



Broad Street Mall

Environmental Impact Assessment

Volume 3: Technical Appendices

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Appendix: Introduction

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Annex 1 – Location of Information within the ES (‘wayfinding’ document)

	Information for Inclusion in Environmental Statements, as Specified in Schedule 4 of the EIA Regulations 2017	How the EIA will address the Information Specifications
1.	A description of the development, including in particular:	
(a)	a description of the location of the development;	ES Volume 1: Chapter 1: Introduction;
(b)	a description of the physical characteristics of the whole development, including, where relevant, requisite demolition works, and the land-use requirements during the construction and operational phases;	ES Volume 1: Chapter 4: The Proposed Development; Chapter 5: Demolition and Construction;
(c)	a description of the main characteristics of the operational phase of the development (in particular any production process), for instance, energy demand and energy used,	ES Volume 1: Chapter 4: The Proposed Development;
	...nature and quantity of the materials and natural resources (including water, land, soil and biodiversity) used; and	ES Volume 1: Chapter 4: The Proposed Development; Chapter 5: Demolition and Construction;
(d)	an estimate, by type and quantity, of expected residues and emissions (such as water, ...	ES Volume 1: Chapter 2: EIA Methodology (‘Scoped-Out Disciplines’); ES Volume 3: Appendix: EIA Methodology, Annex 1 – EIA Scoping Exercise (Topics to be Scoped Out);
	...air, ...	ES Volume 1: Chapter 7: Air Quality; ES Volume 3: Appendix: Air Quality;
	...soil and subsoil pollution,...	ES Volume 1: Chapter 2: EIA Methodology (‘Scoped-Out Disciplines’); ES Volume 3: Appendix: EIA Methodology, Annex 1 – EIA Scoping Exercise (Topics to be Scoped Out); Appendix: Ground Conditions
	...noise, vibration, ...	ES Volume 1: Chapter 8: Noise and Vibration; ES Volume 3: Appendix: Noise and Vibration;
	...light, ...	ES Volume 1: Chapter 9: Daylight, Sunlight and Overshadowing; ES Volume 3: Appendix: Daylight, Sunlight and Overshadowing;
	...heat, radiation and ...	ES Volume 1: Chapter 11: Climate Change; ES Volume 3: Appendix: Climate Change;
	...quantities and types of waste produced during the construction and operation phases;	ES Volume 1: Chapter 4: The Proposed Development; Chapter 5: Demolition and Construction;
2.	A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.	ES Volume 1: Chapter 3: Alternatives and Design Evolution;

	Information for Inclusion in Environmental Statements, as Specified in Schedule 4 of the EIA Regulations 2017	How the EIA will address the Information Specifications
3.	A description of the relevant aspects of the current state of the environment (baseline scenario) ...	ES Volume 1: Chapter 2: EIA Methodology; Technical Chapters 6 - 11;
	...and an outline of the likely evolution thereof without implementation of the development as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge.	ES Volume 1: Chapter 2: EIA Methodology; Technical Chapters 6 – 11;
4.	A description of the factors specified in regulation 4(2) likely to be significantly affected by the development: population, human health, ...	ES Volume 1: Chapter 2: EIA Methodology (‘Scoped-Out Disciplines’); Chapter 4: The Proposed Development; ES Volume 3: Appendix: EIA Methodology, Annex 1 – EIA Scoping Exercise (Topics to be Scoped Out);
	...biodiversity (for example fauna and flora), ...	ES Volume 1: Chapter 2: EIA Methodology (‘Scoped-Out Disciplines’); ES Volume 3: Appendix: EIA Methodology, Annex 1 – EIA Scoping Exercise (Topics to be Scoped Out); Appendix: Ecology
	...land (for example land take), ...	ES Volume 1: Chapter 2: EIA Methodology (‘Scoped-Out Disciplines’); ES Volume 3: Appendix: EIA Methodology, Annex 1 – EIA Scoping Exercise (Topics to be Scoped Out);
	...soil (for example organic matter, erosion, compaction, sealing), ...	ES Volume 1: Chapter 2: EIA Methodology (‘Scoped-Out Disciplines’); ES Volume 3: Appendix: EIA Methodology, Annex 1 – EIA Scoping Exercise (Topics to be Scoped Out); Appendix: Ground Conditions
	...water (for example hydromorphological changes, quantity and quality), ...	ES Volume 1: Chapter 2: EIA Methodology (‘Scoped-Out Disciplines’); ES Volume 3: Appendix: EIA Methodology, Annex 1 – EIA Scoping Exercise (Topics to be Scoped Out);
	...air, ...	ES Volume 1: Chapter 7: Air Quality; ES Volume 3: Appendix: Air Quality;
	...climate (for example greenhouse gas emissions, impacts relevant to adaptation), ...	ES Volume 1: Chapter 4: Proposed Development; Chapter 7: Air Quality; Chapter 11: Climate Change; ES Volume 3: Appendix: Air Quality; Appendix: Climate Change;
	...material assets, cultural heritage, including architectural and archaeological aspects, and landscape...	ES Volume 1: Chapter 2: EIA Methodology (‘Scoped-Out Disciplines’); ES Volume 2: Townscape, Built Heritage and Visual Impact Assessment; ES Volume 3: Appendix: EIA Methodology, Annex 1 – Scoping Report;

