

ANNEX D
ENVIRONMENTAL IMPACT TABLES

Traffic

Potential Impact	Sensitivity of Resource	Magnitude of Impact	Significance of Unmitigated Impact	Mitigation	Significance of Residual Effect ¹
Permanent					
N/A					
Construction					
Disruption to local and commuting traffic and an increase in journey times during scheme construction. The roads which potentially would be most likely to be affected would include: <ul style="list-style-type: none"> the existing A82(T); the A85(T) the Glenfalloch Road the Callander Road; and the Tyndrum Road 	Medium	Medium	Moderate	DDC1-DDC10, GEN5 and GEN 6	Minor/ Moderate
Effects of special loads on the existing road network	Medium	Medium	Moderate	DDC1-DDC10, GEN5, GEN6, AQ9, AQ11	Minor
Cumulative effects on local roads if other major construction projects were programmed for the same time and the proposals	Medium	Medium	Moderate	DDC1-DDC10, GEN5, GEN6, AQ9, AQ11 No known major consented proposals in the area at present	Minor
Operational					
Improved reliability of journeys for all traffic users including freight and public transport	Medium	Medium	Moderate Positive Impact	Design of proposals to current standards	Moderate Beneficial

¹ Significant effects are shown in bold

The Transport and Planning Policy

Potential Impact	Sensitivity of Resource	Magnitude of Impact	Significance of Unmitigated Impact	Mitigation	Significance of Residual Effect
Permanent					
	<p>The A82(T) Crianlarich Bypass proposals are broadly in accordance with the national, regional and local plan policies and guidance. Although the proposed scheme does not actively promote a modal shift to more sustainable modes of transport, the scheme would not lead to an increase in traffic on the road</p> <p>No significant potential for cumulative effects with other projects has been identified</p>			<p>Mitigation has been defined for any potentially significant impact on the environment to ensure that any residual effects are reduced to the minimum for safe implementation of the development</p>	<p>Minor</p>

Land Use

Potential Impact	Sensitivity of Resource	Magnitude of Impact	Significance of Unmitigated Impact	Mitigation	Significance of Residual Effect
Permanent					
Direct and indirect impacts to properties including demolition, interruption of access etc	High	Medium	Moderate	LU4, LU5 and LU6	Minor
Direct and indirect impacts to current land uses	Medium	Low	Minor	LU2, LU3, LU5 and LU7	Minor
Permanent loss of land to the proposals	High	Medium	Moderate/Major	LU1 and LU5	Minor
Incompatibility of new land uses with existing land uses	High	Medium	Moderate/Major	LU2, LU3, LU5, LU6 and LU7	Minor
Impacts to utilities in the area	Medium	Medium	Moderate	LU6	Minor
Interruption to pedestrian routes, cycleways and bridleways, including the West Highland Way spur	Medium	Low	Minor	LU2 and LU3	Minor
Construction					
Conflicts between construction needs and users of the existing A82 and A85	Medium	Medium	Moderate	LU4, LU6, GEN5, GEN6, DDC1, DDC2, DDC4, DDC6, DDC7, DDC8, DDC9	Minor
Interruption to existing land uses by ongoing construction activities	Medium	Low	Minor	LU3, LU4, LU5, LU6, DDC3, DDC10, PLE2	Minor
Increased hazards to users of the area from construction activities	High	Low	Moderate	GEN4, GEN8, DDC7, DDC8, DDC9, NV1-11, AQ1, AQ5, AQ6, AQ8, AQ9, AQ10, AQ11, PLE2	Minor
Interruptions to services through interference with utilities	Medium	Low	Minor	LU6	Minor
Operational					
Improved travelling time and driver safety	Medium	Medium	Moderate Beneficial	Well designed scheme	Moderate Beneficial
Interference with current activities because of changed traffic patterns	Medium	Low	Minor	LU2	Minor

