36 Schedule of Environmental Commitments

36.1 Introduction

36.1.1 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 Southern Leg section of the AWPR.

36.1.2 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 to 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.

36.1.3 The Schedule of Environmental Commitments (Table 36.1) addresses the potential impacts previously summarised in the Environmental Impact Tables (Table 35.1). The Mitigation Item Numbers provided in the first column of Table 36.1 enable cross-referencing between these two tables.

36.1.4 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 that would be included in the Contract Documents.

Table 36.1 - 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 22)						
LU1	See Appendix A22.1 for details of location required per land interest.	Permanent loss of agricultural land and forestry has been reduced through route selection, construction programming, and planning. In addition, the loss will be reduced by re-instatement plans, where appropriate, post construction.	Reduction	Addressed during design	None envisaged	None
LU2	See Appendix A22.1 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. Where appropriate and justified, agricultural overbridges and underpasses will be incorporated into the road design.	Reduction	Addressed during design and construction	None envisaged	None
LU3	See Appendix A22.1for 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	Addressed during construction	None envisaged	None
LU4	See Appendix A22.1 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	Addressed during and post construction	Monitoring post construction to access flood risk	None
LU5	See Appendix A22.1 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	During and post construction	None envisaged	District Valuer
LU6	See Appendix A22.1 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. Consultation with the landowners and occupiers will allow agreement to a programme of works that minimises disturbance. Any work will be carried out in accordance with the agreed programme as far as is practically possible.	Reduction	Prior to and during construction	None envisaged	None
LU7	See Appendix A22.1 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	Prior to construction	None envisaged	None
LU8	See Appendix A22.1 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 and Enhancement	During and Post construction	None envisaged	None
LU9	See Appendix A22.1 for details of location required per land interest.	Agricultural land will be re-instated to a condition as near as is reasonably practicable to that subsisting before the commencement of the works. Topsoil where disturbed will be left in a loose friable condition and where agreed appropriate cover will be replaced. Re-grading where appropriate will be undertaken and land returned to agricultural use.	Reduction and Offset	During and Post construction	None envisaged	None

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
LU10	See Appendix A22.1 for details of location required per land interest.	Where ancillary apparatus and material is sited on agricultural land it will be done so with agreement of the land owner/occupier.	Reduction and Offset	During construction	None envisaged	None
LU11	See Appendix A22.1 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 and thereafter unless otherwise agreed with the occupier.	Reduction	During construction	None envisaged	None
LU12	See Appendix A22.1 for details of location required per land interest.	Where boundary features such as fences, walls and hedges have to be removed to allow construction these will be reinstated with appropriate materials in each case to provide a secure field boundary.	Reduction and Enhancement	During and post construction	None envisaged	None
LU13	See Appendix A22.1 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	During construction	None envisaged	None
LU14	See Appendix A22.1 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 where appropriate in consultation with the land owner/occupier. Additionally, where appropriate recessed access would be provided off main and side roads with loading/unloading area if required.	Reduction	During and post construction	None envisaged	None
LU15	See Appendix A22.1 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	During Construction	None envisaged	SEERAD
LU16	See Appendix A22.1 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	During construction	None envisaged	None
LU17	See Appendix A22.1 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 as required 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 Enhancement	During and post construction	None envisaged	None

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
LU18	See AppendixA22.1 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	During and post construction	None envisaged	None
LU19	See Appendix A22.1 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	Prior to construction	None envisaged	None
LU20	See Appendix A22.1 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 Enhancement	Design and prior to construction	None envisaged	None
LU21	See Appendix A22.1 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	Prior to construction	None envisaged	None
LU22	See Appendix A22.1 for details of location required per land interest.	Soil disturbance and compaction from the harvesting and extraction will be minimised.	Reduction	Prior to construction	None envisaged	None
LU23	See Appendix A22.1 for details of location required per land interest.	Reasonable claims in respect of damage to agricultural land or sporting rights will be payable, as will professional charges.	Offset	Prior to, during and post construction	None envisaged	None
LU24	Refer to Table 35.1	Where permanent loss of land or demolition of property occurs, consideration will be given to the provision of appropriate financial compensation to relevant landowners, to an amount determined by the District Valuer.	Offset loss of property and land.	Prior to construction	n/a	District Valuer
LU25	Refer to Table 35.1	Access will be maintained/ restored to these businesses.	n/a	Addressed during design	n/a	None envisaged
Geology Soils Contaminated Land and Groundwater (Chapter 23)						
G1	• ch108810 • ch205740	Additional pre-construction investigation of any areas of known contamination that may be encountered, including land in vicinity of Brodiach Quarry and Quarry 1.	Avoids human contact with contamination, potential health and safety risks or risk of environmental pollution.	Construction	n/a	n/a
G2	All	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 or risk of environmental pollution.	Construction	n/a	n/a

