

# A46 Newark Bypass

# TR010065/APP/6.1

# 6.1 Environmental Statement Chapter 17 Glossary and Abbreviations

APFP Regulation 5(2)(a)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

Volume 6

April 2024

Infrastructure Planning

Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

## A46 Newark Bypass

## Development Consent Order 202[x]

## **ENVIRONMENTAL STATEMENT**

### **CHAPTER 17 GLOSSARY AND ABBREVIATIONS**

Regulation Number:	Regulation 5(2)(a)
Planning Inspectorate Scheme	TR010065
Reference	
Application Document Reference	TR010065/APP/6.1
Author:	A46 Newark Bypass Project Team, National
	Highways

Version	Date	Status of Version
Rev 1	April 2024	DCO Application



## **Contents**

17 Glossary and Abbreviations......1



## **17 Glossary and Abbreviations**

Term	Acronym or abbreviation	Definition
A		
Above Ordnance Datum	AOD	Above the mean sea level at Newlyn in Cornwall calculated between 1915 and 1921, taken as a reference point for the height data on Ordnance Survey maps.
Access		The means by which to approach or enter land, property and assets.
Accommodation works		Activities that are undertaken or required to maintain structures, equipment, or land that is the property or under the control of a statutory undertaker.
Adaptation Reporting Power	ARP	<ul> <li>The Climate Change Act 2008 enables the Government to require infrastructure providers and bodies with functions 'of a public nature' to provide reports on how they manage climate risk, although this power has only been used to make mandatory directions in the first of the three previous rounds. Such reports are known as the ARP and are expected to cover: <ul> <li>the current and future projected impacts of climate change on their organisation;</li> <li>proposals for adapting to climate change; and,</li> <li>an assessment of progress towards implementing the policies and proposals set out in previous reports.</li> </ul> </li> </ul>
Additional mitigation		Mitigation measures that are over and above any embedded and standard mitigation measures and are required to further reduce the significance of an environmental effect.
Address Base data		An Ordnance Survey data product which enables property information to be linked to addresses on a map.



Term	Acronym or abbreviation	Definition
Affected road network	ARN	Parts of the road network that are identified as likely to be affected by changes in air quality as a result of a project. These comprise all roads that trigger the traffic screening criteria and adjoining roads within 200m.
Aggregate		Granular material (for example sand and gravel or crushed rock) that can be used for building and/or civil engineering purposes (for example for concrete production).
Agricultural Land Classification	ALC	The system devised and introduced by the Ministry of Agriculture, Fisheries and Food to classify agricultural land according to the extent to which its physical or chemical characteristics impose long-term limitations on agricultural use. Land is graded between 1 (excellent quality) to 5 (very poor quality), with grade 3 subdivided into agricultural subgrades 3a and 3b.
Agricultural land holding		Land and associated infrastructure for the purpose of agricultural production.
Air Pollution Information System	APIS	A tool that provides a searchable database and information on pollutants and their impacts on habitats and species.
Air quality action plan		A plan that must be compiled by a local authority if they declare an air quality management area.
Air Quality Dispersion Modelling System	ADMS	An advanced dispersion model used to model the air quality impact of projects.
Air quality exceedance		Where pollutant concentrations exceed an air quality standard.
Air quality limit value		A maximum pollutant concentration to be achieved in the atmosphere, either without exception or with a permitted number of exceedances. Limit values are defined in United Kingdom legislation.



Term	Acronym or	Definition
	abbreviation	
Air Quality Management Area	AQMA	An area declared by a local authority that has been determined will exceed the relevant air quality strategy objective.
Air quality objective		Objectives are policy targets generally expressed as a maximum ambient pollutant concentration to be achieved. The objectives are set out in the UK Government's Air Quality Strategy for the key air pollutants.
Air Quality Strategy	AQS	The Environment Act 1995 (as amended by Schedule 11 of the Environment Act 2021) requires the UK Government to produce a national Air Quality Strategy (AQS). The AQS establishes the UK framework for air quality improvements.
Air quality threshold		Generic term to represent the relevant pollutant averaging period and concentration value described by the air quality strategy objectives or UK limit values.
Alluvial deposits		Natural materials deposited by rivers, found both within and adjacent to rivers.
Alternatives		Different modes, design options and variations considered during project development that have potential to fulfil the project objectives.
Ambient noise		Ambient noise is the total sound in a given situation at a given time, usually composed of sound from many sources, near and far.
Amenity		The benefits of enjoyment and well-being which are gained from a resource in line with its intended function. Amenity may be affected by a combination of factors such as: sound, noise and vibration; dust/air quality; traffic/congestion; and visual impacts.
Ancient woodland		Any area that has been continually wooded since at least 1600 AD and has developed irreplaceable, complex ecosystems.



Term	Acronym or	Definition
	abbreviation	
Annual Average Daily Traffic	AADT	The total volume of vehicle traffic on a road flowing past a certain point over a year, divided by 365 days.
Annual Average Weekday Traffic	AAWT	The average 24-hour traffic volume occurring on weekdays throughout a full year.
Annual Exceedance Probability	AEP	Flood frequency is expressed in terms of an annual exceedance probability, which is the inverse of the annual maximum return period. For example, the 100-year flood (a flood likely to occur once every 100 years) can be expressed as the 1% AEP flood, which has a 1% chance of being exceeded in any year.
Anthropogenic		Relating to or resulting from the influence of human beings on nature.
Appropriate Assessment	AA	The assessment of the impact on the integrity of the National Site Network of a project or plan, either alone or in combination with other projects or plans, with respect to the site's structure and function and its conservation objectives.
Aquifer		An underground layer of water-bearing permeable rock, rock fractures or unconsolidated materials (gravel, sand or silt).
Archaeological Clerk of Works	sACoW	Independent person or persons employed for the purpose of overseeing and managing archaeological matters on site prior to construction.
Archaeological Data Service	ADS	Repository in the UK for archaeology and historic environment data.
Archaeological Management Plan	АМР	A document submitted as part of the DCO, currently covering Phase 1 and 2 archaeological investigations and the Phase 3 Outline Archaeological Mitigation Strategy. The aim of the document <b>(TR010065/APP/6.8)</b> is to act as an over-arching Written Scheme of Investigation (WSI) to guide the identification, evaluation, recording and preservation of archaeological remains



Term	Acronym or	Definition
	abbreviation	
		impacted by the selected route option during construction and operation.
Arisings		Construction, demolition, excavation and other arisings generated from within a project boundary, during construction, operation and maintenance phases.
A-Road		A type of road prefixed with the letter 'A'. These are the busiest and most direct main roads, apart from motorways, and can be of different standard.
Arboricultural Impact Assessment	AIA	A document submitted as part of the application for development consent that details existing tree constraints and trees/areas of arboricultural significance using available tree survey data with the information used to help minimise and/or avoid impacts on trees.
Arboricultural Method Statement	AMS	This sets out the necessary method of working needed to ensure the protection of trees.
Arborist		An arborist is a professional in the practice of arboriculture, which is the cultivation, management, and study of individual trees, shrubs, vines, and other perennial woody plants in dendrology and horticulture.
Assemblage		A group of species found in the same location.
At-grade		On the same level. For example, when a road is on the current ground level.
Attenuation pond		Part of a drainage system that is used for temporarily storing and attenuating flood waters (can also be referred to as an attenuation basin).
Avoidance		Design and mitigation measures to prevent the effect (e.g. alternative design options or avoidance of environmentally sensitive sites).
A-weighting		In addition to its non-linear amplitude response, the human ear has a non- linear frequency response; it is less



Term	Acronym or	Definition
	abbreviation	
		sensitive at low and high frequencies and most sensitive in the mid-range frequencies.
В		
Baseline conditions		The environment as it appears (or would appear) immediately prior to the implementation of the project together with any known or foreseeable future changes that will take place before completion of the project.
Base year (traffic data)		The outputs of the traffic model coinciding with the year the traffic data was collected.
Basic Noise Level	BNL	A measure of source noise.
Bedrock		Rock that underlies loose deposits such as soil or alluvium.
Below ground level	BGL	Term used to differentiate below ground from above ground.
Best and most versatile land	BMV	Land defined as grades 1, 2 and 3a of the Agricultural Land Classification. This land is considered the most flexible, productive and efficient and is most capable of delivering crops for food and non-food uses.
Bill of Quantity	BoQ	A bill of quantities (commonly known as BoQ or BQ) is a document prepared by a quantity surveyor or cost consultant to define the quality and quantity of works required to be carried out by the Principal Contractor to complete a project.
Biodiversity		The variability among living organisms from all sources, including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part of. This includes diversity within species, between species and of ecosystems.
Biodiversity Net Gain	BNG	An approach that aims to leave biodiversity within the natural environment in a measurably better state



Term	Acronym or abbreviation	Definition
		than its condition prior to implementation of a project.
Biodiversity offsetting		A system used predominantly by planning authorities and developers to fully compensate for biodiversity impacts associated with economic development, through the planning process. In some circumstances, biodiversity offsets are designed to result in an overall biodiversity gain.
Borehole		A hole bored into the ground, usually as part of investigations, typically to test the depth and quality of soil, rock and groundwater. A borehole can also be used to dewater the ground.
Borrow pit		An excavated area where material has been dug for use as fill at another location.
Bridleway		Legally protected routes that the public can use on foot or on horseback. Cyclists may also use these paths but there is no obligation to facilitate cyclists and they must give way to other users.
British Geological Survey	BGS	A body which aims to advance geoscientific knowledge of the United Kingdom landmass and its continental shelf by means of systematic surveying, monitoring and research
British Standard	BS	Standard produced by the British Standards Institution.
British Standards Institution		A group that produces British Standards across industry sectors and which is formally designated as the National Standards Body for the UK.
Buffer		Specified area or distance surrounding a site or feature of interest.
Built heritage		A structure or building of historic value. These structures are visible above ground level.



