



**A9 Dualling Programme: Tay Crossing to Ballinluig  
DMRB Stage 3 Environmental Statement**

**Volume 1: Main Report**

**July 2018**

**JACOBS®**



© Crown copyright 2018. You may re-use this information (excluding logos) free of charge in any format or medium, under the terms of the Open Government Licence. To view this licence, visit <http://www.nationalarchives.gov.uk/doc/open-government-licence/> or e-mail: [psi@nationalarchives.gsi.gov.uk](mailto:psi@nationalarchives.gsi.gov.uk). Where we have identified any third party copyright information you will need to obtain permission from the copyright holders concerned.

Limitation: This report has been prepared on behalf of, and for the exclusive use of Jacobs' Client, and is subject to, and issued in accordance with, the provisions of the contract between Jacobs and the Client. Jacobs accepts no liability or responsibility whatsoever for, or in respect of, any use of, or reliance upon, this report by any third party.

## Contents

### Volume 1: Main Report

Glossary

Abbreviations

<b>1</b>	<b>Introduction</b>	
1.1	Overview	1
1.2	A9 Dualling Programme	1
1.3	The Proposed Scheme	2
1.4	Statutory Context for EIA	3
1.5	Environmental Statement (ES)	3
1.6	The Assessment Team	5
1.7	Reviews and Comments	5
1.8	References	6
<b>2</b>	<b>Need for the Scheme</b>	
2.1	Introduction	1
2.2	The A9 Trunk Road	1
2.3	National Context for Dualling	1
2.4	A9 Dualling Programme Review	3
2.5	Local Context for Dualling	5
2.6	References	6
<b>3</b>	<b>Alternatives Considered</b>	
3.1	Introduction	1
3.2	SEA Stage Considerations	1
3.3	Sifting of Preliminary Mainline Alignments	1
3.4	Sifting of Tier 2 Side Road Options	4
3.5	DMRB Stage 2 Assessment of Route Options	5
3.6	Development of the Proposed Scheme Design	10
3.7	References	10
<b>4</b>	<b>Iterative Design Development</b>	
4.1	Introduction	1
4.2	Iterative Design Process	1
4.3	Embedded Mitigation	3
4.4	Conclusions	14
4.5	References	14
<b>5</b>	<b>The Proposed Scheme</b>	
5.1	Introduction	1
5.2	Background	1

5.3	Traffic Conditions	2
5.4	Description of the Proposed Scheme	2
5.5	Construction Methods and Programme	9
5.6	Land Acquisition	12
5.7	References	13
<b>6</b>	<b>Overview of Assessment Process</b>	
6.1	Introduction	1
6.2	Scope and Guidance	1
6.3	Environmental Reporting	3
6.4	References	5
<b>7</b>	<b>Consultation and Scoping</b>	
7.1	Introduction	1
7.2	Approach and Methods	2
7.3	Consultation Summary	5
7.4	Key Issues Raised by Consultees	6
7.5	References	9
<b>8</b>	<b>People and Communities – Community and Private Assets</b>	
8.1	Introduction	1
8.2	Approach and Methods	2
8.3	Baseline Conditions	13
8.4	Potential Impacts	19
8.5	Mitigation	25
8.6	Residual Impacts	29
8.7	Statement of Significance	35
8.8	References	35
<b>9</b>	<b>People and Communities – All Travellers</b>	
9.1	Introduction	2
9.2	Approach and Methods	4
9.3	Baseline Conditions	13
9.4	Potential Impacts	27
9.5	Mitigation	36
9.6	Residual Impacts	39
9.7	Statement of Significance	47
9.8	References	48
<b>10</b>	<b>Geology, Soils, Contaminated Land and Groundwater</b>	
10.1	Introduction	1
10.2	Approach and Methods	2
10.3	Baseline Conditions	11
10.4	Potential Impacts	18

10.5	Mitigation	25
10.6	Residual Impacts	28
10.7	Statement of Significance	28
10.8	References	28
<b>11</b>	<b>Road Drainage and the Water Environment</b>	
11.1	Introduction	1
11.2	Approach and Methods	2
11.3	Baseline Conditions	17
11.4	Potential Impacts	28
11.5	Mitigation	40
11.6	Residual Impacts	51
11.7	Statement of Significance	53
11.8	References	53
<b>12</b>	<b>Ecology and Nature Conservation</b>	
12.1	Introduction	2
12.2	Approach and Methods	2
12.3	Baseline Conditions	17
12.4	Potential Impacts	40
12.5	Mitigation	41
12.6	Residual Impacts	53
12.7	Statement of Significance	70
12.8	References	71
<b>13</b>	<b>Landscape</b>	
13.1	Introduction	2
13.2	Approach and Methods	2
13.3	Baseline Conditions	8
13.4	Potential Impacts	15
13.5	Mitigation	17
13.6	Residual Impacts	24
13.7	Statement of Significance	29
13.8	References	29
<b>14</b>	<b>Visual</b>	
14.1	Introduction	1
14.2	Approach and Methods	2
14.3	Baseline Conditions	7
14.4	Potential Impacts	16
14.5	Mitigation	17
14.6	Residual Impacts	19
14.7	Statement of Significance	31
14.8	References	33

<b>15</b>	<b>Cultural Heritage</b>	
15.1	Introduction	1
15.2	Approach and Methods	2
15.3	Baseline Conditions	6
15.4	Potential Impacts	29
15.5	Mitigation	36
15.6	Residual Impacts	40
15.7	Statement of Significance	42
15.8	References	42
<b>16</b>	<b>Air Quality</b>	
16.1	Introduction	1
16.2	Approach and Methods	2
16.3	Baseline Conditions	8
16.4	Potential Impacts	11
16.5	Mitigation	15
16.6	Residual Impacts	17
16.7	Statement of Significance	17
16.8	References	18
<b>17</b>	<b>Noise and Vibration</b>	
17.1	Introduction	1
17.2	Approach and Methods	4
17.3	Baseline Conditions	13
17.4	Potential Impacts	16
17.5	Mitigation	29
17.6	Residual Impacts	33
17.7	Statement of Significance	36
17.8	References	36
<b>18</b>	<b>Materials</b>	
18.1	Introduction	1
18.2	Approach and Methods	6
18.3	Baseline Conditions	11
18.4	Potential Impacts	15
18.5	Mitigation	21
18.6	Residual Impacts	23
18.7	Statement of Significance	26
18.8	References	27
<b>19</b>	<b>Policies and Plans</b>	
19.1	Introduction	1
19.2	Approach and Methods	2