	Information for Inclusion in Environmental Statements, as Specified in Schedule 4 of the EIA Regulations 2017	How the EIA will address the Information Specifications
		(refer Scoping Report (Topics to be Scoped Out)); Appendix: Townscape, Built Heritage and Visual Impact Assessment; Appendix: Archaeology
5.	A description of the likely significant effects of the development on the environment resulting from, inter alia:	ES Volume 1: Technical Chapters 6 – 11; Chapter 13: Likely Significant Effects;
(a)	the construction and existence of the development, including, where relevant, demolition works.	ES Volume 1: Chapter 5: Demolition and Construction;
(b)	the use of natural resources, in particular land, soil, ...	ES Volume 1: Chapter 4: The Proposed Development; Chapter 5: Demolition and Construction;
	...water and ...	ES Volume 1: Chapter 2: EIA Methodology ('Scoped-Out Disciplines'); ES Volume 3: Appendix: EIA Methodology, Annex 1 – EIA Scoping Exercise (Topics to be Scoped Out);
	...biodiversity, ...	ES Volume 1: Chapter 2: EIA Methodology ('Scoped-Out Disciplines'); ES Volume 3: Appendix: EIA Methodology, Annex 1 – EIA Scoping Exercise (Topics to be Scoped Out); Appendix: Ecology
	...considering as far as possible the sustainable availability of these resources;	ES Volume 1: Chapter 4: The Proposed Development; Chapter 5: Demolition and Construction; Technical Chapters 6 – 11;
(c)	the emission of pollutants, ...	ES Volume 1: Chapter 7: Air Quality; ES Volume 3: Appendix: Air Quality;
	...noise, vibration.	ES Volume 1: Chapter 8: Noise and Vibration; ES Volume 3: Appendix: Noise and Vibration;
	...light, ...	ES Volume 1: Chapter 9: Daylight, Sunlight and Overshadowing; ES Volume 3: Appendix: Daylight, Sunlight and Overshadowing;
	...heat and radiation, ...	ES Volume 1: Chapter 2: EIA Methodology ('Scoped-Out Disciplines'); ES Volume 3: Appendix: EIA Methodology, Annex 1 – EIA Scoping Exercise (Topics to be Scoped Out);
	...the creation of nuisances, ...	ES Volume 1: Chapter 8: Noise and Vibration; ES Volume 3: Appendix: Noise and Vibration;
	...and the disposal and recovery of waste;	ES Volume 1: Chapter 2: EIA Methodology ('Scoped-Out Disciplines'); Chapter 4: The Proposed Development;

	Information for Inclusion in Environmental Statements, as Specified in Schedule 4 of the EIA Regulations 2017	How the EIA will address the Information Specifications
		Chapter 5: Demolition and Construction; ES Volume 3: Appendix: EIA Methodology, Annex 1 – EIA Scoping Exercise (Topics to be Scoped Out);
(d)	the risks to human health, cultural heritage or the environment (for example due to accidents or disasters);	ES Volume 1: Chapter 2: EIA Methodology (scoped out disciplines); Technical Chapters 6 – 11; ES Volume 3: Appendix: EIA Methodology, Annex 1 – Scoping Report (refer Scoping Report (Topics to be Scoped Out));
(e)	the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources;	ES Volume 1: Technical Chapters 6 – 11;
(f)	the impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change; and	ES Volume 1: Chapter 4: The Proposed Development; Chapter 11: Climate Change;
(g)	the technologies and the substances used.	ES Volume 1: Chapter 4: The Proposed Development; Chapter 5: Demolition and Construction; Technical Chapters 6 – 11;
6.	A description of the forecasting methods or evidence, used to identify and assess the significant effects on the environment, including details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information and the main uncertainties involved.	ES Volume 1: Chapter 2: EIA Methodology; Technical Chapters 6 – 11;
7.	A description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of a post-project analysis). That description should explain the extent, to which significant adverse effects on the environment are avoided, prevented, reduced or offset, and should cover both the construction and operational phases.	ES Volume 1: Chapter 4: The Proposed Development; Chapter 5: Demolition and Construction; Technical Chapters 6 – 11; Chapter 14: Environmental Management, Mitigation & Monitoring;
8.	A description of the expected significant adverse effects of the development on the environment deriving from the vulnerability of the development to risks of major accidents and/or disasters which are relevant to the project concerned. Relevant information available and obtained through risk assessments pursuant to EU legislation such as Directive 2012/18/EU(c) of the European Parliament and of the Council or Council Directive 2009/71/Euratom(d) or UK environmental assessments may be used for this purpose provided that the requirements of this Directive are met. Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for and proposed response to such emergencies.	ES Volume 1: Chapter 2: EIA Methodology; See section 'EIA And The Scoping Process – Project Vulnerability';
9.	non-technical summary of the information provided under paragraphs 1 to 8.	ES Non-Technical Summary;
10.	A reference list detailing the sources used for the descriptions and assessments included in the environmental statement.	ES Volume 1: Chapter 2: EIA Methodology; and Technical Chapters 6 – 11.