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
G3	All	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, risk of environmental pollution including impacts on surface water quality.	Construction	n/a	n/a
G4	• ch101000 (Eastern branch of the proposed junction) • ch101000-102000 • ch103100-103300 • ch103900-104100 • ch106800- 107000 • ch107200-107800 • ch110902-111000 • ch200630 (northern branch of Burnhead cut) • ch201200-202200 • ch203000-203300	Road drainage to be lined.	Avoid contamination of groundwater in known areas of groundwater used as water supply.	Operation	n/a	none
G5	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 identified if necessary.	Construction	Potentially extending into operation	None
G6	• ch205250-205500 • ch101400-101600 • ch106750-107150 • ch108800-109100 • ch110300-111300	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

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
G7	ch203700-204300	Permeable material used for embankment construction; drains and surface water features flowing towards Hare Moss to be culverted beneath Southern Leg.	Avoid disturbance of the water balance of Hare Moss.	Construction & operation	n/a	
G8	ch203700-204300	Reinforcement of the peat bund along Jameston ditch by ensuring that the bund is not interrupted and the bund is compacted.	Reduce hydraulic connectivity between Hare Moss and Jameston Ditch where road drainage will be discharged.	Construction & operation	n/a	
G9	ch203700-204300	No further deepening/excavation of Jameston Ditch.	No increase of drainage from Hare Moss into Jameston ditch.	Construction & operation	n/a	
Water Environment (Chapter 24)						
W1	All locations	Adherence to best practice including SEPA PPG01, PPG04, PPG05, PPG06, PPG07, PPG08, PPG10, PPG13, PPG18 and PPG21.	Avoidance and reduction of construction impacts.	Construction	n/a	n/a
W2	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 period.	SEPA
W3	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	Monitoring locations, parameters, frequency of sampling and discharge limits

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
W4	All locations	Temporary bridges will be used to cross watercourses rather than temporary culverts and fording watercourses will be avoided.	Minimise sediment release into the environment	Construction	(temperature, pH, conductivity, suspended solids, heavy metals etc.) and biological parameters (macroinvertebrate communities and macrophytes.) ECoW on site during construction period.	will be agreed with SEPA /SNH in advance of construction.
W5	All locations	Dust release during blasting activities will be minimised by damping with water.	Minimise sediment release into the environment	Construction		
W6	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		
W7	All locations	Bunded areas with impervious walls and floor lining will be used for the storage of fuel, oil and chemicals.	Minimise pollutant release into the environment	Construction		
W8	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		
W9	All locations	Service diversions 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		
W10	All locations	Any areas of contaminated land identified (Chapter 23 Geology, Groundwater and Contaminated Land) 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. settlement lagoons, cut-off ditches, etc).	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 (macroinvertebrate 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.
W11	All locations	Minimise the duration and spatial extent of works in the vicinity of watercourses. Exposed areas will be progressively rehabilitated throughout the construction period. Working during periods of low flow must be avoided.	Minimise sediment release into the environment	Construction		
W12	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		
W13	All locations	Temporary settlement/sedimentation lagoons will be installed, where appropriate.	Minimise sediment and pollution release into environment	Construction		

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
			to ensure compliance with the water quality standards throughout construction.			
W14	All locations	An Ecological Clerk of Works (ECoW) will be on site during construction.	Ensure the implementation of appropriate environmental safeguards	Construction		
W15	• ch205580 • Side road ch340 • A90 ch790 • ch207020 at the A956 road • ch204040 • ch203900 • ch203650 • ch200990 • ch200100 • ch101470 • ch102670 • Side road ch150 • ch107440	Watercourse will be diverted or water pumped away from the construction site during the construction of culverts 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	n/a	n/a
W16	• ch205580 • Side road ch340 • A90 ch790 • ch207020 at the A956 road • ch204040 • ch203900 • ch203650 • ch200990 • ch200100 • ch101470 • ch102670 • Side road ch150 • ch107440	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. Culverts will be depressed invert to ensure continuity of bed sediments through the structure. In areas of high scour potential culverts will include scour protection to dissipate flow energy.	Ensure hydrological connectivity of 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	Operation	On-going monitoring of culvert and 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	Details to be agreed with SEPA