Term	Acronym or abbreviation	Definition
Bund		An embankment that acts as a visual or noise screen, or acts as a barrier to control the spillage of fluids.
Buried archaeology (or buried heritage)		An archaeological asset beneath ground level, which may include earthworks.
Businesses		Land and buildings for the purpose of commercial/industrial enterprise.
Bypass		The diversion of a major road to carry traffic around a built-up area, constructed to improve the journey of through traffic and/or improve the environmental conditions along the original route.
Byway		A track, often rural, which is too small to be called a road but may be open to use by all vehicular traffic or have restrictions on use by non-mechanically propelled vehicles.
С	1	
Calculation of Road Traffic	CRTN	A technical memorandum that describes
Noise		the procedures for calculating noise from road traffic.
Carbon budgets		UK greenhouse gas targets over defined periods.
Carbon emissions		Shorthand for emissions of any of the seven greenhouse gases that contribute to climate change.
Carbon footprint		The total greenhouse gas emissions associated with a particular policy or development.
Catchment		A drainage/basin area within which precipitation drains into a river system and eventually into the sea.
Catchment abstraction management strategy		A process in which the Environment Agency assesses the availability of water resources for each river catchment, produces a strategy and feeds into investigations to identify failing water quality.
Celsius	°C	A scale of temperature.



Term	Acronym or abbreviation	Definition
Chainage		The distance of any point along a road, measured along the road centreline from a chosen origin or start point.
Chartered Institute for Archaeologists	CIfA	The leading professional body representing archaeologists working in the UK and overseas.
Chartered Institute of Ecology and Environmental Management	CIEEM	The leading professional membership body representing and supporting ecologists and environmental managers in the UK, Ireland and abroad.
Chartered Member of the Landscape Institute	CMLI	Awarded to those who reach the highest standards in landscape education and practice.
Clay		An inorganic component of soil derived from the weathering of rock and comprising particles less than 0.002mm in equivalent diameter.
Climate		Long-term weather conditions prevailing over a region.
Climate change		This refers to a change in the state of the climate, which can be identified by changes in average climate characteristics which persist for an extended period, typically decades or longer.
Climate Change Risk Assessment	CCRA	The UK Government is required to produce a CCRA every five years, which assesses current and future risks to the UK from climate change, including national summaries for the devolved administrations.
Climate resilience		The ability to anticipate, prepare for, and respond to climatic events, trends or disturbances.
Closed-circuit Television	ССТV	A type of video surveillance.
Combined effect		A type of cumulative effect, which occurs when different types of activity combine to have an effect on a specific receptor or resource.



Term	Acronym or abbreviation	Definition
Committed development		A development that has full or outline planning permission or is allocated in an adopted development plan.
Community		A group of people living in the same place or having a particular characteristic in common.
Community facilities		Facilities designed for the use and benefit to the local population, for example village greens, village halls, and healthcare and education facilities.
Compensation (environmental)		Offsetting measures applied where nothing can be done to reduce an environmental impact or effect.
Competent Expert(s)		The terms used in the EIA Regulations to describe a suitably qualified and experienced person (or persons) responsible for the preparation of the Environmental Statement, either whole or in part.
Congestion		A situation where the volume of traffic is too great for the road, causing vehicles to slow down or stop, often caused by bottlenecks, traffic incidents and junction design.
Connectivity		A measure of the availability of the habitats needed for a particular species to move through a given area.
Conservation (ecology)		A series of measures required to maintain or restore the natural habitats and the populations of species of wild fauna and flora at a favourable status.
Conservation area		An area designated under section 69 of the Planning (Listed Buildings and Conservation Areas) Act 1990 as being of special architectural or historic interest and with a character or appearance that is desirable to preserve or enhance.
Conservation status		The sum of the influences acting on a natural habitat and its typical species that can affect its long-term natural.



Term	Acronym or	Definition
	abbreviation	
Construction and Demolition Waste	CDW	Consists of unwanted material produced directly or indirectly as a result of the construction phase.
Construction compound		Construction compounds generally act as the points of entry to the worksites from the public highway. They may also be used for major stockpiling of materials such as topsoil, be used to facilitate transfer of materials, and accommodate offices and welfare facilities.
Construction Design and Management Regulations	CDM	Are the main set of regulations for managing the health, safety and welfare of construction projects. CDM applies to all building and construction work and includes new build, demolition, refurbishment, extensions, conversions, repair and maintenance.
Construction Industry Research and Information Association	CIRIA	An independent and not-for-profit body with the vision to be a leading enabler for performance across built environment and construction sectors.
Construction materials		Primary, recycled/secondary and renewable sources of materials required for constructing a project.
Construction noise assessment		An assessment which compares predicted noise levels from construction tasks to ambient noise levels at nearby noise sensitive receptors.
Construction plant		Portable construction machinery and equipment.
Construction vibration assessment		An assessment of magnitude of predicted vibration from construction activities.
Consultation Report		The Report which sets out how the Applicant has complied with the consultation requirements of the Planning Act 2008 and how the Applicant has had regard to the responses received.
Contamination		An action or state of making arising due to polluting or poisoning.
Contractor		A general term used to describe an individual or company appointed by a



Term	Acronym or abbreviation	Definition
		developer to construct or manage a project at a certain price or rate.
Control of Substances Hazardous to Health Regulations	СОЅНН	COSHH is a set of regulations put in place to protect workers from ill health when working with specific substances and materials.
Controlled waters		Rivers, streams, estuaries, lakes, canals, ditches, ponds and groundwater as far out as the UK territorial limit. The statutory definition is provided in section 104 (1) of the Water Resources Act 1991 and section 30A (d) of the Control of Pollution Act 1974.
Cropmark		Cropmarks are a means through which sub-surface archaeological, natural and recent features may be visible from the air or a vantage point on higher ground or a temporary platform.
Cultural heritage		Historic monuments, historic groups of buildings and/or historic sites.
Cultural heritage resource		A building, monument, site, place, area or landscape identified as having a degree of significance meriting consideration in planning decisions, because of its heritage interest.
Culvert		A tunnel (pipe or box shaped) that carries a stream or open drain under a road or railway.
Cumulative effect (or impact)		<ul> <li>A cumulative impact (or effect) may arise as the result of the combined impact of:</li> <li>A. A number of different environmental topic-specific impacts from a single environmental impact on a single receptor/resource; and</li> <li>B. A number of different schemes within the vicinity (in combination with the environmental impact assessment project) on a single receptor/resource.</li> </ul>



Term	Acronym or abbreviation	Definition
Cut-fill balance		Where the amount of material obtained from earthwork cuttings broadly matches the amount of fill material required to form embankments, thereby minimising the amount of material needed to be imported into, or exported from, a construction site.
Cutting (earthwork)		Excavation of earth material to lower the ground level on which a road would be positioned, in order to help to reduce noise and/or visual impact.
Cycleway		A road, route, or path intended for use by people on bicycles.
D	1	
Decibel	dB	The scale used to measure noise is the decibel scale which extends from 0 to 140 decibels, corresponding to the intensity of the sound pressure level.
Decision-maker		The Secretary of State for Transport (in England).
Decommission		The act of ceasing operation of an asset to a non-active status.
Definitive Map		A record of Public Rights of Way in England and Wales, maintained by local authorities.
Delay		For pedestrians, this is the increase in the 'person-minutes' of the journey times of pedestrians and other non-motorised travellers. For traffic, this is the increase in journey times for drivers and passengers.
Department for Environment, Foods and Rural Affairs	DEFRA	The Government department responsible for policy and regulations on environmental, food and rural issues. The department's priorities are to grow the rural economy, improve the environment and safeguard animal and plant health.
Department for Transport	DfT	The national Government body responsible for transport in Britain, and therefore in overall control of the road network. DfT is mainly responsible for



Term	Acronym or abbreviation	Definition
		policy decisions, and its responsibilities are carried out by a range of agencies and local authorities.
Deposition (dust)		The vertical passage of a substance (for example dust) to a surface or the ground.
Deposition (sediment)		The laying down of part, or all, of the sediment load of a stream on the bed, banks or floodplain, which forms various sediment features such as bars, berms and floodplain deposits.
Designated habitats		Internationally, nationally and locally designated sites of ecological conservation importance on protected species and on habitats and other species identified as being of principal importance for the conservation of biodiversity.
Design Manual for Roads and Bridges	IDMRB	The Design Manual for Roads and Bridges contains information about current standards relating to the design, assessment and operation of motorway and all-purpose trunk roads in the United Kingdom.
Design development		The process in which technical specialists (for example engineers and environmentalists) refine the design for the various elements of the Scheme.
Design for Resource Efficiency	D4RE	A workshop undertaken by the Applicant to identify opportunities to improve resource efficiency and reduce carbon as a result of the Scheme.
Desk-Based Assessment	DBA	A document prepared to provide a detailed assessment of the cultural heritage resource and sensitivities within the Order Limits of the Scheme and explores the potential effects the Scheme may have upon this resource.
Detailed assessment		Detailed field surveys and/or quantified modelling techniques to understand complex environmental effects.