Appendix: Introduction

Annex 1: Location of Information within the ES ('wayfinding' document)

Annex 2: Competent Experts and Relevant Expertise

Annex 3: Glossary of Terms and Abbreviations



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Broad Street Mall: Competent Expert and Relevant Experience

Regulation 18(5) of The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (as amended) (referred to as 'the EIA Regulations') require that to ensure the completeness and quality of the ES:

'(a) the developer must ensure that the environmental statement is prepared by competent experts'; and
'(b) the environmental statement must be accompanied by a statement from the developer outlining the relevant expertise or qualifications of such experts'.

The 'developer' as referenced in the EIA Regulations is McLaren (Broad Street Mall) Ltd and UREF III LP.

As set out in **ES Volume 1, Chapter 1: Introduction** of the ES, Trium is an environmental consultancy specialising in urban regeneration and property development projects in the United Kingdom (UK). Trium is therefore considered to be 'competent experts' as referenced in the EIA Regulations. In addition, and for completeness, Table 1 below sets out the company, persons and expertise of all the key technical specialists that have worked on the EIA.

Table 1 Experts Involved in the Production of the ES and their Relevant Experience

EIA Technical Discipline	Company	Summary of Experience
EIA Coordination	Trium	Trium is an environmental consultancy specialising in regeneration and property development projects in the United Kingdom (UK). Trium's Partners and Employees have extensive experience in managing the environmental issues and impacts surrounding large-scale, high-profile regeneration development projects. The Partners and Employees of Trium have, over the course of their careers to date (including with former employers), project directed, managed or contributed to over 600 EIAs within the residential, commercial, retail, leisure, cultural, infrastructure and industrial sectors throughout the UK. Trium's lead EIA practitioner for this project has 20 years EIA experience of managing EIA projects.
Socio-Economics		
Air Quality	KALACO Group Ltd	KALACO Group Ltd, comprising both Air Pollution Services (APS) and The Climate Consultants (TCC), is an environmental consultancy specialising in indoor and outdoor air quality, climate change, odour, bioaerosols, and environmental data products. Members of APS and TCC have over 80 years' experience in environmental sciences, focusing on assessments for planning applications and environmental permits. The Directors of APS and TCC have each directed, managed or contributed to over 500 projects, many of which have involved EIAs. This has included a diverse range of developments, such as residential, commercial, retail, leisure, transport infrastructure, airports, defence, waste management facilities, industrial processes, power generating facilities, and agricultural facilities. The lead air quality and climate practitioner from APS and TCC for this project has over 15 years' experience of undertaking assessments within London, has a doctorate in atmospheric physics (involving air quality and climate change) and is a Chartered Environmentalist.
Climate Change and Greenhouse Gases		
Noise and Vibration	Sol Acoustics	Sol Acoustics is an acoustic consultancy specialising in building, environmental and infrastructure projects. Sol's team have extensive experience in assessing and managing the noise and vibration issues associated with large-scale, high-profile urban development projects, as well as undertaking detailed acoustic design of the developments. The team at Sol have contributed to countless noise and vibration ES chapters and EIAs within the residential, commercial, infrastructure and industrial sectors. Sol's lead consultant for this project has nearly 15 years experience of undertaking noise and vibration assessments.

EIA Technical Discipline	Company	Summary of Experience
Daylight, Sunlight and Overshadowing	Delva Patman Redler	Delva Patman Redler ("DPR") is a renowned practice of Chartered Surveyors who specialise in daylight, sunlight and overshadowing assessments alongside other neighbourly matters. DPR was established in 1980 and have offices in London, Liverpool and Bristol. DPR are recommended frequently by other leading professionals including solicitors, barristers, architects, planning consultants and project managers. DPR's hugely experienced team provides expert advice to a broad client base in relation to commercial, residential and mixed-use development across the UK and Ireland
Wind Microclimate	FD Global	Volker Buttgerit is the Managing Director at FD Global with more than 25 years of experience in unsteady aerodynamics and wind engineering. Volker holds a PhD. in Unsteady Fluid Dynamics from The Aeronautics Department of Imperial College of Science Technology and Medicine, London. Volker is an internationally recognised, leading wind engineering expert for large scale civil structures. His personal experience in the assessment of wind microclimate for tall building design in the UK alone exceeds 500 projects including technical and ES reporting. Recent large scale project experience in London has amongst others included the East Village Masterplan and the International Quarters London Masterplan

It can be confirmed that McLaren (Broad Street Mall) Ltd and UREF III LP (the 'developer' under the definition of the EIA Regulations) has ensured that the ES is prepared by competent experts. This document is therefore considered to address the requirements of Regulation 18(5) of the EIA Regulations.

