minor Adverse
83	0.265	6847	4	21	64	8229	5	20*	65.5	1.4	Minor Adverse
84	0.102	4260	3	21	62	5312	4	21	63.1	1.5	Minor Adverse
85	0.065	3364	4	22	61	4318	4	22	62.2	1.5	Minor Adverse

ID	Length (km)	Do-Minimum (DM)				Do-Something (DS)				Difference DS- DM (L <sub>A10 18h</sub> dB)	Type of Impact
		AAWT	%H GV	Speed (km/h)	BNL L <sub>A10, 18h</sub> dB	AAWT	%H GV	Speed (km/h)	BNL L <sub>A10, 18h</sub> dB		
86	0.087	4260	3	20	62	5312	4	20*	63.2	1.5	Minor Adverse
87	0.178	7532	2	20*	63	9421	3	20*	65.1	1.6	Minor Adverse
88	0.064	14284	2	35	66	20420	2	35	68.0	1.7	Minor Adverse
89	0.204	1082	1	20*	52	1224	2	20*	54.0	1.7	Minor Adverse
90	0.09	4251	5	28	62	5307	8	28	64.1	1.7	Minor Adverse
91	0.034	7777	5	20*	65	11017	6	20*	67.2	1.8	Minor Adverse
92	0.034	14284	2	22	66	20421	2	21	68.0	1.8	Minor Adverse
93	0.072	4251	5	20*	63	5307	8	20*	64.8	1.8	Minor Adverse
94	0.176	6752	2	36	63	10999	2	36	65.3	2.0	Minor Adverse
95	0.332	1747	1	24	56	2029	3	24	57.8	2.1	Minor Adverse
96	0.025	1729	2	25	56	2342	2	25	58.1	2.1	Minor Adverse
97	0.066	1723	2	25	56	2334	2	25	58.1	2.1	Minor Adverse
98	0.022	3086	5	20*	61	5139	4	20*	63.3	2.1	Minor Adverse
99	0.2	2371	3	23	58	3977	2	23	60.5	2.1	Minor Adverse
100	0.13	2306	3	20*	59	3917	2	20*	60.7	2.1	Minor Adverse
101	0.042	1729	2	20*	56	2341	2	20*	58.4	2.1	Minor Adverse
102	0.101	3452	5	20	62	6203	4	20*	63.8	2.1	Minor Adverse
103	0.119	2307	3	24	58	3917	2	24	60.4	2.2	Minor Adverse
104	0.122	11015	2	22	65	16660	2	20	67.2	2.2	Minor Adverse
105	0.123	2472	5	20	60	4783	4	20*	62.5	2.3	Minor Adverse
106	0.323	1702	7	29	58	2668	6	29	60.4	2.3	Minor Adverse
107	0.085	1594	4	22	57	2432	4	21	59.4	2.4	Minor Adverse
108	0.44	2394	0	20	57	3270	1	20	59.2	2.4	Minor Adverse
109	0.033	1824	5	20*	59	2833	5	20*	61.0	2.4	Minor Adverse
110	0.175	1041	9	22	56	2009	4	21	58.5	2.6	Minor Adverse
111	0.067	1000	2	32	53	1884	2	32	57.0	4.3	Moderate Adverse
112	0.07	1000	2	24	53	1884	2	24	56.9	4.3	Moderate Adverse
113	0.122	1230	3	24	54	3344	1	24	59.2	5.0	Major Adverse
114	0.427	1056	6	20*	55	3576	4	20*	61.3	6.0	Major Adverse



