

DMRB Stage 3 Environmental Statement Volume 1: Main Report

December 2017



Contents

Volume 1: Main Report

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Volume 2: Technical Appendices

Please see the Volume 2 document for the list of Technical Appendices

Volume 3: Environmental Drawings

Please see the Volume 3 document for the list of Environmental Drawings

Glossary

<i>'A' weighting dB(A)</i>	The human ear does not respond uniformly to different frequencies. A-weighting is commonly used to simulate the frequency response of the ear.
<i>Abutment</i>	The structure that supports the end of the bridge or supports and retains the bridge approach.
<i>Acid grassland</i>	Grassland that occurs on acidic soils (pH less than 5.5).
<i>Aggregate</i>	Materials used in construction, including sand, gravel, crushed stone, slag, or recycled crushed concrete.
<i>Air Quality Management Area (AQMA)</i>	A non-permanent designation created if monitoring reveals that statutory air quality thresholds are being exceeded or will be exceeded in the near future.
<i>Algae</i>	Single or multi-cellular organisms that photosynthesise.
<i>Alien species</i>	A species that exists outside of its normal distribution.
<i>Allocation</i>	A proposal for land for housing, industry or other uses within a Local Plan that identifies a specific area of land to be developed within the time period of the plan.
<i>Alluvium</i>	Sediment deposited by a river.
<i>Alluvial Fan</i>	A fan or cone-shaped deposit of sediment built up by a river.
<i>Amber list species</i>	Species with unfavorable conservation status in Europe or showing moderate declines or rare or localised in their distribution.
<i>Ambient Noise</i>	The all encompassing sound at any point in time.
<i>Amenity grassland</i>	Intensively managed and regularly mown grasslands that are typical of golf courses, sports pitches, playing fields and lawns. These grasslands are typically of low diversity and limited wildlife and landscape value.
<i>Amenity value</i>	Defined as the relative pleasantness of a journey and relates in particular to the exposure of pedestrians and others to traffic.
<i>Ammocoete</i>	Larval stage in the life cycle of lamprey.
<i>Amphibian</i>	Any cold blooded animal of the class Amphibia which includes frogs, toads and newts.
<i>Ancient Woodland</i>	Areas of land that appear as wooded on maps dated pre-1750 (in Scotland) and are considered likely to have been continuously wooded from this date.
<i>Ancient Woodland Inventory</i>	Aims to list all probable ancient semi-natural woodlands on a county basis together with those woodlands in other ancient categories of lesser woodland nature conservation interest.
<i>Appropriate Assessment</i>	Determination by an identified competent authority (Scottish Government, informed by SNH) of likely significant effects associated with a development on a European Protected Site. Required by law under Regulation 48 of the Habitats Regulations (1994), implementing Article 6(3) of Habitats Directive (92/43/EEC).
<i>Aquifer</i>	A body of rock through which appreciable amounts of water can flow.
<i>Arable land</i>	Land that is or can be used for growing crops.
<i>Artificial refuge</i>	A sheet of corrugated metal, carpet tile or other material that is placed on the ground and is typically used to survey for the presence of reptiles and amphibians.
<i>Assessment</i>	An umbrella term for description, analysis and evaluation.
<i>Attenuation</i>	Increase in duration of flow hydrograph with a consequent reduction in peak flow.
<i>Attribute</i>	Characteristics of an environmental receptor.
<i>Authority area</i>	The area administered by a local authority for example, District Council, City Council or Unitary Authority.
<i>Average Score Per Taxon (ASPT)</i>	Calculated by dividing the Biological Monitoring Working Party (BMWP) score of a sample by the number of scoring families that contributed to the BMWP score of that sample.
<i>Avulsion</i>	The abandonment and formation of new river channels.
<i>Barrier effects</i>	Features such as roads which may impact ecological communities through restriction of movement and habitat alteration, sub-dividing populations with demographic and possibly genetic consequences.
<i>Baseline</i>	The existing conditions which form the basis or start point of the environmental assessment.
<i>Base-poor</i>	Environments which have few chemical bases, they are dominated by environmental acids (usually organic acids) and so are acidic.
<i>Base-rich</i>	Environments which are neutral or alkaline.
<i>Bedrock</i>	Hard rock that lies beneath a superficial cover of soils and sediments.

<i>Best Practicable Means</i>	A feasible approach [to mitigation], having due regard for means, resources and conditions. Control of Pollution Act (1974) defines this as measures 'reasonably practicable having regard among other things to local conditions and circumstances, to the current stated of technical knowledge and to financial implications'.
<i>Bioaccumulation</i>	The process by which substances accumulate in the tissues of living organisms with particular reference to toxic substances that accumulate via a food chain.
<i>Biodiversity</i>	Biological diversity, or richness of living organisms present in representative communities and populations.
<i>Biodiversity Action Plan (BAP)</i>	Sets objectives, along with measurable targets for the conservation of biodiversity.
<i>Bog</i>	An area of soft, wet, peaty ground.
<i>Broadleaved woodland</i>	An area of woodland with predominantly deciduous tree species (less than 10% coniferous trees in the canopy).
<i>Bryophyte</i>	Phylum of non-flowering plants, with little or no vascular tissue; includes plants such as true mosses and liverworts.
<i>Buffer</i>	A natural, undisturbed strip surrounding a development or land disturbance activity or bordering a stream or permanent water body.
<i>Bund</i>	An embankment, wall or dam that can be used to minimise noise or alternatively built around an oil tank to contain the contents in the event of spillage.
<i>Burn</i>	A small stream.
<i>Calcareous</i>	Refers to a sediment, sedimentary rock, or soil type which is formed from or contains a high proportion of calcium carbonate.
<i>Calicolous</i>	A plant that grows and thrives in soil rich in lime.
<i>Calcifugous</i>	Growing or living in acid soil.
<i>CAR</i>	Controlled Activities Regulations
<i>Catchment</i>	The area contributing flow to a point on a drainage system.
<i>Channel morphology</i>	Physical characteristics of stream channels, such as width/depth ratio and sinuosity, and types of pattern e.g. braided, meandering, straight.
<i>Channel sinuosity</i>	An assessment of the degree of irregularity in the path of a river channel across the landscape; it is measured as the difference between channel length and valley length.
<i>Community</i>	Assemblage of interacting populations that occupy a given area.
<i>Community type</i>	The composition of plant species that form a habitat or group of habitats.
<i>Community Conservation Index (CCI)</i>	A conservation indexing protocol for summarising aquatic macroinvertebrate data obtained from inland flowing and still water sites.
<i>Community Severance</i>	Community severance is defined here as the separation of residents from facilities and services they use within their community caused by new or improved roads or by changes in traffic flows.
<i>Commuting route</i>	A linear route used regularly by individuals of a population of bats for travelling between roosting and foraging habitats.
<i>Compulsory Purchase Order (CPO)</i>	A legal document giving the government (Scottish Ministers) power to compulsorily purchase the areas of land necessary for construction of the scheme.
<i>Coniferous woodland</i>	An area of woodland with predominantly coniferous tree species (less than 10% deciduous trees in the canopy).
<i>Conservation</i>	Preservation or restoration of the natural environment and wildlife.
<i>Conservation Area</i>	Area of special architectural or historic interest, the character or appearance of which it is desirable to preserve or enhance. Designated under section 61 Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997.
<i>Contaminated land</i>	Land in such condition by reason of substances on or under the land that significant harm is being caused, there is a significant possibility of such harm being caused or pollution of controlled water is being, or likely to be caused'.
<i>Contracting Parties</i>	Partnership or organisation which enters into a binding agreement with one or more other contracting parties.
<i>Core Path</i>	A right of way designated by a Local Authority as being of importance to maintain access and leisure provision.
<i>Couch</i>	Above-ground otter shelter.
<i>Cropmark</i>	Marks visible in growing and ripening crops, especially via aerial photography, which reflect the differences in the subsoil beneath. For example, parched lines of grass may indicate hidden stone walls or packed stone layers.

