

51 Schedule of Environmental Commitments

51.1 Introduction

- 51.1.1 This chapter summarises the mitigation measures identified in the ES that are considered necessary to protect the environment prior to or during construction, or during operation of the Fastlink section of the proposed scheme.
- 51.1.2 The purpose of the Schedule of Environmental Commitments is to collate mitigation measures, both for ease of reference and for use by those preparing the Contract Documents. It is intended to provide a record of commitments that will be incorporated within the Contract Documents and to which the Contractor will be obliged to adhere throughout the Contract period. However, it is recognised that there may be a need to revise or supplement the commitments as the design proceeds by agreement between the Client, the Contractor(s), and other parties as appropriate.
- 51.1.3 The Schedule of Environmental Commitments (Table 51.1) addresses the potential impacts previously summarised in the Environmental Impact Tables (Table 50.1). The Mitigation Item Numbers provided in the first column of Table 51.1 are provided to enable cross-referencing between these two tables.
- 51.1.4 Significant changes or modifications to the proposed development may alter the outcomes of the assessment, which may require changes to the mitigation proposed. Should this be the case, it may be necessary to publish an Environmental Assessment Report (EAR) identifying appropriate impacts and mitigation measures. The report would include a revised Schedule of Environmental Commitments to reflect any changes which would be included in the Contract Documents.

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Table 51.1 - Schedule of Environmental Commitments

Item number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
Land Use (Chapter 37)						
LU1f	See Appendix A37.1 for details of location required per land interest	Permanent loss of agricultural land and forestry has been reduced through route selection. In addition, the loss will be reduced by re-instatement plans, where appropriate, post construction.	Reduction	Scheme design	None envisaged	None
LU2f	See Appendix A37.1 for details of location required per land interest	Access for the land interests to their agricultural land and woodland will be provided at all times during the construction process and post construction. except where areas are severed. Where appropriate and justified, agricultural overbridges and underpasses will be incorporated into the road design.	Reduction	Scheme design Construction	None envisaged	None
LU3f	See Appendix A37.1 for details of location required per land interest	Damage to the agricultural capability of soils will be avoided by the adoption of appropriate measures during construction and reinstatement.	Reduction and Offset	Construction	None envisaged	None
LU4f	See Appendix A37.1 for details of location required per land interest	Existing field and forestry drainage systems will be re-instated to ensure that land capability is maintained and flooding will not be exacerbated.	Reduction and Offset	Construction Post-construction	Monitoring post construction to access flood risk	None
LU5f	See Appendix a37.1 for details of location required per land interest	Financial compensation, where appropriate, will be provided for the loss of agricultural land, forestry or land with sporting interests, as agreed with the District Valuer.	Reduction and Offset	Construction Post-construction	None envisaged	District Valuer
LU6f	See Appendix A37.1 for details of location required per land interest	Notice of intention to commence construction work will be given to the owners and occupiers of all land along the route before entry is made to such land. Disturbance will be minimised, where practicable.	Reduction	Pre-construction Construction	None envisaged	None
LU7f	See Appendix A37.1 for details of location required per land interest	Preparation of a schedule of condition will be undertaken for agricultural land (including drainage), forestry, roads and paths likely to be affected by the proposed development. This will be made available to the owner or occupier and will ensure that land, roads and paths are restored to the reasonable satisfaction of the landowner or occupier.	Reduction	Pre-construction	None envisaged	None
LU8f	See Appendix A37.1 for details of location required per land interest	Agriculture, forestry and sporting roads and paths will be re-instated to a condition equivalent to that subsisting before the commencement of any works.	Reduction	Construction Post-construction	None envisaged	None
LU9f	See Appendix A37.1 for details of location required per land interest	Where land outside the land required permanently for the scheme is used agricultural land will be re-instated to a condition as near as is reasonably practicable to that subsisting before the commencement of the works.	Reduction and Offset	Construction Post-construction	None envisaged	None
LU10f	See Appendix A37.1 for details of location required	Where ancillary apparatus and material is sited on agricultural land it would be done so with agreement of the land owner/occupier.	Reduction and Offset	Construction	None envisaged	None

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	per land interest					
LU11f	See Appendix A37.1 for details of location required per land interest	There will be provision of temporary fences, lights and guards in appropriate locations for the protection of the health and safety of the public and animals and to avoid trespass. Where appropriate, fencing of the working area to a standard adequate for the purpose of excluding any stock kept on adjoining land will be undertaken. All temporary fencing will be maintained in position during constructional work unless otherwise agreed with the occupier.	Reduction	Construction	None envisaged	None
LU12f	See Appendix A37.1 for details of location required per land interest	Where boundary features such as fences, walls and hedges have to be removed to allow construction, connections will be made to proposed road boundary treatment ie wall or fence, as appropriate.	Reduction	Construction Post-construction	None envisaged	None
LU13f	See Appendix A37.1 for details of location required per land interest	Precautions relating to the exclusion of stock will be combined with due care and attention by construction staff to prevent the straying of livestock.	Reduction	Construction	None envisaged	None
LU14f	See Appendix A37.1 for details of location required per land interest	Where access will require to be altered either temporarily or permanently as a result of construction, alternative access for stock and machinery will be provided in accordance with the Road Orders or, where appropriate, in consultation with the land owner/occupier. Additionally, where appropriate, recessed access may be provided off main and side roads with loading/unloading area if appropriate.	Reduction	Pre-construction Construction	None envisaged	None
LU15f	See Appendix A37.1 for details of location required per land interest	All reasonable precautions will be taken during construction to avoid as far as is possible, the spreading of soil borne pests and diseases, and animal and crop diseases. Precautions as recommended by the Scottish Executive Environment and Rural Affairs Department will be observed.	Reduction	Construction	None envisaged	SEERAD
LU16f	See Appendix A37.1 for details of location required per land interest	Careful excavation, storage and replacement of topsoil and subsoil will avoid damage to soils and soil structure and to protect the agricultural capability.	Reduction	Construction	None envisaged	None
LU17f	See Appendix A37.1 for details of location required per land interest.	Particular care will be taken to ensure that the minimum amount of damage or disturbance to field drains is caused. Laying of new drains will be undertaken if required and any severed drains will be connected to the road pre-earthworks drainage to keep the affected and adjoining land in good order. Repairing and reinstatement of field drains will be agreed with the land owner/occupier. Where appropriate the integrity of the drainage system will be secured in advance through the installation of header drains (cut off drains) to facilitate construction. All remaining remedial and new drainage works will be undertaken post construction.	Reduction and Offset	Construction Post-construction	None envisaged	None
LU18f	See Appendix A37.1 for details of location required per land interest.	Water supplies for livestock will be protected at all times and alternative supplies would be provided where access would be compromised by any works.	Reduction	Construction Post-construction	None envisaged	None

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LU19f	See Appendix A37.1 for details of location required per land interest.	An assessment will be made of the risk of windthrow from any proposed felling and management measures defined for each section of woodland. These will include felling to windfirm edges, topping, pollarding and coppicing.	Reduction	Pre-construction	None envisaged	None
LU20f	See Appendix A37.1 for details of location required per land interest.	All felling to create a windfirm edge will take account of ecological landscape and visual effects and design would maximise where possible ecological, landscape and visual opportunities.	Reduction and Offset	Scheme design Pre-construction	None envisaged	None
LU21f	See Appendix A37.1 for details of location required per land interest.	Where there are no windthrow or landscape visual issues, tree felling will be minimised to that necessary to allow the safe construction and operation of the road.	Reduction	Pre-construction	None envisaged	None
LU22f	See Appendix A37.1 for details of location required per land interest.	Soil disturbance and compaction from the harvesting and extraction will be minimised.	Reduction	Pre-construction	None envisaged	None
LU23f	See Appendix A37.1 for details of location required per land interest.	Reasonable claims in respect of damage to agricultural land or sporting rights, as agreed with the District Valuer, will be payable, as will professional charges.	Offset	Pre-construction Construction Post -construction	None envisaged	None
LU24f	Refer to Table 50.1	Where permanent loss of land or demolition of property occurs, reasonable financial compensation can be claimed by and payments made to an appropriate amount determined by the District Valuer.	Offset loss of property and land.	Pre-construction	n/a	District Valuer
LU25f	Refer to Table 50.1	Access will be maintained/ restored to these businesses.	n/a	Scheme design	n/a	None envisaged
Geology, Soils, Contaminated Land and Groundwater (Chapter 38)						
G1f	Cookney cut (ch6000-6400)	Use of technological methodologies such as low explosive loading densities	Reduces magnitude of impact to Low-Negligible	Construction	n/a	n/a
G2f	West of ch6500	Additional pre-construction investigation of any areas of known contamination that may be encountered, including land in vicinity of Council Site two.	Avoids human contact with contamination, potential health and safety risks or risk of environmental pollution.	Construction	n/a	n/a
G3f	All Fastlink	Treatment and removal if necessary of any identified contaminated ground in accordance with the Duty of Care Regulations (1991).	Avoids human contact with contamination, potential health and safety risks	Construction	n/a	n/a