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Broad Street Mall Glossary of Terms and Abbreviations

GLOSSARY OF TERMS

Accuracy	A measure of how well a set of data fits the true value.
Accurate Visual Representations	A static or moving image which shows the location of a proposed development as accurately as possible; it may also illustrate the degree to which the development will be visible, its detailed form or the proposed use of materials. AVRs are produced by accurately combining images of the proposed building with a representation of its context.
Acoustic Screening	Use of a fabric-covered, double-sided screen used in open areas such as offices to absorb noise.
ADMS Roads	Atmospheric Dispersion Modelling System Roads is a line-source Gaussian dispersion model with the capability to model 3-point sources.
AERMOD 8	Atmospheric dispersion integrated modelling system.
AHR	Architects
Air Quality Objective	Policy target generally expressed as a maximum ambient concentration to be achieved, either without exception or with a permitted number of exceedances within a specific timescale (see also air quality standard).
Air Quality Standard	The concentrations of pollutants in the atmosphere which can broadly be taken to achieve a certain level of environmental quality. The standards are based on the assessment of the effects of each pollutant on human health including the effects on sensitive sub groups (see also air quality objective).
Ambient air	Outdoor air in the troposphere, excluding workplace air.
Ambient Noise Level	The totally encompassing sound in a given situation at a given time, usually composed of a sound from many sources both distant and near ($LA_{F_{eq},T}$).
Amenity	A pleasant or advantageous aspect of the environment.
Annual mean	The average (mean) of the concentrations measured for each pollutant for one year. Usually this is for a calendar year, but some species are reported for the period April to March, known as a pollution year. This period avoids splitting winter season between 2 years, which is useful for pollutants that have higher concentrations during the winter months.
Annual Probable Sunlight Hours	A measure of sunlight that a given window may expect over a year period.
Aquifer	A below ground, water-bearing layer of soil or rock.
Alluvium	Sediment laid down by a river. Can range from sands and gravels deposited by fast flowing water and clays that settle out of suspension during overbank flooding. Other deposits found on a valley floor are usually included in the term alluvium (e.g. peat).
Arisings	Material (often spoil) derived from the ground through excavation.
Asbestos	A mineral substance previously used as in insulator but, is highly toxic.
A-weighting, dB(A)	The unit of sound level, weighted according to the A-scale, which takes into account the increased sensitivity of the human ear at some frequencies.
Baseline Studies	Studies of existing environmental conditions which are designed to establish the baseline conditions against which any future changes can be measured or predicted.
Biodiversity	The diversity, or variety of plants and animals and other living things in a particular area of region. It encompasses landscape diversity, ecosystem diversity, species diversity and genetic diversity.
Borehole	A deep hole bored into the ground as part of intrusive geological investigations.

Bunding	A constructed retaining wall around storage 'where potentially polluting substances are handled, processed or stored, for the purposes of containing any unintended escape of material from that area until such time as remedial action can be taken'.
Carbon Budget	A tolerable quantity of greenhouse gas emissions that can be emitted in total over a specified time.
Carbon Dioxide (CO ₂)	Carbon dioxide is a naturally occurring gas comprising 0.04% of the atmosphere. The burning of fossil fuels releases carbon dioxide fixed by plants many millions of years ago, and this has increased its concentration in the atmosphere by some 12% over the past century. It contributes about 60 per cent of the potential global warming effect of manmade emissions of greenhouse gases.
Cast In Situ	The process of pouring liquid material into a mould or form work.
Combined Heat and Power	A low carbon technology which generates electricity whilst also capturing usable heat that is produced in the process.
Completed Development	A development scheme which has been build out.
Conservation Area	An area designated by the Local Authority as being of special architectural or historic interest under the provisions of the Planning (Listed Buildings and Conservation Areas 1990) Act, the character or appearance of which it is desirable to preserve or enhance.
Considerate Constructors Scheme	A non-profit-making, independent organisation founded in 1997 by the construction industry to improve its image.
Construction Environmental Management Plan	A documented management system with environmental procedures to monitor residual impacts of the construction phase of a development.
Construction Logistics Plan	A documented travel plan specific for a construction site.
Core Strategy	Reading Borough (2019), Local Plan
Cumulative Schemes	Developments that have received planning permission and have a signed legal agreement in place. They are assumed to be in place by the time the Development being assessed is completed.
Decibel	A scale for comparing the ratios of two quantities, including sound pressure and sound power. The difference in level between two sounds s_1 and s_2 is given by $20 \log_{10} (s_1 / s_2)$. The decibel can also be used to measure absolute quantities by specifying a reference value that fixes one point on the scale. For sound pressure, the reference value is $20\mu Pa$.
Defra Air Information Resource	Webpages providing in-depth information on air quality and air pollution in the UK.
Demarcation	The action of fixing the boundary or limits of something.
Design Brief	A written document for a design project developed by a person or team in consultation with the 'client'.
Design Freeze	A method used during design development stage to mitigate the risks associated with change. This organizes and complies the design process, control changes, and force the completion of design stages on time.
Desk-Top Study	A non-intrusive study and review of all available information pertaining to a site, including historical records, collated and monitored data, and consultation with relevant stakeholders.