Term	Acronym or	Definition
	abbreviation	
Development Consent Order	DCO	The legal instrument to obtain consent for a Nationally Significant Infrastructure Project required under the Planning Act 2008.
Development plan		Documentation that seeks to guide development and planning in a local authority area for a set period.
Development Plan Document	DPD	Planning policy documents that are part of the Newark & Sherwood District Council Allocations & Development Management Plan. These documents contribute to guiding development within the relevant authority area.
Development land		Land identified in national or local plans, policies or strategies for development (including intensification of existing uses) and land subject to planning permission.
Diffusion tube		Passive devices used in air quality monitoring to measure weekly or monthly average pollutant concentrations.
Directive		Legal obligations imposed on European member states by the European Union. Directives have now been transposed to UK legislation since leaving the European Union.
Discharge consent		A consent or permit to discharge effluent that could harm the environment.
Displacement		Loss of local economic activity as a direct consequence of a proposed development.
Disposal		Any operation that is not recovery, even where the operation has the reclamation of substances or energy as a secondary consequence.
Diverge		The point where two streams of traffic split and go in different directions.
Diversion route		A set of approved routes to follow in the case of motorway and/or major A-road closures.



Term	Acronym or abbreviation	Definition
	appreviation	
Diverted route / walkers, cyclists and horse riders route		An approved route to follow in the case of closure of, or alteration to, a Public Right of Way.
Do Minimum	DM	The conditions that would persist in the absence of the implementation of the Scheme but on the basis that maintenance on the road network is ongoing.
Do Something	DS	The conditions that would occur as a consequence of the implementation of the Scheme.
Drinking Water Safeguard Zone		Designated areas in which the use of certain substances must be carefully managed to prevent the pollution of raw water sources that are used to provide drinking water.
Dust		All airborne particulate matter.
E		
Early Assessment and Sifting Tool	EAST	A Department for Transport tool developed to quickly summarise and present evidence on options in a clear and consistent format, to provide decision-makers with comparative evidence on how they perform.
Earth bund		A bund constructed to provide noise or landscape mitigation.
Earthworks		The removal or placement of soils and rocks such as in cuttings, embankments and environmental mitigation, including the in-situ improvement of soils/rocks to achieve the desired properties.
East Coast Main Line	ECML	A 393-mile long major railway between London and Edinburgh via Peterborough, Doncaster, York, Darlington, Durham and Newcastle.
Ecological (sometimes known as environmental) Clerk of Works	ECoW	Personnel with appropriate accreditation, pertinent to the relevant monitoring or management needed, to oversee the management of the risks on construction sites associated with managing biodiversity. Will ensure compliance with



Term	Acronym or abbreviation	Definition
		legislation and planning conditions or requirements and provide advice and guidance throughout construction.
Ecological feature		Habitats, species or ecosystems.
Ecological Impact Assessment	EcIA	The process of identifying, quantifying and evaluating the potential impacts of defined actions on ecosystems or their components.
Ecological status		The state of a water body, derived from a number of factors, including: the abundance of aquatic flora and fauna, nutrient availability, salinity, temperature and chemical pollution levels.
Ecosystem		Biological community of interacting organisms (for example plants and animals) and their environment.
Effect		Term used to express the consequence of an impact (expressed as the 'significance of effect').
Electric vehicles		A vehicle which uses one or more electric motors for propulsion.
Elements		Parts of environmental factors. For example, listed buildings are part of cultural heritage.
Embankment		Artificially raised ground, commonly made of earth material, such as stone, on which the carriageway is laid.
Embedded mitigation		Design measures that are integrated into the Scheme for the purpose of minimising environmental effects.
Embodied carbon		Carbon emissions associated with energy consumption and chemical processes during the extraction, transport and/or manufacture of construction materials or products.
Emission Factor	EFT	A tool used to assist local authorities in carrying out a review and assessment of local air quality as part of their duties under the Environmental Act 1995.



Term	Acronym or	Definition
	abbreviation	
Enabling works		Enabling works are preparations to make a building site ready for construction. It covers activities from site preparation, creation of access routes, and the installation of facilities like security fencing, ramps, and placing of signs.
Enclosure		Enclosure (sometimes inclosure) was the legal process in England of consolidating (enclosing) small landholdings into larger farms.
Enhancement		A beneficial measure that is over and above what is required to mitigate the adverse effects of the Scheme.
Envirocheck		A provider of environmental data, reports and risk solutions for use in site-based assessments.
Environment Agency	EA	Government agency established to protect and improve the environment and contribute to sustainable development in England. Responsibilities include: water quality and resources, flooding and coastal risk management and contaminated land.
Environment Noise Directive	END	The Assessment and Management of Noise Directive 2002/49/EC.
Environmental assessment		A process by which information about environmental effects is collected, assessed and used to inform decision- making.
Environmental Assessment Report	EAR	This assessment was completed to assess the Scheme options considered as part of the options consultation and informed the options consultation material which is publicly available.
Environmental DNA	eDNA	DNA that is collected from a range of environmental samples including soil and water, rather than being directly sampled from a plant or animal.
Environmental factors		Population and human health; biodiversity; land, soil, water, air and climate; material assets, cultural heritage,



Term	Acronym or abbreviation	Definition
		and landscape; and the interaction between these factors.
Environmental Health Officer	EHO	A local authority officer with responsibilities for protecting public health through the administration and enforcement of environmental health legislation. Can also be referred to as an Environmental Protection Officer.
Environmental Impact Assessment	EIA	The statutory process through which the likely significant effects of the Scheme on the environment are identified and assessed.
Environmental Impact Assessment Directive	EIA Directive	Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014, amending Directive 2011/92/EU on the assessment of the effects of certain public and private schemes on the environment.
Environmental Impact Assessment Regulations	EIA Regulations	The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017.
Environmental Management Plan	EMP	A site-specific plan developed to ensure that the Scheme is implemented in an environmentally sustainable manner where all contractors and subcontractors, including consultants, understand the environmental constraints within the site.
Environmental Masterplan		Plan which illustrates the mitigation measures integrated into the design of the Scheme.
Environmental Quality Standard	EQS	The maximum permissible concentration of a potentially hazardous chemical.
Environmental Statement	ES	A statutory document which reports the outcome of the EIA process, produced in accordance with the EIA Directive as transposed into UK law by the EIA Regulations.
Environmental Technical Working Group		An environmental Technical Working Group (TWG) was established with the Environment Agency, Historic England, Natural England, Newark & Sherwood



Term	Acronym or abbreviation	Definition
		District Council and Nottinghamshire County Council to inform consultation bodies of the progress and timescales for the Scheme, and also to review and discuss specific scheme issues, to consider appropriate design solutions and seek to agree statements of common ground.
Equality Impact Assessment	EqIA	A tool used to anticipate the needs of diverse groups when you are making decisions about projects, policy or service delivery. An EqIA (TR010065/APP/7.6) is submitted with the Development Consent application.
Erosion		The removal of sediment or bedrock from the bed or banks of a channel by flowing water, occurring mostly during high flows and flood events. This process forms various river features such as scour holes and steep outer banks.
Essential Mitigation		Mitigation required to offset the impacts as a result of construction and operation of the Scheme, which is secured through a Development Consent Order.
European Commission	EC	An executive branch of the European Union.
European Economic Area	EEA	The European Economic Area (EEA) was established via the EEA Agreement, an international agreement which allows for the extension of the EU's single market to non-EU member parties.
European Landscape Convention	ELC	A convention that promotes the protection, management and planning of European landscapes and organises European co-operation on landscape issues.
European Protected Species	EPS	Species of plants and animals (not birds) which are protected by European law, and now transposed to UK Law.
European Union	EU	An economic and political union of 27 countries which operates an internal (or single) market, which allows the free



Term	Acronym or	Definition
	abbreviation	
		movement of goods, capital, services and people between member states.
Evaluation		The determination of the significance of effects. Evaluation involves making judgements as to the value of the receptor/resource that is being affected and the consequences of the effect on the receptor/resource based on the magnitude of the impact.
Examining Authority	ExA	An Inspector or a panel of Inspectors appointed by the Secretary of State who are responsible for examining the Development Consent Order application.
Excavated Material		Largely natural soil and rock material that is removed from the ground during construction.
Extreme Weather		A weather event that is significantly different from the average or usual weather pattern.
F		
Façade Noise Level		Sound level that is determined 1 metre (m) in front of a window or door in a façade.
Fauna		The animals of a particular region, habitat, or geological period.
Features		Particularly prominent, eye-catching elements or characteristic components such as tree clumps, church towers, or wooded skylines.
Fill		Material used to artificially raise the existing ground levels.
Find Spot		A term used to describe the location at which an archaeological find was discovered.
First Iteration Environmental Management Plan		The First Iteration of the Environmental Management Plan produced to set out mitigation measures and other commitments. This document (TR010065/APP/6.5) is submitted with the Development Consent application.