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			or risk of environmental pollution.			
G4f	All Fastlink	Appropriate off-site removal of any contaminated waters, or treatment on site and discharge in compliance with a SEPA Consent to Discharge.	Avoids human contact with contamination, potential health and safety risks, or risk of environmental pollution, including impacts on surface water quality.	Construction	n/a	n/a
G5f	ch0-600 ch2900-4000 ch4800-5200 ch6000-6550 ch6900-7300 Eastern branch at ch8600 ch9800-9950 ch11500-14000	Road drainage to be lined.	Avoid contamination of groundwater in known areas of groundwater used as water supply.	Operation	n/a	none
G6f	All Fastlink	Survey of private water supplies identified as being at risk: confirm their location, nature of supply (spring/well), pipeline network and analyse water quality.	Enable a private water specific assessment and refine the scope of the detailed ground investigation. Information to be used as baseline for items G7 and G8	Pre-construction	During construction application of G7 and G8 mitigation measures	Additional site visits may be required as part of the monitoring proposed in G7 and G8
G7f	Cutting areas	Pre-construction and construction monitoring of groundwater flow in the vicinity of selected groundwater supply sources.	Limit impact on groundwater levels and flows. Identification of potential impacts to enable further mitigation to be	Construction	Potentially extending into operation	none

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			identified if necessary.			
G8f	All Fastlink	Pre-construction and construction monitoring of groundwater quality in the vicinity of selected groundwater supply sources.	Assess impact on groundwater quality. Identification of potential impacts to enable further assessment and mitigation to be identified if necessary.	Construction	During construction only	none
G9f	Fishermyre (ch3000-3400)	Construction of a road embankment with permeable material to allow shallow groundwater to flow. Culvert drains and surface water features flowing out of Fishermyre.	Reduces magnitude of impact	Construction	As part of G10	n/a
G10f	Fishermyre (ch3000-3400)	Install a network of piezometers to gain a better understanding of interaction between shallow groundwater and surface water. Piezometers to be monitored both in terms of level and quality.	Gain a better understanding of interactions between groundwater and surface water	Construction	Construction	n/a
Water Environment (Chapter 39)						
W1f	All locations	Adherence to best practice including SEPA PPG01, PPG04, PPG05, PPG06, PPG07, PPG08, PPG09, PPG10, PPG13, PPG18 and PPG21.	Avoidance and reduction of construction impacts.	Construction	n/a	n/a
W2f	All locations	Runoff and erosion control measures will include perimeter cut-off ditches; ditches at the base of embankments (where the adjacent ground slopes towards the embankment); settlement lagoons; the installation of silt fences on cut slopes in the proximity of watercourses, around drainage inlets and any drainage path; placement of hay bales; mulching; erosion control blankets; sediment fencing and hydro-seeding. Should chemical flocculants be proposed for settlement, SEPA will be consulted to obtain the necessary approvals.	Minimise sediment and pollution release into environment	Construction	Inspection and maintenance of all erosion controls weekly and after heavy rainfall events. Ecological Clerk of Works (ECoW) on site during construction	SEPA

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					period.	
W3f	All locations	Stockpiles will not be located near watercourses, stockpiles must be covered when not in use and silt fencing must be provided around the perimeter of all stockpiles. Vehicles or vehicle wheels must not be washed near watercourses.	Minimise sediment and pollution release into environment	Construction	Monitor water quality prior to, and during, construction assessing chemical (temperature, pH, conductivity, suspended solids, heavy metals etc.) and biological parameters (macro-invertebrate communities and macrophytes.) ECoW on site during construction period	Monitoring locations, parameters, frequency of sampling and discharge limits will be agreed with SEPA /SNH in advance of construction.
W4f	All locations	Temporary bridges should be used to cross watercourses rather than temporary culverts and fording watercourses must be avoided.	Minimise sediment release into the environment	Construction		
W5f	All locations	Dust release during blasting activities will be minimised by damping with water.	Minimise sediment release into the environment	Construction		
W6f	All locations	Minimise disturbance to the banks and beds of watercourses. Minimise disturbance to existing land drainage systems.	Minimise sediment release into the environment	Construction		
W7f	All locations	Bunded areas with impervious walls and floor lining will be used for the storage of fuel, oil and chemicals (bunded areas will have an area of at least 110% that of storage tanks). To mitigate for the potential event of large oil spills that cannot be dealt with at a local level, a detailed contingency plan will be developed to ensure effective mitigation.	Minimise pollutant release into the environment	Construction		
W8f	All locations	Potentially polluting substances or undertaking potentially polluting activities (e.g. concrete batching and mixing) will be conducted away from watercourses, ditches and surface water drains.	Minimise pollutant release into the water environment	Construction		
W9f	All locations	Where possible, service diversions need to be carried out, the diversion will be undertaken prior to construction and will be undertaken using good engineering practices to ensure spillage risk is minimised.	Minimise pollutant release into the environment	Construction		
W10f	All locations	Any areas of contaminated land identified (Chapter 8 Geology, Groundwater and Contaminated Land and Appendix A24.3 Fluvial Geomorphology) will be avoided or further investigated if subject to disturbance. Methods to ensure disturbed sediment does not enter the watercourses will be used to prevent contamination of surface water features (temporary sediment removal measure, e.g.	Minimise sediment and pollution release into environment	Construction		

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		settlement lagoons, cut-off ditches, etc).				
W11f	All locations	Minimise the duration and spatial extent of works in the vicinity of watercourses. Exposed areas will be and progressively rehabilitated throughout the construction period.	Minimise sediment release into the environment	Construction	(temperature, pH, conductivity, suspended solids, heavy metals etc.) and biological parameters (macro-invertebrate communities and macrophytes.) ECoW on site during construction period.	will be agreed with SEPA /SNH in advance of construction.
W12f	All locations	Any abstractions from the river will be identified and quantified prior to seeking formal consent from SEPA.	Minimise impact on water quality and aquatic species.	Construction		
W13f	All locations	Temporary detention basins / treatment ponds will be installed, where appropriate.	Minimise sediment and pollution release into environment to ensure compliance with the water quality standards throughout construction.	Construction		
W14f	All locations	An Ecological Clerk of Works (ECoW) will be on site during construction.	Ensure the implementation of appropriate environmental safeguards	Construction		
W15f	ch0 ch1500 ch3125 Side road ch213 ch7550 ch7975 ch8850 ch9170 ch10630 ch6480 ch6930	Watercourse will be diverted or water pumped away from the construction site during the construction of culverts or buried structure to minimise potential contamination of the watercourse. This will also include measures to ensure fish and mammal passage is facilitated. If temporary culverts are required they will be appropriately sized 0.5% AEP (1:200 years flow) to ensure adequate passage of water during high flow conditions.	Minimise sediment and pollution release into environment	Construction		
W16f	ch0 ch3125	Culverts will be designed to pass the 0.5% AEP (1:200) year flow and must be designed to ensure fish passage following SEERAD guidance and SEPA policy (Culvert Design Manual: Report 168	Ensure hydrological connectivity of	Operation	On-going monitoring of culvert and	Details to be agreed with SEPA