**Appendix G: NO<sub>2</sub> Concentrations**

Link Reference	Traffic Flow (veh/day)			Predicted NO <sub>2</sub> Concentration (µg/m <sup>3</sup> )			Significance of Impact	Road length (m)
	DM	DS	Change	DM	DS	Change		
1	24,711	22,122	-2,588	59.8	59	-0.8	Minor Beneficial	134
2	21,278	19,104	-2,174	58.7	58	-0.7	Minor Beneficial	370
3	4,786	6,404	1,618	45.3	47.1	1.8	Minor Adverse	153
4	10,803	12,673	1,871	51.8	53.7	1.9	Minor Adverse	182
5	3,096	1,366	-1,731	43.4	41.4	-2	Moderate Beneficial	96
6	9,606	12,798	3,191	50.6	53.8	3.3	Moderate Adverse	83
7	3,907	5,015	1,108	44.3	45.6	1.3	Minor Adverse	65
8	3,620	4,765	1,145	44	45.3	1.3	Minor Adverse	75
9	2,809	1,073	-1,736	43.1	41.1	-2	Moderate Beneficial	197
10	6,005	7,022	1,017	46.7	47.8	1.1	Minor Adverse	92
11	1,209	2,333	1,124	41.2	42.5	1.3	Minor Adverse	175
12	15,269	12,579	-2,690	56.7	53.6	-3.1	Moderate Beneficial	351
13	4,969	7,724	2,755	45.5	48.6	3	Moderate Adverse	104
14	19,516	14,710	-4,806	58.1	55.7	-2.4	Moderate Beneficial	177
15	20,164	11,942	-8,222	58.4	53	-5.4	Substantial Beneficial	51
16	11,632	4,907	-6,725	52.7	45.5	-7.2	Substantial Beneficial	98
17	18,443	22,478	4,035	57.8	59.1	1.3	Minor Adverse	75
18	16,219	20,325	4,106	57.1	58.4	1.3	Minor Adverse	13
19	11,697	12,997	1,300	52.7	54	1.3	Minor Adverse	99
20	3,185	-	-3,185	43.5	39.8	-3.7	Moderate Beneficial	356
21	30,043	19,758	-10,284	61.3	58.2	-3.1	Moderate Beneficial	34
22	33,847	24,358	-9,489	62.4	59.7	-2.7	Moderate Beneficial	271
23	12,107	10,428	-1,679	53.1	51.4	-1.7	Minor Beneficial	50
24	10,872	8,558	-2,314	51.9	49.5	-2.4	Moderate Beneficial	140
25	10,350	8,043	-2,307	51.3	48.9	-2.4	Moderate Beneficial	56
26	8,700	10,258	1,558	49.6	51.2	1.6	Minor Adverse	55

Link Reference	Traffic Flow (veh/day)			Predicted NO <sub>2</sub> Concentration (µg/m <sup>3</sup> )			Significance of Impact	Road length (m)
	DM	DS	Change	DM	DS	Change		
27	10,711	8,917	-1,794	51.7	49.8	-1.9	Minor Beneficial	27
28	1,209	2,333	1,124	41.2	42.5	1.3	Minor Adverse	175
29	11,751	13,886	2,135	52.8	54.9	2.1	Moderate Adverse	50
30	8,586	10,575	1,989	49.5	51.6	2.1	Moderate Adverse	149
31	13,389	11,993	-1,397	54.4	53	-1.4	Minor Beneficial	50
32	2,781	3,799	1,018	43.1	44.2	1.2	Minor Adverse	440
33	20,888	16,916	-3,972	58.6	57.3	-1.3	Minor Beneficial	35
34	20,888	16,916	-3,972	58.6	57.3	-1.3	Minor Beneficial	19
35	5,550	7,295	1,746	46.2	48.1	1.9	Minor Adverse	163
36	9,528	10,809	1,281	50.5	51.8	1.3	Minor Adverse	75
37	11,751	13,886	2,135	52.8	54.9	2.1	Moderate Adverse	73
38	6,794	9,123	2,330	47.6	50.1	2.5	Moderate Adverse	39
39	22,338	18,360	-3,978	59	57.8	-1.3	Minor Beneficial	24
40	20,886	16,913	-3,973	58.6	57.3	-1.3	Minor Beneficial	44
41	5,950	7,629	1,679	46.6	48.5	1.8	Minor Adverse	76
42	12,698	14,189	1,491	53.7	55.2	1.5	Minor Adverse	23
43	3,265	1,765	-1,499	43.6	41.9	-1.7	Minor Beneficial	131
44	4,948	6,171	1,223	45.5	46.9	1.4	Minor Adverse	87
45	20,190	16,575	-3,615	58.4	57.2	-1.2	Minor Beneficial	71
46	8,159	5,579	-2,580	49	46.2	-2.8	Moderate Beneficial	40
47	22,338	18,360	-3,978	59	57.8	-1.3	Minor Beneficial	113
48	12,794	19,351	6,557	53.8	58.1	4.3	Substantial Adverse	122
49	8,586	10,575	1,989	49.5	51.6	2.1	Moderate Adverse	217
50	4,948	6,170	1,223	45.5	46.9	1.4	Minor Adverse	102
51	3,483	2,249	-1,235	43.9	42.4	-1.4	Minor Beneficial	147
52	7,985	10,080	2,095	48.9	51.1	2.2	Moderate Adverse	28
53	3,620	4,765	1,145	44	45.3	1.3	Minor Adverse	51