Geology and Soils

Potential Impact	Sensitivity of Resource	Magnitude of Impact	Significance of Unmitigated Impact	Mitigation	Significance of Residual Effect
Permanent					
Removal of <i>in situ</i> materials which may be used in embankments and as fill but whose stratigraphy would be damaged and its geological and soils value largely lost	Low	Low	Minor	G1, G5, G6, G7, G9, G10	Not significant
Burial of sites and materials of geological interest (including fossils) e.g. under embankments or permanent structures	Low	Low	Minor	G1, G5, G6 and G7	Not significant
Loss of access to mineral and aggregate resources beneath permanent structures;	Low	Low	Minor	G1, LU5	Not significant
Exposure of geological formations e.g. in cuttings which may benefit geological study;	Low	Low	Minor	G1, G5, G6, G7	Not significant
Physical damage of soils	Low	Low	Minor	G1, G2, G9, G10, G13 and G18	Not significant
Local but minor changes to the groundwater regime as a result of earthworks and carriageway drainage which could affect soils	Low	Low	Minor	G1, G3, G8, G10, G21 and G22	Not significant
Creation of new and possibly steeper slopes than natural slopes and the creation of new rock exposures affecting drainage and aspect	Low	Low	Minor	G1, G2, G9, G21 and G22	Not significant
Construction of embankments would infill and / or cover existing geomorphological features and could create breaks in peat bogs	Medium	Low	Minor	G1, G5, G6, G7, G19, G20, LU5	Not significant
The creation of unnatural breaks in the peat or peat slippage as a result of peat excavation	Medium	Low	Minor	G1, G4, G9, G10, G14, G15, G17 – G22, GEN 18 - GEN 20	Not significant
Subsidence of the road surface and embankments to occur after construction as a result of buried peat decomposing and compressing	Medium	High	Significant	G18	Not significant
Increased susceptibility of peat bodies to failure during or after construction, due to damage to the integrity of the vegetation or underlying peat caused by construction vehicles crossing bodies of deep peat that are not to be removed or buried by the proposed development	Medium	High	Significant	G18 – G22	Not significant

Potential Impact	Sensitivity of Resource	Magnitude of Impact	Significance of Unmitigated Impact	Mitigation	Significance of Residual Effect
Reduced stability of peat bodies due to potential effects of new cuttings and earthworks for the scheme	Medium	High	Significant	G20	Not significant
Increased likelihood of peat bodies sliding on to the road during heavy rainfall events	Medium	High	Significant	G21	Not significant
Effects on the hydrology and, therefore stability, of the of the remaining peat bodies	Medium	High	Significant	G22	Not significant
Construction					
Encountering contaminated land	Low	Low	Minor	G16	Not significant
Pollution of soils from spills	Moderate	Medium	Moderate	G10 - G13	Minor
Operational					
Pollution of soils by spillages or spray from the road	Moderate	Medium	Moderate	Dr1-15	Minor

Road Drainage and the Water Environment

Potential Impact	Sensitivity of Resource	Magnitude of Impact	Significance of Unmitigated Impact	Mitigation	Significance of Residual Effect
Permanent					
Changes to surface water morphology through realignment, culverting etc of watercourses and alterations to the beds of watercourses and drains	Medium	Medium	Moderate	Dr1, Dr2, Dr3, Dr6, Dr7 and Dr8	Minor
Changes to drainage characteristics, aquatic habitats and hydrology in the locality of the site through physical works	High	Medium	Moderate/Major	Dr1, Dr2, Dr3, Dr6, Dr7 and Dr8	Minor
Changes to the hydrogeology/hydrology of the area through physical works	High	Medium	Moderate	Dr1, Dr2, Dr3, Dr4, Dr7, Dr8, Dr9	Minor
Impacts on groundwater and surface water abstractions	Medium	Medium	Moderate	Dr1, Dr2, Dr3, Dr5, Dr8, Dr9 and Dr13	Minor
Impacts to existing discharges	Low	Low	Minor	Dr1, Dr2, Dr3, Dr5 and Dr12	Minor
The potential for the scheme to affect flooding in the area	Medium	Medium	Moderate	Dr1, Dr3, Dr6, Dr7, Dr8, Dr9 and Dr10	Minor
Construction					
Discharge of construction drainage potentially contaminated with sediments or materials used on site (fuels, lubricants, hydraulic fluids etc)	High	High	Major	Dr10, Dr11, Dr12	Minor
Impacts from dust deposition in existing water features	High	Low	Moderate	Dr11, AQ2, AQ5, AQ10	Minor
Impacts from discharge of sewage and effluent from the site compound facilities	High	Medium	Moderate/Major	Dr13	Not significant
Pollution from accidental spillages or discharges of fuels, oils, chemicals etc	High	High	Major	Dr11, Dr12, Dr13	Minor
Pollution from waste materials, dust etc from handling contaminated land on-site	High	Moderate	Moderate	G16, AQ1, AQ5, Dr12	Minor
Operational					
Pollution of watercourses from road run-off	High	High	High	Dr1-Dr3, Dr6, Dr9, Dr10, Dr14 and Dr15	Minor
Impacts from spills of fuel as a result of accident	High	High	High	Dr5, Dr9, Dr12 and Dr14	Minor
Release of polluted materials from maintenance activities such as cleaning gully pots,	Moderate	Moderate	Moderate	Dr13, Dr14	Minor