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
			through structure.			
W17	• ch204600 • ch200366 • ch102824 • ch106085 • ch108757	Detention basins will be designed to attenuate flows of up to the 1:200 year event.	Minimise impact upon existing flood regime of the watercourse.	Operation	n/a	n/a
W18	• ch204600 • ch200366 • ch102824 • ch106085 • ch108757	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.	Ensure existing water quality in receiving watercourses does not fail EQS.	Operation	Ongoing monitoring to be undertaken at key outfalls. Monitoring will include ecological (macroinvertabrate) and water quality sampling	Details to be agreed with SEPA
W19	• ch204600 • ch200366 • ch102824 • ch106085 • ch108757	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; • 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 • provision of scour protection at the drainage discharge outfall to protect the banks and bed of the receiving ditch and to limit erosion.	Ensure efficacy of pollutant removal techniques.	Operation	Ongoing monitoring to be undertaken at key outfalls. Monitoring will include ecological (macroinverabrate) and water quality sampling	Details to be agreed with SEPA
W20	• ch100150 • ch102000	Bridge 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 River Dee and Blakiewell Burn. Bridges will be designed to ensure minimal impact upon 1:200yr flood levels (in accordance with SPP7).	Minimised sediment release into watercourse during construction and minimise impact upon geomorphology and riparian zone during the operation by maintaining channel.	Operation Construction	n/a	n/a
W21	• ch205580 • Side road ch340 • A90 ch790 • ch207020 at the A956	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	Offset straightening of channel and other culverting	Operation	On-going monitoring of culvert and realignments	Details to be agreed with SEPA

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
	road • ch204040 • ch203900 • ch203650 • ch200990 • ch200100 • ch101470 • ch102670 • Side road ch150 • ch107440	morphological diversity, where possible, to offset straightening of channel and other culverting proposed on the watercourse.	proposed on the watercourse by re-introducing geomorphological diversity.		following installation will be undertaken including regular inspections for erosion and deposition.	
W22	• ch205580 • Side road ch340 • A90 ch790 • ch207020 at the A956 road • ch204040 • ch203900 • ch203650 • ch200990 • ch200100 • ch101470 • ch102670 • Side road ch150 • ch107440	The diversion of watercourses during construction of culverts/realignments will require cut-off ditches and sediment fencing; treatment ponds or settlement/sedimentation lagoons to reduce sediment release. 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 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
W23	• ch106085	A filter drain, detention basin and 4 treatment ponds will be installed prior to construction.	EQS levels achieved and accidental spillage reduced to acceptable limits and flows reduced to pre-development rates	Construction Operation	n/a	n/a
W24	• ch204600 • ch108757	A filter drain detention basin, 3 treatment ponds and a swale will be installed during construction.	EQS levels achieved and accidental spillage reduced to acceptable limits and flows reduced to pre-development	Construction Operation	n/a	n/a

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
			rates			
W25	• ch200366	A filter drain, detention basin, 3 treatment ponds will be installed prior to construction.	EQS levels achieved and accidental spillage reduced to acceptable limits and flows reduced to pre-development rates	Construction Operation	n/a	n/a
W26	• ch102824	A filter drain, detention basin, 2 treatment ponds will be installed prior to construction	EQS levels achieved and accidental spillage reduced to acceptable limits and flows reduced to pre-development rates	Construction Operation	n/a	n/a
W27	• ch205580 • Side road ch340 • A90 ch790 • ch207020 at the A956 road • ch204040 • ch203900 • ch203650 • ch200990 • ch200100 • ch101470 • ch102670 • Side road ch150 • ch107440	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
W28	• ch200100 • ch100150 • ch101470 • ch102000	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 runoff from the approach road construction. Use of plastic sleeve and double false/shuttering when working over watercourse. Enclosed spraying when waterproofing from chemicals entering the watercourse.	Minimise the risk of sediment release and oil and chemical spillage Ensure minimal concrete spillage and pollutant release	Construction	Water quality/ecology monitoring before and after construction	To be agreed with SEPA prior to work commencement).

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
			Ensure minimal chemical spillage and pollutant release			
W29	• ch200100 • ch100150 • ch101470 • ch102000	Works with a high potential for sediment release will be carried out between May and September where practicable.	Avoid impact upon migratory and spawning salmon	Construction	ECoW	n/a
W30	• ch204500 • ch204040 • ch203900 • ch203650 • ch200100 • ch101470 • ch102670 • ch150 • ch204500 • ch100150 • ch102000 • ch107440	Lining of filter drains.	Prevent infiltration to groundwater	Operation	n/a	n/a
Ecology and Nature Conservation (Chapter 25)						
Generic Mitigation						
E1	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	
E2	All	ECoW to ensure all mitigation agreed is implemented.	Ensure of schedule of commitments are enforced.	Pre-Construction		
E3	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 Construction	n/a	n/a
E4	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	Pre-Construction Construction	n/a	n/a