Link Reference	Traffic Flow (veh/day)			Predicted NO <sub>2</sub> Concentration (µg/m <sup>3</sup> )			Significance of Impact	Road length (m)
	DM	DS	Change	DM	DS	Change		
54	4,212	5,635	1,423	44.7	46.3	1.6	Minor Adverse	10
55	6,741	4,011	-2,730	47.5	44.5	-3	Moderate Beneficial	40
56	3,265	1,766	-1,499	43.6	41.9	-1.7	Minor Beneficial	18
57	9,793	5,655	-4,138	50.8	46.3	-4.5	Substantial Beneficial	159
58	4,212	5,635	1,424	44.7	46.3	1.6	Minor Adverse	59
59	6,741	4,010	-2,730	47.5	44.5	-3	Moderate Beneficial	74
60	10,896	6,231	-4,666	51.9	46.9	-5	Substantial Beneficial	249
61	9,034	12,797	3,763	50	53.8	3.9	Moderate Adverse	34
62	7,169	3,809	-3,360	48	44.2	-3.7	Moderate Beneficial	83
63	4,938	6,164	1,226	45.5	46.9	1.4	Minor Adverse	90
64	7,169	3,808	-3,360	48	44.2	-3.7	Moderate Beneficial	56
65	25,377	19,534	-5,843	60	58.2	-1.8	Minor Beneficial	476
66	34,015	27,673	-6,342	62.4	60.6	-1.8	Minor Beneficial	340
67	16,220	20,318	4,097	57.1	58.4	1.3	Minor Adverse	13
68	7,954	9,558	1,604	48.8	50.5	1.7	Minor Adverse	265
69	6,417	1,410	-5,007	47.2	41.5	-5.7	Substantial Beneficial	144
70	27,599	17,708	-9,891	60.6	57.6	-3.1	Moderate Beneficial	17
71	6,417	1,410	-5,007	47.2	41.5	-5.7	Substantial Beneficial	176
72	23,632	22,047	-1,585	59.4	59	-0.5	Minor Beneficial	78
73	23,632	22,047	-1,585	59.4	59	-0.5	Minor Beneficial	90
74	21,278	19,104	-2,175	58.7	58	-0.7	Minor Beneficial	131
75	23,632	22,047	-1,585	59.4	59	-0.5	Minor Beneficial	32
76	8,586	10,575	1,989	49.5	51.6	2.1	Moderate Adverse	86
77	10,255	8,684	-1,571	51.2	49.6	-1.6	Minor Beneficial	20
78	11,697	12,997	1,300	52.7	54	1.3	Minor Adverse	113
79	4,938	6,164	1,227	45.5	46.9	1.4	Minor Adverse	72
80	11,746	13,879	2,133	52.8	54.9	2.1	Moderate Adverse	135

Link Reference	Traffic Flow (veh/day)			Predicted NO <sub>2</sub> Concentration (µg/m <sup>3</sup> )			Significance of Impact	Road length (m)
	DM	DS	Change	DM	DS	Change		
81	11,746	13,879	2,133	52.8	54.9	2.1	Moderate Adverse	135
82	1,977	3,099	1,123	42.1	43.4	1.3	Minor Adverse	323
83	4,199	5,621	1,421	44.7	46.3	1.6	Minor Adverse	16
84	3,257	1,756	-1,501	43.6	41.9	-1.7	Minor Beneficial	80
85	16,204	20,286	4,082	57.1	58.4	1.3	Minor Adverse	34
86	10,870	8,556	-2,314	51.9	49.5	-2.4	Moderate Beneficial	102
87	10,868	8,553	-2,315	51.9	49.5	-2.4	Moderate Beneficial	56
88	22,338	18,361	-3,978	59	57.8	-1.3	Minor Beneficial	15
89	22,334	18,361	-3,974	59	57.8	-1.3	Minor Beneficial	42
90	20,879	16,916	-3,963	58.6	57.3	-1.3	Minor Beneficial	48
91	20,883	16,916	-3,967	58.6	57.3	-1.3	Minor Beneficial	72
92	10,707	8,917	-1,790	51.7	49.8	-1.9	Minor Beneficial	69
93	20,160	11,935	-8,224	58.4	53	-5.4	Substantial Beneficial	50
94	23,632	22,047	-1,585	59.4	59	-0.5	Minor Beneficial	97
95	20,190	16,575	-3,615	58.4	57.2	-1.2	Minor Beneficial	90
96	7,985	10,080	2,095	48.9	51.1	2.2	Moderate Adverse	42
97	12,698	14,189	1,491	53.7	55.2	1.5	Minor Adverse	47
98	4,990	6,482	1,492	45.6	47.2	1.7	Minor Adverse	310
99	13,389	11,993	-1,397	54.4	53	-1.4	Minor Beneficial	50
100	13,383	11,984	-1,399	54.4	53	-1.4	Minor Beneficial	164
101	4,990	6,482	1,492	45.6	47.2	1.7	Minor Adverse	310
102	20,190	16,574	-3,616	58.4	57.2	-1.2	Minor Beneficial	101
103	18,428	22,442	4,014	57.8	59.1	1.3	Minor Adverse	122
104	18,429	22,447	4,019	57.8	59.1	1.3	Minor Adverse	147
105	2,119	3,291	1,172	42.3	43.6	1.4	Minor Adverse	33
106	6,191	4,273	-1,918	46.9	44.8	-2.1	Moderate Beneficial	156
107	4,695	6,589	1,895	45.2	47.3	2.1	Moderate Adverse	62