Potential Impact	Sensitivity of Resource	Magnitude of Impact	Significance of Unmitigated Impact	Mitigation	Significance of Residual Effect
herbicides used to control plant growth on verges or the central reserves					
Biological effects from pollution incidents	High	High	High	Dr1-Dr3, Dr6, Dr14, Dr15, EC17, EC18, EC19, EC20, EC22	Minor

Ecology and Nature Conservation

Potential Impact	Sensitivity of Resource	Magnitude of Impact	Significance of Unmitigated Impact	Mitigation	Significance of Residual Effect
Permanent					
Permanent loss of habitat or species due to permanent or temporary landtake for the proposals	Medium	Medium	Moderate	LU5, EC1-6, EC11-16, Dr3 and Dr6	Minor
Creation of barriers to the movements of animals, especially mammals, amphibians and invertebrates and plants with limited powers of dispersal by the permanent works	Medium	High	Moderate/Major	EC6, EC8-EC10 and EC14	Minor
Fragmentation of habitat or severance of ecological corridors between isolated habitats of ecological importance	Low	Medium	Minor/Moderate	EC6, EC8-EC10 and EC14	Minor
Alterations to drainage regimes which may affect adjacent habitats (see also Road Drainage and the Water Environment Table)	Medium	Medium	Moderate	Dr1-Dr3, D6, Dr7, Dr14, EC16, EC17, EC18, EC19, EC20 and EC22	Minor
Creation of new habitats and introduction of species as a result of reinstatement works, habitat enhancement proposals and landscaping	Low	Moderate	Moderate beneficial	EC2, EC3, EC4, EC14 and EC15	Moderate Beneficial
Construction					
Disturbance or damage to adjacent habitat not required for the proposals through construction activities (movement of vehicles and personnel, artificial lighting, dust, spillage of fuels and chemicals, emissions and noise)	Low	Medium	Minor/Moderate	EC1, EC17-EC20	Minor
Disturbance to or displacement of wildlife in proximity to the site through construction activities including noise and vibration from piling activities	High	Medium	Moderate/Major	EC17-EC21, GEN8	Minor
Temporary severance of wildlife corridors	Medium	High	Moderate	EC7, EC8, EC17 and EC21	Minor

Potential Impact	Sensitivity of Resource	Magnitude of Impact	Significance of Unmitigated Impact	Mitigation	Significance of Residual Effect
Pollution containing high levels of sediment entering the watercourses and indirectly impacting on the Tay SAC	High	Moderate	Major	EC18, EC19, EC20, EC22, Dr1-Dr14	Minor
Introduction of alien species during the construction works.	Low	Low	Minor	GEN11,GEN12	Minor
Operational					
Kills, disturbance or displacement of animals from increase in speed/volume of traffic	Medium	Moderate	Minor/Moderate	EC2, EC8, EC9, EC10, EC14 and EC15	Minor
Effects on wildlife from increased noise from the road	Medium	Low	Minor		Minor
Effects on wildlife from changes in night-time lighting conditions	Medium	Low	Minor	GEN17	Minor
Effects from the discharge of site run-off which could be contaminated with oil, de-icing salts, heavy metals and suspended solids which could impact on water quality or adjacent habitats, in particular the River Fillan, part of the Tay SAC	High	Medium	Moderate	Dr1-Dr3, D6, Dr10, Dr12, Dr14, EC22	Minor
Damage or disturbance to habitat or species adjacent to the proposals through operational activities	Medium	Low	Minor	EC7, EC8, EC9, EC10, Dr5, Dr9, Dr14 and Dr15	Minor