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	Side road ch213 ch7550 ch7975 ch8850 ch9170 ch10630 ch6480 ch6930	(CIRIA 1997)). Culverts will be depressed invert to ensure continuity of bed sediments through the structure. In areas of high scour potential , baffles will be installed within the culverts will include scour protection to dissipate flow energy and stabilise the bed sediments.	watercourses, maintaining flow patterns and catchment characteristics downstream. Minimise flood risk upstream and downstream of proposed crossing point. Allow sediment transfer and ensure bed connectivity through structure.		realignments following installation will be undertaken including regular inspections for erosion and deposition. On going maintenance and rubbish removal to ensure efficient functioning and minimise impact on flood risk	
W17f	ch0 ch2441 ch4785 ch7911	Detention basins will be designed to attenuate flows of up to the 0.5% AEP (1:200) year event and located outwith the 0.5% AEP floodplain.	Minimise impact upon existing flood regime of the watercourse.	Post-construction	n/a	n/a
W18f	ch0 ch2441 ch4785 ch7911	Treatment ponds, detention basins, filter drains/catchpits, swales and all parts of the treatment train will be designed to maximise pollutant removal and in accordance with best practice set out in CIRIA C609, C521, C648 and C697. these will be located outwith 0.5% AEP floodplain.	Ensure existing water quality in receiving watercourses does not fail EQS.	Post-construction	Ongoing monitoring to be undertaken at key outfalls. Monitoring will include ecological (macro-invertebrate) and water quality sampling	Details to be agreed with SEPA
W19f	ch0 ch2441 ch4785 ch7911	Road drainage network will be maintained to ensure maximum efficiency. Maintenance regime will include: maintenance of filter drains, filtration devices; detention basins, treatment ponds and their receiving watercourses and culverts; if herbicides are used, those recommended by SEPA for use near watercourses to be applied in line with manufacturer's instructions to reduce pollution of watercourses and culverts; and provision of scour protection at the drainage discharge outfall to protect the banks and bed of the receiving ditch and to limit erosion.	Ensure efficiency of pollutant removal techniques.	Operation	Ongoing monitoring to be undertaken at key outfalls. Monitoring will include ecological (macro-invertebrate) and water quality sampling	Details to be agreed with SEPA

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W20f	ch1500 ch4700	Bridge/buried structure design will ensure minimal impact upon watercourse and riparian zone by clear spanning the channel and having no in-channel supports. Bridges will be included in the design over the Limpet Burn and Burn of Muchalls. Bridges will be designed to ensure minimal impact upon 1: 200 (0.5% AEP) flood levels (in accordance with SPP7) and may accommodate flows of higher return period events due to their structural form.	Minimised sediment release into watercourse during construction and minimise impact upon geomorphology and riparian zone during the operation by maintaining channel.	Construction Operation	n/a	n/a
W21f	ch0 ch1500 ch3125 Side road ch213 ch7550 ch7975 ch8850 ch9170 ch10630 ch200100 ch6480 ch6930	Watercourse realignments will be designed to ensure realigned lengths and local gradients are similar to those of the original watercourses. Sensitive realignment design will reintroduce meanders, alternating pools and riffle sequences, and morphological diversity, where possible, to offset straightening of channel and other culverting proposed on the watercourse. New banks of realignments should be appropriately graded.	Offset straightening of channel and other culverting proposed on the watercourse by re-introducing geomorphological diversity and limiting bank erosion.	Operation	On-going monitoring of culvert and realignments following installation will be undertaken including regular inspections for erosion and deposition.	Details to be agreed with SEPA
W22f	ch0 ch1500 ch3125 Side road ch213 Ch3150 ch7550 ch7975 ch8850 ch9170 ch10630 ch107440	The diversion of watercourses or pumping away during construction of culverts/realignments will require measures to be implemented to reduce sediment release. All pumps will have drip-trays and be set away from the watercourse. All erosion controls will be inspected and maintained weekly and after heavy rainfall events. Storage of any materials on the floodplain or near tributaries will be regulated to reduce the risk of pollutants/fine sediment entering watercourse.	Minimise sediment release/pollution into the environment.	Construction	On-going monitoring of culvert and realignments following installation will be undertaken including regular inspections for erosion and deposition.	Details to be agreed with SEPA

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Item number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
W23f	ch2441	Filter drains, a detention basin, and two swales will be installed during construction. Ponds will be located outwith 0.5% AEP floodplain.	EQS levels achieved and accidental spillage reduced to acceptable limits and flows reduced to pre-development rates	Construction Operation	n/a	n/a
W24f	ch4785 ch9711	Filter drains, a detention basin, and treatment pond will be installed. Ponds will be located outwith 0.5% AEP floodplain.	EQS levels achieved and accidental spillage reduced to acceptable limits and flows reduced to pre-development rates	Construction Operation	n/a	n/a
W25f	ch0	Filter drains, a detention basin, and two treatment ponds will be installed. Ponds will be located outwith 0.5% AEP floodplain.	EQS levels achieved and accidental spillage reduced to acceptable limits and flows reduced to pre-development rates	Construction Operation	n/a	n/a
W26f	ch0 ch1500 ch3125 ch3150 Side road ch213 ch7550 ch7975 ch8850 ch9170 ch10630 ch6480 ch6930	Geotextile lining will be used in the temporary realignment to reduce erosion and sedimentation.	Minimise sediment release into watercourse/ environment	Construction	On-going monitoring of culvert and realignments following installation will be undertaken including regular inspections for erosion and deposition.	Details to be agreed with SEPA

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W27f	ch1500 ch4700	Sediment fencing will be constructed as a perimeter to the construction footprint to reduce the sediment release. Temporary treatment ponds will be constructed prior to commencement of construction to reduce the runoff from the approach road construction. Use of plastic sleeve and double false/shuttering when working over watercourse. Enclosed spraying when waterproofing to prevent chemicals entering the watercourse.	Minimise the risk of sediment release and oil and chemical spillage Ensure minimal concrete spillage and pollutant release Ensure minimal chemical spillage and pollutant release	Pre-construction	Water quality/ecology monitoring before and after construction	To be agreed with SEPA prior to work commencement).
W28f	ch1500 ch4700	Works with a high potential of sediment release should be carried out between May and September where practicable.	Avoid impact upon migratory and spawning salmon	Construction	ECoW	n/a
W29f	ch3100	Lining of filter drains	Prevent infiltration to groundwater	Operation	n/a	n/a
W30f	All locations	A method statement will be provided detailing proposed measures to mitigate release of suspended solids during CAR licensing process. A detailed method statement will be agreed with SEPA prior to start of works on site.	Compliance with SEPA's requirements for CAR application process. Minimise sediment and pollutant release into the environment.	Pre-construction	n/a	SEPA
W31f	All locations	Arrangements for safe storage and disposal of sewage effluent from workers on site will be agreed with SEPA and Building Control in advance of construction in accordance with PPG04.	Ensure minimal pollutant release.	Construction	n/a	SEPA, Building Control
W32f	Ch0 Ch2441 Ch4785 Ch7911	Ensure construction of outfall is not conducted during periods of high flow.	Minimise erosion of river banks.	Construction	n/a	n/a
W33f	Ch0 Ch2441 Ch4785	Ensure outfall is correctly positioned to limit potential for scour around the culvert. This involves ensuring that the outfall does not cause a significant alteration to flow patterns which may lead to turbulence and/or excessive deflection of flow towards the bed or	Limit potential for scour around the culvert.	Construction	n/a	n/a

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	Ch7911	banks of the channel.				
W34f	Ch0 Ch2441 Ch4785 Ch7911	The outfall must not project out into the channel and should not be located where flow converges with river banks.	Minimise erosion of river banks.	Construction	n/a	n/a
W35f	Ch2540	Network culverts will be designed to the 1.33 AEP (1 in 75 year flood event).	Minimise impact upon existing flood regime of the watercourse.	Operation	n/a	n/a
W36f	ch0 ch1500 ch3125 Side road ch213 ch7550 ch7975 ch8850 ch9170 ch10630	Cover newly formed banks along the new alignment with geotextile matting (where deemed necessary). The geotextile lining will be seeded to promote vegetation colonisation.	Limit the potential for fluvial erosion and run-off induced erosion on the exposed banks during rainfall and ensure rapid stabilisation of this new section of watercourse.	Construction	n/a	n/a
W37f	Ch 2540	A regular maintenance regime for network culverts should be set up to prevent any blockages in or around them including removal of debris and dead vegetation from the drainage channel and banks upstream of structure. Where there is considered to be a significant potential risk of culvert blockage, a suitably designed culvert trash screen may be considered.	Minimise impact upon existing flood regime of the watercourse	Operation	n/a	n/a
W38f	All locations	Progressive rehabilitation of exposed areas throughout the construction period as soon as possible after the work has been completed to minimise sediment release into the channel.	Minimise sediment release into watercourse/ environment	Operation	n/a	n/a
<u>W39f</u>	Ch0 Ch2441 Ch4785 Ch7911	Ensure construction of outfall is not conducted during periods of high flow as the disturbed and exposed river banks will be vulnerable to erosion.	Minimise erosion of river banks.	Construction	n/a	n/a
<u>W40f</u>	ch0 ch3125 Side road ch213	Construction of culverts will be undertaken in the dry, where possible, to minimise potential contamination of the watercourse.	Ensure minimal pollutant release.	Construction	n/a	n/a