Link Reference	Traffic Flow (veh/day)			Predicted NO <sub>2</sub> Concentration (µg/m <sup>3</sup> )			Significance of Impact	Road length (m)
	DM	DS	Change	DM	DS	Change		
108	13,383	11,984	-1,399	54.4	53	-1.4	Minor Beneficial	164
109	9,095	10,525	1,430	50	51.5	1.5	Minor Adverse	105
110	17,209	15,348	-1,860	57.4	56.8	-0.6	Minor Beneficial	302
111	17,208	15,347	-1,862	57.4	56.8	-0.6	Minor Beneficial	358
112	18,360	20,779	2,419	57.8	58.6	0.8	Minor Adverse	64
113	18,632	22,184	3,552	57.9	59	1.1	Minor Adverse	47
114	417	1,613	1,196	40.3	41.7	1.4	Minor Adverse	372
115	14,450	16,600	2,150	55.5	57.2	1.7	Minor Adverse	54
116	17,253	19,112	1,859	57.4	58	0.6	Minor Adverse	119
117	8,749	10,943	2,194	49.7	52	2.3	Moderate Adverse	178
118	6,065	9,103	3,038	46.8	50	3.3	Moderate Adverse	164
119	33,843	24,439	-9,404	62.4	59.7	-2.7	Moderate Beneficial	249
120	34,067	27,519	-6,548	62.4	60.6	-1.8	Minor Beneficial	233
121	18,587	22,075	3,488	57.8	59	1.1	Minor Adverse	385
122	18,616	22,146	3,530	57.9	59	1.1	Minor Adverse	107
123	21,943	20,427	-1,516	58.9	58.4	-0.5	Minor Beneficial	21
124	24,894	21,088	-3,806	59.8	58.6	-1.2	Minor Beneficial	212
125	34,474	28,381	-6,093	62.5	60.8	-1.7	Minor Beneficial	465
126	10,519	7,400	-3,119	51.5	48.2	-3.3	Moderate Beneficial	201
127	4,236	1,121	-3,116	44.7	41.1	-3.6	Moderate Beneficial	115
128	4,534	1,121	-3,413	45.1	41.1	-3.9	Moderate Beneficial	63
129	24,168	22,074	-2,094	59.6	59	-0.6	Minor Beneficial	93
130	15,717	14,215	-1,503	56.9	55.2	-1.7	Minor Beneficial	31
131	10,554	7,466	-3,087	51.6	48.3	-3.3	Moderate Beneficial	43
132	19,910	17,959	-1,950	58.3	57.6	-0.6	Minor Beneficial	78
133	22,600	20,429	-2,172	59.1	58.4	-0.7	Minor Beneficial	92
134	15,038	13,738	-1,300	56.7	54.8	-1.9	Minor Beneficial	123