<i>Culvert</i>	A metal, wooden, plastic, or concrete conduit through which surface water can flow under or across roads.
<i>DAFOR Scale</i>	A scale for assessing species abundance.
<i>Debris Cone</i>	Steep cone-shaped accumulation of rock fragments.
<i>Decibel (dB)</i>	The range of audible sound pressures is approximately 0.00002 Pa to 00 Pa. Using decibel notation presents this range in a more manageable form, 0 dB to 140 dB.
<i>Deciduous</i>	Trees and shrubs that shed their leaves annually.
<i>Demography</i>	The studying/ science of the characteristics of populations, such as size, growth rate etc.
<i>Designed Landscape</i>	A designed area of landscape which is identified in the Inventory of Gardens and Designed Landscapes (jointly compiled by SNH and Historic Scotland).
<i>Detention basin</i>	An area for temporarily storing water which delays its flow downstream. Includes some water quality benefits. Usually part of SUDS (drainage design).
<i>Diffuse pollution</i>	Contamination and pollution arising from many dispersed and different sources. These sources are often individually minor, but collectively may be significant.
<i>Discharge regime</i>	The rate of flow of a river at a particular moment in time, relative to volume and velocity.
<i>Displacement</i>	To move something from its natural environment.
<i>Diurnal</i>	Organisms which are active during daylight hours.
<i>Dolerite</i>	Basic igneous rock similar in composition to basalt but with a coarser grain.
<i>Do-Minimum (DM)</i>	The base scenario for assessment purposes, where there are no modifications to the existing road network. May also refer to the minimum modifications, which will necessarily take place in the absence of a proposed scheme.
<i>Do-Something (DS)</i>	The 'with proposed scheme' scenario for assessment purposes,
<i>Drey</i>	The most common squirrel nest type. Comprises a round ball of twigs, leaves and bark. Frequently built close to tree trunk or in branch forks to provide shelter.
<i>Drift deposits</i>	Drift geology overlying bedrock.
<i>Driven shooting</i>	Involves birds being driven over guns by beaters. The guns are stationed in pre- determined positions.
<i>Earthworks</i>	Works created through the moving of quantities of soil or unformed rock.
<i>Easements</i>	A term relating to law where a right (e.g. a right of way) is held by one person to make limited use of another landowner's property.
<i>Echolocation</i>	The use by bats of ultrasonic signals to navigate and locate insect prey.
<i>Ecological Clerk of Works (ECoW)</i>	A qualified ecologist who supervises construction sites, ensuring that ecological impacts are minimised and that the law relating to protected species etc. is complied with.
<i>Ecological receptors</i>	Living organisms, habitats, or natural resources that could be impacted by the construction or operation of the proposed scheme.
<i>Ecology</i>	The branch of biology concerned with the relations of organisms to one another and to their physical surroundings.
<i>Ecosystem</i>	A biological community of organisms interacting with one another and their physical environment.
<i>Edge effect</i>	Processes that characterise habitat fragmentation and the concomitant creation of edges. Habitat conditions (such as degree of humidity and exposure to light or wind) created at or near the more-or-less well-defined boundary between ecosystems, as, for example, between open areas and adjacent forest.
<i>Effect</i>	The result of change or changes on specific environmental resources or receptors.
<i>Eft</i>	An immature newt in its terrestrial phase.
<i>Electrofishing</i>	A fish sampling technique using electric currents and electric fields to control fish movement and/or immobilize fish, allowing capture.
<i>Element</i>	A component part of the landscape or environment (e.g. roads, hedges, woodlands).
<i>Emergent vegetation</i>	The vegetation that grows up from within the water.
<i>Environmental Clerk of Works (EnvCoW)</i>	A qualified environmental specialist who supervises construction sites, ensuring that environmental aspects are considered and any mitigation measure are commitments are implemented.
<i>Environmental Impact Assessment (EIA)</i>	The process by which information about the environmental effects of a project is evaluated and mitigation measures are identified.
<i>Environmental Management Plan (EMP)</i>	Document which describes the processes to be followed to ensure compliance with environmental legislation and policy and minimise harm to the environment.
<i>Environmental Statement (ES)</i>	Document provided by the Developer to the Competent Authority, containing environmental information required under Article 5 of Directive 85/337/EEC as amended.