19.3	Summary of Plans and Policies	3
19.4	Assessment of Compliance	12
19.5	Conclusion	23
19.6	References	23
<b>20</b>	<b>Cumulative Impacts</b>	
20.1	Introduction	1
20.2	Approach and Methods	2
20.3	Potential Cumulative Impacts	4
20.4	Conclusions	12
20.5	References	13
<b>21</b>	<b>Schedule of Environmental Commitments</b>	
21.1	Introduction	1
<b>22</b>	<b>Summary of Significant Residual Impacts</b>	
22.1	Introduction	1

**Volume 2: Technical Appendices**

<b>2</b>	<b>Need for the Scheme</b>	
A2.1	Strategic Environmental Design Principles	
A2.2	Strategic Environmental Assessment (SEA) Monitoring Framework	
<b>5</b>	<b>The Proposed Scheme</b>	
A5.1	Construction Information	
<b>7</b>	<b>Consultation and Scoping</b>	
A7.1	Engaging Communities Booklet	
A7.2	Summary of Consultation Responses	
A7.3	Record of Determination	
<b>8</b>	<b>People and Communities – Community and Private Assets</b>	
A8.1	Land Capability Assessment Descriptors	
A8.2	Farm Business Survey	
A8.3	Forestry Survey	
A8.4	Agriculture, Forestry and Sporting Land: Pre- and Post-Mitigation Impacts	
<b>9</b>	<b>People and Communities – All Travellers</b>	
A9.1	Impact Assessment for NMU Routes and Access to Outdoor Areas	
<b>10</b>	<b>Geology, Soils, Contaminated Land and Groundwater</b>	
A10.1	Contaminated Land Sources	
A10.2	Ecological Receptors with Potential Groundwater Component	
A10.3	Infrastructure, Properties and Cultural Heritage Receptors	

A10.4 Surface Water Indirect Dewatering Assessment

**11 Road Drainage and the Water Environment**

A11.1 Baseline Conditions

A11.2 Surface Water Hydrology

A11.3 Flood Risk Assessment

A11.4 Hydraulic Modelling Report

A11.5 Fluvial Geomorphology

A11.6 SuDS and Water Quality

A11.7 Impact Assessment

A11.8 Watercourse Crossings Report

**12 Ecology and Nature Conservation**

A12.1 Scientific Names

A12.2 Baseline Data and Detailed Survey Methods

A12.3 Confidential Ecology Features

**13 Landscape**

A13.1 Landscape Character Areas

A13.2 Special Qualities of the River Tay (Dunkeld) NSA

A13.3 Assessment of Residual Indirect Impacts on Landscape Character Areas

A13.4 Strategic Environmental Design Principles: Landscape

A13.5 Landscape Objectives

A13.6 SuDS Design Principles

**14 Visual**

A14.1 Built Receptor Assessment

A14.2 Outdoor Receptor Assessment

**15 Cultural Heritage**

A15.1 Cultural Heritage Baseline Information

A15.2 Geophysical Survey Results

A15.3 Geophysical Survey Results: Kindallachan Cairn and Standing Stone

A15.4 Cultural Heritage Impact, Mitigation and Residual Impact Tables

**16 Air Quality**

A16.1 Air Quality Annexes

**17 Noise and Vibration**

A17.1 Noise and Vibration Terminology

A17.2 Detailed Baseline Noise Survey Results and Notes

A17.3 Predicted Noise Levels at Noise Sensitive Receptors

A17.4 Noise Impacts on Committed Developments

A17.5 Noise Impacts on Amenity Areas



- A17.6 Operational Residual Noise Impacts
- A17.7 Noise Sensitive Receptors Closest to Construction Works

**19 Policies and Plans**

- A19.1 Planning Policy Context for Environmental Assessment
- A19.2 Assessment of Development Plan Policy Compliance

**Volume 3: Figures**

**1 Introduction**

- 1.1 A9 Dualling Projects Overview
- 1.2 A9 Tay Crossing to Ballinluig Overview

**3 Alternatives Considered**

- 3.1 DMRB Stage 2 Route Options 1 & 2
- 3.2 DMRB Stage 2 Route Options 3 & 4
- 3.3 DMRB Stage 2 Dowally to Kindallachan Side Road Options
- 3.4 DMRB Stage 2 Haugh of Kilmorich to Inch Farm Side Road Options
- 3.5 DMRB Stage 2 Eastern Offline Route Options
- 3.6 DMRB Stage 2 Preferred Route Option

**5 The Proposed Scheme**

- 5.1 Tay Crossing to Ballinluig Overview
- 5.2 Indicative Construction Land Made Available

**8 People and Communities – Community and Private Assets**

- 8.1 Community Assets and Development Land
- 8.2 Proposed Scheme Land-take
- 8.3 Changes in Vehicle Access to the A9
- 8.4 Changes in Vehicle Access from the A9

**9 People and Communities – All Travellers**

- 9.1 Existing Non-Motorised User (NMU) Routes
- 9.2 Potential Impacts on Non-Motorised User (NMU) Routes and Proposed Mitigation
- 9.3 Views from the Existing A9

**10 Geology, Soils, Contaminated Land and Groundwater**

- 10.1 Private Water Supplies
- 10.2 Potential Contaminated Land

**11 Road Drainage and the Water Environment**

- 11.1 Surface Water Features
- 11.2 Baseline Flood Risk
- 11.3 Change in Flood Level (with mitigation)
- 11.4 Drainage Catchments

**12 Ecology and Nature Conservation**

- 12.1 Ecological Designations
- 12.2 Phase 1 Habitat Survey
- 12.3 Wildcat Habitat Suitability Model Records
- 12.4 Badger Survey Results (Confidential)
- 12.5 Bat Roost Survey Results
- 12.6 Bat Activity Survey Results
- 12.7 Breeding Birds Survey Results
- 12.8 Otter Survey Results (Confidential)
- 12.9 Incidental Results
- 12.10 Reptile Survey Results
- 12.11 Aquatic Survey Results
- 12.12 Freshwater Pearl Mussel (FWPM) Survey Results (Confidential)
- 12.13 Badger Bait Marking Records (Confidential)
- 12.14 Ancient Woodland Inventory (AWI) Loss and Compensation
- 12.15 Updated Phase 1 Habitat Survey (2017)