Term	Acronym or abbreviation	Definition
Flood Compensation Area	FCA	Areas of land set aside to mitigate for the loss of floodplain as a result of the Scheme.
Flood Risk		A combination of the probability (likelihood or chance) of a flood event happening, and the consequences (impact) if it occurred.
Flood Risk Assessment	FRA	The process of assessing potential flood risk to a site and identifying whether there are any flooding or surface water management issues that may warrant further consideration or may affect the feasibility of the Scheme.
Flood Zone 1		Land outside the floodplain where there is little or no risk of flooding.
Flood Zone 2		The area of the floodplain where there is a low to medium flood risk.
Flood Zone 3		The area of the floodplain where there is a high risk of flooding.
Floodplain		Land adjacent to a watercourse over which water flows or would flow in times of flood.
Fluvial		A term that relates to rivers and streams and the processes that occur within them.
Formation (geological)		A group of related rock strata with some common properties.
Fragmentation (ecological)		The breaking up of a habitat, ecosystem or land use types into smaller parcels.
Free-field Sound Level		The sound level that is measured or calculated, in the open, without any reflections from nearby surfaces except the ground.
Future Baseline		The likely evolution of the current state of the environment without implementation of the Scheme.
Future Year		A year between the opening year and the fifteenth year of operation of the Scheme.
G		I



Term	Acronym or abbreviation	Definition
Geology		The physical structure, substance and history of the earth (rocks and minerals).
Geomorphology		The structure, origin, and development of the topographical features of the earth's surface.
Geophysical Survey		A process involving ground-based physical sensing techniques to determine the presence or absence of anomalies likely to be caused by archaeological features, structures or deposits.
Grade Separated		A type of junction where the major route (or routes) through the junction do not stop and do not cross any other road on the level. Movements to other roads are made using slip roads and bridges.
Great Crested Newt	GCN	A newt in the family Salamandridae, found across Europe and parts of Asia, which are protected under the Conservation of Habitats and Species Regulations 2017.
Green Belt		A designation for land around certain cities and large built-up areas, which aims to keep this land permanently open or largely undeveloped.
Greenhouse gases	GHG	Atmospheric gases that absorb and emit infrared radiation emitted by the Earth's surface, the atmosphere and clouds.
Ground investigation	GI	An intrusive investigation undertaken to collect information relating to the ground conditions, normally for geotechnical or land contamination purposes.
Groundwater		Water found underground in porous geological strata and soils.
Groundwater body		A distinct volume of groundwater within an aquifer or aquifers
Groundwater Dependent Terrestrial Ecosystems	GWDTE	Wetlands that depend on groundwater flows or chemistries.
Groundwater source protection zone		Areas defined by the Environment Agency that show the risk from



Term	Acronym or	Definition
	abbreviation	
		contamination/pollution to groundwater
		that is extracted for drinking water.
Н		I
Habitat		The place or type of site where an organism or population naturally occurs. Often used in the wider sense referring to major assemblages of plants and animals found together.
Habitat of principal importa	nceHPI	Habitats in England identified as requiring action in the UK Biodiversity Action Plan and are regarded as having biodiversity conservation priorities.
Habitats Regulations Assessment	HRA	An assessment of ' <i>projects</i> ' (or plans) potentially affecting European Sites in the UK, required under the Habitats Directive and Regulations. Also known as an assessment of implications on European Sites.
Habitat Suitability Index	HSI	A numerical index that represents the capacity of a given habitat to support a selected species.
Haul Road		A temporary road provided within a contractor's site area to allow for the movement of construction material, construction machinery and/or construction labour around the site.
Hazardous Waste		Any waste that displays one or more of the hazardous properties listed in Annex III of the Waste Directive.
Health Determinants		Personal, social, economic and environmental factors which determine the health status of individuals and communities.
Heavy Duty Vehicle	HDV	See Heavy Goods Vehicle.
Heavy Goods Vehicle	HGV	A commercial carrier vehicle with a gross vehicle weight of more than 3.5 tonnes.
Hectare	ha	A metric unit of measurement, equal to 2.471 acres or 10,000 square metres.



Term	Acronym or abbreviation	Definition
Heritage Asset		A building, monument, site, place, area or landscape of historic value.
Highways Agency Geotechnical Data Management System	HAGDMS	Contains information about the condition of the ground beneath the network and the earthworks (embankments and cuttings) that support the infrastructure.
Highways England Water Risk Assessment Tool	HEWRAT	A tool which determines whether the catchments in which National Highways operate are particularly exposed to water risk, as well as to better understand the nature of risk in specific catchments.
Highways England		The Government agency responsible for the operation, maintenance and improvement of England's trunk roads and motorways. Now known as National Highways.
Historic		Associated with past human activity.
Historic England		Executive non-departmental public body created under section 32 of the National Heritage Act 1983 to:
Historia England Cood		<ul> <li>a. secure the preservation of ancient monuments and historic buildings situated in England;</li> <li>b. promote the preservation and enhancement of the character and appearance of conservation areas situated in England; and</li> <li>c. promote the public's enjoyment of, and advance their knowledge of, ancient monuments and historic buildings situated in England and their preservation.</li> </ul>
Historic England Good Practice Advice		Historic England guidance, which assists in establishing the significance of heritage assets and their setting.
Historic Environmental Reco	ordHER	A record of all known archaeological finds and features and historic buildings and historic/landscape features, relating to all periods from the earliest human activity to the present day; maintained by each County and Unitary Authority in the United Kingdom.



Term	Acronym or abbreviation	Definition
Historic Landscape Characterisation	HLC	Method of identification and interpretation of the varying historic character within an area that looks beyond individual heritage assets as it bridges understanding of the whole landscape and townscape into repeating HLC Types.
Hoarding		A temporary fence erected around a construction site to visually screen and/or contain activities.
Hot Rolled Asphalt		A common type of road surfacing comprising a dense mixture of mineral aggregate, sand and bitumen.
Human Health		A state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity.
Health Outcome		The health status of an individual, group or population, attributable to a planned intervention.
Health Profile		Statistical picture of the baseline health conditions and trends within an area.
Hydrology		The scientific study of the movement, distribution, and quality of water on Earth and other planets, including the water cycle, water resources and environmental watershed sustainability.
Hydrogeology		The nature, distribution and movement of groundwater in soils and rocks, including in aquifers.



Impact		Change that is caused by an action; for example, land clearing (action) during construction, which results in habitat loss (impact).
Imperative reasons of overriding public importance	IROPI	A competent authority is expected to ask the appropriate authority for its opinion on whether a plan or project affecting priority habitats or species constitute IROPI for reasons other than human health, public safety or primary environmental benefits.
		The appropriate authority must consult with the devolved administrations, Joint Nature Conservation Committee (JNCC) and any other person the appropriate authority considers suitable in developing its opinion. The appropriate authority will also take account of the broader national interest in developing their IROPI opinion.
		The appropriate authority will publish the IROPI opinion they give to the competent authority.
Indices of Multiple Deprivation	IMD	Used for the measurement and comparison of relative levels of deprivation.
Inert Waste		Waste:
		<ul> <li>a. that does not undergo any significant physical, chemical or biological transformations;</li> <li>b. that does not dissolve, burn or otherwise physically or chemically react, biodegrade or adversely affect other matter with which it comes into contact in a way likely to give rise to environmental pollution or harm to human health; and</li> <li>c. where its total leachability and pollutant content and the ecotoxicity of its leachate are insignificant and, in particular, do not endanger the quality of any surface water or groundwater.</li> </ul>



Institute of Air Quality	IAQM	The professional body for air quality
Management		practitioners.
Institution of Environmental Sciences	IES	A professional body, which promotes and raises public awareness of environmental science by supporting professional scientists and academics working in this crucial area.
Institute of Environmental Management and Assessmen	IEMA	A professional body for practitioners working in the fields of environmental management and assessment.
Institute of Historic Building Conservation	IHBC	Professional body for building conservation practitioners and historic environment experts working in England, Northern Ireland, Scotland and Wales, with connections to the Republic of Ireland.
Integrity (ecological)		The coherence of a site's ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it [is or] was classified.
Internal Drainage Board	IDB	A public body that manages water levels in an area, known as an internal drainage district, where there is a special need for drainage. IDBs undertake works to reduce flood risk to people and property, and manage water levels for agricultural and environmental needs within their district.
Inspectorate		See Planning Inspectorate.
Intervention		Types or groups of highways works, for example online options, designed to meet a series of project objectives.
Invasive Species/Invasive Non-Native Species	INNS	Non-native UK plants that are invasive, for example Japanese Knotweed.
Island		A raised area designed to deflect or divide traffic, or to make it easier for pedestrians to cross the road.
J		
Joint Nature Conservation Committee	JNCC	Public body that advises the UK Government regarding nature



		conservation, both nationally and internationally.
Journey Length		The physical length of a journey.
Junction		A place where two roads meet,
		regardless of design or layout.
ĸ		
Key Characteristics		The combination of elements that are
(landscape)		particularly important to the current
		character of the landscape and help to
		give an area its particularly distinctive
		sense of place.
Kilometre	km	A unit of measurement.
L	I	
LA10		The A-weighted sound level, in dB, that is
		exceeded 10% of the measurement
		period.
LA10,18hr		The noise level, in dB, that is exceeded
		10% of the time between 0600 and 2400.
LAeq		The equivalent continuous sound level
		(LAeq) is the level of a notional steady
		sound, which at a given position and over
		a defined period of time, would have the
		same A-weighted acoustic energy as the
		fluctuating noise.
LAmax		The maximum A-weighted level
		measured during a given period.
Lnight		A façade noise index derived from the
		LA10,18hr using the Transport Research
		Laboratory (TRL) conversion method
		PR/SE/451/02.
Lnight, Outside		For the purpose of night-time noise
		assessment, the Lnight, Outside is the
		equivalent continuous sound level
		LAeq,8hr for the period 23:00 to 07:00
		hours assessed outside a dwelling and is free-field.
Land Use		What land is used for, based on broad
		categories of functional land cover, such
		as urban and industrial use and the
		different types of agriculture and forestry.