<i>Feeding station</i>	In ecology, a favoured spot where food items are often brought to be eaten and feeding remains as neat piles of chewed lengths of vegetation are evident.
<i>Fen</i>	A wetland that, like a bog, has organic soil. In contrast with bogs, fens receive most of their water from the surrounding groundwater, and consequently can be either acidic or alkaline, depending on the surrounding earth. They support a greater variety of plants than bogs, but are often still dominated by peat.
<i>Fill</i>	Material deposited by man in ground depression or excavated area.
<i>Floodplain</i>	Land adjacent to a river, which is subject to regular flooding.
<i>Flora</i>	Referring to plants of a particular region or habitat.
<i>Flow regime</i>	Combinations of river discharge and corresponding water levels and their respective (yearly or seasonally) averaged values and characteristic fluctuations around these values.
<i>Fluvial geomorphology</i>	The study of landforms associated with river channels and the sediment processes which form them.
<i>Footprint</i>	The geographical extent of an ecological impact.
<i>Foraging</i>	Searching for food or provisions.
<i>Fragmentation</i>	Breaking up of an organisms habitat into smaller fragments that may vary in size.
<i>Freshwater</i>	Bodies of water such as ponds, lakes, rivers and streams containing low concentrations of dissolved salts and other total dissolved solids.
<i>Geodiversity</i>	The natural range of geological features (rocks, minerals, fossils, structures), geomorphological features (landforms and processes) and soil features that make up the landscape. It includes their relationships, properties, interpretations and systems.
<i>Geological Conservation Review Site (GCR)</i>	Sites designated by regional geological groups on locally developed criteria, currently the most important places for geology and geomorphology outside statutorily protected land such as SSSIs.
<i>Geomorphology</i>	The branch of geology concerned with the structure, origin and development of topographical features of the earth's crust.
<i>Geophysical survey</i>	Geophysical survey is a non-intrusive pre-construction archaeological evaluation technique that exploits a variety of physical or chemical characteristics of rocks and soils etc, in an attempt to locate underground features of archaeological interest. Types of geophysical survey include magnetometer survey, magnetic susceptibility survey and resistivity survey.
<i>Geotextile</i>	Permeable fabric made of polypropylene/ polyester and which has the ability to separate, filter, reinforce, protect or drain.
<i>Glacial Till</i>	Glacial till is that part of glacial drift which was deposited directly by the glacier. It may vary from clays to mixtures of clay, sand, gravel and boulders.
<i>Glaciofluvial</i>	Pertaining to streams fed by melting glaciers, or to the deposits and landforms produced by such streams.
<i>Gleys</i>	Naturally poorly drained soils that develop under conditions of intermittent or permanent waterlogging.
<i>Glide</i>	Even paced section of river or stream with laminar flow.
<i>Green Belt</i>	The green belt is an area of countryside around the edge of an urban area where new building is not normally allowed and planning is strictly controlled. The aims are to prevent urban expansion, allow easy access to the countryside and protect attractive landscapes.
<i>Green list species</i>	Bird species with no identified threat to their population status.
<i>Ground Investigation</i>	Exploratory investigation to determine the structure and characteristics of the ground. The collected information is used to establish or predict ground and groundwater behaviour during, and subsequent to, construction.
<i>Ground-truthing</i>	Verification on the ground of conditions on a site.
<i>Groundwater</i>	Water below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.
<i>Groundwater Dependent Terrestrial Ecosystem</i>	An ecosystem that is directly dependent on the water level in or flow of water from a groundwater body (that is, in or from the saturated zone).
<i>Habitat</i>	Term most accurately meaning the place in which a species lives, but also used to describe plant communities or agglomerations of plant communities, as used, for example in a Phase 1 Habitat Survey.
<i>Habitat Action Plan</i>	Objectives set by the British government to conserve the biodiversity in given habitats.
<i>Habitat complexity</i>	The sum of factors which interact to dictate environments in which species live.
<i>Habitat fragmentation</i>	Describes the breaking up of an organisms preferred environment/ habitat. Occurs naturally through geological processes that alter the layout of the physical environment over long periods of time, or through human activities, such as land conversion.
<i>Habitat Modification Index</i>	An index used to assess the condition of a river corridor based on the biological condition of a sampling point.
<i>Habitat Modification Score</i>	An assessment of the extent of anthropogenic modification to a channel. Larger scores indicate a higher degree of modification.

<i>Habitat Quality Assessment</i>	A measure of the structural diversity of the river. Increasing scores are associated with increasingly complex habitat diversity.
<i>Habitat Regulations Appraisal (HRA)</i>	The process by which certain plans or projects are assessed which could affect the integrity of European sites. The report is used to inform an Appropriate Assessment (AA) under the requirements of the Habitats Directive.
<i>Habitat Suitability Index</i>	A numerical index that represents the capacity of a given habitat to support a selected species.
<i>Habitats Directive</i>	EC Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora.
<i>Habituate</i>	To become accustomed to a particular situation.
<i>Head Deposits</i>	Sediments formed through a range of mass movement slope processes
<i>Heathland</i>	Uncultivated land with sandy soil and scrubby vegetation.
<i>Heavy Duty Vehicle (HDV)</i>	Vehicles greater than 3.5 tonnes gross (includes HGVs, as below).
<i>Heavy Goods Vehicle (HGV)</i>	Vehicles with 3 axles (articulated) or 4 or more axles (rigid and articulated).
<i>Hibernacula</i>	Structures used by animals to hibernate through the winter, such as log piles, rock piles, vegetation piles, old mammal burrows, tree root complexes and buildings.
<i>Hibernation</i>	Extended period of torpor undertaken during winter.
<i>Holt</i>	Deep underground otter shelter.
<i>Holocene</i>	Relating to or denoting the present epoch, which is the second epoch in the Quaternary period and followed the Pleistocene.
<i>Hummocky Moraine</i>	A strongly undulating surface of ground moraine, showing steep slopes, deep, enclosed depressions and meltwater channels.
<i>Hummocky (Moundy) Glacial Deposits</i>	Glacial deposits of rock debris, sand and gravel that have a characteristic moundy topographic form.
<i>Hydraulic</i>	Of, relating to, or operated by the force of liquid in motion.
<i>Hydrocarbon</i>	A chemical compound of hydrogen and carbon.
<i>Hydrogeology</i>	Branch of geology dealing with occurrence, distribution, and effect of groundwater.
<i>Hydrological</i>	The exchange of water between the atmosphere, the land and the oceans.
<i>Hymenoptera</i>	Taxonomic order of the Insecta which includes ants, bees and wasps.
<i>Igneous Petrology</i>	The study of igneous rocks, their occurrence, composition, and origin.
<i>Impact</i>	Any changes attributable to the proposed scheme that have the potential to have environmental effects (i.e. the causes of the effects).
<i>Impermeable</i>	Material that does not allow fluids to pass through it.
<i>Improved grassland</i>	Grasslands that have been so modified by fertilisers, drainage or grazing that they have lost most of the species expected in unimproved grassland.
<i>Incidental sighting</i>	Casual observation of a plant or animal of one or more species recorded by whilst performing a non-relevant ecological survey.
<i>Indicator species</i>	A species that is characteristic of a particular habitat. The disappearance of such a species is an early warning of habitat degradation.
<i>Inter alia</i>	'Among other things'.
<i>Inter-bedded</i>	Alternating layers of different materials in a section of bedded rocks.
<i>Interstitial</i>	Referring to the spaces between sediment grains or in other minute spaces.
<i>Invertebrate</i>	An animal without a backbone.
<i>Kettle hole</i>	A low-lying area or hollow, usually filled with water from flood waters or retreating glaciers.
<i>LAeq</i>	Equivalent Continuous Sound Level. A notional steady sound level which would cause the same A-weighted sound energy to be received as that due to the actual, possibly fluctuating, sound level over a given period of time.
<i>Landform</i>	Combination of slope and elevation producing the shape and form of the land surface.
<i>Landscape</i>	Human perception of the land, conditioned by knowledge and identity with a place.
<i>Land-take</i>	Acquired land which is necessary to construct the proposed scheme and associated infrastructure and to undertake the essential environmental mitigation measures.
<i>Larvae</i>	An active immature form of an insect or other animal that undergoes metamorphosis, e.g. a caterpillar or tadpole.