Link Reference	Traffic Flow (veh/day)			Predicted NO <sub>2</sub> Concentration (µg/m <sup>3</sup> )			Significance of Impact	Road length (m)
	DM	DS	Change	DM	DS	Change		
135	11,079	12,218	1,139	52.1	53.2	1.2	Minor Adverse	74
136	4,534	1,121	-3,413	45.1	41.1	-3.9	Moderate Beneficial	58
137	14,397	12,936	-1,462	55.4	54	-1.4	Minor Beneficial	117
138	8,389	9,440	1,052	49.3	50.4	1.1	Minor Adverse	75
139	16,592	23,720	7,128	57.2	59.5	2.3	Moderate Adverse	34
140	16,592	23,720	7,128	57.2	59.5	2.3	Moderate Adverse	64
141	8,913	9,964	1,051	49.8	50.9	1.1	Minor Adverse	33
142	8,913	9,964	1,051	49.8	50.9	1.1	Minor Adverse	38
143	8,332	9,384	1,052	49.2	50.3	1.1	Minor Adverse	52
144	10,534	7,430	-3,103	51.5	48.3	-3.3	Moderate Beneficial	190
145	8,541	7,371	-1,169	49.4	48.2	-1.3	Minor Beneficial	52
146	16,680	19,527	2,848	57.2	58.2	0.9	Minor Adverse	42
147	7,843	12,777	4,934	48.7	53.8	5.1	Substantial Adverse	176
148	13,651	17,387	3,735	54.7	57.5	2.8	Moderate Adverse	101
149	16,993	21,280	4,287	57.3	58.7	1.4	Minor Adverse	76
150	8,612	11,733	3,122	49.5	52.8	3.2	Moderate Adverse	45
151	8,913	9,964	1,051	49.8	50.9	1.1	Minor Adverse	33
152	19,881	22,264	2,383	58.3	59	0.8	Minor Adverse	332
153	10,107	11,504	1,397	51.1	52.5	1.4	Minor Adverse	10
154	13,331	14,440	1,109	54.4	55.4	1.1	Minor Adverse	84
155	7,627	9,042	1,415	48.5	50	1.5	Minor Adverse	94
156	5,111	6,333	1,223	45.7	47.1	1.4	Minor Adverse	234
157	4,206	5,252	1,046	44.7	45.9	1.2	Minor Adverse	60
158	9,936	11,356	1,420	50.9	52.4	1.5	Minor Adverse	22
159	13,060	14,250	1,190	54.1	55.3	1.2	Minor Adverse	45
160	10,107	11,504	1,397	51.1	52.5	1.4	Minor Adverse	17
161	12,662	13,922	1,260	53.7	54.9	1.2	Minor Adverse	73

Link Reference	Traffic Flow (veh/day)			Predicted NO <sub>2</sub> Concentration (µg/m <sup>3</sup> )			Significance of Impact	Road length (m)
	DM	DS	Change	DM	DS	Change		
162	12,662	13,922	1,260	53.7	54.9	1.2	Minor Adverse	25
163	10,106	11,503	1,397	51.1	52.5	1.4	Minor Adverse	20
164	10,097	11,491	1,394	51.1	52.5	1.4	Minor Adverse	45
165	10,107	11,504	1,397	51.1	52.5	1.4	Minor Adverse	50
166	10,098	11,492	1,395	51.1	52.5	1.4	Minor Adverse	46
167	4,913	6,270	1,357	45.5	47	1.5	Minor Adverse	194
168	9,660	8,345	-1,314	50.6	49.2	-1.4	Minor Beneficial	17
169	7,879	6,632	-1,247	48.7	47.4	-1.4	Minor Beneficial	36
170	8,977	7,516	-1,461	49.9	48.3	-1.6	Minor Beneficial	10
171	7,123	8,839	1,716	47.9	49.8	1.8	Minor Adverse	62
172	10,872	8,558	-2,313	51.9	49.5	-2.4	Moderate Beneficial	33
173	8,742	6,424	-2,318	49.7	47.2	-2.5	Moderate Beneficial	20
174	10,892	9,431	-1,461	51.9	50.4	-1.5	Minor Beneficial	59
175	7,646	5,542	-2,104	48.5	46.2	-2.3	Moderate Beneficial	102
176	10,870	8,556	-2,315	51.9	49.5	-2.4	Moderate Beneficial	37
177	23,632	22,047	-1,585	59.4	59	-0.5	Minor Beneficial	71
178	17,746	20,865	3,118	57.6	58.6	1	Minor Adverse	33
179	9,482	11,821	2,338	50.4	52.8	2.4	Moderate Adverse	45
180	19,342	20,770	1,429	58.1	58.5	0.5	Minor Adverse	24
181	19,817	11,891	-7,926	58.2	52.9	-5.3	Substantial Beneficial	101
182	20,164	11,942	-8,221	58.4	53	-5.4	Substantial Beneficial	50
183	20,899	22,672	1,773	58.6	59.1	0.6	Minor Adverse	10
184	24,320	25,641	1,321	59.6	60	0.4	Negligible	10
185	14,308	15,832	1,524	55.3	56.9	1.6	Minor Adverse	10
186	29,370	30,897	1,528	61.1	61.6	0.4	Minor Adverse	158
187	24,323	25,642	1,319	59.6	60	0.4	Negligible	33
188	29,501	31,102	1,601	61.2	61.6	0.4	Minor Adverse	10
189	24,302	25,619	1,317	59.6	60	0.4	Negligible	50