**13 Landscape**

- 13.1 Landscape Designations and other associated Designations
- 13.2 Landscape Character Plan
- 13.3 Landscape Features Plan
- 13.4 Visibility Analysis
- 13.5 Landscape and Ecological Mitigation
- 13.6 Cross Sections
- 13.7 Typical Planting Structures

**14 Visual**

- 14.1 Zone of Theoretical Visibility (ZTV) Existing A9
- 14.2 Zone of Theoretical Visibility (ZTV) Proposed Scheme
- 14.3 Visual Impacts on Built Receptors
- 14.4 Visual Impacts on Outdoor Receptors
- 14.5 Viewpoint Location Plan
- 14.6- Visualisations
- 14.16

**15 Cultural Heritage**

- 15.1 Archaeological Remains and Historic Buildings
- 15.2 Historic Landscape Types
- 15.3 Potential for Unknown Archaeological Remains
- 15.4 Kindallachan Standing Stone (Asset 225) Photomontage

**16 Air Quality**

- 16.1 Location of Construction Assessment Study Area and Receptors

16.2 Air Quality Locations of Selected Sensitive Receptors

16.3 Air Quality Monitoring Sites

**17 Noise and Vibration**

17.1 Noise and Vibration Study Area and Calculation Area

17.2 Baseline Noise Monitoring Locations and Sample Receptors

17.3 Noise Level Difference Contour Map (Ground Floor) Do-Minimum Baseline Year Vs Do-Minimum Future Assessment Year

17.4 Noise Level Difference Contour Map (First Floor) Do-Minimum Baseline Year Vs Do-Minimum Future Assessment Year

17.5 Noise Level Difference Contour Map (Ground Floor) Do-Minimum Baseline Year Vs Do-Something Baseline Year

17.6 Noise Level Difference Contour Map (First Floor) Do-Minimum Baseline Year Vs Do-Something Baseline Year

17.7 Noise Level Difference Contour Map (Ground Floor) Do-Minimum Baseline Year Vs Do-Something Future Assessment Year

17.8 Noise Level Difference Contour Map (First Floor) Do-Minimum Baseline Year Vs Do-Something Future Assessment Year

17.9 Location of Noise Sensitive Receptor (NRS) Specific Mitigation

17.10 Noise Level Difference Contour Map (Ground Floor) Do-Minimum Baseline Year Vs Do-Something Baseline Year (with Mitigation)

17.11 Noise Level Difference Contour Map (First Floor) Do-Minimum Baseline Year Vs Do-Something Baseline Year (with Mitigation)

17.12 Noise Level Difference Contour Map (Ground Floor) Do-Minimum Baseline Year Vs Do-Something Future Assessment Year (with Mitigation)

17.13 Noise Level Difference Contour Map (First Floor) Do-Minimum Baseline Year Vs Do-Something Future Assessment Year (with Mitigation)

**18 Materials**

18.1 Materials and Waste Baseline

## Glossary

<b>'A' weighting dB(A)</b>	The human ear does not respond uniformly to different frequencies. A-weighting is commonly used to simulate the frequency response of the ear.
<b>Abutment</b>	The structure that supports the end of the bridge or supports and retains the bridge approach.
<b>Acid grassland</b>	Grassland that occurs on acidic soils (pH less than 5.5).
<b>Aggregate</b>	Materials used in construction, including sand, gravel, crushed stone, slag, or recycled crushed concrete.
<b>Air Quality Management Area (AQMA)</b>	A non-permanent designation created if monitoring reveals that statutory air quality thresholds are being exceeded or will be exceeded in the near future.
<b>Algae</b>	Single or multi-cellular organisms that photosynthesise.
<b>Allocation</b>	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.
<b>Alluvial</b>	Loose, unconsolidated soil or sediments, which has been eroded, reshaped by water in some form, and redeposited in a non-marine setting.
<b>Amber list species</b>	Species with unfavourable conservation status in Europe or showing moderate declines or rare or localised in their distribution.
<b>Ambient Noise</b>	The all-encompassing sound at any point in time.
<b>Amenity grassland</b>	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.
<b>Amenity value</b>	Defined as the relative pleasantness of a journey and relates in particular to the exposure of pedestrians and others to traffic.
<b>Ammocoete</b>	Larval stage in the life cycle of lamprey.
<b>Amphibian</b>	Any cold blooded animal of the class Amphibia which includes frogs, toads and newts.
<b>Ancient Woodland</b>	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.
<b>Ancient Woodland Inventory</b>	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.
<b>Appropriate Assessment</b>	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).

<b>Aquifer</b>	A body of rock through which appreciable amounts of water can flow.
<b>Arable land</b>	Land that is or can be used for growing crops.
<b>Assessment</b>	An umbrella term for description, analysis and evaluation.
<b>At-grade</b>	At the same level.
<b>Attenuation</b>	Increase in duration of flow hydrograph with a consequent reduction in peak flow.
<b>Attribute</b>	Characteristics of an environmental receptor.
<b>Authority area</b>	The area administered by a local authority for example, District Council, City Council or Unitary Authority.
<b>Average Score Per Taxon (ASPT)</b>	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.
<b>Barrier effects</b>	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.
<b>Baseline</b>	The existing conditions which form the basis or start point of the environmental assessment.
<b>Basic Payment Scheme (BPS)</b>	The largest of the European Union's rural grants and payments to help the farming industry.
<b>Bedrock</b>	Hard rock that lies beneath a superficial cover of soils and sediments.
<b>Biodegradable</b>	Capable of being decomposed by bacteria or other living organisms and thereby avoiding pollution.
<b>Biodiversity</b>	Biological diversity, or richness of living organisms present in representative communities and populations.
<b>Biodiversity Action Plan (BAP)</b>	Sets objectives, along with measurable targets for the conservation of biodiversity.
<b>Biological Monitoring Working Party (BMWP)</b>	A scoring system for measuring water quality using species of macroinvertebrates as biological indicators, based on the variability in sensitivity of invertebrate groups to different pollutants/pollutant types. Pollution-sensitive taxa are assigned a higher score than pollutant tolerant taxa. The higher the sum of individual taxon scores, the better quality invertebrate communities and the better the water quality.
<b>BoCC</b>	Birds of Conservation Concern
<b>Bog</b>	An area of soft, wet, peaty ground.
<b>Broadleaved woodland</b>	An area of woodland with predominantly deciduous tree species (less than 10% coniferous trees in the canopy).
<b>Bryophyte</b>	Phylum of non-flowering plants, with little or no vascular tissue; includes plants such as true mosses and liverworts.