<i>Lateral connectivity</i>	Hydrologic connectivity is defined as the condition by which disparate regions on the hillslope are linked via subsurface water flow. Lateral refers to the spatial dimensions of riverine/ riparian/ floodplain habitats.
<i>Lichen</i>	A group of complex organisms, which are formed from the symbiotic association of a fungus and an alga.
<i>Listed Building</i>	Building included on the list of buildings of special architectural or historic interest and afforded statutory protection under the 'Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997' and other planning legislation. Classified as Categories A-C.
<i>Lithology</i>	The study of rocks, with particular emphasis in terms of their color, texture, and composition.
<i>Local Geodiversity Site (LGS)/ Regionally Important Geological Sites (RIGS)</i>	Sites designated by regional geological groups on locally developed criteria, currently the most important places for geology and geomorphology outside statutorily protected land such as SSSIs.
<i>Local Landscape Character Area (LLCA)</i>	An area outlined as having distinct characteristics based on landscape features. Derived from regional landscape studies available from SNH.
<i>Loch Lomond Stadial</i>	The period between deglaciation and the start of the Holocene, 10,000 years ago.
<i>Macroinvertebrate</i>	An animal without a backbone that can be seen with the naked eye, for example, snails, waterfleas, shrimps or insects.
<i>Macrophyte</i>	An individual alga large enough to be seen easily with the unaided eye.
<i>Made ground</i>	Ground comprised of material deposited by man i.e. not natural.
<i>Magnitude</i>	Size, extent, scale and duration of an impact.
<i>Marginal vegetation</i>	Vegetation at the water's edge.
<i>Marshland</i>	Low-lying wet land with grassy vegetation; usually a transition zone between land and water.
<i>Meadow</i>	An area of grassland that has is normally grazed by livestock and/ or used for growing hay.
<i>Meander bend</i>	A bend in a sinuous watercourse. Formed when moving water in a valley bottom erodes the outer banks causing the channel to change shape.
<i>Mesotrophic</i>	Of a moderately rich or productive habitat.
<i>Migration</i>	The movement (of an animal) from one habitat to another according to the seasons.
<i>Mineral extraction</i>	The removal of a naturally occurring solid formed through geological process that has a characteristic chemical composition, a highly ordered atomic structure and specific physical properties.
<i>Mire</i>	General term for all peat-forming ecosystems; bog, fen, carr, muskeg, moor and peatland (does not include marshes as these are non-peat-forming and are seasonally flooded).
<i>Mitigation</i>	Measure to avoid, reduce or offset potential adverse impacts.
<i>Mixed plantation woodland</i>	Planted stands with either broadleaf or conifer species comprising 10-90% of the canopy.
<i>Monoculture</i>	Land that is used to grow one crop only.
<i>Moraine</i>	Glacially formed accumulation of unconsolidated glacial debris (rock and sediment).
<i>Mosaic</i>	A pattern of two or more vegetation types disposed in intimate relationships to one another.
<i>Natal holt</i>	The small space (usually a holt or couch) used by a female otter to give birth and raise cubs for a period of up to three months.
<i>National Vegetation Classification (NVC)</i>	A system to describe British vegetation types, whereby each vegetation type has a different 'code'.
<i>Native</i>	A species occurring in its normal geographic range (not introduced).
<i>Non-indigenous</i>	Not originating in, nor characteristic of, a particular area.
<i>Non-motorised users</i>	Pedestrians, cyclists and equestrians.
<i>Non-prime land</i>	Agricultural land of Land Capability for Agriculture (LCA) classes 3.2 to 7.
<i>Non-Statutory Guidance/ Organisation</i>	Direction from a professional governing body and not directly through legislation.
<i>Notable species</i>	Species which are below Red Data Book species in terms of threat status.
<i>Offsetting</i>	The process of compensating for something with something else.
<i>Ombrogenous</i>	Dependent on rain for its formation. Ombrogenous bog is a peat-forming vegetation community lying above groundwater level: it is separated from the mineral soil, and is thus dependent on rain water for mineral nutrients. The resulting lack of dissolved bases gives strongly acidic conditions. Two types of ombrogenous bogs are commonly distinguished: raised bogs and blanket bogs.
<i>Ombrotrophic</i>	Rain-fed soils or vegetation that receive all their water and nutrients from precipitation, rather than from streams or springs.