Link Reference	Traffic Flow (veh/day)			Predicted NO <sub>2</sub> Concentration (µg/m <sup>3</sup> )			Significance of Impact	Road length (m)
	DM	DS	Change	DM	DS	Change		
190	9,482	11,821	2,338	50.4	52.8	2.4	Moderate Adverse	160
191	9,350	7,741	-1,609	50.3	48.6	-1.7	Minor Beneficial	130
192	5,908	7,081	1,173	46.6	47.9	1.3	Minor Adverse	26
193	7,822	6,120	-1,702	48.7	46.8	-1.9	Minor Beneficial	59
194	7,822	6,119	-1,702	48.7	46.8	-1.9	Minor Beneficial	58
195	2,712	3,789	1,077	43	44.2	1.2	Minor Adverse	130
196	2,712	3,789	1,077	43	44.2	1.2	Minor Adverse	129
197	2,871	5,556	2,685	43.2	46.2	3	Moderate Adverse	123
198	4,010	7,205	3,195	44.5	48	3.5	Moderate Adverse	101
199	1,161	2,188	1,027	41.2	42.4	1.2	Minor Adverse	67
200	1,161	2,188	1,027	41.2	42.4	1.2	Minor Adverse	70
201	11,637	7,323	-4,313	52.7	48.1	-4.5	Substantial Beneficial	149
202	11,637	7,323	-4,313	52.7	48.1	-4.5	Substantial Beneficial	119
203	7,821	6,120	-1,702	48.7	46.8	-1.9	Minor Beneficial	99
204	12,445	8,701	-3,744	53.5	49.6	-3.9	Moderate Beneficial	22
205	12,397	7,899	-4,499	53.4	48.8	-4.7	Substantial Beneficial	53
206	4,969	7,724	2,755	45.5	48.6	3	Moderate Adverse	344
207	18,428	22,442	4,014	57.8	59.1	1.3	Minor Adverse	78
208	14,953	10,067	-4,886	55.9	51.1	-4.9	Substantial Beneficial	126
209	11,828	9,704	-2,123	52.9	50.7	-2.2	Moderate Beneficial	308
210	19,313	20,671	1,358	58.1	58.5	0.4	Minor Adverse	46
211	19,318	20,696	1,378	58.1	58.5	0.4	Minor Adverse	141
212	20,895	22,672	1,777	58.6	59.1	0.6	Minor Adverse	10
213	19,145	20,385	1,240	58	58.4	0.4	Negligible	116
214	19,124	20,363	1,239	58	58.4	0.4	Negligible	14
215	20,507	22,149	1,642	58.5	59	0.5	Minor Adverse	66
216	4,964	7,718	2,754	45.5	48.6	3	Moderate Adverse	193



Link Reference	Traffic Flow (veh/day)			Predicted NO <sub>2</sub> Concentration (µg/m <sup>3</sup> )			Significance of Impact	Road length (m)
	DM	DS	Change	DM	DS	Change		
217	4,969	7,725	2,755	45.5	48.6	3	Moderate Adverse	45
218	10,411	11,876	1,466	51.4	52.9	1.5	Minor Adverse	199
219	9,884	12,215	2,331	50.9	53.2	2.4	Moderate Adverse	178
220	3,584	5,969	2,384	44	46.7	2.7	Moderate Adverse	22
221	1,227	4,154	2,927	41.2	44.6	3.4	Moderate Adverse	427
222	25,839	27,485	1,646	60.1	60.6	0.5	Minor Adverse	47
223	5,908	7,081	1,173	46.6	47.9	1.3	Minor Adverse	51
224	9,110	10,490	1,380	50	51.5	1.4	Minor Adverse	71
225	14,863	16,500	1,637	55.8	57.2	1.3	Minor Adverse	40
226	16,160	19,354	3,193	57	58.1	1.1	Minor Adverse	42
227	11,019	13,106	2,087	52	54.1	2.1	Moderate Adverse	186
228	14,827	16,167	1,340	55.8	57	1.2	Minor Adverse	72
229	12,692	16,343	3,651	53.7	57.1	3.4	Moderate Adverse	64
230	12,736	16,530	3,794	53.8	57.2	3.4	Moderate Adverse	55
231	18,443	22,471	4,029	57.8	59.1	1.3	Minor Adverse	47
232	4,888	3,483	-1,405	45.5	43.9	-1.6	Minor Beneficial	88
233	7,159	4,814	-2,346	48	45.4	-2.6	Moderate Beneficial	83
234	821	2,395	1,574	40.8	42.6	1.8	Minor Adverse	56
235	4,428	6,035	1,606	44.9	46.7	1.8	Minor Adverse	75
236	4,651	7,057	2,406	45.2	47.9	2.7	Moderate Adverse	61
237	602	2,307	1,705	40.5	42.5	2	Moderate Adverse	115
238	517	2,444	1,927	40.4	42.7	2.3	Moderate Adverse	104
239	643	4,108	3,466	40.5	44.6	4	Substantial Adverse	163
240	7,246	4,540	-2,706	48.1	45.1	-3	Moderate Beneficial	130
241	18,949	20,231	1,282	58	58.4	0.4	Minor Adverse	106
242	3,669	4,816	1,148	44.1	45.4	1.3	Minor Adverse	145
243	4,107	5,292	1,185	44.6	45.9	1.3	Minor Adverse	357