Landscape and Visual Impact Assessment

Potential Impact	Sensitivity of Resource	Magnitude of Impact	Significance of Unmitigated Impact	Mitigation	Significance of Residual Effect
Landscape Impacts					
Permanent					
Introducing a large linear feature into a rural area	High	Moderate	Moderate adverse	LV1-14, LV20-LV46	Minor
Direct loss of landscape features such as trees, woodlands and knolls	High	Moderate	Moderate adverse	LV1-14, LV20-LV46	Minor
Altering an individual landform with a cutting or an embankment	High	Moderate	Moderate adverse	LV1-14, LV20-LV46	Minor
Altering the pattern of the landscape by introducing a strong line that cuts across the 'grain' of the landscape	High	Moderate	Moderate adverse	LV1-14, LV20-LV46	Minor
Altering the pattern of field boundaries	High	Moderate	Moderate adverse	LV1-14, LV20-LV46	Minor
Altering features of natural or cultural heritage interest.	High	Moderate	Moderate adverse	LV1-14, LV20-LV46	Minor
Construction					
Introducing a large linear feature into a rural area	High	High	Moderate adverse	LV16-19	Minor
Direct loss of landscape features such as trees, woodlands and knolls	High	High	Moderate adverse	LV16-19	Minor
Altering an individual landform with a cutting or an embankment	High	High	Moderate adverse	LV16-19	Minor
Altering the pattern of the landscape by introducing a strong line that cuts across the 'grain' of the landscape	High	High	Moderate adverse	LV16-19	Minor
Altering the pattern of field boundaries	High	High	Moderate adverse	LV16-19	Minor
Altering features of natural or cultural heritage interest.	High	High	Moderate adverse	LV16-19	Minor
Operation					
Introducing the movement and noise of vehicles into a comparatively tranquil landscape;	High	Moderate	Moderate adverse	LV20-LV40	Minor
Introduction of vehicle lights and road lighting at night into previously dark areas.	High	Moderate	Moderate adverse	Scheme planting	Minor

Potential Impact	Sensitivity of Resource	Magnitude of Impact	Significance of Unmitigated Impact	Mitigation	Significance of Residual Effect
Visual Impacts					
Permanent					
Intrusion of the road into a comparatively undisturbed landscape;	High	Moderate	Moderate adverse	LV1-14, LV20-LV46	Minor
New embankments which intrude into people's views, such the view from Glenfalloch Road	High	Moderate	Moderate adverse	LV1-14, LV20-LV46	Minor
Cuttings which create notches on the skyline or scars on the hillside, such as behind Tyndrum Terrace;	High	Moderate	Moderate adverse	LV1-14, LV20-LV46	Minor
Structures that stand out in the landscape, such as roundabout approach signs;	High	Moderate	Moderate adverse	LV1-14, LV20-LV46	Minor
Increased visual presence of the road in addition to the existing built-up area, such that development forms a larger part of the view ;	High	Moderate	Moderate adverse	LV1-14, LV20-LV46	Minor
Intrusion of the road into a comparatively undisturbed landscape;	High	Moderate	Moderate adverse	LV1-14, LV20-LV46	Minor
Construction					
Installation of a large construction compound;	High	Moderate	Moderate adverse	LV 16-LV19	Minor
Movement and activity of large construction machinery, usually with flashing hazard lights;	High	Moderate	Moderate adverse	LV 16-LV19	Minor
Views of cranes;	High	Moderate	Moderate adverse	LV 16-LV19	Minor
New embankments and cuttings, particularly noticeable because of changes over a short time-scale, and the extent of bare earth visible;	High	Moderate	Moderate adverse	LV 16-LV19	Minor
Temporary spoil heaps and potentially borrow pits and disposal areas;	High	Moderate	Moderate adverse	LV 16-LV19	Minor
Temporary traffic management; and	High	Moderate	Moderate adverse	LV 16-LV19	Minor
Floodlighting of areas for evening and morning working during the winter.	High	Moderate	Moderate adverse	LV 16-LV19	Minor
Operational Visual Impacts					
The introduction of movement (of traffic) into the quiet side of the village; and	High	Moderate	Moderate adverse	LV1-14, LV20-LV46	Minor
New road lighting changing the nighttime view.	High	Moderate	Moderate adverse		Minor
Impacts on Residential Properties					
Impact on residential properties (potential impact on 13 receptors or groups of	High	Different for each	Major adverse – 4	Different for each	Major adverse at Tyndrum Terrace and