Broad Street Mall Glossary of Terms and Abbreviations

Directive	European Union (EU) Directives impose legal obligations on European Member States. They are binding as to the results to be achieved but, allow individual states the right to decide the form and methods used to achieve the results. An example of this is the EU Air Quality Framework Directive (1996) that is brought into legal effect in the UK by the Air Quality (England) Regulations (2000).	Grade II* Listed Building	A listed building that is of particular importance and of more than special interest.
Displacement	An estimate of economic factors that may have reasonably been attained by other competitors in the absence of the development.	Gross External Area	A measure of floor space calculated in accordance with the Royal Institution of Chartered Surveyors (RICS) Code of Measuring Practice.
Dust Soiling	The accumulation of particulates that can give rise to human health effects.	Gross Internal Area	A measure of the area of a building measured to the internal face of the perimeter walls at each floor level.
EIA Scoping	An initial stage in determining the nature and potential scale of the environmental impacts arising from a proposed development and assessing what further studies are required to establish their significance.	Hardstanding	Ground surfaced with a hard material for parking vehicles on.
EIA Scoping Opinion	A written statement of the opinion of the relevant planning authority as to the information to be provided in the Environmental Statement which specifically requires a local planning authority to respond or consult with consultees within a statutory period.	Heritage Asset	A building, area or scene which makes a positive contribution of special architectural, historic or environmental interest.
EIA Screening	An initial stage in which the need for EIA is considered in respect of a development. Some developments are automatically subject to EIA by means of their inevitable size, nature and effects (Schedule 1 developments). Other projects are made subject to EIA because it is anticipated that they are likely to have significant environmental effects (Schedule 2 developments).	Hoarding	A temporary board fence set up on the perimeter of a building site.
Emission	A material that is expelled or released to the environment. Usually applied to gaseous or odorous discharges to the atmosphere.	Hydrogeology	The study of geological factors relating to the Earth's water.
Environmental Impact Assessment	A process by which information about the environmental effects of a development is collected and taken into account by the relevant decision-making body before a decision is given on whether the development should go ahead.	Indices of Multiple Deprivation	A UK government qualitative study of deprived areas in English local councils.
Environmental Statement	A statement that includes such information that is reasonably required to assess the environmental effects of a development.	In-situ	In the natural, original or appropriate position.
Exceedance	A period of time where the concentrations of a pollutant is greater than, or equal to, the appropriate air quality standard.	Intrusive Investigation	An in-depth investigation involving further sampling and analysis, such as the gathering of samples from the ground, walls, ceilings for the detection of contamination, asbestos and or archaeological remains.
Façade	The front or face of a building.	L _A Feq,T	The A-weighted noise level index called the equivalent continuous noise level over the time period T. This is the level of a notional steady sound that would contain the same amount of sound energy as the actual, possibly fluctuating, sound that was recorded.
Fit-out	Installation of all non-substructure and non-superstructure items such as electrical water services, as well as final internal finishings.	L _A Fmax,T	The A-weighted noise level index defined as the maximum noise level during the period T. L _{max} is sometimes used for the assessment of occasional loud noises, which may have little effect on the overall Leq noise level but will still affect the noise environment. Unless described otherwise, it is measured using the 'fast' sound level meter response.
Floodplain	Land adjacent to a watercourse over which water flows, or would flow but for defences in place, in times of flood.	L _A 90	The noise level exceeded for 90% of the measurement period A-weighted and calculated by Statistical Analysis.
Flood Resistance and Resilience	Measures put in place to protect a property against flooding.	Lawson Comfort Criteria	The so called 'Lawson' criteria which define whether a space is comfortable for business walking, strolling or sitting by a threshold wind speed i.e. the hourly mean wind speed exceeded 5% of the time.
Fugitive emissions	Emissions arising from the passage of vehicles that do not arise from the exhaust system.	Lawson Safety Criteria	Criteria for the safety of an individual in relation to the wind environment. There are two categories: S1: unsafe for typical use (threshold speed 20m/s) and S2: unsafe for sensitive use (threshold speed 15m/s).
Geotechnical	Ground investigation, typically in the form of boreholes and/or trial/test pits, carried out for engineering purposes to determine the nature of the subsurface deposits.	Light Trespass	The spilling of light beyond the boundary of the area to be lit.
Glare	The uncomfortable brightness of a light source or illuminated area when viewed against a dark background.	Listed Building	A building or structure of special architectural or historic interest which is included in a list made by the Secretary of State.
Grade I Listed Building	A listed building that is of exceptional interest.	Local Plan	A series of documents which sets out the vision and framework for development in the borough.
Grade II Listed Building	A listed building that is of special interest.	Made Ground	Soils or other material which has been deposited by man rather than natural processes, for example to make up ground levels.
		Magnitude of Impact	The degree and extent to which the project changes the environment.