Landfill Capacity		The known, forecast or estimated remaining landfill void space, either regionally or nationally.
Landform		The shape and form of the land surface, which has resulted from combinations of geology, geomorphology, slope, elevation and physical processes.
Landscape		An area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors.
Landscape and Ecology Management Plan	LEMP	Is a site-specific document, which details immediate and long-term commitments to manage the planting, protection and enhancement of biodiversity in and around a new development site.
Landscape Character		A distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another, rather than better or worse.
Landscape Character Area	LCA	Areas of landscape that have a broadly consistent pattern of topography, land use and vegetation cover.
Landscape Character Types	LCT	Distinct types of relatively homogeneous landscape, generic in nature but share broadly similar combinations of geology, topography, drainage patterns, vegetation and historical land use and settlement pattern, and perceptual and aesthetics attributes.
Landscape Character Assessment		Process of identifying and describing variation in character of the landscape - the unique combination of elements and features that make landscapes distinctive - to assist in managing change in the landscape.
Landscape Character Type		Distinct types of relatively homogeneous landscape, generic in nature but which share broadly similar combinations of geology, topography, drainage patterns, vegetation and historical land use and settlement pattern, and perceptual and aesthetics attributes.



Landscape Elements		Individual parts of the landscape include physical influences (geology, soils, landform, drainage, and water bodies); land cover (different types of vegetation, patterns, and types of tree cover); and human influences (land use and management, character of settlements of buildings, and pattern and type of fields and enclosure).
Landscape Policy Zones	LPZ	The Regional Character Areas within the Newark & Sherwood Landscape Character Assessment Supplementary Planning Document (SPD) are broken down further into LPZ with further description of these areas.
Landscape Quality (or condition)		Measure of the physical state of the landscape based on judgements, which can include typical character represented in individual areas, integrity of the landscape, and condition of individual elements.
Landscape Receptor		Defined aspect of the landscape resource that potentially could be affected by the Scheme.
Landscape Resource		Natural and physical attribute, for example soils and vegetation.
Landscape Sensitivity		Applied to specific landscape receptors, combining judgements of the susceptibility of the receptor to the specific type of change proposed and the value related to the receptor.
Landscape and Visual Impac Assessment	t LVIA	A tool used to identify and assess the significance of and the effects of change resulting from a development on both the landscape as a resource and on people's views and visual amenity.
Land Take		The extent of land required temporarily or permanently to construct and operate the Scheme.
Lane		A section of carriageway marked out for the use of traffic, and typically intended for use in one direction.
Lead Local Flood Authority	LLFA	Authority responsible for developing, maintaining and applying a strategy for



		local flood risk management in their areas and for maintaining a register of flood risk assets.
Lidar		An airborne mapping technique which accurately measures the height of the terrain and surface objects on the ground, through the use of a scanning laser that measures the distance between the aircraft and the ground.
Light Goods Vehicle	LGV	A motor vehicle used to carry goods with a total mass of up to 3.5 tonnes.
Limits of Deviation	LoD	The maximum lateral and vertical extents within which the Scheme can be built. These are defined in the Development Consent Order.
Link		A section of road between two junctions.
Listed building		A building of special architectural or historic interest. Listed buildings are graded I, II* or II, with Grade I as the highest. Listing includes the interior, as well as the exterior, of the building.
Lithology		The study of the general physical characteristics of rocks.
Local Air Quality Management LAQM		A key part in the UK Government's and the Devolved Administrations' strategies to achieve the air quality objectives.
Local Authority (also local planning authority)		The body officially responsible for all the public services and facilities in a particular area, and which is empowered by law to exercise planning functions.
Local Biodiversity Action Plan	LBAP	A plan that identifies threatened species and habitats and seeks to protect and restore biological systems.
Local Geological Site	LGS	Non-statutory geological sites considered worthy of protection for their earth science or landscape importance. Formerly known as Regionally Important Geological Sites.
Local Impact Area	LIA	A study area for the population and human health assessment, within 500 metres of the Order Limits.



Local Nature Reserve	LNR	A statutory designation made under
		Section 21 of the National Parks and
		Access to the Countryside Act 1949 by
		principal local authorities.
		principal local autonties.
Local Wildlife Site	LWS	Non-statutory sites of nature
		conservation value that have been
		designated 'locally'. These sites are
		referred to differently between counties
		with common terms including site of
		importance for nature conservation,
		county wildlife site, site of biological
		importance, site of local importance and
		sites of metropolitan importance.
M		
Macrophyte		A plant (especially a marine plant) large
macropriyte		enough to be visible to the naked eye.
Made Ground		Land where natural and undisturbed soils
		have largely been replaced by man-made
		or artificial materials. It may be
		composed of a variety of materials,
		including imported natural soils and
		rocks, with or without residues of
		industrial processes (such as ash) or
		demolition material (such as crushed
		brick or concrete).
Magnitude		The size of something.
Main River		A river maintained directly by the
		Environment Agency. They are generally
		larger arterial watercourses.
Maintenance		Activities that do not change the nature of
		the asset.
Manual of Contract	MCHW	National Highways' standard suite of
Documents for Highway		specification documents, which are
Works		included within a construction contract
		and the Contractor is required to comply
		with its content for the construction and
		maintenance of highways.
Marine Conservation Zone	MCZ	Marine Conservation Zones are areas
		that protect a range of nationally
		important, rare or threatened habitats
		and species.
Marine Protection Area	MPA	Marine Protected Areas involve the
		protective management of natural areas
		protective management of natural dieds



	-	
		according to pre-defined management objectives. They can be conserved for a number of reasons, including economic resources, biodiversity conservation, and species protection.
MasterMap		A source of highly detailed geographic data of Great Britain, provided by Ordnance Survey.
Materials Management Plan	MMP	A mechanism by which those who are developing a site can comply with Environment Agency regulations for excavated ground materials.
Merge		The point where two different traffic flows come together and continue as one.
Met Office		The United Kingdom's national weather service.
Methane		The main constituent of natural gas, and the second most important greenhouse gas.
Metre	m	A unit of measurement.
Micron	μm	One millionth of a metre.
Midland Regional Transport Model	MRTM2	The modelling for the Scheme is based on this model. MRTM2 is one of five Regional Transport Models used to assess programme level strategies across regions and provide a starting point for the development of detailed proposed scheme specific models, where networks, volumetric counts and availability of travel demand data can reduce the trafficking modelling programme.
Mineral Safeguarding Areas	MSA	Areas defined by mineral planning authorities with known mineral resources that are of identified economic or conservation value.
Mineral Site		Operational sites or sites identified within strategic planning documents for the extraction of minerals.
Mitigation		Measures intended to avoid, reduce and, where possible, remedy significant



		adverse environmental effects as the
		result of the Scheme.
Modelling		The process of estimating changes within an area of interest under a specific set of conditions.
Modular River Physical Habitat Surveys	MoRPH	MoRPh is a river habitat survey technique, which records both the physical habitat and hydromorphological functions within the river or stream.
Monitoring		An assessment of the performance of the Scheme, including mitigation measures. This determines if effects occur as predicted or if operations remain within acceptable limits, and if mitigation measures are as effective as predicted.
Motorway		A special type of road reserved for motorised traffic only, the numbers of which are prefixed with the letter 'M'.
Movement (traffic)		A movement is one of the turns or changes in direction that a junction allows.
Multi-Agency Geographic Information Service	MAGIC	A website that provides geographic information about the natural environment.
N		
National Character Area		Areas of England defined by their unique combination of landscape, biodiversity, geodiversity, history and cultural and economic activity.
National Cycle Network	NCN	A national cycling route network of the United Kingdom, which was established to encourage cycling throughout Britain, as well as for the purposes of bicycle touring.
National Grid Electricity Transmission	NGET	Responsible for owning and maintaining the high voltage electricity network in England and Wales.
National Heritage List for England	NHLE	A database of designated heritage assets.
National Nature Reserve		National Nature Reserves were established to protect some of our most important habitats, species and geology,



		and to provide 'outdoor laboratories' for research.
National Park		A large area of land that is protected by the Government because of its natural beauty, plants or animals, and which the public can usually visit.
National Planning Policy Framework	NPPF	A planning framework, which sets out the Government's planning policies for England and how these are expected to be applied.
National Policy Statements	NPS	Statements produced by the government. They give reasons for the policy set out in the statement, and must include an explanation of how the policy takes account of government policy relating to the mitigation of, and adaptation to, climate change.
National Policy Statement for National Networks	NPSNN	A statement setting out the need for, and the Government's policies to deliver, the development of Nationally Significant Infrastructure Projects on the national road and rail networks in England. The Secretary of State must make their decision as to whether to grant development consent against the requirements of the NPSNN.
National Road Traffic Projections 23	NRTP23	Projections used for the traffic flows that provide the basis of future year forecasts.
National Trip End Model	NTEM	A model that forecasts the growth in trip origin-destinations (or productions- attractions) up to 2061 for use in transport modelling.
National Vegetation Classification	NVC	A comprehensive classification and description of the plant communities of Britain, administered by the JNCC.
Nationally Significant Infrastructure Project	NSIP	Major infrastructure developments as defined by the Planning Act 2008. These typically require a development consent in order to construct and operate a scheme.
Natura 2000		A network of core breeding and resting sites for rare and threatened species,