Potential Impact	Sensitivity of Resource	Magnitude of Impact	Significance of Unmitigated Impact	Mitigation	Significance of Residual Effect
receptors within the visual envelope)		receptor (see Appendix 10.1)	Moderate adverse – 7 Minor adverse – 0 Minor, neutral – 0 Negligible - 2 Minor beneficial – 0	receptor (see Section 10.7 and Appendix 10.1)	adjacent (8 houses) and Gleann Fiadh Lodge Moderate adverse at Willow Brae
Impact on outdoor recreation receptors (potential impact on 6 receptors within the visual envelope)	High	Different for each receptor (see Appendix 10.1)	Major adverse – 2 Moderate adverse – 0 Minor adverse – 2 No effect – 2	Different for each receptor (see Section 10.7 and Appendix 10.1)	Major adverse at West Highland Way spur Moderate adverse at Community Woodland
Impact on transport receptors (potential impact on users of the railway station and the A82 within the visual envelope)	Moderate	Different for each potential receptor location (see Appendix 10.1)	Moderate Adverse - 1 Minor adverse – 1 Negligible - 1	Different for each receptor (see Section 10.7 and Appendix 10.1)	Minor

Archaeology and Cultural Heritage

Potential Impact	Sensitivity of Resource	Magnitude of Impact	Significance of Unmitigated Impact	Mitigation	Significance of Residual Effect
Permanent					
Potential Impacts resulting in the (partial or total) Physical Loss of a Site	Low	Low to High	No effect to Moderate Adverse	CH2-CH11	Not Significant to Minor
Potential Impacts on Setting of SAMs and Listed Buildings	Low	Low to Minor Beneficial	No effect	CH1	Not Significant

Disruption due to Construction

Potential Impact	Sensitivity of Resource	Magnitude of Impact	Significance of Unmitigated Impact	Mitigation	Significance of Residual Effect
Permanent					
N/A					
Construction					
Impacts of special loads on the existing road network	Medium	Minor	Minor/Moderate	DDC1-DDC10, GEN5, GEN6, AQ9, AQ11	Minor
Cumulative effects on local roads if other major construction projects were programmed for the same time and the proposals	Medium	Medium	Moderate	DDC1-DDC10, GEN5, GEN6, AQ9, AQ11 No known major consented proposals in the area at present.	Moderate Adverse
Operational					
N/A					