<b>Buffer</b>	A natural, undisturbed strip surrounding a development or land disturbance activity or bordering a stream or permanent water body.
<b>Bund</b>	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.
<b>Burn</b>	A small stream.
<b>Catchment</b>	The area contributing flow to a point on a drainage system.
<b>Channel morphology</b>	Physical characteristics of stream channels, such as width/depth ratio and sinuosity, and types of pattern e.g. braided, meandering, straight.
<b>Community</b>	Assemblage of interacting populations that occupy a given area.
<b>Community Conservation Index (CCI)</b>	A conservation indexing protocol for summarising aquatic macroinvertebrate data obtained from inland flowing and still water sites.
<b>Community Severance</b>	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.
<b>Compulsory Purchase Order (CPO)</b>	A legal document giving the government (Scottish Ministers) power to compulsorily purchase the areas of land necessary for construction of the scheme.
<b>Coniferous woodland</b>	An area of woodland with predominantly coniferous tree species (less than 10% deciduous trees in the canopy).
<b>Conservation</b>	Preservation or restoration of the natural environment and wildlife.
<b>Conservation Area</b>	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.
<b>Contaminated land</b>	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'.
<b>Contracting Parties</b>	Partnership or organisation which enters into a binding agreement with one or more other contracting parties.
<b>Core Path</b>	A right of way designated by a Local Authority as being of importance to maintain access and leisure provision.
<b>Couch</b>	Above-ground otter shelter.
<b>Culvert</b>	A metal, wooden, plastic, or concrete conduit through which surface water can flow under or across roads.
<b>Decibel (dB)</b>	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.

<b>Deciduous</b>	Trees and shrubs that shed their leaves annually.
<b>Demography</b>	The studying/science of the characteristics of populations, such as size, growth rate etc.
<b>Designed Landscape</b>	A designed area of landscape which is identified in the Inventory of Gardens and Designed Landscapes (jointly compiled by SNH and Historic Scotland).
<b>Detention basin</b>	A dry area for temporarily storing water which delays its flow downstream. Includes some water quality benefits. Usually part of SuDS (drainage design).
<b>Diffuse pollution</b>	Contamination and pollution arising from many dispersed and different sources. These sources are often individually minor, but collectively may be significant.
<b>Discharge regime</b>	The rate of flow of a river at a particular moment in time, relative to volume and velocity.
<b>Displacement</b>	To move something from its natural environment.
<b>Do-Minimum (DM)</b>	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.
<b>Do-Something (DS)</b>	The 'with proposed scheme' scenario for assessment purposes,
<b>Drey</b>	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.
<b>Driven shooting</b>	Involves birds being driven over guns by beaters. The guns are stationed in pre-determined positions.
<b>Earthworks</b>	Works created through the moving of quantities of soil or unformed rock.
<b>Ecological Clerk of Works (ECoW)</b>	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.
<b>Ecological receptors</b>	Living organisms, habitats, or natural resources that could be impacted by the construction or operation of the proposed scheme.
<b>Ecology</b>	The branch of biology concerned with the relations of organisms to one another and to their physical surroundings.
<b>Ecosystem</b>	A biological community of organisms interacting with one another and their physical environment.
<b>Effect</b>	The result of change or changes on specific environmental resources or receptors.
<b>Element</b>	A component part of the landscape or environment (e.g. roads, hedges, woodlands).
<b>Environmental Impact Assessment (EIA)</b>	The process by which information about the environmental effects of a project is evaluated and mitigation measures are identified.

<b>Environmental Statement (ES)</b>	Document provided by the Developer to the Competent Authority, containing environmental information required under Article 5 of Directive 85/337/EEC as amended.
<b>Ephemeral flow</b>	A flow that lasts a very short time.
<b>Fen</b>	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.
<b>Fill</b>	Material deposited by man in ground depression or excavated area.
<b>Floodplain</b>	Land adjacent to a river, which is subject to regular flooding.
<b>Flora</b>	Referring to plants of a particular region or habitat.
<b>Flow regime</b>	Combinations of river discharge and corresponding water levels and their respective (yearly or seasonally) averaged values and characteristic fluctuations around these values.
<b>Fluvial geomorphology</b>	The study of landforms associated with river channels and the sediment processes which form them.
<b>Footprint</b>	The geographical extent of an ecological impact.
<b>Foraging</b>	Searching for food or provisions.
<b>ForestGALES</b>	A computer based decision support tool which estimates the probability of wind damage o any conifer stand in Britain.
<b>Fragmentation</b>	Breaking up of an organisms habitat into smaller fragments that may vary in size.
<b>Freshwater</b>	Bodies of water such as ponds, lakes, rivers and streams containing low concentrations of dissolved salts and other total dissolved solids.
<b>Gabion</b>	A cage, cylinder, or box filled with rocks, concrete, or something sand and soil for use in civil engineering, road building, military applications and landscaping.
<b>Geomorphology</b>	The branch of geology concerned with the structure, origin and development of topographical features of the earth's crust.
<b>Geophysical survey</b>	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.
<b>Glacial Till</b>	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.
<b>Glaciofluvial</b>	Pertaining to streams fed by melting glaciers, or to the deposits and landforms produced by such streams.



<b>Green list species</b>	Bird species with no identified threat to their population status.
<b>Ground Investigation</b>	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.
<b>Groundwater</b>	Water below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.
<b>Habitat</b>	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.
<b>Habitat fragmentation</b>	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.
<b>Habitat Regulations Appraisal (HRA)</b>	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.
<b>Habitats Directive</b>	EC Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora.
<b>Highways Agency Water Risk Assessment Tool (HAWRAT)</b>	A Microsoft Excel application which assesses the effects of routine road runoff and accidental spillage risk to receiving water features.
<b>Heathland</b>	Uncultivated land with sandy soil and scrubby vegetation.
<b>Heavy Goods Vehicle (HGV)</b>	Vehicles with 3 axles (articulated) or 4 or more axles (rigid and articulated).
<b>Hibernacula</b>	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.
<b>Hibernation</b>	Extended period of torpor undertaken during winter.
<b>Holt</b>	Deep underground otter shelter.
<b>Hydraulic</b>	Of, relating to, or operated by the force of liquid in motion.
<b>Hydrocarbon</b>	A chemical compound of hydrogen and carbon.
<b>Hydrogeology</b>	Branch of geology dealing with occurrence, distribution, and effect of groundwater.
<b>Hydrological</b>	The exchange of water between the atmosphere, the land and the oceans.
<b>Hymenoptera</b>	Taxonomic order of the Insects which includes ants, bees and wasps.