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	ch7550 ch7975 ch8850 ch9170 ch10630 ch6480 ch6930					
<u>W41f</u>	ch1500 ch4700	No in channel works will be conducted between 14 October and 31 May to avoid migratory and spawning salmon	Avoid impact upon migratory and spawning salmon	Construction	ECoW	n/a
<u>W42f</u>	Ch3100	Construction materials beneath the road should allow the lateral transfer of groundwater and bunds should be incorporated to prevent the flow of groundwater in a southerly direction (parallel to the proposed) to maintain the existing lateral West to East supply of water. Detailed appropriate monitoring of the surface water hydrology using water level recorders prior to, during and following the construction of the road; Detailed appropriate monitoring of the groundwater processes and; Construction of additional Water Vole habitat to help avoid the dewatering of the wetland area.	To avoid dewatering of wetland area	Construction Operation	n/a	SEPA
<u>W43f</u>	ch0 ch1500 ch3125 Side road ch213 ch3150 ch4700 ch7550 ch7975 ch8850 ch9170 ch10630 ch6480 ch6930	Diversion or pumping away during construction of culverts/realignments will require cut-off ditches and sediment fencing; treatment ponds or settlement/sedimentation lagoons to reduce sediment release. Batching or mixing in the vicinity of watercourses to be avoided. All pumps will have drip trays and be set away from watercourses.	Avoidance and reduction of construction impacts.	Construction	n/a	n/a
<u>W44f</u>	ch0 ch3125	Use of similarly sized material to that of bed sediment to be used for temporary realignments to cover the bottom of culverts.	Minimise sediment release	Construction	On-going monitoring of	Details to be agreed with

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	Side road ch213 Ch4700 ch7550 ch7975 ch8850 ch9170 ch10630 ch6480 ch6930		into watercourse/ environment		culvert and realignments following installation will be undertaken including regular inspections for erosion and deposition.	SEPA
Ecology and Nature Conservation (Chapter 40)						
Generic Mitigation						
E1f	All	Comply with the requirements of the Ecological Clerk of Works (ECoW).	Ensure of schedule of commitments is enforced.	Pre-construction	Note: ECoW ensures adherence to all following construction mitigation	
E2f	All	ECoW to ensure all mitigation agreed is implemented.	Ensure of schedule of commitments are enforced.	Pre-construction		
E3f	All	Ensure that work compounds and access tracks etc are not located in, or adjacent to, areas that maintain habitat value.	Prevents additional impacts to terrestrial and freshwater habitats.	Pre-construction	n/a	n/a
E4f	All	Establish site fencing to prevent access to areas outside of working areas, particularly in areas adjacent to features of interest/value.	Prevents additional impacts to terrestrial and freshwater habitats and direct mortality to terrestrial invertebrates	Pre-construction	n/a	n/a
E5f	All	Geotextile membranes will be used to cover the ground in sensitive areas where proposed heavy plant crossing.	Prevents additional impacts to terrestrial and freshwater habitats and	Pre-construction	n/a	n/a

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			direct mortality to terrestrial invertebrates			
E6f	All	Cover site safety issues including storage of potentially dangerous materials.	Prevents additional impacts to terrestrial and freshwater habitats.	Construction	n/a	n/a
E7f	All	Pre-construction surveys in impacted areas for protected species, bats, otter, water vole and badgers where potentially present.	Prevents direct mortality and disturbance to breeding.	Construction	n/a	n/a
E8f	All	Covering of pits or provision of mammal ramps to prevent animals falling in holes and becoming trapped.	Prevents direct mortality.	Construction	n/a	n/a
E9f	All	SEPA Pollution Prevention Guidelines (PPGs) will be applied to prevent pollution of water courses through siltation or chemicals.	Prevents additional impacts to terrestrial and freshwater habitats.	Construction	n/a	n/a
E10f	All	Best practice methods will be followed throughout the construction period, including compliance with published guidance from SNH and SEPA.	Prevents additional impacts to terrestrial and freshwater habitats.	Construction	n/a	n/a
E11f	Along watercourse crossing points	Bridges or culverts will be provided (with mammal ledges) on every watercourse.	Prevent direct mortality and reduce habitat fragmentation	Construction	n/a	n/a
E12f	All	Night time working to be avoided where practicable.	Reduces disturbance to bats, otters and salmonids.	Construction	n/a	n/a
E13f	All	Carriageway lighting reduced or designed to be sympathetic to bats, otters, salmonids.	Reduces disturbance to bats, otters and salmonids.	Scheme design Operation	n/a	n/a
E14f	All	Use of Sustainable Urban Drainage Systems (SUDS).	Prevents pollution incidents.	Scheme design Post-construction	n/a	n/a
E15f	Refer to Water Environment	Prevention of pollution to watercourses – refer to Water	Prevents pollution	Refer to Water	Refer to Water	Refer to Water

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	Mitigation	Environment mitigation measures.	incidents.	Environment Mitigation	Environment Mitigation	Environment Mitigation
Badger						
E16f	Where setts have been identified (confidential)	Badger sett exclusion and replacement setts will be created according to SNH guidelines at least 9 months prior to destruction of existing setts. Detailed methodologies for sett exclusion and replacement sett design will be contained in a badger exclusion method statement, which will be produced for each affected sett.	Prevent direct mortality.	Pre-construction	n/a	n/a
E17f	Pre-identified locations (confidential)	Badger underpasses and fencing will be provided at strategic locations based upon proximity to existing setts, pathways and areas of high badger activity.	Prevent direct mortality and reduce habitat fragmentation.	Construction	n/a	n/a
E18f	Where setts have been identified (confidential)	A 30m 'no disturbance' buffer will be adhered to around all badger setts and access to these areas where identified will be maintained.	Reduces disturbance on protected and sensitive species.	Construction	n/a	n/a
Bats						
E19f	<u>Habitat Areas</u> F3-F4, F6-F8, F10, F12-F13, F15-F21, F25-F26	A 30m buffer will be marked out around all bat roosts that are not to be excluded and destroyed. No construction activities that constitute disturbance to bats will take place within the 30m buffer zone.	Reduces disturbance to bats.	Pre-construction Construction	n/a	n/a
E20f	All	Exclusion of bat roosts require a licence from the Scottish Executive Environment and Rural Affairs Department (SEERAD) at least a year in advance of development commencing.	Prevent direct mortality.	Pre-construction Construction	n/a	n/a
E21f	Along watercourse crossing points	Bat boxes will be erected in pre-identified locations and several buildings will be enhanced to provide roosting potential for bats.	Compensates for habitat loss.	Construction	n/a	n/a
Breeding and Wintering Birds						
E22f	<u>Habitat Areas</u> F3-F4, F6-F8, F10, F12-F13, F15-F21, F25-F26	Construction activities including the felling of trees and clearing of scrub will be timed to avoid periods when birds are nesting, i.e. March – July inclusive.	Reduces disturbance to nesting birds.	Construction	n/a	n/a
E23f	<u>Habitat Areas</u> F10, F12-F16, F21-F23, F26	Construction activities in the vicinity of key winter bird habitats will be timed to avoid October to March.	Reduces disturbance to wintering birds.	Construction	n/a	n/a
E24f	All	Bird boxes will be erected in pre-identified locations.	Compensates for habitat loss.	Construction	n/a	n/a

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E25f	<u>Habitat Areas</u> F10, F12-16, F21-23, F26	Generic mitigation and the provision of safety barriers, set back from the road in addition to sensitively designed landscaping	Minimise Direct Mortality	Construction	n/a	n/a
Otters						
E26f	<u>Habitat Areas</u> F3, F4, F6, F7, F8, F10, F13, F15, F16, F18, F20, F22	Otter exclusions will be carried out following prescribed measures and in consultation with SNH. A licence to undertake such works, as required under the European Habitats Directive, will need to be obtained from SEERAD. The licence will be procured at least one year prior to works affecting the existing holt site being undertaken, and a method statement prepared. Detailed methodologies for holt exclusions and artificial holt design will be outlined in this method statement.	Prevent direct mortality.	Pre-construction	n/a	n/a
E27f		Artificial otter holts will be created where appropriate, as well as providing mitigation through fencing-off sections of riverbank (to encourage scrub growth), and the provision of ponds, ox-bows and new stream alignments.	Compensates for habitat loss.	Construction	n/a	n/a
E28f		The erection of otter-proof fencing wherever the scheme comes within 150m of a watercourse or a known otter commuting route.	Prevent direct mortality.	Construction	n/a	n/a
E29f		A 30m 'no disturbance' buffer will be adhered to around all otter holts & lying up sites and access to these areas where identified will be maintained.	Reduces disturbance on protected and sensitive species.	Construction	n/a	n/a
E30f		Construction of buried structure with adequate clearance, scrub planting and/or mammal ledges to promote usage will allow otters to move freely within and between available areas of habitat.	Reduce impact of habitat fragmentation	Construction	n/a	n/a
Red Squirrel						
E31f	<u>Habitat Areas</u> F7, F8, F10-11, F24 and Craigentath Wood	All tree clearance works in areas of red squirrel activity are to be undertaken outwith the red squirrel breeding season. Such activities must be undertaken from September to November only so as to minimise stress to red squirrels during this sensitive period.	Reduces disturbance to red squirrels.	Pre-construction Construction	n/a	n/a
E32f	<u>Habitat Areas</u> F7, F8, F10-11, F24 and Craigentath Wood	Where exclusion is required, dreys will be monitored and inactive dreys removed in accordance with advice from SNH and with reference to the Red Squirrel Method Statement.	Reduces disturbance to red squirrels.	Pre-construction Construction	n/a	n/a
Reptiles						
E33f	There are no areas of habitat identified as being of high to moderate value.	No mitigation required due to lack of suitable value habitat.	n/a	n/a	n/a	n/a
Amphibians						
E34f	All	Compensatory habitat for protected species will mitigate for habitat	Reduces	Construction	n/a	n/a