Noise and Vibration

Potential Impact	Sensitivity of Resource	Magnitude of Impact	Significance of Unmitigated Impact	Mitigation	Significance of Residual Effect
Permanent					
None					
Construction					
Noise impacts on local sensitive receptors from construction operations including those utilising heavy machinery, e.g. earth moving, aggregate spreading and road laying	High	No impact to temporary high adverse	No impact to temporary major adverse	NV1-NV3, NV6, NV7, NV9, NV10	No impact to temporary Moderate Adverse
Noise impacts on local sensitive receptors as a result of construction traffic accessing the site	High	No impact to temporary medium adverse	No impact to temporary major adverse	NV4, NV5, NV8	No impact to temporary minor adverse
Groundborne vibration impacts on local sensitive receptors as a result of construction involving heavy machinery	High	No impact to temporary medium adverse	No impact to temporary adverse high	NV9, NV11 and NV12	No impact to temporary minor adverse
Operational					
Changes in road traffic noise levels at sensitive receptors, as a result of proposed new highways or realigned / modified existing highways	High	High beneficial to high adverse	Major beneficial to major adverse	NV13 – NV19	Major Beneficial to Major Adverse
Changes in road traffic noise levels at sensitive receptors as a result of changes in road traffic flows on existing, otherwise unchanged local roads	High	Moderate	Minor/Moderate	There would be less traffic travelling on the Glenfalloch Road as a result of the scheme	Minor Beneficial
Changes in airborne vibration levels at sensitive receptors as a result of road traffic on proposed new highways or realigned / modified existing roads	High	High beneficial to high adverse	Major beneficial to major adverse	NV13 – NV19	Major Beneficial to Major Adverse
Changes in airborne vibration levels at sensitive receptors as a result of road traffic flow changes on existing, otherwise unchanged local roads.	High	Low	Minor	There would be less traffic travelling on the Glenfalloch Road as a result of the scheme	Minor Beneficial

Air Quality

Potential Impact	Sensitivity of Resource	Magnitude of Impact	Significance of Unmitigated Impact	Mitigation	Significance of Residual Effect
Permanent					
There will be no permanent impacts associated with the scheme.	NA	NA	NA	NA	NA
Construction					
Construction activities would lead to the generation and release of dust. Dust may be deposited in the area immediately surrounding the source (up to 200m away) and could cause nuisance or amenity loss at sensitive locations	High	Low	Minor adverse	AQ1-AQ11	Minor adverse
PM10 concentrations in the vicinity of the proposed bypass would be elevated as a result of construction processes and construction traffic	High	Low	Minor adverse	AQ1-AQ11	Not significant
Emissions from construction vehicles would also lead to an increase in NO2 concentrations	High	Low	Minor adverse	AQ1-AQ11	Not significant
Operational					
The operation of the proposed bypass may lead to changes in concentrations of NO2 and PM10 at sensitive receptors (i.e. change in exposure to air pollution). It is likely that the proposed bypass would cause a reduction in pollution concentrations at receptors located along the existing route of the A82 due to the fact a large proportion of traffic would use the proposed bypass rather than the roads which make up the existing network through Crianlarich	High	Minor	Minor Beneficial	N/A	Minor
The operation of the bypass may lead to changes in total emissions of pollutants, namely CO2.	High	Minor	Minor Beneficial	N/A	Minor

Pedestrians, Cyclists, Equestrians and Community Effects

Potential Impact	Sensitivity of Resource	Magnitude of Impact	Significance of Unmitigated Impact	Mitigation	Significance of Residual Effect
Permanent					
Permanent changes in the alignment of the West Highland Way under the new road	High	Medium	Moderate/Major	PLE1, LU2	Minor
Construction					
Temporary changes in journey length or ease of making journeys for pedestrians, cyclists and equestrians through construction activities	High	Medium	Moderate/Major	PLE2, PLE4, PLE5 and PLE6	Minor/ Moderate Adverse
Operational					
Change to conditions within the village	High	Minor	Minor	PLE4 – PLE6	Minor Beneficial

Vehicle Travellers

Potential Impact	Sensitivity of Resource	Magnitude of Impact	Significance of Unmitigated Impact	Mitigation	Significance of Residual Effect
View from the Road					
Permanent					
Removal of contrast from the visual experience of those using the A82 and replacement with mainly poor quality views	High	High	Major Adverse	Mitigation planting and LV1-LV46	Moderate adverse
Driver Stress					
Permanent					
None perceived	NA	NA	NA	NA	NA
Construction					
Increased frustration for drivers resulting from delays caused by traffic management measures used to facilitate construction	High	Medium	Minor/Moderate Adverse	GEN5, GEN6, DDC1-DDC10	Minor
Confusion for drivers caused by road works (narrow lanes, signs etc).	High	Medium	Minor/Moderate Adverse	GEN5, GEN6, DDC1-DDC10	Minor
Operational					
Decrease in driver stress for both local traffic and commuters	High	Medium	Moderate Beneficial	N/A	Moderate Beneficial