Broad Street Mall Glossary of Terms and Abbreviations

Massing	Massing refers to the structure in three dimensions, usually outlining the height and size of a building.
McFarlane Associates	Landscape Architects
Mechanical Ventilation Heat Recovery	An energy recovery ventilation system using equipment known as a heat recovery ventilator, heat exchanger, air exchanger, or air-to-air heat exchanger which employs a cross flow or counter-flow heat exchanger (counter current heat exchange) between the inbound and outbound air flow. The system provides fresh air and improved climate control, while also saving energy by reducing heating (and cooling) requirements.
Microclimate	The climate of a very small or restricted area, particularly when this is different from the climate of the surrounding area.
Mitigation	Any process, activity of thing designed to avoid, reduce or remedy adverse environmental impacts likely to be caused by a development project.
Mitigation Measure	Measure aiming at reducing an adverse environmental effect.
National Planning Policy Framework	Came into force on 27 March 2012. It sets out the Government's economic, environmental and social planning policies for England and summarises, in a single document, all previous national planning policy advice (Planning Policy Statements and Planning Policy Guidance notes).
Nitrogen Dioxide	Road transport and the burning of fossil fuels for power are the main sources of Nitrogen dioxide. In addition to being a greenhouse gas it also contributes to photochemical smog formation. It is an irritant to the respiratory system.
Non-Technical Summary	A summary of the Environmental Statement in 'non-technical language'.
No-sky Line	A measure of the distribution of diffuse daylight within a room.
Obtrusive Light	Any light emitted from artificial sources into spaces where this light would be unwanted.
Open Space	Includes all open spaces, plus other spaces that provide a break from the densely built-up urban form, such as pedestrianised areas and station concourses; hard-landscaped areas with private access; pedestrian/cycle and wildlife routes; and all the green infrastructure that links open spaces together, including green corridors, private residential gardens, trees, green roofs, and green landscaped areas.
Ordnance Datum	Land levels are measured relative to the average sea level at Newlyn, Cornwall. This average level is referred to as 'Ordnance Datum'.
Oversailing	Something (part of a project) being above or beyond something else (a lower part).
Overshadowing	Overshadowing occurs when a structure blocks out sunlight from neighbouring properties mainly on the northern side of that structure. It can affect the amount of daylight let into neighbouring properties when the shadow cast falls across windows or glazed doors, or on amenity spaces.
Particulate Matter	Discrete particles in ambient air, sizes ranging between nanometres (nm, billionths of a metre) to tens of micrometres (µm, millionths of a metre).
Party Wall	A wall common to two adjoining buildings or rooms.
Party Wall Act (1996)	A framework for preventing or resolving disputes in relation to party walls, part structures, boundary walls and excavations near neighbouring buildings.
Pathways	The routes by which impacts are transmitted through air, water, soils or plants and organisms to their receptors.
Pedestrian Level Wind Speed	Mean or gust wind speed measured at 1.5 m above ground level.

Pedestrian Environment Review System (PERS)	Pedestrian Environment Review System (PERS) is a walking audit tool developed by TfL for assessing the level of service and quality provided for pedestrians to across a range of pedestrian environments.
Percentile	The percentage of results below a given value.
Photomontage	The use of photographs of a site from a certain viewpoint to show both the current base (pre-development) state of the site and the anticipated view of the site once development is complete.
Pile	A timber, steel or concrete post which is driven, jacked or cast (bored) into the ground to carry vertical or horizontal loads.
Pile Cap	A thick, concrete mat that rests on concrete or timber piles that have been driven into the ground.
Plant	A building's generator, heating, ventilation, and/or electricity-production system.
Planning Application Red Line Boundary	Border that incorporates all land necessary to carry out the proposed development.
Planning Inspectorate	An executive agency of the Department for Communities and Local Government with responsibility of determining final outcomes of town planning and enforcement appeals and public examination of local development plans.
Planning Practice Guidance	A web-based resource that came into force in 2014. It seeks to consolidate existing technical guidance into a consolidated online format and provides further detail on the policies contained within the NPPF.
Planning Statement	Sets out the policy background to the proposal, describes the site and its surroundings, identifies constraints and explores the planning policy framework.
Porous	A rock or material having minute holes through which liquid or air can pass.
Proposed Development	An area of land that has had a potential scheme put forward to be built on.
Public Transport Accessibility Level Assessment	A means of quantifying and comparing accessibility by public transport for a given site.
Public Realm	The space between and within buildings that are publicly accessible, including streets, squares, forecourts, parks and open spaces.
Ratification (Monitoring)	Involves a critical review of all information relating to a data set, in order to amend or reject the data. When the data have been ratified they represent the final data to be used (see also validation).
Receptor (Sensitive)	A component of the natural, created, or built environment such as human being, water, air, a building, or a plant that is affected by an impact.
Residual Effects	Those effects of a development following implementation of any relevant mitigation proposals.
Risk Assessment	An assessment of the likelihood and severity of an occurrence.
Safeguarding	Protecting from harm or damage with an appropriate measure.
Screening (landscaping)	A natural or man-made feature which separates land uses.
Secure by Design standards	Initiative combining the principles of 'designing out crime' with physical security.