<b>Impact</b>	Any changes attributable to the proposed scheme that have the potential to have environmental effects (i.e. the causes of the effects).
<b>Impermeable</b>	Material that does not allow fluids to pass through it.
<b>Improved grassland</b>	Grasslands that have been so modified by fertilisers, drainage or grazing that they have lost most of the species expected in unimproved grassland.
<b>Incidental sighting</b>	Casual observation of a plant or animal of one or more species recorded by whilst performing a non-relevant ecological survey.
<b>Infrastructure Investment Plan (IIP)</b>	Scottish Government document which sets out why we need to invest, how we invest and what strategic, large scale investments we intent to take forwards within each sector over the next 10 to 20 years.
<b>Inter-bedded</b>	Alternating layers of different materials in a section of bedded rocks.
<b>Interim Advice Note (IAN)</b>	Guidance notes issued by Highways England which should only be used in connection with works on motorways and trunk roads.
<b>Invertebrate</b>	An animal without a backbone.
<b>LAeq</b>	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.
<b>Landform</b>	Combination of slope and elevation producing the shape and form of the land surface.
<b>Landscape</b>	Human perception of the land, conditioned by knowledge and identity with a place.
<b>Land-take</b>	Acquired land which is necessary to construct the proposed scheme and associated infrastructure and to undertake the essential environmental mitigation measures.
<b>Lateral connectivity</b>	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.
<b>Latrine</b>	Dung pit left by a badger.
<b>Lepidoptera</b>	An order of insects that comprises butterflies and moths.
<b>Lichen</b>	A group of complex organisms, which are formed from the symbiotic association of a fungus and an alga.
<b>Listed Building</b>	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 categories A-C.
<b>Lithology</b>	The study of rocks, with particular emphasis on their colour, texture, and composition.

<b>Local Landscape Character Area (LLCA)</b>	An area outlined as having distinct characteristics based on landscape features. Derived from regional landscape studies available from SNH.
<b>Macroinvertebrate</b>	An animal without a backbone that can be seen with the naked eye, for example, snails, waterfleas, shrimps or insects.
<b>Macrophyte</b>	An individual alga large enough to be seen easily with the unaided eye.
<b>Made ground</b>	Ground comprised of material deposited by man i.e. not natural.
<b>Magnitude</b>	Size, extent, scale and duration of an impact.
<b>Marshland</b>	Low-lying wet land with grassy vegetation; usually a transition zone between land and water.
<b>Meadow</b>	An area of grassland that has is normally grazed by livestock and/or used for growing hay.
<b>Migration</b>	The movement (of an animal) from one habitat to another according to the seasons.
<b>Mineral extraction</b>	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.
<b>Mire</b>	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).
<b>Mitigation</b>	Measure to avoid, reduce or offset potential adverse impacts.
<b>Moraine</b>	Any glacially formed accumulation of unconsolidated glacial debris that occurs in both currently and formerly glaciated regions through geomorphological processes.
<b>National Vegetation Classification (NVC)</b>	A system to describe British vegetation types, whereby each vegetation type has a different 'code'.
<b>Native</b>	A species occurring in its normal geographic range (not introduced).
<b>Non-motorised users</b>	Pedestrians, cyclists and equestrians.
<b>Non-prime land</b>	Agricultural land of Land Capability for Agriculture (LCA) classes 3.2 to 7.
<b>Notable species</b>	Species which are below Red Data Book species in terms of threat status.
<b>Offsetting</b>	The process of compensating for something with something else.
<b>Open space</b>	Any land laid out as public parks or used for the purpose of public recreation, or land which is a disused burial ground.

<b>Outfall</b>	The place of discharge e.g. where a sewage pipe discharges into a river.
<b>Parr</b>	Young salmon or trout with distinctive thumbprint markings on flanks.
<b>Pasture</b>	An area of grassland (or other suitable plants) used to feed grazing animals.
<b>Peatland</b>	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.
<b>Perennial</b>	A plant that continues to grow from year to year, sometimes undergoing several years of growth before seeds are produced.
<b>Permeable</b>	Something that can be penetrated/passed through by something else e.g. soil is permeable to water as the water can pass through it.
<b>pH</b>	A figure expressing acidity or alkalinity on a logarithmic scale of 0 to 14.
<b>Phase 1 Habitat Survey</b>	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.
<b>Phase 2 Habitat Survey</b>	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.
<b>Pile/Piling</b>	A heavy stake or post made out of timber, steel, reinforced concrete or pre-tensioned concrete, driven into the ground to support foundations.
<b>Planning Advice Note (PAN)</b>	Supporting document to National Planning Policy Guidelines, which disseminates good practice and provides more specific design advice of a practical nature.
<b>Plantation woodland</b>	Woodland of any age that obviously originated from planting.
<b>Podzol</b>	An infertile acidic soil having an ash-like subsurface layer (from which minerals have been leached) and a lower dark stratum, occurring typically under temperate coniferous woodland
<b>Poaching</b>	Term used in river habitat survey (RHS) to mean the erosion of a watercourse bank by livestock.
<b>Potential Impact</b>	The impact on an aspect of the environment that may occur in the absence of mitigation.
<b>Prime agricultural land</b>	Agricultural land of Land Capability for Agriculture (LCA) classes 1, 2 and 3.1.
<b>Priority habitat</b>	Those which have been identified as being most threatened and requiring actions under the UK Biodiversity Action Plan.
<b>Priority species</b>	Those which have been identified as being most threatened and requiring actions under the UK Biodiversity Action Plan.