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		loss to amphibians also, whilst underpasses to reduce fragmentation will be designed to be suitable for amphibian use.	disturbance, fragmentation and direct mortality of newts.			
Fish and Freshwater Habitat						
E35f	<u>Habitat Areas</u> F13, F16	Where in-river works are required, this should be carried out between May and September; when salmon redds will not be occupied and fry will be sufficiently mobile to move out of construction areas.	Reduces disturbance salmonids.	Construction	n/a	n/a
E36f	<u>Habitat Areas</u> F13, F16	Disturbance to salmonids through noise and vibration will be reduced through avoiding the first third of the egg incubation period (mid October to end December). A 'soft start' approach will be adopted in the event of any piling.	Reduces disturbance to salmonids.	Construction	n/a	n/a
E37f	<u>Habitat Areas</u> F3, F4, F12, F13, F16, F18, F21, F18, F19 ,F22	Activities that require works in watercourses and/or de-watering or re-alignment avoided where possible. If unavoidable, to be undertaken Apr-Sept.	Reduces disturbance of salmonids	Construction	n/a	n/a
E38f		Fish removed from sections to be de-watered, re-aligned or excavated, using electrofishing, and translocated to appropriate alternative site.	Reduces direct mortality of fish	Construction	n/a	n/a
E39f		Construction works near/in watercourses will avoid the first third of the egg incubation period (mid Oct-end Dec). A 'soft start' approach will be adopted in the event of any piling works. Suspended solid works carried out May-Sept.	Reduces disturbance to salmonids through noise and vibration	Construction	n/a	n/a
E40f	All	Any lights on site compounds or during construction will be directed away from water.	Prevents disturbance of salmonids	Construction	n/a	n/a
E41f	All	Road drainage treatment to ensure adherence to strict water quality standards (see water quality section).	Prevents pollution to watercourses, direct mortality of species and sediment settling on mussel beds.	Scheme design Operation	n/a	n/a
E42f	<u>Habitat Areas</u>	Realignments to include meander bends, habitat enhancement and	Provides a more	Construction	n/a	n/a

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	F3, F4, F12, F13, F16, F18, F21, F18, F19, F22	retention of similar river lengths where feasible.	natural setting, reduces habitat fragmentation			
E43f	<u>Habitat Areas</u> F3, F4, F8	Use of depressed invert box culverts, minimisation of culvert length and use of bridges for valuable habitat areas.	Allows the retention of natural substrate and geomorphological regime, to avoid habitat fragmentation and potential barriers for migratory species	Scheme design	n/a	n/a
Planting and Habitat Creation						
E44f	ch50-600 <u>Habitat Areas</u> F3-F4	Landscape and ecological (2ha) planting.	Mitigates against local area impacts on otters by providing cover and local area impacts on mammals/ birds/ habitat by offsetting habitat loss	Construction Post-Construction	n/a	n/a
E45f	ch1390-1480 and ch1550 <u>Habitat Areas</u> F7	Riparian (0.5ha) planting and ecological (0.1ha) planting.	Mitigates local area impacts on mammals/ birds/ habitat by offsetting habitat loss	Construction Post-Construction	n/a	n/a
E46f	ch2500-2940 <u>Habitat Areas</u> F10	Landscape (1.45 ha) planting.	Mitigates local area impacts on habitat by offsetting habitat loss	Construction Post-Construction	n/a	n/a
E47f	ch2940-3480 <u>Habitat Areas</u>	Tree and scrub planting.	Mitigates local area impacts on habitat by	Construction Post-Construction	n/a	n/a

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	F12		offsetting habitat loss			
E48f	ch4700 <u>Habitat Areas</u> F13, F15	Landscape and riparian (0.5ha) planting.	Mitigates local area impacts on otters by reducing disturbance and habitat loss of birds/ habitat. Also, reduces fragmentation to otters and bats.	Construction Post-Construction	n/a	n/a
E49f	ch4700–5270, ch5960–6340, ch5600 and ch4730-4800 <u>Habitat Areas</u> F15-F16	Roadside (1.5ha and 2ha), ecological (0.07ha) and drainage basin (0.5ha) planting.	Mitigates local area impacts on birds/habitat by offsetting habitat loss. Also reduces fragmentation of otter, bat and badger habitats.	Construction Post-Construction	n/a	n/a
E50f	ch6400–6600 and ch6300-6400 <u>Habitat Areas</u> FF17-F19	Landscape scrub (0.6ha) planting and mixed woodland/standard tree (0.07ha) planting.	Planting and retention of existing trees to encourage use of overbridge by bats.	Construction Post-Construction	n/a	n/a
E51f	c h6350–7180 and ch8250-8550 <u>Habitat Areas</u> F18-F19	Landscape and ecological planting (1.9ha and 1.5ha).	Mitigates local area impacts on birds/habitat by offsetting habitat loss. Also reduces fragmentation of otter, bat and badger habitats.	Construction Post-Construction	n/a	n/a
E52f	ch9950–10210 <u>Habitat Areas</u> F25	Landscape (0.7ha) planting.	Mitigates local area impacts on habitat by offsetting habitat loss.	Construction Post-Construction	n/a	n/a
E53f	ch11150–11500	Landscape (1.19ha) and ecological (0.7ha) planting.	Mitigates local	Construction	n/a	n/a

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	<u>Habitat Areas</u> F26		area impacts on habitat by offsetting habitat loss. Mitigates against local area impacts on otters by providing cover	Post-Construction		
E54f	1550 - 2300 4850 - 5175 7090 - 7400 8200 - 8575	Provision of badger proof fencing (also suitable for otter)	Prevent RTAs and reduces habitat fragmentation for badgers	Construction Post-Construction	n/a	n/a
E55f	0 - 1550 2300 - 4850 5175 - 5750 6325 - 7090 7400 - 8200 8575 – Cleanhill Junction	Provision of otter proof fencing (also suitable for badger)	Prevent RTAs and reduces habitat fragmentation for badger, otter, water vole and water shrew	Construction Post-Construction	n/a	n/a
E56f	<u>Badger, Otter, Bats</u> ch7975 <u>Badger, Otter</u> ch6930, ch7550, ch8850 <u>Otter</u> ch0, ch3125, ch213, ch6480 (main), ch6480 (side), 10630	Provision of multi-use depressed invert box culverts	Prevent RTAs and reduces habitat fragmentation for otters, badgers and bats	Scheme design During Construction Post-Construction	n/a	n/a
E57f	<u>Badger, Otter, Bats</u> ch1400 (buried structure), <u>Badger, Bats</u> ch4700 (buried structure) Badger ch1765, ch3925, ch5600, ch10075,	Provision of multi-use mammal underpasses. Landscape planting will be designed to encourage usage.	Prevent RTAs and reduces habitat fragmentation for otters, badgers and bats	Scheme design Construction Post-Construction	n/a	n/a