Link Reference	Traffic Flow (veh/day)			Predicted NO <sub>2</sub> Concentration (µg/m <sup>3</sup> )			Significance of Impact	Road length (m)
	DM	DS	Change	DM	DS	Change		
244	821	2,395	1,574	40.8	42.6	1.8	Minor Adverse	56
245	2,580	469	-2,110	42.8	40.3	-2.5	Moderate Beneficial	50
246	14,376	12,856	-1,520	55.4	53.9	-1.5	Minor Beneficial	172
247	7,415	6,356	-1,058	48.2	47.1	-1.2	Minor Beneficial	200
248	11,342	9,337	-2,005	52.4	50.3	-2.1	Moderate Beneficial	50
249	11,342	6,216	-5,126	52.4	46.9	-5.4	Substantial Beneficial	32
250	1,429	3,884	2,455	41.5	44.3	2.8	Moderate Adverse	122
251	691	1,802	1,111	40.6	41.9	1.3	Minor Adverse	144
252	602	2,311	1,709	40.5	42.5	2	Moderate Adverse	96
253	11,342	9,333	-2,009	52.4	50.3	-2.1	Moderate Beneficial	50
254	14,362	12,836	-1,526	55.4	53.9	-1.5	Minor Beneficial	46
255	11,330	9,317	-2,013	52.3	50.3	-2.1	Moderate Beneficial	150
256	4,445	3,216	-1,230	45	43.6	-1.4	Minor Beneficial	198
257	11,342	6,208	-5,134	52.4	46.9	-5.4	Substantial Beneficial	72
258	5,372	2,513	-2,859	46	42.7	-3.3	Moderate Beneficial	256
259	6,820	5,450	-1,369	47.6	46.1	-1.5	Minor Beneficial	224
260	5,060	6,382	1,321	45.6	47.1	1.5	Minor Adverse	105
261	9,993	7,787	-2,205	51	48.6	-2.3	Moderate Beneficial	172
262	3,118	4,459	1,341	43.4	45	1.5	Minor Adverse	202
263	10,878	8,679	-2,199	51.9	49.6	-2.3	Moderate Beneficial	300
264	11,510	8,437	-3,074	52.5	49.3	-3.2	Moderate Beneficial	50
265	16,171	8,696	-7,475	57	49.6	-7.4	Substantial Beneficial	80
266	23,656	25,065	1,409	59.4	59.9	0.4	Minor Adverse	10
267	5,859	7,912	2,053	46.5	48.8	2.2	Moderate Adverse	78
268	19,342	20,770	1,429	58.1	58.5	0.5	Minor Adverse	50
269	14,311	15,832	1,521	55.3	56.9	1.6	Minor Adverse	10
270	14,288	15,810	1,522	55.3	56.9	1.6	Minor Adverse	34