<i>Open space</i>	Any land laid out as public parks or used for the purpose of public recreation, or land which is a disused burial ground.
<i>Outfall</i>	The place of discharge e.g. where a sewage pipe discharges into a river.
<i>Parr</i>	Young salmon or trout with distinctive thumbprint markings on flanks.
<i>Pasture</i>	An area of grassland (or other suitable plants) used to feed grazing animals.
<i>Peat</i>	An organic soil which contains more than 60 per cent of organic matter and exceeds 50cm in thickness.
<i>Peatland</i>	Land where plant decomposes only partially and accumulates to form brown to black organic material called peat; the two main types are bogs and fens.
<i>Peaty soil</i>	Organic soil deposits which are less than 50cm in thickness.
<i>Perennial</i>	A plant that continues to grow from year to year, sometimes undergoing several years of growth before seeds are produced.
<i>Permeable</i>	Something that can be penetrated/ passed through by something else e.g. soil is permeable to water as the water can pass through it.
<i>pH</i>	A figure expressing acidity or alkalinity on a logarithmic scale of 0 to 14.
<i>Phase 1 Habitat Survey</i>	This identifies the different habitats that are contained within or make up a site, and the key plant species for each of those habitat types.
<i>Phase 2 Habitat Survey</i>	A detailed specialist survey or phytosociological (plant community) study of a habitat within a site. It may utilise analysis of sample vegetation plots (quadrats) following the UK National Vegetation Classification.
<i>Pile/ Piling</i>	A heavy stake or post made out of timber, steel, reinforced concrete or pre-tensioned concrete, driven into the ground to support foundations.
<i>Planning Advice Note (PAN)</i>	Supporting document to National Planning Policy Guidelines, which disseminates good practice and provides more specific design advice of a practical nature.
<i>Plantation woodland</i>	Woodland of any age that obviously originated from planting.
<i>Poaching</i>	Term used in river habitat survey (RHS) to mean the erosion of a watercourse bank by livestock.
<i>Podzol</i>	A typically free-draining acid soil that develops under aerobic conditions in temperate to cold moist climates under coniferous or heath vegetation.
<i>Point bars</i>	Deposits of alluvium found on the inside bank of a meander, they form when alluvium is eroded from the outside bend (cut bank) and deposited on the inside bend of a meander.
<i>Point pollution</i>	A point source of pollution is a single identifiable localised source of air, water, thermal, noise or light pollution.
<i>Polycyclic aromatic hydrocarbon (PAH)</i>	Any of a class of carcinogenic organic molecules that consist of three or more benzene rings and are commonly produced by fossil fuel combustion.
<i>Potential Impact</i>	The impact on an aspect of the environment that may occur in the absence of mitigation.
<i>Prime agricultural land</i>	Agricultural land of Land Capability for Agriculture (LCA) classes 1, 2 and 3.1.
<i>Priority habitat</i>	Those which have been identified as being most threatened and requiring actions under the UK Biodiversity Action Plan.
<i>Priority species</i>	Those which have been identified as being most threatened and requiring actions under the UK Biodiversity Action Plan.
<i>Proposed Scheme</i>	The scheme design as reported in Chapter 5 of the ES, and used as the basis for environmental assessment and reporting.
<i>Quadrat</i>	A sample area of known size enclosed within a square frame, inside of which a community of plants/ animals is analysed.
<i>Qualitative</i>	Concerned only with the nature of the organism/ substance being investigated.
<i>Quantitative</i>	Concerned with the number, as well as nature of the organism/ substance being investigated.
<i>Ramsar sites</i>	Internationally important wetland identified for conservation under the RAMSAR Convention 1971.
<i>Ranker</i>	Soils predominant in mountain or hilly terrain or on glacially eroded rocky terrain with underlying solid or fragmented non-calcareous rocks within 30cm depth
<i>Receptor</i>	In this context, an element that is susceptible to being affected (either directly or indirectly) by the proposed scheme. Examples include habitats, species, people, properties, landscape, archaeological remains etc.
<i>Red Data List</i>	The IUCN Red List of Threatened Species™ provides taxonomic, conservation status and distribution information on plants and animals that have been globally evaluated using the IUCN Red List Categories and Criteria. Designed to determine the relative risk of extinction, and to catalogue and highlight those plants and animals that are facing a higher risk of global extinction (i.e. those listed as Critically Endangered, Endangered and Vulnerable).
<i>Red list species</i>	Bird species in severe population decline. Or globally threatened.