<b>Proposed Scheme</b>	The scheme design as reported in Chapter 5 of the ES, and used as the basis for environmental assessment and reporting.
<b>Qualitative</b>	Concerned only with the nature of the organism/substance being investigated.
<b>Quantitative</b>	Concerned with the number, as well as nature of the organism/substance being investigated.
<b>Ramsar sites</b>	Internationally important wetland identified for conservation under the RAMSAR Convention 1971.
<b>Receptor</b>	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.
<b>Red Data List</b>	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).
<b>Red list species</b>	Bird species in severe population decline. Or globally threatened.
<b>Regionally Important Geological Sites (RIGS)</b>	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.
<b>Residual impact</b>	Residual impact means the environmental impact after the provision of mitigation measures, if any.
<b>Retention Pond</b>	A wet area for temporarily storing water which delays its flow downstream. Includes some water quality benefits. Usually part of SuDS (drainage design).
<b>Riffle</b>	A shallow section of a river/stream where the water is fast-flowing over a gravel/cobble substrate.
<b>Right of way</b>	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).
<b>Riparian habitat</b>	Natural home for plants and animals occurring in a thin strip of land bordering a stream or river.
<b>River Basin District</b>	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.
<b>River basin management plan</b>	A plan setting out actions required within a river basin to achieve set environmental quality objectives, reviewed on a six yearly basis.
<b>Rockhead</b>	The surface representing the top of the solid geological strata, i.e. below any drift deposits.
<b>Roost</b>	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.

<b>Rough grassland</b>	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.
<b>Rough pasture</b>	Rough pasture is non-intensive grazing pasture, commonly found on poor soils, especially in hilly areas.
<b>Runoff</b>	Water that flows over the ground surface to the drainage system. This occurs if the ground is impermeable or if permeable ground is saturated.
<b>Salinity</b>	The saltiness or dissolved salt content of a body of water.
<b>Salmonid</b>	Pertaining or belonging to the family Salmonidae (salmon, trout and charr).
<b>Scheduled Monument (SM)</b>	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'.
<b>Scottish Planning Policy (SPP)</b>	A statement of Scottish Government policy on nationally important land use.
<b>Scour</b>	A depression or hole left when sediment is washed away from the bottom of a river.
<b>Scrub</b>	Vegetation dominated by locally native shrubs, usually less than 5m tall.
<b>Sediment</b>	Material carried in particles by water or wind and deposited on the land surface or seabed.
<b>Sedimentation</b>	The deposition or accumulation of sediment.
<b>Semi-natural woodland</b>	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.
<b>Sett</b>	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.
<b>Severance</b>	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.
<b>Site compound</b>	A secure area close to the construction site which provides full site services including storage for equipment, materials and fuel, offices and amenity areas.
<b>Sites of Special Scientific Interest (SSSI)</b>	Designated areas of national importance. 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.
<b>Spawning</b>	The process of egg release into the water by aquatic animals.

<b>Special Area of Conservation (SAC)</b>	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.
<b>Special Protection Area (SPA)</b>	An area designated under the Wild Birds Directive (Directive 74/409/EEC) to protect important bird habitats.
<b>Specific impact</b>	A forceful consequence or strong effect to something particular or unique.
<b>Spraint</b>	Otter faeces.
<b>Stakeholder</b>	A person or group that has an investment, share or interest in something.
<b>Strategic Environmental Assessment (SEA)</b>	The process by which information about the environmental effects of proposed plans, policies and programmes are evaluated.
<b>Strategic Transport Project Review (STPR)</b>	A two year review of the Scottish transport network being undertaken by Transport Scotland. It aims to identify and prioritise 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 would also affect regional and local transport networks.
<b>Substrate</b>	An underlying substance or layer.
<b>Suckler cattle</b>	The mother of a calf raised for beef production.
<b>Superficial Deposits</b>	The youngest geological deposits formed during the most recent period of geological time, the Quaternary, which extends back 1.8 million years.
<b>Susceptibility</b>	The ability to accommodate change without adverse effect.
<b>Sustainable Drainage Systems (SuDS)</b>	A sequence of management practices and control structures designed to drain surface water in a more sustainable fashion than some conventional techniques.
<b>Swamp</b>	An area of wet spongy land that often supports some trees and vegetation but is too wet for cultivation.
<b>Taxa</b>	Plural of taxon.
<b>Taxon</b>	A taxonomic group of any rank.
<b>Terrestrial</b>	The environment above the mean high water spring
<b>Threshold</b>	The minimum intensity or value of a signal etc that will produce a response or specified effect.
<b>Turbid</b>	High concentrations of suspended sediment and particulates in the water column.

<b>Vascular plants</b>	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.
<b>Velocity</b>	A measure of the speed and direction of an object.
<b>Viaduct</b>	A bridge that carries a road, railroad etc. over a valley.
<b>Vulnerable groups</b>	In environmental assessment, generally children, elderly and disabled.
<b>Water Framework Directive (WFD)</b>	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.
<b>Water quality</b>	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).
<b>Windthrow</b>	The uprooting and overthrowing of trees by the wind.
<b>Zone of Theoretical Visibility (ZTV)</b>	The process of determining the visibility of an object in the surrounding landscape. The process is objective in which areas of visibility or non-visibility are determined by computer software using a digital elevation dataset.



## Abbreviations

<b>AA</b>	Appropriate Assessment
<b>AADT</b>	Annual Average Daily Traffic
<b>AAWT</b>	Average Annual Weekday Traffic
<b>ACO</b>	Artificial Cover Object
<b>AEP</b>	Annual Exceedance Probability
<b>ALG</b>	Green Filamentous Algae
<b>AOD</b>	above Ordnance Datum
<b>APIS</b>	Air Pollution Information System
<b>AQAP</b>	Air Quality Action Plan
<b>AQMA</b>	Air Quality Management Area
<b>AQO</b>	Air Quality Objectives
<b>AQS</b>	Air Quality Strategy
<b>ASPT</b>	Average Score Per Taxon
<b>ATC</b>	Automatic Traffic Count
<b>AWI</b>	Ancient Woodland Inventory
<b>B&amp;B</b>	Bed and Breakfast
<b>BAP</b>	Biodiversity Action Plan
<b>BBS</b>	Breeding Bird Survey
<b>BCT</b>	Bat Conservation Trust
<b>BFI</b>	Base Flow Index
<b>BGS</b>	British Geological Survey
<b>BMWP</b>	Biological Monitoring Working Party