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Item number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
E58f	<u>Road Bridges</u> Bats ch1550, ch2940, ch5040, ch6340, ch8540, ch10210 Badger, Bats ch4625	Provision of multi-use bridge structures. Landscape planting will be designed to encourage usage.	Prevent RTAs and reduces habitat fragmentation for otters, badgers and bats	Scheme design Construction Post-Construction	n/a	n/a
Water Voles						
E59f	F1-F12	A 30m 'no disturbance' buffer will be adhered to around any water vole burrow sites and access to these areas where identified will be maintained. Where there is a risk of direct impact on water vole habitat, appropriate measures will be identified in liaison with SNH to minimise the risk of impacts on this species and its habitat. These measures could include habitat creation/ enhancement works.	Reduces disturbance to water voles.	Pre-construction Construction	n/a	n/a
Landscape (Chapter 41)						
L1f	Throughout the scheme	Achieve best fit of alignment design with existing contours and landform where possible. Avoid existing features and ecological and archaeological sites.	Prevention of physical impact on particular landscape elements, features and sensitive sites.	Scheme design Construction	n/a	n/a
L2f	Throughout the scheme	Earthworks: embankment and cuttings constructed to tie in with existing levels and where appropriate, return to slope to gradients suitable for agricultural use. Softening of differences of slope gradients at junction and structures etc. by smoothing out of transitions. Careful rounding off of top and bottom of cuttings and embankments	Reduction of impact of embankment / cutting gradients on existing levels	Scheme design Construction	n/a	n/a
L3f	Throughout the scheme	Rock Cuttings: Creation of irregular, naturalistic rock faces; integration of pockets of soil and native seed onto ledges and terraces to encourage area of vegetation establishment.	Reduction of visual impact of regular cuttings and offset any loss of vegetation	Scheme design Construction	n/a	n/a
L4f	Throughout the scheme	Drystone walling: to be constructed to local and traditional design, of reclaimed materials from the local vicinity and be approximately 1m high and 0.5m wide.	Offset impacts of field boundary severance and	Construction	n/a	Local Authority and maintaining authority

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			replacement of field enclosures			
L5f	Throughout the scheme	Treatment and Detention Ponds: create habitat for wildlife within naturally low areas. Design to appear as natural as possible (in consultation with ecologist). Integrate contours with existing and proposed levels. Unobtrusive boundary fencing design, where possible. Use of native scrub species for screening of structural features (outfall / inlet/ fencing etc). Wildflower and native grass seeding on open areas.	Opportunity to offset loss of / impact on and/or improve landscape elements and ecological habitat mitigation	Construction	Monitoring of planting/seeding establishment during aftercare period	SNH and the maintaining authority
L6f	Throughout the scheme	Noise Barriers: where appropriate provision of tree and shrub planting to screen noise barriers and provide continuity of woodland character along road corridor.	Reduction of visual impact of noise barriers and offset of loss to woodland elements	Scheme design Construction	Monitoring of planting establishment during aftercare period	n/a
L7f	Throughout the scheme	Design of structures such as bridges and other elements including landscaping and along the length of the route has been informed by a combination of specialist aesthetic advice, design workshops and consultation with Architecture & Design Scotland. Design Aesthetic requirements will be provided in a Design Guide which will be adhered to at the detailed design stage.	Reduction of visual impact of structures and other elements though aesthetic design and materials	Scheme design	n/a	Local Authority, Architecture and Design Scotland and maintaining authority
L8f	Throughout the scheme	Planting: Retention of existing trees / vegetation wherever possible / incorporation into new planting proposals	Prevention of physical impact on trees / vegetation reduction of visual impact of proposals.	Scheme design Construction	n/a	n/a
L9f	Throughout the scheme	Grass Seeding: dependent on location, grass seed mixes will be supplied: (E.g. roadside verge mix; agricultural mix; species rich mix)	To reduce/ offset impact on loss of existing field area and to integrate proposals into landscape character	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L10f	Throughout the scheme	Public Rights of Way: Reinstate links to path network	To reduce impact on public right of way route severance and	Scheme design Construction	n/a	Local Authority and maintaining authority

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			maintain links to the countryside			
Megray Open Farmland (ch 0 -1200)						
L11f	Adjacent to slip roads to the A90	Scrub woodland planting	To screen and soften views of the junction and bridge abutment	Scheme design Construction	Monitoring of planting establishment during aftercare period	At design / During construction
L12f	Stonehaven and slip roads to the A90 Junction	Feathered Trees and Stone Edge	To accentuate / highlight Stonehaven 'Gateway' Junction.	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L13f	Adjacent to Stonehaven Junction and surrounding Detention Basins and Treatment ponds	Riparian woodland planting	To improve integration with surroundings and promote biodiversity	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L14f	West of the Fastlink at ch0-ch600 along the diverted Megray Burn	Riparian woodland planting	To improve integration with surroundings and promote biodiversity	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L15f	To the north-west and north-east of Stonehaven Junction at ch50 – ch200 and ch50-300	Mixed woodland planting	To screen and soften views of the junction	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L16-f	ch50 to ch1300 both sides	Grading out of cutting slopes	To integrate slope with existing landform and enable views to the coastline where possible	Scheme design Construction	n/a	Liaison with stakeholders and local landowners
Kempstone Wooded Farmland (ch 1200 – 3100)						
L17f	South and north of the Limpet Burn underbridge at ch1300-ch1400 / ch1450-ch1550	Riparian woodland planting	To replace lost vegetation and extend existing riparian woodland	Scheme design Construction	Monitoring of planting establishment during aftercare period	At design / During construction
L18f	East of Fastlink at ch1575-	Mixed woodland planting	To visually	Scheme design	Monitoring of	Local Authority and

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	ch2180		separate Fastlink from access road	Construction	planting establishment during aftercare period	maintaining authority
L19f	East of Fastlink at ch1600 to ch1890	Hedgerow Planting	To screen views of access road from surrounding properties	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L20f	Megray Wood ch1559 to ch1745 west	Drystone walling	To replace section of wall lost to the route	Scheme design Construction	n/a	n/a
L21f	East of Fastlink at ch2200 to ch2650	Mixed woodland planting	To visually separate road Fastlink from access road, tie with existing vegetation and screen views from adjacent properties	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L22f	East of Fastlink at ch2350 to ch2465	False cutting/earth bund and stone walling	To assist in reducing visual impact on adjacent properties	Scheme design Construction	n/a	n/a
L23f	West of Fastlink at ch2200 to c 2920	Embankments eased	To improve integration with surrounding landform	Scheme design Construction	n/a	Liaison with stakeholders and local landowners
L24f	West of Fastlink at ch2240 - ch2600	Scrub woodland planting	To soften views from B979 and reflect existing landscape character	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L25f	West of Fastlink at ch2560 to ch 2900	Mixed woodland planting	To soften and screen views from surrounding properties and roads	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority

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L26f	East of Fastlink at ch2680 to ch2900	Broadleaved woodland planting	To improve integration with surrounding landscape	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L27f	Existing road realignment Fishermyre underbridge	Scrub woodland planting	To improve integration of realigned road into surrounding landscape	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L28f	West of Fastlink at ch2950 to ch3110	Mixed and broadleaved woodland planting	To improve integration with surrounding landscape	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L29f	East of Fastlink at ch3000 to ch3100	Mixed woodland planting	To provide screening of carriageway from surrounding properties	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
Muchalls (ch 3100-4500, 5000-5800)						
L30f	West of Fastlink at ch3110 to ch3450	Broadleaved woodland planting	To improve integration with surrounding landscape	Scheme design Construction	Monitoring of planting establishment during aftercare period	At design / During construction
L31f	East of Fastlink at ch3100 to ch3500	Mixed woodland planting	To provide screening of carriageway from surrounding properties	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L32f	East of Fastlink at ch3500 to ch3690	Drystone walling	To assist in screening carriageway, tie in with existing walls and reflect existing landscape pattern	Scheme design Construction	n/a	n/a

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L33f	East and west of Fastlink at ch3690 to ch3900	Shrub woodland Planting	To improve integration with the surrounding landscape	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L34f	ch4150 to ch4300	Drystone walling	To assist in screening carriageway, tie in with existing walls and reflect existing landscape pattern	Scheme design Construction	n/a	n/a
L35f	West of the Fastlink ch4450 to ch4560 and east ch4420 to ch4555	Shrub woodland planting	To soften views and provide screening to surrounding properties and tie in with existing vegetation	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L36f	West of Fastlink at ch5050-5550	Mixed woodland planting	To provide poultry mitigation	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L37f	ch5050 to ch6100 west and ch5050 to ch6230 east and along realigned minor road accessing North Cookney Cottage.	Drystone wall construction	To provide poultry mitigation (ch 5050 to ch 5590) To assist in screening carriageway, tie in with existing walls and reflect existing landscape pattern.	Scheme design Construction	N/A	N/A
L38f	East of Fastlink ch6040 to ch6200	Scrub woodland planting	To assist in screening views from nearby properties to the road and from the wider landscape	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority

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Item number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
L39f	East of the FastlinkCh6250 to ch6350 and south of Cookney Overbridge (ch250 to ch 430)	Easing of embankments and mixed woodland planting	Embankments eased to integrate with surrounding landform, planting to assist in screening view from nearby properties and from the wider landscape.	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L40f	North of Cookney Overbridge (ch280 to ch440)	Easing of embankments, mixed and scrub woodland planting	Embankments eased to integrate with surrounding landform Planting to provide integration with the surrounding landscape	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
Burn of Muchalls (ch 4500-5000)						
L41f	East and west Fastlink embankment south of the Burn of Muchalls underbridge at ch4550-ch4690	Scrub woodland planting	To provide screening and tie in with existing vegetation	Scheme design Construction	Monitoring of planting establishment during aftercare period	At design / During construction
L42f	Adjacent to the Burn and east and west Fastlink embankment north of the Burn of Muchalls underbridge at ch4700-4850. Surrounding detention basin and treatment pond	Riparian woodland planting	To replace and enhance lost vegetation at Burn of Muchalls, provide screening and improve integration with surrounding landscape	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L43f	East and west Fastlink access routes adjacent to carriageway ch4780-ch5050 west and ch4880 to ch5050 east	Drystone walling	To provide screening	Scheme design Construction	n/a	n/a
Stranog (ch 5800-10100)						
L44f	East of Fastlink at ch6200 to ch6270 and west of Fastlink	Drystone walling	To tie into existing walls, reflect	Scheme design Construction	n/a	At design / During construction

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	at ch6100-ch6330 & ch0 – ch170		existing landscape pattern and replace existing sections of walling removed			
L45f	East of Fastlink at ch6240-ch7300	Easing of embankment and mixed woodland planting	Embankments eased to integrate with surrounding landform. Planting to assist in screening views from nearby properties to the road and from the wider landscape	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L46f	North of Cookney Overbridge minor road realignment	Mixed woodland planting	To screen and soften views from surrounding properties	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L47f	North of Cookney Overbridge (ch250 to ch440)	Easing of embankments, mixed and scrub woodland planting	Embankments eased to integrate with surrounding landform Planting to provide integration with the surrounding landscape	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L48f	East of the Fastlink at C25K overbridge ch6250 -ch6700 and along the Cookney road east of the Fastlink	Grading out of embankment	To integrate the road with the surrounding landform and allow for potential return to agriculture	Scheme design Construction	n/a	n/a
L49f	Realigned minor road; and access route to North Cookney Croft west of the Fastlink	Scrub woodland planting	To improve integration of realigned road with surrounding	Scheme design Construction	Monitoring of planting establishment during aftercare	Local Authority and maintaining authority

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Item number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
			landscape		period	
L50f	Realigned minor road west of Fastlink ch650 to ch870	Drystone walling	To replace section of existing wall removed	Scheme design Construction	n/a	n/a
L51f	West of Fastlink ch6480 to ch7220	Strip of scrub and mixed woodland planting	To provide screening of Fastlink from surrounding properties	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L52f	East of Fastlink ch6950- ch7250	Blocks and strips of mixed and scrub woodland	To screen views from properties	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L53f	West of Fastlink ch7550 to ch7970	Scrub woodland planting	To provide screening of carriageway for surrounding properties	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L54f	Surrounding detention basin and treatment ponds east of Fastlink	Riparian woodland planting	To improve integration with surroundings	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L55f	West of Fastlink at ch7990- 8210 and east of Fastlink at ch7990- ch8200	Drystone walling	To screen views of the carriageway from surrounding properties, and between carriageway and access roads.	Scheme design Construction	n/a	n/a
L56f	West of the Fastlink at ch 8230 to ch8620 and east at ch8460 to ch8530	Mixed woodland planting	To soften the appearance of cuttings, reflect existing landscape character and provide screening	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority

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Item number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
L57f	North of Rothnick overbridge, west of Fastlink ch8650 to ch8800 and east ch8500 to ch8600	Scrub woodland planting	To soften appearance of cuttings, grouped up roads and reflect existing landscape character. To tie in the retained woodland	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L58f	West and east of Fastlink at ch9450-ch 9930	Round off top of cutting	To minimise the effect on 'saddle' landform	Scheme design Construction	n/a	n/a
L59f	West and east of Fastlink at ch9940 to ch10210	Mixed woodland planting	To reduce fragmentation of young woodland	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
Blaikiewell (ch 10100-11500)						
L60f	East and west of the Fastlink at ch10240-ch11150	Grading out of embankment	To integrate with surrounding landform and allow for potential return to agriculture	Scheme design Construction	n/a	At design / During construction
L61f	West and east of Fastlink at ch10610 to ch10920	Drystone walling	To tie into existing walls and reflect existing landscape pattern	Scheme design Construction	n/a	n/a
L62f	West of the Fastlink at ch11150 -ch11500 and along access road to Blaikiewell Farmhouse	Mixed woodland planting	To provide screening	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L63f	South-east of Cleanhill Junction at ch11150-11500.	Scrub woodland planting	To screen the junction and soften views	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
Visual (Chapter 42)						
V1f	At all major road junctions	Lighting designed to prevent night time glare and sky glow through	To minimise	Scheme design	n/a	Liaison with Local

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Item number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
	including: Stonehaven Junction and Cleanhill Junction and Junctions of minor roads throughout the scheme.	use of high- pressure sodium, shallow bowl street lighting.	adverse visual impacts on night views to dark rural skies	Construction		Authority and maintaining authority
V2f	Throughout the scheme.	Passive lighting: Installation of reflective road markings and signage where possible	To minimise adverse visual impacts on night views to dark rural skies	Scheme design Construction	n/a	n/a
Cultural Heritage (Chapter 43)						
CH1f	Site 8 Hill Of Megray, Earthwork ch1120 – 1390 Site 23 Moss Of Cowie Bronze Sword Findspot ch2700 Site 24 Hillocks, Graves ch2700 Site 67 Red Moss Wetland ch170 – 280 Site 91 East Crossley Hut Circle and Field System SAM ch9700 – 9800 Site 119 Blackburn Moss Wetland ch2460 – 4100 Site 121 Blaikiewell, Cairns (1) ch11470 – 11500 Site 411 Hill of Muchalls Battlefield ch3310 – 4230 Site 490 Cowie Village ch100 – 4000	Fieldwalking, geophysical survey, palaeoenvironmental assessment, intrusive trial trenching, possibly up to 10% of the area identified in the Compulsory Purchase Order (CPO) including the targeted areas and blank areas where no archaeological remains are known.	Identify unknown archaeological remains that may be affected by the scheme, allow significance of impacts to be fully assessed, identify scale and scope of mitigation works.	Pre-construction	Overseen and monitored by Historic Scotland	Designers Archaeological Consultant
CH2f	Site 257 Scottish North Eastern Railway ch10 – 40 Site 506 Crossley Clearance Cairn ch9570	Detailed photographic or topographic survey, archaeological excavation.	To record any remains that would be removed during construction.	Pre-construction Construction	Overseen and monitored by Historic Scotland	Designers Archaeological Consultant
CH3f	All (including Site 97 Wetshaw Croft (2) ch10390 – 10400)	Watching brief or strip and record operation to identify any archaeological remains uncovered during construction. Assessment of the nature and significance of impacts, and any requirement for a further mitigation strategy.	Identify and record previously unidentified archaeological	Construction (top soil stripping)	Overseen and monitored by Historic Scotland	Designers Archaeological Consultant

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Item number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
			remains.			
CH4f	All	Make location of identified sites known to contractor, secure known sites within CPO. Adherence to Best Practice Guidance and Historic Scotland Special Requirements.	To minimise accidental impact on known archaeological sites.	All stages	Overseen and monitored by Historic Scotland	n/a
CH5f	Site 10 Ury House, North Lodge: Listed Building, Category B Site 18 Kempstone Hill Standing Stones Site 25 White Hill Hut Circles: Scheduled Ancient Monument Site 28 Cantlayhills Cairn: Scheduled Ancient Monument Site 88 Stranog Hill, Cairns Site 91 East Crossley Hut Circle and Field System: Scheduled Ancient Monument Site 95 Mill of Crynoch, Watermill: Listed Building, Category C(S) Site 491 Kempstone Hill, Archaeological Complex	Introduce a combination of broadleaved woodland, mixed woodland and shrub planting. Grading of embankments and easing cuttings, use of appropriate design and material.	To minimise visual impact on setting of known sites of cultural heritage significance.	Construction Operation	None	Designers Landscape Architect
Air Quality (Chapter 44)						
n/a	n/a	n/a	n/a	n/a	n/a	n/a
Traffic Noise and Vibration (Chapter 45)						
N1f	ch2250-2500	False Cuttings - Kempstone Hill	Attenuate noise generated by traffic on the proposed scheme in these areas.	Scheme design	n/a	n/a
N2f	All	Use of low noise road surfacing.	Reduction in noise generated	Scheme design	n/a	n/a