<i>Refuge/ refuges</i>	Any structure that provides animals temporarily with a place they can retreat to and feel secure. This can be rock or log piles, dense scrub or mammal burrows
<i>Residual impact</i>	Residual impact means the environmental impact after the provision of mitigation measures, if any.
<i>Rhizome</i>	A horizontally creeping underground stem which bears roots and leaves and usually persists from season to season
<i>Riffle</i>	A shallow section of a river/stream where the water is fast-flowing over a gravel/ cobble substrate.
<i>Right of way</i>	A public right of way is a defined route which has been used by the general public for at least 20 years and which links two public places (usually public roads).
<i>Riparian habitat</i>	Natural home for plants and animals occurring in a thin strip of land bordering a stream or river.
<i>Riparian zone</i>	The area of habitat that is under the influence of the water body. It includes the transitional area between the water and land, and also extends further back than just the water edges.
<i>River basin characterisation</i>	The process of identifying the type, and all significant pressures on every water body.
<i>River Basin District</i>	The area of land and sea, made up of one or more river basins, together with the associated groundwater and coastal waters, identified by the Water Framework Directive as the main unit for the management of river basins.
<i>River Basin Management Plan (RBMP)</i>	A plan setting out actions required within a river basin to achieve set environmental quality objectives, reviewed on a six yearly basis.
<i>River Habitat Survey (RHS)</i>	A survey to assess the physical structure of freshwater streams and rivers, providing a broad assessment of habitat quality.
<i>River Terrace Deposits</i>	Sediment deposited by a river in a step-like landform.
<i>Rockhead</i>	The surface representing the top of the solid geological strata, i.e. below any drift deposits.
<i>Roost</i>	Any resting site used by bats including maternity roosts which are used by females and their young, hibernacula which are used during winter hibernation and transitional roosts which may be used at any time.
<i>Rough grassland</i>	Rank or tussocky grassland. May have been drained, grazed, mown or treated with manure but not so improved by fertiliser or herbicides as to have altered the sward composition greatly. Associated with unenclosed uplands, lowlands with poor access or wet areas, and road verges.
<i>Rough pasture</i>	Rough pasture is non-intensive grazing pasture, commonly found on poor soils, especially in hilly areas.
<i>Ruderal</i>	A plant that colonizes disturbed ground. They are often weeds that have a high nutrient requirement and/ or are intolerant of competition.
<i>Run</i>	Fast flowing, silent water flow. Standing waves at surface are unbroken.
<i>Runoff</i>	Water that flows over the ground surface to the drainage system. This occurs if the ground is impermeable or if permeable ground is saturated.
<i>Salmonid</i>	Pertaining or belonging to the family Salmonidae (salmon, trout and charr).
<i>Scat</i>	Animal faeces.
<i>Scheduled Monument (SM)</i>	A monument which has been scheduled by the Scottish Ministers as being of national importance under the terms of the 'Ancient Monuments and Archaeological Areas Act 1979'.
<i>Scottish Planning Policy (SPP)</i>	A statement of Scottish Government policy on nationally important land use.
<i>Scour</i>	A depression or hole left when sediment is washed away from the bottom of a river.
<i>Scrub</i>	Vegetation dominated by locally native shrubs, usually less than 5m tall.
<i>Sediment</i>	Material carried in particles by water or wind and deposited on the land surface or seabed.
<i>Sedimentation</i>	The deposition or accumulation of sediment.
<i>Semi-improved grassland</i>	Grassland that has been modified by fertilizers, drainage or intensive grazing. Contain less species diversity than unimproved grasslands.
<i>Semi-natural Ancient Woodland</i>	Areas that appear as wooded on 1860 maps but not maps from 1750 i.e. woodland that appeared between these two dates.
<i>Semi-natural habitat</i>	Habitat which has been altered by altered by land management.
<i>Semi-natural woodland</i>	Woodland that does not obviously originate from planting. The distribution of species will generally reflect the variations in the site and the soil. Planted trees must account for less than 30% of the canopy composition.
<i>Sett</i>	The burrow system of badgers comprising a series of underground tunnels and chambers. There are several categories of sett including a main sett, annexe sett, subsidiary sett and outlier sett.

<i>Severance</i>	The separation of communities from facilities and services used within their community. Alternatively, in relation to agricultural land, the division of land into separate areas, potentially affecting access or availability for agricultural use.
<i>Side bar</i>	See Point Bar.
<i>Sinuuous</i>	A river with many curves/ bends (meanders).
<i>Site compound</i>	A secure area close to the construction site which provides full site services including storage for equipment, materials and fuel, offices and amenity areas.
<i>Site of Importance to Nature Conservation (SINC)</i>	Non-statutory designation which seeks to protect areas of high wildlife value at a local level.
<i>Sites of Special Scientific Interest (SSSI)</i>	Designated areas of national importance (UK). The aim of the SSSI network is to maintain an adequate representation of all natural and semi-natural habitats and native species in the UK. The site network is protected under the provisions of Sections 28 and 19 of the Wildlife and Countryside Act 1981 as well as the Amendment Act 1985 and the Environmental Protection Act 1990.
<i>Soakaway</i>	A deep hole used for drainage, where rainwater and other waste water drains directly into the ground, without connection to mains drainage or sewerage pipes.
<i>Soligenous</i>	Where water movements are predominantly lateral. Produced by inflow of surface water or rise of groundwater and not completely by locally precipitated water.
<i>Soutterain</i>	Curving, underground passageway built many years ago, which are usually lined with stone. Their use is not known but it is thought that they were either used for storage of valuable commodities or for ritual purposes.
<i>Spawning</i>	The process of egg release into the water by aquatic animals.
<i>Special Area of Conservation (SAC)</i>	An area designated under the EC Habitats Directive to ensure that rare, endangered or vulnerable habitats or species of community interest are either maintained at or restored to a favourable conservation status.
<i>Special Protection Area (SPA)</i>	An area designated under the Wild Birds Directive (Directive 74/409/EEC) to protect important bird habitats.
<i>Species Action Plan</i>	UK Biodiversity Action Plans detailing information on the conservation status of 382 species and the actions necessary to achieve the action plan targets.
<i>Specific impact</i>	A forceful consequence or strong effect to something particular or unique.
<i>Spraint</i>	Otter faeces.
<i>Stakeholder</i>	A person or group that has an investment, share or interest in something.
<i>Statute</i>	Formal written enactment of a legislative authority that governs a country, city, or county. Typically, statutes command or prohibit something, or declare policy. Statute is often used to distinguish law made by legislative bodies from case law and the regulations issued by Government agencies.
<i>Strategic Environmental Assessment (SEA)</i>	The process by which information about the environmental effects of proposed plans, policies and programmes are evaluated.
<i>Strategic Transport Project Review (STPR)</i>	A two year review of the Scottish transport network undertaken by Transport Scotland. It identified and prioritised road, rail and other interventions of national significance, which will be taken forward to improve the network. Through selecting which transport projects of national significance should be progressed, the STPR also affects regional and local transport networks.
<i>Sub-lethal</i>	Not causing death directly but has cumulative deleterious effects.
<i>Superficial Deposits</i>	The youngest geological deposits formed during the most recent period of geological time, the Quaternary, which extends back 1.8 million years.
<i>Susceptibility</i>	The ability to accommodate change without adverse effect.
<i>Sustainable Drainage Systems (SUDS)</i>	A sequence of management practices and control structures designed to drain surface water in a more sustainable fashion than some conventional techniques.
<i>Swamp</i>	An area of wet spongy land that often supports some trees and vegetation but is too wet for cultivation.
<i>Taxa</i>	Plural of taxon.
<i>Taxon</i>	A taxonomic group of any rank.
<i>Taxonomy</i>	The branch of science (biological) concerned with classification.
<i>Terrestrial</i>	The environment above the mean high water spring
<i>Threshold</i>	The minimum intensity or value of a signal etc that will produce a response or specified effect.
<i>Turbid</i>	High concentrations of suspended sediment and particulates in the water column.
<i>Tussocky grassland</i>	Grassland which have no, or only a very sparse, tree and shrub layer, and a ground layer dominated by tussock-forming (clump of) grasses.