Link Reference	Traffic Flow (veh/day)			Predicted NO <sub>2</sub> Concentration (µg/m <sup>3</sup> )			Significance of Impact	Road length (m)
	DM	DS	Change	DM	DS	Change		
271	14,376	12,856	-1,520	55.4	53.9	-1.5	Minor Beneficial	18
272	9,894	7,542	-2,352	50.9	48.4	-2.5	Moderate Beneficial	170
273	5,662	6,824	1,163	46.3	47.6	1.3	Minor Adverse	73
274	14,442	12,388	-2,054	55.4	53.4	-2	Moderate Beneficial	160
275	11,124	10,087	-1,037	52.1	51.1	-1.1	Minor Beneficial	64
276	4,385	6,386	2,001	44.9	47.1	2.2	Moderate Adverse	165
277	19,707	22,143	2,437	58.2	59	0.8	Minor Adverse	64
278	23,949	25,246	1,297	59.5	59.9	0.4	Negligible	64
279	15,645	17,837	2,192	56.9	57.6	0.7	Minor Adverse	56
280	6,334	8,185	1,852	47.1	49.1	2	Moderate Adverse	35
281	4,385	6,386	2,001	44.9	47.1	2.2	Moderate Adverse	165
282	11,125	10,094	-1,031	52.1	51.1	-1.1	Minor Beneficial	45
283	8,583	10,969	2,386	49.5	52	2.5	Moderate Adverse	58
284	11,889	13,561	1,672	52.9	54.6	1.7	Minor Adverse	66
285	18,632	22,185	3,552	57.9	59	1.1	Minor Adverse	69
286	11,827	10,618	-1,209	52.9	51.6	-1.2	Minor Beneficial	54
287	8,548	7,524	-1,023	49.5	48.4	-1.1	Minor Beneficial	91
288	2,414	3,418	1,003	42.6	43.8	1.2	Minor Adverse	88
289	11,519	10,443	-1,076	52.5	51.4	-1.1	Minor Beneficial	150
290	9,839	11,069	1,229	50.8	52.1	1.3	Minor Adverse	52
291	19,918	22,334	2,416	58.3	59	0.8	Minor Adverse	10
292	7,172	8,357	1,186	48	49.3	1.3	Minor Adverse	78
293	11,511	10,431	-1,081	52.5	51.4	-1.1	Minor Beneficial	81
294	11,515	10,435	-1,080	52.5	51.4	-1.1	Minor Beneficial	62
295	11,107	10,064	-1,043	52.1	51	-1.1	Minor Beneficial	127
296	20,156	11,928	-8,228	58.4	53	-5.4	Substantial Beneficial	179
297	2,679	4,550	1,870	42.9	45.1	2.1	Moderate Adverse	130

Link Reference	Traffic Flow (veh/day)			Predicted NO <sub>2</sub> Concentration (µg/m <sup>3</sup> )			Significance of Impact	Road length (m)
	DM	DS	Change	DM	DS	Change		
298	2,679	4,549	1,870	42.9	45.1	2.1	Moderate Adverse	119
299	2,754	4,619	1,865	43	45.2	2.1	Moderate Adverse	200
300	12,520	11,430	-1,091	53.6	52.5	-1.1	Minor Beneficial	45
301	18,351	20,769	2,418	57.8	58.5	0.8	Minor Adverse	10
302	16,797	19,214	2,418	57.3	58.1	0.8	Minor Adverse	10
303	16,797	19,214	2,418	57.3	58.1	0.8	Minor Adverse	10
304	2,249	3,344	1,095	42.4	43.7	1.3	Minor Adverse	15
305	17,643	18,939	1,295	57.5	58	0.4	Minor Adverse	30
306	2,249	3,344	1,095	42.4	43.7	1.3	Minor Adverse	15

**Appendix H: Environmental Data Sources**

<b>Category</b>	<b>Dataset</b>	<b>Source</b>
<b>Sensitive Site</b>	National Nature Reserve	English Nature
	Scheduled Ancient Monument	English Heritage
	Special Area of Conservation	English Nature
	Special Protection Area	English Nature
	Site of Special Scientific Interest	English Nature
	World Heritage site	English Heritage
<b>Designated Landscape</b>	Metropolitan Open Land	Greater London Authority
	Green Belt	Not available
<b>Site of Importance for Nature Conservation</b>	Metropolitan	Greater London Authority
	Borough grade 1	Greater London Authority
	Borough grade 2	Greater London Authority
	Local significance	Greater London Authority
<b>TfL habitat site</b>	TfL habitat sites	Transport for London Ecological Survey 2005
<b>Protected Species</b>	All Protected Species	Greenspace Information for Greater London (GIGL)
<b>Heritage Conservation Area</b>	Archaeological priority area	Local Authority Data.
	Conservation area	Local Authority Data.
	Locally Listed Building	Local Authority Data.
	Nationally listed building	English Heritage
	Millennium Greens	Defra
	London Square	English Heritage
	Registered Battlefields	English heritage
	Registered park or garden	English heritage
<b>Flood Risk</b>	Flood Zone 2	Environment Agency
	Flood zone 3	Environment Agency
	Flood risk area	Environment Agency
	Flood defences	Environment Agency
	Flood events (TLRN only)	Transport for London Asset Information Management System
	Increase hard surfaced area	N/A
<b>Noise Data</b>	Important Areas for Noise	Defra
<b>Air Quality</b>	Areas of air quality standard exceedance	TfL