<b>BPpN</b>	Bat Passes per Night
<b>BPS</b>	Basic Payment Scheme
<b>BST</b>	British Summer Time
<b>BTO</b>	British Trust for Ornithology
<b>CA</b>	Conservation Area
<b>CAR</b>	Water Environment (Controlled Activities) (Scotland) Regulations 2005
<b>CC</b>	Correlation coefficient
<b>CCI</b>	Community Conservation Index
<b>C&amp;D</b>	Construction and Demolition
<b>CEH</b>	Centre for Ecology and Hydrology
<b>CEMP</b>	Construction Environmental Management Plan
<b>ch</b>	Chainage
<b>CIEEM</b>	Chartered Institute for Ecology and Environmental Management
<b>CIEH</b>	Chartered Institute of Environmental Health
<b>CIRIA</b>	Construction Industry Research and Information Association
<b>CL:AIRE</b>	Contaminated Land: Applications in Real Environments
<b>CLEA</b>	Contaminated Land Exposure Assessment
<b>CMS</b>	Carbon Management System
<b>CNAP</b>	Cairngorm Nature Action Plan
<b>CNPA</b>	Cairngorms National Park Authority
<b>CNPLDP</b>	Cairngorms National Park Local Development Plan
<b>CNPPP</b>	Cairngorms National Park Partnership Plan
<b>CO</b>	Coloepetra Families

<b>CO<sub>2</sub></b>	Carbon Dioxide
<b>CO<sub>2</sub>e</b>	Carbon Dioxide Equivalent
<b>CoCP</b>	Code of Construction Practice
<b>CoS</b>	Community Score
<b>CP</b>	Crossing Point
<b>CPO</b>	Compulsory Purchase Order
<b>CROW</b>	Catalogue of Rights of Way
<b>CRTN</b>	Calculation of Road Traffic Noise
<b>CS</b>	Conservation Score
<b>CSM</b>	Conceptual Site Model
<b>D2AP</b>	Dual Carriageway Rural All Purpose
<b>dB</b>	Decibel
<b>DEFRA</b>	Department of the Environment, Food and Rural Affairs
<b>DM</b>	Do-Minimum
<b>DMP</b>	Dust Management Plan
<b>DMRB</b>	Design Manual for Roads and Bridges
<b>DS</b>	Do-Something
<b>DSFB</b>	District Salmon Fisheries Board
<b>DTM</b>	Digital Terrain Model
<b>DWPA</b>	Drinking Water Protected Area
<b>EA</b>	Environment Agency
<b>EC</b>	European Commission
<b>EcIA</b>	Ecological Impact Assessment

<b>ECoW</b>	Ecological Clerk of Works
<b>EIA</b>	Environmental Impact Assessment
<b>EMP</b>	Environmental Management Plan
<b>EPS</b>	European Protected Species
<b>EQI</b>	Ecological Quality Indices
<b>EQR</b>	Ecological Quality Ratio
<b>EQS</b>	Environmental Quality Standards
<b>ES</b>	Environmental Statement
<b>ESG</b>	Environmental Steering Group
<b>EU</b>	European Union
<b>FB</b>	Fractional bias
<b>FEH</b>	Flood Estimation Handbook
<b>FRM</b>	Flood Risk Management (Scotland) Act 2009
<b>FWPM</b>	Freshwater Pearl Mussel
<b>GAC</b>	Generic Assessment Criteria
<b>GBR</b>	General Binding Rules
<b>GCR</b>	Geological Conservation Review
<b>GDL</b>	Gardens and Designed Landscape
<b>GHG</b>	Greenhouse Gases
<b>GI</b>	Ground Investigations
<b>GIS</b>	Geographic Information System
<b>GLVIA3</b>	Guidelines for Landscape and Visual Impact Assessment 3rd Edition (2013)
<b>GVA</b>	Gross Value Added

<b>GWDE</b>	Groundwater Dependent Terrestrial Ecosystems
<b>ha</b>	Hectare
<b>HAWRAT</b>	Highways Agency's Water Risk Assessment Tool
<b>HDV</b>	Heavy Duty Vehicle
<b>HDPE</b>	High-Density Polyethylene
<b>HES</b>	Historic Environment Scotland
<b>HER</b>	Historic Environment Record
<b>HGV</b>	Heavy Goods Vehicle
<b>HLA</b>	Historic Landscape Assessment
<b>HLT</b>	Historic Landscape Type
<b>HMWB</b>	Heavily Modified Waterbodies
<b>HRA</b>	Habitat Regulations Appraisal (or Assessment)
<b>HSE</b>	Health and Safety Executive
<b>HVS</b>	Hydrodynamic Vortex Separator
<b>Hz</b>	Hertz
<b>IAN</b>	Interim Advice Note
<b>IAQM</b>	Institute of Air Quality Management
<b>IBI</b>	Index of Biotic Integrity
<b>IEEM</b>	Institute of Ecology and Environmental Management
<b>IEMA</b>	Institute of Environmental Management and Assessment
<b>IIP</b>	Infrastructure Investment Plan
<b>INNS</b>	Invasive Non-Native Species
<b>JLA</b>	Journey Length Assessment

<b>JNCC</b>	Joint Nature Conservation Council
<b>JTC</b>	Junction Turning Count
<b>km/h</b>	Vehicle speed, kilometres per hour
<b>KPI</b>	Key Performance Indicators
<b>KRS</b>	Key Reptile Site
<b>LAQM</b>	Local Air Quality Management
<b>LBAP</b>	Local Biodiversity Action Plan
<b>LCA</b>	Land Capability for Agriculture
<b>LCA</b>	Landscape Character Area
<b>LDP</b>	Local Development Plan
<b>LFASS</b>	Less Favoured Area Support Scheme
<b>LFE</b>	Low Flows Enterprise
<b>LGS</b>	Local Geodiversity Sites
<b>LIFE</b>	Lotic Invertebrate Index for Flow Evaluation
<b>LLCA</b>	Local Landscape Character Area
<b>LNR</b>	Local Nature Reserve
<b>mBGL</b>	Metres Below Ground Level
<b>MCHW</b>	Manual of Contracts Documents for Highway Works
<b>MLURI</b>	Macaulay Land Use Research Institute
<b>MoU</b>	Measure of Uncertainty
<b>MSW</b>	Municipal Solid Waste
<b>NBN</b>	National Biodiversity Network
<b>NCN</b>	National Cycle Network