<i>Vascular plants</i>	Higher plants, including flowering plants, conifers and ferns. They are characterised by the possession of specialized tissues (vascular tissue) for the translocation of substances around the plant.
<i>Velocity</i>	A measure of the speed and direction of an object.
<i>Vernacular</i>	Refers to a type of architecture which is indigenous to a specific time or place.
<i>Viaduct</i>	A bridge that carries a road, railroad etc. over a valley.
<i>Vibro-piling</i>	A method of driving a pile into the ground using rapid repeated oscillations of the pile.
<i>Visual envelope</i>	Illustrates the extent of potential visibility to or from a specific area.
<i>Vulnerable groups</i>	In environmental assessment, generally children, elderly and disabled.
<i>Water Framework Directive (WFD)</i>	European environmental legislation (2000/60/EC) relating to inland surface waters, estuarine and coastal waters and groundwater. Fundamental objective to maintain “high status” of waters where it exists, preventing any deterioration in the existing status of waters and achieving at least “good status” in relation to all waters by 2015.
<i>Water quality</i>	The chemical and biological status of various parameters within the water column and their interactions, for example dissolved oxygen, indicator metals such as dissolved copper, or suspended solids (the movement of which is determined by hydrological process and forms geomorphological landforms).
<i>Wildfowl</i>	Any wild bird such as ducks, geese or swans.
<i>Wildlife and Countryside Act 1981 (WCA)</i>	Principal mechanism for wildlife protection in the UK. Referred to as WCA.
<i>Working corridor</i>	Strip of land either side of a proposed development.
<i>Zone of influence</i>	An area along a proposed development over which potential effects extend.

Abbreviations

µg	microgram
AA	Appropriate Assessment
AADT	Annual Average Daily Traffic
AAWT	Annual Average Weekday Traffic
ABS	Abstraction
AEP	Annual Exceedance Probability
AESI	Adverse Effects on Site Integrity
AGLAO	Association of Local Government Archaeological Officers UK
AMAX	Annual Maximum
AMJV	Atkins-Mouchel Joint Venture
AOD	(m) Above Ordnance Datum
APIS	Air Pollution Information System
AQMA	Air Quality Management Area
AQPI	Air Quality Pollution Inventory
AQS	Air Quality Strategy
ARN	Affected road network
ASC	Average Speed Cameras
AWI	Ancient Woodland Inventory
BAP	Biodiversity Action Plan
BDL	Beauly to Denny Power Line
BFI	Base Flow Index
BGL	Below Ground Level
BGS	British Geological Survey
BGS	British Geological Survey
BHS	British Horse Society
BLM	Biotic Ligand Model
BoCC	Birds of Conservation Concern
BoQ	Bill of Quantities
BRP	Bat Roost Potential
BSBI	Botanical Society of Britain and Ireland
BTO	British Trust for Ornithology
CaCO₃	Calcium carbonate
CAR	Controlled Activities Regulations
CD&E	Construction, Demolition & Excavation
CEH	Centre for Ecology and Hydrology
CEMP	Construction Environmental Management Plan
CFJV	CH2M HILL Fairhurst Joint Venture
CFJV	CH2M HILL Fairhurst Joint Venture
CFW	Constructed Farm Wetland
ch.	Chainage
CIEEM	Chartered Institute for Ecology and Environmental Management

CIEH	Chartered Institute of Environmental Health
CIfA	Chartered Institute for Archaeologists
CIRIA	Construction Industry Research and Information Association
CMS	Carbon Management System
CNAP	Cairngorms Nature Action Plan
CNP	Cairngorms National Park
CNPA	Cairngorms National Park Authority
CNPLDP	Cairngorms National Park Local Development Plan
CP	Crossing Point
CPO	Compulsory Purchase Order
CRC	Carbon Reduction Commitment
CRTN	Calculation of Road Traffic Noise
CSA	Compensatory Storage Area
CSM	Conceptual Site Model
CSM	Conceptual Site Model
Cu	Copper
dB	Decibel
DCBS	Detailed Catchment Baseline Survey
DEFRA	Department for Environment, Food and Rural Affairs
DfRE	Designing for Resource Efficiency
DISC	Discharge
DM	Do-Minimum
DMP	Dust Management Plan
DMRB	Design Manual for Roads and Bridges
DMRB	Design Manual for Roads and Bridges
DPL	Drainage Path Length
DRA	Drainage Impacts Assessments
DS	Do-Something
DTM	Digital Terrain Model
DVC	Deer Vehicle Collision
DWPA	Drinking Water Protection Area
EA	Environment Agency
EA	Environment Agency
EC	European Commission
ECoW	Ecological Clerk of Works
EFT	Emissions Factor Toolkit
EH	English Heritage
EIA	Environmental Impact Assessment
EIA	Environmental Impact Assessment
EMC	Event Mean Concentrations
EMSC	Event Mean Sediment Concentrations
END	Environmental Noise Directive
EnvCoW	Environmental Clerk of Works

EPS	European Protected Species
EQS	Environmental Quality Standard
ER	Environmental Report
ES	Environmental Statement
ESG	Environmental Steering Group
ETS	Emissions Trading Scheme
EU	European Union
Existing Road	[refers to the existing A9 road surface within Project 8 extents]
FARL	FEH index of flood attenuation due to reservoirs and lakes
FEH	Flood Estimation Handbook
FEH RR	FEH rainfall-runoff [method]
FPEXT	Floodplain extent (HiFlows-UK Version 3 onwards)
FRA	Flood Risk Assessment
FWPM	Freshwater Pearl Mussel
GCN	Great Crested Newt
GCR	Geological Conservation Review
GHG	Greenhouse gas
GI	Ground Investigations
GIS	Geographic Information Systems
GPP5	Guidance for Pollution Prevention
GWDTE	Ground Water Dependent Terrestrial Ecosystems
GWDTE	Ground Water Dependent Terrestrial Ecosystem
GWMR	General Wade's Military Road
H&HM	Hydrological and Hydraulic Modelling
ha	hectare
HA	Highways Agency
ha	hectare
HAWRAT	Highways Agency Water Risk Assessment Tool
HBRG	Highland Biological Recording Group
HDPE	High-density polyethylene
HDV	Heavy Duty Vehicle
HE	Historic England
HES	Historic Environment Scotland
HGV	Heavy Goods Vehicle
HITRANS	Highland and Islands Transport Partnership
HLT	Historic Landscape Type
HML	Highland Main Line [railway]
HMWB	Heavily Modified Water Body
HRA	Habitats Regulation Appraisal
HSE	Health and Safety Executive
HSI	Habitat Suitability Index
IAN	Interim Advice Note
IAQM	Institute of Air Quality Management