		and some rare natural habitat types, which are protected in their own right.
Natural England	NE	Executive non-departmental public body constituted under the Natural Environment and Rural Communities Act 2006 (section 2(1)) to ensure that the natural environment is conserved, enhanced and managed for the benefit of present and future generations, thereby contributing to sustainable development.
Net GHG Emissions		The difference in greenhouse gas emissions between the do-minimum and do-something scenarios taking into consideration carbon reduction measures (i.e. mitigation measures).
Newark and Sherwood District Council	NSDC	The local authority within whose jurisdiction the Scheme is to be implemented.
Nitrate vulnerable zone	NVZ	Areas covering 62% of England that are designated as a result of the EU's Nitrates Directive in order to reduce the level of nitrates in surface and groundwater. Farmers with land in nitrate vulnerable zones must follow mandatory rules to tackle nitrate loss from agriculture.
Nitrogen dioxide	NO2	A gas produced when fuels are burned, often present in motor vehicle and boiler exhaust fumes. It is an irritant to the respiratory system.
Nitrogen oxides	NOx	A group of chemical compounds consisting only of nitrogen and oxygen, which may be interconverted in the atmosphere. The principal oxides of nitrogen are nitric oxide and nitrogen dioxide.
No Observed Adverse Effect Level	NOAEL	The no-observed-adverse-effect level denotes the level of exposure of an organism, found by experiment or observation, at which there is no biologically or statistically significant increase in the frequency or severity of any adverse effects (for example alteration of morphology, functional capacity, growth, development or life



		span) in the exposed population when
		compared to its appropriate control.
Noise		Unwanted sound.
Noise Barrier		Fence placed between a road and a noise sensitive receptor to reduce noise levels. Includes all elements of the fence (posts and fixings, as well as panels).
Noise Important Area	NIA	Areas identified with respect to noise from major roads and from roads within agglomerations where 'the 1% of the population that are affected by the highest noise levels from major roads' are located according to the results of the strategic noise mapping.
Noise Insulation Regulations	NIR	Noise Insulation Regulations 1975 made under Part II of the Land Compensation Act 1973.
Noise Mapping		The production of computer software generated maps showing how the predicted levels of outdoor noise vary with location.
Noise Monitoring		The measurement of noise levels.
Noise Sensitive Receptor		Receptors that are potentially sensitive to noise. These comprise mainly residential buildings, but also include educational buildings, hospitals and places of worship.
Non-hazardous Waste		Waste that is neither classified as inert nor hazardous.
Non-Technical Summary	NTS	Information for the non-specialist reader to enable them to understand the main predicted environmental effects of the proposal without reference to the main Environmental Statement.
Nottinghamshire County Council	NCC	The county authority within whose jurisdiction the Scheme would be implemented.
0		
Office for National Statistics	ONS	The executive office of the UK Statistics Authority.
Offline		Highway development on land under non-highway use, for example a new



	dual carriageway constructed on agricultural land.
Online	Highway development proposed along, or on the line of, an existing road, for example road widening.
Operational	The functioning of a scheme on completion of construction.
Operational GHG Emissions	Greenhouse gas emissions associated with the operation and maintenance of the asset, and users of the asset.
Options Public Consultation	Consultation undertaken on a range of options for the Scheme to seek the views of the public, local groups and stakeholders in the support of identifying the preferred route.
Order Limits	The extent of the area within which the Scheme must be carried out as defined by the Development Consent Order.
Ordinary Watercourse	Ordinary watercourses include every river, stream, ditch, drain, cut, dyke, sluice, sewer (other than a public sewer) and passage through which water flows and does not form part of a main river.
Ordnance Survey OS	The national mapping agency for the UK.
Outfalls	The place where a river, drain or sewer empties into the sea, a river, or a lake.
Outline Site Waste OSWM Management Plan	IP Identifies the strategic approach for the management of waste generated during the construction phase of the Scheme.
Overbridge	A bridge crossing over a transport corridor (for example a highway).
Overhead Line Equipment OLE	Refers to the overhead wires and supporting infrastructure.
Overseeing Organisation	<ul> <li>The following organisations or their successors:</li> <li>a. National Highways (in England).</li> <li>b. Transport Scotland (in Scotland).</li> <li>c. The Welsh Government (in Wales).</li> <li>d. Department for Infrastructure (in</li> </ul>



P		
Particulate Matter	PM10 or PM2.5	Discrete particles in ambient air, with diameters ranging between nanometres (billionths of a metre) to micrometres (millionths of a metre).
Pathways		The routes by which pollutants are transmitted through air, water, soils, plants and organisms to their receptors.
Peak Flood Level		The highest stage (largest discharge) reached during a particular flood at a given point on a river.
Phase 1 Habitat Survey		A habitat classification and field survey technique to record semi-natural vegetation and other wildlife habitats.
Planning Act 2008	The 2008 Act	An Act of Parliament in the UK intended to speed up the process of approving major new infrastructure projects.
Planning Inspectorate	The Inspectorate	An executive agency with responsibilities for planning appeals, national infrastructure planning applications, local plan examinations and other planning- related casework in England and Wales.
Planning Practice Guidance	PPG	A series of guidance documents which support the content of the National Planning Policy Framework.
Plans and Programmes		<ul> <li>Documents which are:</li> <li>a) subject to preparation and/or adoption by an authority at national, regional or local level, or which are prepared by an authority for adoption, through a legislative procedure by Parliament or Government; and</li> <li>b) required by legislative, regulatory or administrative provisions.</li> </ul>
Pollutant Concentrations		Concentrations of pollutants normally reported as micrograms per cubic metre of air (µg/m3).
Pollution Climate Mapping	PCM	A collection of models designed to fulfil part of the UK's EU Directive (2008/50/EC) requirements to report on



		the concentrations of particular pollutants in the atmosphere.
Pollution Prevention Guidance		A series of guidance notes produced by the Environment Agency to advise industry and the public on legal responsibilities and good environmental practice.
Population		All individuals located in a particular location (this can be local, regional or at a national scale).
Preferred Option		The chosen design option that most successfully achieves the Scheme objectives and becomes subject to further design and assessment.
Preferred Route Announcement	PRA	An announcement made by National Highways following the selection of a preferred option or solution for a road scheme.
Preliminary Environmental Information	PEI	The information referred to in Part 1 of Schedule 4 of the EIA Regulations that has been reasonably compiled by the Applicant and is reasonably required to assess the environmental effects of the Scheme.
Preliminary Environmental Information Report	PEI Report	A report that compiles and presents the Preliminary Environmental Information gathered for the Scheme.
Principal Contractor		A person or organisation responsible for ensuring the measures specified within the Second Iteration EMP are implemented.
Priority Habitats (and species)		Species and habitats defined as:
		<ul> <li>a. listed as a national priority for conservation (such as those listed as habitats and species of principal importance for the conservation of biodiversity);</li> </ul>
		<ul> <li>b. listed as a local priority for conservation, for example in the relevant local Biodiversity Action Plan;</li> </ul>
		c. Red Listed using International Union for the Conservation of Nature criteria or, where a more



		<ul> <li>recent assessment of the taxonomic group has not yet been undertaken, listed in a Red Data Book;</li> <li>d. listed as Near Threatened or Amber Listed;</li> <li>e. listed as a Nationally Rare or Nationally Scarce species or listed as a Nationally Notable species where a more recent assessment of the taxonomic group has not yet been undertaken; and/or</li> <li>f. endemic to a country or geographic location.</li> </ul>
Principal Aquifer		Aquifers previously designated as a major aquifer.
Private Means of Access	PMA	A term used to describe a type of route which is used to connect premises such as homes, businesses and community facilities to the public highway network.
Private Property		Land, buildings and infrastructure for the purpose of residential use.
Protected Species		Species of wild plants, birds and animals that are afforded protection through legislative provisions.
Public Right of Way	PRoW	A highway where the public has the right to pass. It can be a footpath (used for walking), a bridleway (used for walking, riding a horse and cycling), or a byway, which is open to all traffic (including motor vehicles).
R		I
Ramsar		Wetlands of international importance, designated under the Ramsar Convention.
Reach		A stretch of a river used in the assessment of river water quality.
Reasonable Alternatives		Different project design, technology, location, size and scale solutions considered by the developer.
Receptor		A defined individual environmental feature usually associated with



		population, fauna and flora that has
		potential to be affected by a project.
Recovery (waste)		Any operation, the principal result of which is waste serving a useful purpose by replacing other materials which would otherwise have been used to fulfil a particular function, or waste being prepared to fulfil that function, in the plant or in the wider economy.
Recycling		Any recovery operation by which waste materials are reprocessed into products, materials or substances, whether for the original or other purposes.
Regional Character Areas	RCA	Different character areas within Newark & Sherwood Landscape Character Assessment SPD.
Remediation (contaminated land)		The process of removing a pollution linkage (i.e. by removing one or more of the elements in a source – pathway – receptor linkage) in contaminated land in order to render an acceptable risk. Usually this involves a degree of removal of contaminants and/or blockage of pathways.
Representative Concentration Pathway	RCP	A greenhouse gas concentration (not emissions) trajectory adopted by the IPCC for its fifth Assessment Report in 2014.
Resilience		The capacity of a project (or lack thereof) to withstand the adverse effects of climate change.
Resource		A defined, but generally collective, environmental feature usually associated with soil, water, air, climatic factors, landscape and/or material assets, including the architectural and archaeological heritage that has potential to be affected by a project.
Restoration (ecological)		The re-establishment of a damaged or degraded system or habitat to a level similar to its original condition.
Re-use		Any operation by which products or components that are not waste are used