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			by traffic travelling on the proposed scheme.			
N3f	Kempstone Hill, Stonehaven	Noise barrier installation. Barrier (drystone wall) height 1.0m proposed based on current design. (also N1-f as above)	To reduce noise levels to achieve 59.5dB threshold	Construction	n/a	n/a
N4f	Strathgyle Cottage, Stonehaven	Noise barrier installation. Barrier height of 1.5m proposed based on current design.	As above	As above	n/a	n/a
N5f	North Cookney Farm, Stonehaven	Noise barrier installation. Barrier (drystone wall) height 1.0m proposed based on current design.	As above	As above	n/a	n/a
N6f	North Cookney Croft, Stonehaven	Noise barrier installation. Barrier height of 3.0m proposed based on current design.	As above	As above	n/a	n/a
N7f	Meadowbank, Stonehaven	Noise barrier installation. Barrier (drystone wall) height 1.0m proposed based on current design.	As above	As above	n/a	n/a
Pedestrians, Cyclists, Equestrians and Community Effects (Chapter 46)						
Pf	ch1600	Provision of NMU specific under/over bridge.	Avoidance of severance and maintenance of access.	Scheme design Construction	n/a	n/a
P2f	ch4700	Provision of farm accommodation under/over pass suitable for NMU use.	Avoidance of severance and maintenance of access.	Scheme design Construction	n/a	n/a
P3f	ch0	Provision of NMU-specific traffic signals or crossing points to enable safe crossing.	Addition of, or improvement to, safety measures.	Scheme design Construction	n/a	n/a
P4f	ch4300-4700 ch6250-6350 ch6300-7100 ch8300-8550 ch10200-11250	Creation of NMU verge/track to maintain access.	Avoidance of severance and maintenance of access.	Scheme design Construction	n/a	n/a
P5f	ch0-800 ch1600-3200 ch4300-4700 ch6250-6350 ch6300-7100 ch8300-8550 ch10200-11250	Diversion or alternate route.	Avoidance of severance and maintenance of access.	Scheme design Construction	n/a	n/a

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Item number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
P6f	All	Safety provisions e.g. lighting of underpasses, equestrian parapets, slip resistant surfacing, solid infill panels.	Avoidance of severance and maintenance of pedestrian and others access to community facilities.	Scheme design Construction	n/a	n/a
P7f	All areas subject to replanting.	Refer to relevant landscape and noise commitments for amenity mitigation measures.	Mitigation to reduce impacts on amenity value of journeys.	Scheme design Construction	n/a	n/a
Vehicle Travellers (Chapter 47)						
VT1f	All road sections as appropriate	See landscape and visual mitigation measures.	Mitigation planting will help to soften harsh embankments and cuttings and integrate the road into the surrounding areas. Many of the views will become more enclosed as planting matures, while others will become framed by woodland, allowing a sequence of attractive views for travellers.	Operation	n/a	n/a
VT2f	All components of scheme	Adherence to appropriate roads design standards including the Design Manual for Roads and Bridges (DMRB) where reasonably practicable.	Reduction of driver stress where possible	Scheme design	n/a	n/a
Disruption due to Construction (Chapter 48)						

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Item number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
D1f	All agricultural land	Restrict construction works and activities to a defined working corridor. Careful siting of site compounds and design of access/egress routes. Adherence to best practice to control dust generation and dispersal.	Avoidance of damage to agricultural capability of land, and prevention, where possible, of disruption to farming practices.	Pre-construction Construction	None	Farmer / landowner
D2f	All agricultural land	Provision of temporary access/egress and clear signage.	Maintenance of access to/from farms and to agricultural land suitable for agricultural vehicles, deliveries etc.	Pre-construction Construction	None	Farmer / landowner
D3f	Operational business premises	Provision of temporary access/egress and clear signage.	Maintenance of access to/from business premises for staff, deliveries and customers.	Pre-construction Construction	None	Farmer / Business Proprietor
D4f	All areas	Sensitive siting of site compounds, parking/storage areas. Keeping construction site tidy. Minimise periods of night-time working and use directional lighting to minimise glare. Using existing or temporary screening where appropriate.	To minimise the visual impact of the construction works.	Construction	Ongoing monitoring during construction to ensure effectiveness of measures. Supervision by engineer.	SEPA SNH
D5f	All areas	<ul style="list-style-type: none"> • Avoiding unnecessary stockpiling of bulk materials that are likely to be subject to wind-blow; • Placing stockpiled materials away from potentially sensitive receptors; • maintaining site and public roads to minimise the accumulation of mud on road surfaces; • Minimising drop heights during the handling of bulk materials; Undertaking regular vehicle maintenance to ensure that emissions of soot and other pollutants in vehicle exhausts are minimised; <ul style="list-style-type: none"> • Switching off machinery and vehicles not in use, particularly in areas close to properties; 	To minimise the generation of dust / emissions during construction.	Pre-construction Construction	Ongoing monitoring during construction to ensure effectiveness of measures.	Local Authorities

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		<ul style="list-style-type: none"> watering exposed soil surfaces (during drying conditions); Covering trucks transporting dust-producing material leaving or entering the construction site; Reducing construction vehicle travel speeds on unpaved surfaces; Maintaining equipment as per manufacturers' specifications, this will be specified in the Contract Documents to reduce emissions during construction; and Conform to all relevant local authority requirements or restrictions for dust generation during construction. 				
D6f	All areas	The Contractor will be required to keep a record of any concerns from residents about air quality during construction and the actions taken.	Advise the local community of proposed works and activities that could give rise to dust and provide local residents with a named contact to respond to any air pollution concerns or nuisance.	Construction	None	Local Authorities, Local Residents
D7f	All areas	<ul style="list-style-type: none"> Use of noise barriers to reduce noise levels (from machinery) at receptor locations; Ensure that piling works are kept to a practicable minimum; Ensuring that all equipment is maintained according to manufacturers' specification; Suitable distancing of any noisy plant from sensitive locations; Switching off machinery and vehicles not in use, particularly close to properties; Noise monitoring, with recorded data made available to local Council Environmental Health Departments; Compliance with BS 5228:1997 Part 1, Code of Practice for basic information and procedures for noise control, so that best practicable means for minimising noise and vibration at the site are employed. Threshold limits for noise and vibration, to be agreed with Aberdeen City and Aberdeenshire Councils, will be stated within the contract documents; Vibration monitoring; and 	To minimise the noise and vibration nuisance during construction work.	Construction	On receiving detailed construction methodology, more accurate noise predictions can be made.	On receiving detailed construction methodology, more accurate noise predictions can be made

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		<ul style="list-style-type: none"> Undertaking dilapidation surveys of selected properties; advise the local community of proposed works and activities that could give rise to noise nuisance; and Provide local residents with a named contact to respond to any noise/vibration concerns or nuisance. The Contractor will be required to keep a record of any concerns and the remedial actions taken. 				
D8f	All routes used by pedestrians and others in vicinity of proposed road scheme	<p>Existing routes to be maintained or re-routed as far as possible during construction of the new road. Such provision would be subject to normal site safety constraints.</p> <p>Exact details of such provision will be agreed between the Contractor and the Roads Authorities as part of the contract process.</p>	To avoid obstruction of routes used by pedestrians and others due to construction activities.	Pre-construction Construction	Ongoing monitoring during construction to ensure effectiveness of measures.	Scottish Executive Local Councils
D9f	All areas	<ul style="list-style-type: none"> Avoidance of road closures where possible. Road diversions to be clearly indicated with signs and road markings, and any night-time diversions/changes will be lit. Timing of works vehicles to avoid peak traffic periods. Exact details of such provision will be agreed between the Contractor and the Roads Authorities as part of the contract process. 	To minimise increases to driver stress.	Construction	None	Scottish Executive
D10f	All locations where proposed route ties in with existing routes	<p>Lane closures will not be permitted during peak hours except in exceptional circumstances.</p> <p>Exact details of such provision will be agreed between the Contractor and the Roads Authorities as part of the contract process.</p>	To minimise increases to driver stress.	Construction	None	Scottish Executive Local Councils
Policies and Plans (Chapter 49)						
Refer to specific Chapters of Environmental Statement.						