Broad Street Mall Glossary of Terms and Abbreviations

Sensitive Area	According to EIA Regulations is any of the following: land notified under section 28(1) (Sites of Special Scientific Interest) of the Wildlife and Countryside Act 1981 (23); a National Park; the Broads; a property on the World Heritage List; a scheduled monument; AONB or a European site.
Setting	The context in which a building or area can be appreciated.
Severance	The perceived divisions that can occur within a community when it becomes separated by a traffic route.
Site of Importance for Nature Conservation	A non-statutory site identified as being areas of importance for wildlife and geology.
Site Suitability Assessment	A comprehensive analysis of both the on-site subsoil characteristics and the local hydrogeological features of the site to determine the most feasible means of treating effluent on-site whilst ensuring full compliance with wastewater treatment requirements.
Socio-Economics	The social science that studies how economic activity affects and is shaped by social processes.
Sol Acoustics	An independent acoustic consultancy practice
Solar Glare	A continuous source of excessive brightness from the sun.
Sound Power Level	The total sound power emitted by a source in all directions in watts (joules per second).
Specific Noise Level	The equivalent continuous A-weighted sound pressure level at the assessment position produced by the specific noise source (the noise source under investigation) over a given time interval (LAeq,T)
Statement of Community Involvement	Produced by local authorities to explain to the public, their involvement in the preparation of local planning documents.
Statutory Consultees	Groups or bodies that, by law, must be consulted as part of the planning application process for EIA development.
Strata	Layer of rock or soil.
Substructure	Elements of a development below ground level, typically basements and foundations.
Superstructure	Elements of a development above ground principally the mega frame, supporting northern core and outer shell cladding.
Supplementary Planning Document	Documents which seek to give guidance and support on the Council's planning processes and are one of the material considerations in determining planning applications.
Surface Water Drainage Strategy	A report into how surface water, usually caused by rain, affects a site and the surrounding area.
The Applicant	The persons or entities making the planning application.
The London Clay Formation	A marine geological formation of Ypresian age which crops out in the southeast of England.
The Site	The extent of the development site, as defined by the red-line boundary plan.
Time slicing	A technique to implement multitasking in operating systems.
Topography	The natural and man-made features of an area collectively.
Townscape	The visual appearance of a town or urban area.
Transport Assessment	Prepared and submitted alongside planning applications for developments likely to have significant transport implications.

Travel Plan	A document which puts measures in place that will encourage sustainable travel and reduce reliance on single occupancy cars.
Uncertainty	A measure, associated with the result of a measurement, which characterizes the range of values within which the true value is expected to lie. Uncertainty is usually expressed as the range within which the true value is expected to lie with a 95% probability, where standard statistical and other procedures have been used to evaluate this figure. Uncertainty is more clearly defined than the closely related parameter 'accuracy', and has replaced it on recent European legislation.
Unexploded ordnance	Explosive weapons that did not explode when they were employed and still pose a risk of detonation, sometimes many decades after they were used or discarded.
Urban Grain	The combined pattern of blocks and streets, taking into account the character of street blocks and building height and size and how they work together to enable movement and access.
Urban Heat Island Effect	An urban area or metropolitan area that is significantly warmer than its surrounding rural areas due to human activities.
Validation (modelling)	Refers to the general comparison of modelled results against monitoring data carried out by model developers.
Validation (monitoring)	Screening monitoring data by visual examination to check for spurious and unusual measurements (see also ratification).
Verification (modelling)	Comparison of modelled results versus any local monitoring data at relevant locations.
Verified Image	An outline image of a development on a base photograph to provide projections of key views.
Vertical Sky Component	A 'spot' measure of the skylight reaching the mid-point of a window from an overcast sky. It represents the amount of visible sky that can be seen from that reference point, from over and around an obstruction in front of the window.
Ward	An administrative division of a city or borough that typically elects and is represented by a councillor or councillors.
Waste Arisings	Materials forming the secondary or waste products of industrial operations.
Watching Brief (archaeological)	An archaeological watching brief is 'a formal programme of observation and investigation conducted during any operation carried out for non-archaeological reasons.'
Wind Tunnel Testing	Assessment used in aerodynamic research to study the effects of air moving past solid objects.
Wireline	A single line representing the outline of the building.

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ABBREVIATIONS

μgm^{-3} Micrograms per cubic metre	A measure of concentration in terms of mass per unit volume. A concentration of $1\mu\text{g}/\text{m}^3$ means that one cubic metre of air contains one microgram (millionth of a gram) of pollutant.
μm	Micrometres
AADT	Annual Average Daytime Traffic Flows
AAWT	Annual Average Weekly Traffic Flows
AD	Anno Domini
ADF	Average Daylight Factor
ADMS	Atmospheric Dispersion Modelling System
AOD	Above Ordnance Datum
AONB	Area of Outstanding Natural Beauty
APA	Archaeological Priority Area
APSH	Annual Probable Sunlight Hours
AQ	Air Quality
AQAL	Air Quality Assessment Level
AQAP	Air Quality Action Plan
AQMA	Air Quality Management Area
AQO	Air Quality Objectives
ATC	Automatic Traffic Counters
ATMs	Air Traffic Management systems
AVRs	Accurate Visual Representations
B	Beaufort
BAP	Biodiversity Action Plan
BC	Before Christ
BEB	Building Emissions Benchmark
bgl	Below Ground Level
BPM	Best Practicable Means
BRE	Building Research Establishment
BREEAM	British Research Establishment Environmental Assessment Method
BS	British Standard
BSI	British Standard Institute
CA	Conservation Area
CAA	Civil Aviation Authority
C&D	Construction and Demolition
CDE	Construction, Demolition and Excavation
CEMP	Construction Environmental Management Plan