<b>NCR</b>	National Cycle Route
<b>NFG</b>	Number of Functional Groups
<b>NFUS</b>	National Farmers Union of Scotland
<b>NHBC</b>	National House Building Council
<b>NISR</b>	The Noise Insulation (Scotland) Regulations
<b>NLS</b>	National Library of Scotland
<b>NMU</b>	Non-Motorised User
<b>NNG</b>	Night Noise Guidelines
<b>NO<sub>2</sub></b>	Nitrogen Dioxide
<b>NO<sub>x</sub></b>	Oxides of Nitrogen
<b>NPF</b>	National Planning Framework
<b>NPF2</b>	National Planning Framework 2
<b>NPF3</b>	National Planning Framework 3
<b>NPL</b>	National Physics Laboratory
<b>NRTF</b>	National Road Traffic Forecasts
<b>NSA</b>	National Scenic Area
<b>NSR</b>	Noise Sensitive Receptor
<b>NTAXA</b>	Number of Macrophyte Taxa
<b>NTS</b>	National Trust for Scotland
<b>NTS</b>	Non-Technical Summary
<b>NVC</b>	National Vegetation Classification
<b>NWSS</b>	Native Woodland Survey of Scotland
<b>O/E</b>	Observed/Expected

<b>OM</b>	Odonata and Megaloptera Families
<b>OS</b>	Ordnance Survey
<b>Pa</b>	Pascal's
<b>PAN</b>	Planning Advice Note
<b>PELs</b>	Probable Effects Levels
<b>PES</b>	Preliminary Engineering Services
<b>PHI</b>	Pollution Hazard Indices
<b>PKC</b>	Perth & Kinross Council
<b>PKHT</b>	Perth & Kinross Heritage Trust
<b>PKLPD</b>	Perth & Kinross Local Development Plan
<b>PM</b>	Particulate Matter
<b>PMI</b>	Pollution Mitigation Indices
<b>PPE</b>	Personal Protective Equipment
<b>PPG</b>	Pollution Prevention Guidelines
<b>PPP</b>	Pollution Prevention Plan
<b>PSI</b>	Proportion of Sediment-Sensitive Invertebrates
<b>PSSR</b>	Preliminary Sources Study Report
<b>PSYM</b>	Predictive System for Multimetrics
<b>PWS</b>	Private Water Supply
<b>Q50</b>	Flow that is expected to be exceeded 50% of the time (m3/s)
<b>Q95</b>	Flow that is expected to be exceeded 95% of the time (m3/s)
<b>QMED</b>	Median annual maximum flood flow (m3/s) (the same as the flow with a 2yr return period)
<b>RAP</b>	Route Action Plan



<b>RBMP</b>	River Basin Management Plan
<b>RCAHMS</b>	Royal Commission on Ancient and Historical Monuments of Scotland
<b>RICT</b>	River Invertebrate Classification Tool
<b>RIGS</b>	Regionally Important Geological Sites
<b>RISS</b>	Route Improvement Strategy Study
<b>RMNI</b>	River Macrophyte Nutrient Index
<b>RMSE</b>	Root Mean Square Error
<b>RoD</b>	Record of Determination
<b>ROW</b>	Right of Way
<b>RSPB</b>	Royal Society for the Protection of Birds
<b>RST</b>	Runoff Specific Threshold
<b>SAM</b>	Scheduled Ancient Monument
<b>SAC</b>	Special Area of Conservation
<b>SBL</b>	Scottish Biodiversity List
<b>SBS</b>	Scottish Biodiversity Strategy
<b>ScARF</b>	Scottish Archaeological Research Framework
<b>SDP</b>	Strategic Development Plan
<b>SEA</b>	Strategic Environmental Assessment
<b>SEDPL</b>	Strategic Environmental Design Principles - Landscape
<b>SEPA</b>	Scottish Environment Protection Agency
<b>SFCC</b>	Scotland Fisheries Co-ordination Centre
<b>SFRA</b>	Strategic Flood Risk Assessment
<b>SGV</b>	Soil Guideline Value

<b>SIA</b>	Simple Index Approach
<b>SLA</b>	Special Landscape Area
<b>SLQ</b>	Special landscape Quality
<b>SMA</b>	Stone Mastic Asphalt
<b>SNH</b>	Scottish Natural Heritage
<b>SPA</b>	Special Protection Area
<b>SPP</b>	Scottish Planning Policy
<b>SSBSS</b>	Scottish Suckler Beef Support Scheme
<b>SSC</b>	Suspended Sediment Concentration
<b>SSE</b>	Scottish Southern Energy
<b>SSSI</b>	Site of Special Scientific Interest
<b>STAG</b>	Scottish Transport Appraisal Guidance
<b>STEP</b>	Scottish Trip End program
<b>STPR</b>	Strategic Transport Project Review
<b>SUDS</b>	Sustainable Drainage Systems
<b>SWMP</b>	Site Waste Management Plan
<b>SWL</b>	Sound Power Level
<b>SWT</b>	Scottish Wildlife Trust
<b>SY15</b>	Summer 15 Years
<b>TACTRAN</b>	Tayside and Central Scotland Transport Partnership
<b>TAN</b>	Technical Advice Note
<b>tCO<sub>2</sub>e</b>	Total Embodied Carbon
<b>TCV</b>	Taxon Cover Value

<b>TDSFB</b>	Tay District Salmon Fisheries Board
<b>TELS</b>	Threshold Effects Levels
<b>TMfS</b>	Transport Model for Scotland
<b>TPO</b>	Tree Preservation Order
<b>TRL</b>	Transport Research laboratory
<b>TRS</b>	Trophic Ranking Score
<b>TRSG</b>	Tayside Raptor Study Group
<b>TS</b>	Transport Scotland
<b>TSS</b>	Total Suspended Soils
<b>UNESCO</b>	The United Nations Educational, Scientific and Cultural Organization
<b>uPVC</b>	Unplasticised Polyvinyl Chloride
<b>v/v</b>	Volume per Volume
<b>WCA</b>	Wildlife and Countryside Act 1981
<b>WEWS</b>	Water Environment and Water Services (Scotland) Act 2003
<b>WF</b>	Water Feature
<b>WFD</b>	Water Framework Directive
<b>WHO</b>	World Health Organisation
<b>WHPT</b>	Whalley, Hawkes, Paisley and Trigg
<b>WLA</b>	Wild Land Areas
<b>WRAP</b>	Waste and Resources Action programme
<b>WS2+1</b>	Wide single 2+1 (sections of roads consisting of two lanes of travel in one direction and a single lane of traffic in the opposite direction).
<b>WVI</b>	Wildlife Vehicle Incident
<b>WYO</b>	Winter Year of opening

**ZTV**

Zone of Theoretical Visibility