		again for the same purpose for which they were conceived.
Riparian		Relating to, or situated on, the banks of a river.
Risk Assessment		An assessment of the probability of a hazard occurring that could result in an impact.
River Basin Management Pla	nRBMP	A regional plan that sets out how organisations, stakeholders and communities will work together to improve the water environment and fulfil the requirements of the Water Framework Directive.
River Habitat Survey	RHS	A system for assessing the character and habitat quality of rivers based on their physical structure.
Road Investment Strategy 2	RIS2	A document that sets a long-term strategic vision for the network. With that vision in mind, it then: specifies the performance standards Highways England must meet; lists planned enhancement schemes we expect to be built; and states the funding that we will be made available during the second Road Period (RP2), covering the financial years 2020/21 to 2024/25.
Root Protection Area	RPA	The minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority.
Roundabout		A circular, one-way junction at which other roads meet and terminate.
Runoff		The flow of water over the ground surface.
Routine Runoff		The normal runoff from roads including any contaminants washed off the surface in rainfall events which can result in either acute or chronic impacts.
S		
Sand		Soil particles from 0.06mm-2.0mm in equivalent diameter. Fine sand particles



		are from 0.06mm-0.2mm; medium sand from 0.2mm-0.6mm; and coarse sand from 0.6mm-2.0mm.
Scheduled Monument	SM	Nationally significant heritage assets protected by the Ancient Monuments and Archaeological Areas Act 1979.
Scoping		The process of identifying the issues to be addressed by the Environmental Impact Assessment process. It is a method of ensuring that an assessment focuses on the important issues and avoids those that are considered to be not significant.
Scoping Opinion		The written opinion of the relevant authority, following a request from the Applicant, as to the information to be provided in an Environmental Statement.
Scoping Report		A report that records the outcomes of the scoping process and is typically submitted as part of a formal request for a Scoping Opinion.
Screening		The formal process undertaken to determine whether it is necessary to carry out a statutory Environmental Impact Assessment and publish an Environmental Statement in accordance with the EIA Regulations.
Second Iteration Environmental Management Plan		The second iteration of the Environmental Management Plan, which is refined for the construction stage of the consented project and prepared in advance of construction.
Secretary of State for Transport		The cabinet minister who (among other things) acts as decision-maker on all national infrastructure applications for development consent.
Sediment		Organic and inorganic material that has precipitated from water to accumulate on the floor of a water body, watercourse or trap.
Sense of Place		The essential character and spirit of an area.



Sensitive Receptor	Can include residential properties,
	gardens, schools, hospitals, care homes,
	public open spaces, and public access.
Sensitivity	Term applied to specific receptors,
	combining judgements of the
	susceptibility of the receptor to specific
	type of change proposed and the value
	related to that receptor.
Sett (badger)	Any structure or place that displays signs
	indicating current use by a badger.
Setting (cultural heritage)	The surroundings in which a heritage
	asset is experienced.
Setting (landscape)	Contribution of the surroundings to the
	appearance of an area or feature and the
	interrelationship of the area or feature to
	the wider context and sense of place.
Severance (land)	The splitting of a land holding into more
	than one part, for example through the
	introduction of a new section of road.
Severance (walkers, cyclists	The extent to which members of
and horse riders)	communities are able (or not able) to
	move around their community and
	access services/facilities.
Sewage Treatment Works STW	Sewage treatment is the process of
	removing contaminants from municipal
	wastewater, containing mainly household
	sewage plus some industrial wastewater.
	STW is where this process takes place.
Short-Term (noise)	Noise change based on parallel
	assessment year (for example do-
	minimum opening year against do-
	something opening year scenario).
Significance (of effect)	A measure of the importance or gravity of
	the environmental effect, defined by
	generic significance criteria or criteria
	specific to an environmental topic.
Significant Observed Adverse SOAEL	The level above which significant
Effect Level	adverse effects on health and quality of
	life occur.
Silt	Soil particles from 0.002mm to less than
	0.06mm in equivalent diameter.
	0.06mm in equivalent diameter.



Siltation		The process of blocking something with fine material/silt.
Simple Assessment		The collection and assessment of data and information that is readily available to reach an understanding of the likely environmental effects of a project. This informs the final design or need for further detailed assessment.
Site Investigation		An exploratory site investigation, including field reconnaissance, field and laboratory work, designed to prove the basis of the conceptual site model, as established within the preliminary risk assessment/desk study.
Site of Importance for Natur Conservation	e SINC	Sites designated by local authorities for the purpose of conserving wildlife.
Site of Special Scientific Interest	SSSI	Area of land notified by Natural England under section 28 of the Wildlife and Countryside Act 1981 as being of special interest due to its flora, fauna or geological or physiological features.
Site Waste Management PI	an SWMP	A plan that is used to outline how a construction project would avoid, minimise or mitigate effects on waste production and handling on the environment and surrounding area.
Site-won		Material derived from a construction site rather than being imported.
Slip Road		A connector road within a junction between a mainline carriageway and the local highway network, or vice versa, which meets the local highway network at-grade.
Soil		An assemblage of mineral particles and/or organic matter, which includes variable amounts of water and air (and sometimes other gases).
Soils Management Plan	SMP	A document that provides a framework that can be used by contractors to manage and monitor the soils disturbed during the construction phase of the Scheme.



Soil Resource		The textures, structures and volume of
		different qualities of topsoil and subsoil
		that have a potential for beneficial reuse.
Sound Pressure Level		The parameter by which sound levels are measured in air. It is measured in decibels. The threshold of hearing has been set at 0dB, while the threshold of pain is approximately 120dB. Normal speech is approximately 60dB at a distance of 1 metre and a change of 3dB in a time varying sound signal is commonly regarded as being just detectable. A change of 10dB is subjectively twice, or half, as loud.
Source Protection Zone	SPZ	Zones defined by the Environment Agency to protect groundwater sources such as wells, boreholes and springs from potential contamination.
Span		The horizontal distance between two supports of a structure (for example piers of a bridge or viaduct).
Special Area of Conservation	SAC	Sites designated under EU legislation for the protection of habitats and species considered to be of European interest.
Species of Principal Importance	SPI	Habitats and species of principal importance in England. Section 41 of the Act requires the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England.
Speed Band		A range of categories for which outputs from the traffic model are grouped into to describe their emissions.
Speed Pivoting		An adjustment made, where required, to modelled traffic speeds on individual road links to better reflect observed speeds.
Stable Non-Reactive Hazardous Waste	SNRHW	A type of waste that can potentially include a range of monolithic solid waste (these being wastes in large blocky form) or granular solid wastes produced by treatment plants.
Stakeholder		An organisation or individual with a particular interest in the Scheme.



Standard Mitigation		Measures comprising standard techniques and activities that are implemented during the construction of the Scheme to protect the environment and/or mitigate adverse effects, for example the covering of exposed materials to reduce dust emissions.
Statement of Community Consultation	SoCC	A document detailing how an applicant of a Nationally Significant Infrastructure Project intends to undertake consultation on its proposals for a scheme. Developed in consultation with the local authority.
Statement of Community Ground	SoCG	A joint statement between an applicant and other individual parties to provide a commonly understood basis between these parties including areas of agreement or non-agreement, to help the appointed Planning Inspector reach an informed decision on a particular development proposal and for particular issues to be addressed during an examination.
Statutory Consultation		Consultation undertaken in compliance with the requirements defined under the Planning Act 2008.
Statutory Consultee		Organisations and bodies, and the circumstances under which they are to be consulted, as defined by the Planning Act 2008.
Statutory Undertaker		Companies and agencies with legal rights to carry out certain types of development and/or highways works.
Strategic Housing Site		Large scale sites/land allocated in local planning policy for the provision of residential land use.
Strategic Housing and Employment Land Availability Assessment	SHELAA	A document prepared by each local authority that provides information on sites; submitted by Landowners and Agents, for potential housing, economic development, Gypsy and Travelling Showpeople, Self-Build housing etc. in relation to their suitability, availability and achievability.