IEMA	Institute of Environmental Management and Assessment
IH124	Institute of Hydrology (IH) Report No.124 [method]
INNS	Invasive non-native species
IPPC	Intergovernmental Panel on Climate Change
ISO	International Organization for Standardization
IUCN	International Union for Conservation of Nature
JHI	James Hutton Institute
JLA	Journey Length Assessment
JNCC	Joint Nature Conservation Committee
JUK	Jacobs UK
kg	kilogram
km	kilometre
KPI	Key Performance Indicator
l	litre
LA	Local Authority
LAQM	Local Air Quality Management
LCA	Land Capability for Agriculture
LDP	Local Development Plan
LGS	Local Geodiversity Site
LIDAR	Light Detection and Ranging [remote sensing]
LLCA	Local Landscape Character Area
LMA	Land Made Available
LNS	Low Noise Surface
LPA	Local Planning Authority
LQM	Land Quality Management Ltd
LSE	Likely Significant Effect
LTT	Long-term trend
LUPS	Land Use Planning System
m	metre
m bgl	metres below ground level
m³/s	Cubic metres per second
MACS	Mobility and Access Community for Scotland
mg	milligram
MoU	Magnitude of Uncertainty
MPA	Mineral Planning Areas
MSW	Municipal Solid Waste
MW	Major watercourse
NARRS	National Amphibian and Reptile Recording Scheme
NBN	National Biodiversity Network
NCN	National Cycle Network
NCN7	National Cycle Network Route 7
NESBReC	North East Scotland Biological Records Centre
NGR	National Grid Reference

NISR	Noise Insulation (Scotland) Regulations
NMU	Non-Motorised User
NMUs	Non-Motorised Users
NNR	National Nature Reserve
NO2	Nitrogen dioxide
NPF3	National Planning Framework 3
NPPP	National Park Partnership Plan
NRP	Non-residential property
NTS	National Transport Strategy
NVC	National Vegetation Classification
NW	North West
OHMP	Outline Habitat Management Plan
OPMP	Outline Peat Management Plan
OS	Ordnance Survey
OSPP	Outline Species Protection Plan
P&KC	Perth & Kinross Council
PAH	Polycyclic Aromatic Hydrocarbons
PAN	Planning Advice Notes
PAS	Publicly Available Specification
PCM	Pollution Control Mapping
PEL	Probable Effect Level
PES	Preliminary Engineering Services
PFD	People Friendly Design
PIA	Personal Injury Accident
PKC	Perth and Kinross Council
PL	Pollutant Linkage
PM	Particulate matter
PNEC	Probable Non-Effect Concentration
PPE	Personal Protective Equipment
PPG	Pollution Prevention Guidelines
ppm	parts per million
Proposed Mainline	[the proposed A9 road, one element of the Proposed Scheme (see below)]
Proposed Scheme	[all permanent works proposed as part of Project 8 Dualling Programme]
PSSR	Preliminary Sources Study Report
PWS	Private Water Supply
QMED	Index Flood
RBMP	River Basin Management Plan
RCAHMS	Royal Commission on the Ancient and Historical Monuments of Scotland
ReFH2	Revitalised rainfall-runoff model version 2.2
RIGS	Regionally Important Geological Site
RP	Residential property
RPA	Root Protection Area
RSPB	Royal Society for the Protection of Birds

RST	Runoff Specific Threshold
RTA	Road Traffic Accident
RTS	Regional Transport Strategy
SAAR	1961-90 standard-period average annual rainfall
SAC	Special Area of Conservation
SAC	Special Area of Conservation
SBL	Scottish Biodiversity List
ScARF	Scottish Archaeological Research Framework
SCM	Site Condition Monitoring
SEA	Strategic Environmental Assessment
SEPA	Scottish Environment Protection Agency
SEPA	Scottish Environment Protection Agency
SFB	Spey Fisheries Board
SFRA	Strategic Flood Risk Assessment
SHEP	Scottish Historic Environment Policy
SLA	Special Landscape Area
SLQ	Special Landscape Qualities
SLR	Strategic Landscape Review
SM	Scheduled Monument
SNH	Scottish Natural Heritage
SP=EED	Scottish Planning equals Effective Engagement and Delivery
SPA	Special Protection Area
SPA	Special Protection Area
SPP	Scottish Planning Policy
SPPN	Scottish Procurement Policy Note
SPR	Standard Percentage Runoff
S-P-R	Source-Pathway-Receptor protocol
SRSR	Scottish Raptor Study Group
SSE	Scottish and Southern Energy
SSSI	Site of Special Scientific Interest
SSSI	Site of Special Scientific Interest
STE	Septic Tank Effluent
STPR	Strategic Transport Projects Review
SuDS	Sustainable Drainage System
SW	South West
SWMP	Site Waste Management Plan
t	tonnes
TACTRAN	Tayside and Central Scotland Transport Partnership
TAN	Technical Advice Note
TDF	Tourism and Development Framework
TE	Trade Effluent
TEL	Threshold Effective Level
THC	The Highland Council

TIF	Tagged Image Files
TN	Target Note
ToSI	Threshold of Significant Impact
TPH	Total petroleum hydrocarbons
TS	Transport Scotland
TUFLOW	[Flood modelling software]
tZVI	Theoretical Zone of Visual Influence
UK	United Kingdom
UK	United Kingdom
UNESCO	United Nations Educational, Scientific and Cultural Organization
URBEXT	FEH descriptor of urban extent
v/v	Volume/ Volume %
VOICE	Visioning Outcomes in Community Engagement
W	Minor watercourse
WEWS	Water Environment and Water Services (Scotland) Act 2003
WFD	Water Framework Directive
WHO	World Health Organization
WL	Water level
WRAP	Waste and Resources Action Programme
Zn	Zinc
ZWP	Zero Waste Plan