CERS	Cycle Environment Review System
CFA	Continuous Flight Auger: A piling method.
CHP	Combined Heating and Power
CIEEM	Chartered Institute for Ecology and Environmental Management
CIfA	Chartered Institute for Archaeologists
CIL	Community Infrastructure Levy
CLOCS	Construction Logistics and Cycle Safety
CLP	Construction Logistics Plan
CO	Carbon monoxide
CO ₂	Carbon dioxide
CoCP	Code of Construction Practice
CoP	Code of Practice
CoPA	Control of Pollution Act
COSHH	Control of Substances Hazardous to Health
CRTN	Calculation of Road Traffic Noise
CSA	Childcare Sufficiency Assessment
DAS	Design and Access Statement
dB	Decibel
DBA	Desk Based Assessment
DCLG	Department for Communities and Local Government
DEFRA	Department of Environment, Food and Rural Affairs
DfE	Department for Education
DfT	Department for Transport
DMP	Dust Management Plan
DMRB	Design Manual for Roads and Bridges
DPD	Detailed Sites Policies
DRA	Dust Risk Assessment
DRP	Design Review Panel
DSO	Daylight, Sunlight and Overshadowing
DSP	Delivery Servicing Plan
EA	Environment Agency
EC	European Commission
EHO	Environmental Health Officer
EHV	Extra High Voltage Lines
EIA	Environmental Impact Assessment
EPA	Environmental Protection Act
EPUK	Environmental Protection UK

Broad Street Mall Glossary of Terms and Abbreviations

ES	Environmental Statement	NAQO	National Air Quality Objectives
Ev	Vertical Illuminance In Lux	N/A	Not applicable
FRA	Flood Risk Assessment	NGET	National Grid Electrical Transmission
FTE	Full Time Equivalent	NHS	National Health Service
FTP	Framework Travel Plan	NIA	Net Internal Area
FW Drainage	Foul Water Drainage	NIP	National Infrastructure Planning
GEA	Gross External Area	NMR	National Monuments Record
Geoarch	Geoarchaeological Deposit Model	NO	Nitrogen monoxide, a.k.a. nitric oxide
GHG	Greenhouse Gas	NO ₂	Nitrogen Dioxide
GIA	Gross Internal Area	NO _x	Nitrogen Oxides
GLVIA	Guidelines for Landscape and Visual Impact Assessment	NPPF	National Planning Policy Framework
GP	General Practitioner	NPPG	National Planning Practice Guidance
Ha	Hectare	NRMM	Non-Road Mobile Machinery
HE	Historic England	NSL	No-Sky Line
HGV	Heavy Goods Vehicle	NTS	Non-Technical Summary
HTVIA	Heritage, Townscape and Visual Impact Assessment	NVZ	Nitrate Vulnerability Zone
IAQM	Institute of Air Quality Management	O ₃	Ozone
IDP	Infrastructure Delivery Plan	OD	Ordnance Datum
IEMA	Institute of Environmental Management and Assessment	ONS	Office of National Statistics
Kg	Kilograms	OS	Ordnance Survey
km	Kilometres	PAHs	Polycyclic Aromatic Hydrocarbons
kWh	Kilowatt hour	PAN	Public Admission Numbers
l/s	Litres per second	PCBs	Polychlorinated Biphenyls
LAQM	Local Air Quality Management	PEA	Preliminary Ecological Appraisal
LAQM.TG	Local Air Quality Management Technical Guidance	PERS	Pedestrian Environment Review System
LLFA	Lead Local Flood Authority	PFRA	Preliminary Flood Risk Assessment
LLSOAs	Lower Layer Super Output Areas	PM ^{2.5} /PM ¹⁰	Particulate Material of a particular size fraction
LPA	Local Planning Authority	ppb parts per billion	The concentration of a pollutant in the air in terms of volume ratio. A concentration of 1 ppb means that for every billion (10 ⁹) units of air, there is one unit of pollutant present.
LWA	The mean A-weighted sound power level	PPE	Personal Protective Equipment
m	Metre	PPG	Planning Practice Guidance
m ²	Square metre	PPG	Pollution Prevention Guidelines
m ³	Cubic metre	ppm parts per million	The concentration of a pollutant in the air in terms of volume ratio. A concentration of 1 ppm means that for every billion (10 ⁶) units of air, there is one unit of pollutant present.
M AOD	Metres Above Ordnance Datum	PPV	Peak Particle Velocity
mm/s	Millimetres per second	PRA	Preliminary Risk Assessment
m/s	Meters per Second	ProPG	Professional Practice Guidance on Planning & Noise
MTS	Mayor's Transport Strategy	PTAL	Public Transport Accessibility Level
MVHR	Mechanical Ventilation and Heat Recovery		

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RBC	Reading Borough Council
RFRA	Regional Flood Risk Assessment
SCI	Statement of Community Involvement
SFRA	Strategic Flood Risk Assessment
SINC	Site of Importance for Nature Conservation
SoS	Secretary of State
SO ₂	Sulphur Dioxide
SPD	Supplementary Planning Documents
SPG	Supplementary Planning Guidance
SPZ	(Groundwater) Source Protection Zone
SSSI	Site of Special Scientific Interest
SuDS	Sustainable Urban Drainage Systems
SW Drainage	Surface Water Drainage
TA	Transport Assessment
TEB	Transport Emissions Benchmark
TOC	Take Off and Climb Surface
TTE	Total Transport Emissions
UK	United Kingdom
UKAS	United Kingdom Accreditation Service
UKCP	United Kingdom Climate Projections
USA	Updating and Screening Assessment
VDV	Vibration Dose Values
VOC/SVOCs	Volatile Organic Compounds
VSC	Vertical Sky Component
WHO	World Health Organization
WHS	World Heritage Site