Strategic Employment Site		Large scale sites/land allocated in local planning policy for the provision of employment land use.
Strategic Road Network	SRN	The network of motorways and trunk roads, managed and maintained by National Highways in England.
Sterilise		Substantially constrain/prevent existing and potential future use and extraction of materials.
Study Area		The spatial area within which environmental effects are assessed (i.e. extending a distance from the Order Limits in which significant environmental effects are anticipated to occur).
Subsoil		Weathered soil layer extending between the natural topsoil and the unweathered basal layer (geological parent material) below, or similar material on which topsoil can be spread. Subsoil has lower organic matter and plant nutrient content than topsoil. In most cases topsoil requires a subsoil to perform one or a number of natural soil functions.
Superficial Deposit		A geological deposit that was laid down during the Quaternary period. Such deposits were largely formed by river, marine or glacial processes but can also include wind-blown deposits known as loess.
Supplementary Planning Document	SPD	Documents not part of a development plan for a particular authority area that provide additional guidance or detail on policies within the development plan and are a material consideration for an LPA in their decision-making.
Surface Water (or surface water body)		Waters including rivers, lakes, loughs, reservoirs, canals, streams, ditches, coastal waters and estuaries.
Susceptibility (landscape)		Ability of a defined landscape or visual receptor to accommodate the specific proposed change without negative consequences.
Sustainable Development		Development that meets the needs of the present without compromising the ability



		of future generations to meet their own needs.
Sustainable Drainage System	SuDS	Techniques for managing water runoff to reduce the quantity, and increase the quality, of surface water that drains from a development.
Sustrans		A UK charity, which aims to make it easier for people to walk and cycle, and promotes the National Cycle Network.
Swale		A low or hollow place, especially a marshy depression between ridges.
Т		
Targeted consultation		Following the statutory consultation, the Applicant undertook targeted non- statutory consultation as a result of updates to the proposal in six areas of the Scheme. This targeted non-statutory consultation was held to seek views and allow an opportunity for prescribed consultees, persons with land interests and community stakeholders, who the Applicant considered would be impacted by, and interested in, the Scheme to comment on the updates.
Temporal Scope		The duration of time over which environmental impacts and effects could occur as a result of the Scheme.
Temporary Traffic Management	ТТМ	Temporary measures needed to direct vehicles and pedestrians around and away from construction sites and/or activities.
The Scheme		The A46 Newark Bypass Scheme for which development consent is being sought.
Thin Surface Course System		A generic term used to describe a type of road surfacing, which has a high stone content and is laid at a thickness of less than 50mm. It is applied to reduce the noise resulting from the interaction of vehicle tyres with the road. Also known as low-noise surfacing.
Third Iteration Environmental Management Plan		The third iteration of the Environmental Management Plan is refined at the end of



		the construction stage to support future management and operation of the consented Scheme.
Throughabout		A road junction consisting of a main road that goes through the middle of a roundabout.
ТіШ		Unsorted glacial sediment deposited directly by a glacier.
Tonnes of Carbon Dioxide Equivalent	tCO2e	A measure that allows the different greenhouse gases to be compared on a like-for-like basis relative to one unit of CO <sub>2</sub> .
Topsoil		Natural topsoil or manufactured topsoil, usually covering the top 25cm in which plants can grow healthily.
Townscape		The landscape within the built-up area, including the buildings, urban open spaces, which includes green spaces, and the relationship between buildings and between buildings and open spaces.
Traffic Management Plan	ТМР	A document that sets out how construction traffic including site personnel movements will be controlled to ensure the safe and efficient delivery of the Scheme.
Traffic Signs Regulations and General Directions	TSRGD	The documents that set out the design and conditions of use of official traffic signs that can be lawfully placed on or near roads in the UK.
Transect Survey		A path along which one counts and records occurrences of the species of study (for example plants).
Translocation		The transporting and release of species or habitats from one location to another. For example, if an area of land is required permanently for a new development, species can be moved from that site to a suitable alternative location.
Transport Analysis Guidance	TAG	Guidance produced by the Department for Transport for undertaking transportation studies, appraisals and modelling. Also referred to as WebTAG.



Transport Research	TRL	An independent company which offers
Laboratory		consultancy and research advice on
Laboratory		transportation to the public and private
		sector.
		Sector.
Tree Preservation Order	TPO	An order made by a local planning
		authority, under the Town and Country
		Planning Act 1990, in respect of trees or
		woodlands. The principal effect of a tree
		preservation order is to prohibit the
		cutting down, uprooting, topping, lopping,
		wilful damage or wilful destruction of
		trees without the local planning
		authority's consent.
Trial Trenching (cultural	1	A method of on-site archaeological
heritage)		investigation where trenches are dug at
		intervals across a site to identify any
		archaeological remains.
Trunk Road		A road operated and maintained in
		England by National Highways.
U		-
UK Biodiversity Action Plan	UKBAP	The UK Government's response to the
Ş		Convention on Biological Diversity.
LIK Olimata Drainationa 0010		
UK Climate Projections 2018	UKCP18	Set of tools and data showing how the
		UK climate may change in the future.
		UKCP18 is the latest such tool and
		supersedes UKCP09.
Unacceptable Adverse Effect	UAEL	Extensive and regular changes in
Level		behaviour and/or an inability to mitigate
		effect of noise leading to psychological
		stress or physiological effects, for
		example regular sleep
		deprivation/awakening; loss of appetite,
		significant, medically definable harm,
		including auditory and non-auditory.
		anonading additory and non-additory.
Underpass (or underbridge)		A bridge crossing under a transport
Underpass (or underbridge)		A bridge crossing under a transport corridor (for example a highway).
	UXO	corridor (for example a highway).
Underpass (or underbridge) Unexploded Ordnance	UXO	corridor (for example a highway). Explosives that did not explode when
	UXO	corridor (for example a highway). Explosives that did not explode when deployed and thus still pose a risk of
Unexploded Ordnance	uxo	corridor (for example a highway). Explosives that did not explode when deployed and thus still pose a risk of detonation.
	UXO	corridor (for example a highway). Explosives that did not explode when deployed and thus still pose a risk of detonation. Layers of rock or superficial deposits with
Unexploded Ordnance	UXO	corridor (for example a highway). Explosives that did not explode when deployed and thus still pose a risk of detonation.



Upgrade		Refers to the physical improvement of a
		road, through widening of the
		carriageway or rebuilding a junction.
Utilities		The term "utilities" refers to the set of
		services provided by these organisations
		consumed by the public: coal, electricity,
		natural gas, water, sewage, telephone,
		and transportation. Broadband internet
		services (both fixed- line and mobile) are
		increasingly being included within the
		definition.
V		
Value (landscape)		Relative value or importance of a
		landscape's quality, special qualities
		including perceptual aspects such as
		scenic beauty, tranquillity, or wildness,
		cultural associations or other
		conservation issues.
Variable Message Sign	VMS	An electronic traffic sign that provides
		travellers with information, for example
		alerts concerning special events or
		weather conditions.
Vehicle Movement		A journey made by a vehicle. This can
		either be a one way or two way trip.
Veteran Tree		Trees that have features of ancientness
		but at a younger age. These features
		include missing branches, hollow trunks
		and habitat features more commonly
		associated with ancient trees.
Vibration		A to-and-fro motion, which oscillates
		about a fixed equilibrium position.
Viewpoint		A place from which something can be
		viewed.
Visual Amenity		Overall enjoyment of a particular area,
		surroundings, or views in terms of
		people's activities - living, recreating,
		travelling through, visiting, or working.
Visual Envelope		An area from which a project can be
		visible.
Visual Receptor		Individuals and/or defined groups of
		people who potentially could be affected
		by the Scheme.
1		-



Visual Sensitivity		Visual experience, be it sensitivity to light or visual clutter.
Vulnerability (climate)		The degree to which a system/asset is exposed and resilient to adverse effects of climate change.
w	1	
Walkers, cyclists and horse riders	WCH	A collective term used to describe pedestrians, cyclists and equestrians.
Waste		Any substance or object the holder disposes or intends/is required to dispose.
Waste Electrical and Electronic Equipment Directive	WEEE	WEEE Regulations 2013 apply to all electrical and electronic equipment placed on the market in the UK, which are covered by the scope of the regulations to reduce the amount of WEEE incinerated or sent to landfill.
Water Framework Directive	WFD	A European Union Directive which commits member states to achieve good status of all waterbodies (both surface and groundwater), and also requires that no such waterbodies experience deterioration in status. Good status is a function of good ecological and good chemical status, defined by a number of elements.
Water Framework Directive Assessment		An assessment undertaken to identify how the Scheme has the potential to affect each of the water body's quality/quantity elements and whether it could lead to non-compliance with the Water Framework Directive.
Web-based Transport Analysis Guidance	WebTAG	Is a DfT tool applicable for highway and public transport interventions, which facilitate the appraisal and development of such interventions and provide an evidence base for the development of business cases and government investment funding decisions.
Wider Impact Area	WIA	The study area for the population and human health assessment, which includes areas that may be affected



		during construction and operation and covers the extent of the ARN.
Workplace Exposure Limits	WELS	These are occupational exposure limits in the UK for hazardous substances approved by the Health and Safety Executive, set to help protect workers' health.
World Health Organisation	WHO	An agency of the United Nations whose role is to direct and coordinate international health within the United Nations system and to lead partners in global health responses.
World Heritage Site		World Heritage is the designation for places on Earth that are of outstanding universal value to humanity and as such, have been inscribed on the World Heritage List to be protected for future generations to appreciate and enjoy.
Worst-case Assumption (or scenario)		An assumption adopted within an Environmental Impact Assessment, which identifies a scenario or parameter that would likely result in the maximum environmental effect (termed the worst- case). This is typically applied where uncertainty exists over the detail of a particular scheme component or approach to project delivery, for which a basis of assessment is needed.
Written Schemes of Investigation	WSI	Documents which set out the approach to undertaking archaeological monitoring of ground investigation works.
z	·	
Zone of Influence	Zol	The geographic area (or timescale) over which existing environmental conditions are likely to be influenced by change.
Zone of Visual Influence		The area within which the Scheme can have an influence or effect on visual amenity.
Zone of Theoretical Visibility	ZTV	Map produced (usually digitally) to specific criteria to illustrate the area(s) from which the Scheme can theoretically be visual.