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
			habitats and direct mortality to terrestrial invertebrates			
E5	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 direct mortality to terrestrial invertebrates	Pre-Construction Construction	n/a	n/a
E6	All	Cover site safety issues including storage of potentially dangerous materials.	Prevents additional impacts to terrestrial and freshwater habitats.	Construction	n/a	n/a
E7	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.	Pre-Construction Construction	n/a	n/a
E8	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
E9	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
E10	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
E11	All	New landscape planting for habitat creation will be designed to blend with the existing semi-natural habitats, and native species characteristic of the area will be used.	Compensates for habitat loss	Construction Post-construction	n/a	n/a
E12	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	n/a	n/a

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
E13	All	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 30 m buffer zone.	Reduces disturbance to bats.	Pre-Construction Construction	n/a	n/a
E14	All	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
E15	All	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
E16	All	Badger underpasses and fencing will be provided at strategic locations based upon proximity to existing setts, pathways and areas of high badger activity. Underpasses may also be used by otters and bats.	Prevent direct mortality and reduce habitat fragmentation.	Construction	n/a	n/a
E17	All	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
E18	All	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 1 year prior to development, 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
E19	All	Artificial otter holts will be created where appropriate, as well as enhancement of existing riparian habitat 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
E20	All	The erection of otter-proof fencing wherever the proposed scheme comes within 150m of a watercourse or a known otter commuting route.	Prevent direct mortality.	Construction	n/a	n/a
E21	Along watercourse crossing points	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
E22	Along watercourse crossing points	A 30m 'no disturbance' buffer will be adhered to around all 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/	Reduces disturbance to water voles.	Pre-Construction Construction		

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
		enhancement works.				
E23	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
E24	All	Night time working to be avoided where practicable.	Reduces disturbance to bats, otters and salmonids.	Construction	n/a	n/a
E25	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
E26	All	Use of Sustainable Urban Drainage Systems (SUDS).	Prevents pollution incidents.	Scheme design Construction	n/a	n/a
E27	Along watercourse crossing points	Creation of riparian woodland along side burns including species of local importance.	Compensates for habitat loss. Minimises disturbance through noise reduction on otters, water voles and salmonids.	Pre-Construction Construction Post-Construction	n/a	n/a
E28	All	Construction activities including the felling of trees and clearing of scrub will be timed to avoid periods when birds are nesting, i.e. March-August.	Reduces disturbance to nesting birds.	Construction	n/a	n/a
E29	All	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
E30	All	Bird boxes will be erected in pre-identified locations.	Compensates for habitat loss.	Construction	n/a	n/a
E31	Areas of red squirrel activity	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
E32	All	A 30m ‘no disturbance’ buffer will be adhered to around all dreys and access to these areas where identified will be maintained. The dreys will be monitored by ecologists and once all possible assurances can be given that the dreys are inactive, the drey trees can be removed.	Reduces disturbance to red squirrels.	Pre-Construction Construction	n/a	n/a

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
E33	In watercourses where salmonids are present or likely to be present	Where a high risk of sediment runoff from construction into watercourses cannot be controlled, or where in-river works are required, this will 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
E34	In watercourses where salmonids are present or likely to be present	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 (i.e. for the River Dee crossing).	Reduces disturbance to salmonids.	Construction	n/a	n/a
E35	All	Areas identified as being well connected, with high to moderate value to reptiles to be lost or severed will be made unsuitable for reptile habitation. Vegetation will be strimmed/removed, searched for reptiles, and timed for periods when reptiles are least vulnerable to disturbance, outwith the hibernation and breeding season (November to February, and July and August, respectively); and scrub may be removed during the hibernation season and from March to June. Any reptiles captured will be released into suitable habitats or in sites already identified but not affected.	Reduces disturbance and direct mortality of reptiles.	Prior to site clearance	n/a	n/a
E36	All	Terrestrial invertebrates mitigation will be included under mitigation prescribed for other species such as badgers and birds (refer to E4 and E11); and compensatory habitat will be supplied by mitigation for terrestrial habitat loss (refer to L41-55).	Prevent direct mortality and compensates for habitat loss.	Pre-Construction Construction Post-Construction	n/a	n/a
E37	All	Any newts captured during destructive searches of pond-side habitat and draining-down of ponds will be transferred to receptor ponds or adjacent areas of suitable habitat.	Reduces disturbance and direct mortality of newts.	Prior to site clearance	n/a	n/a
E38	Refer to Water Environment Mitigation	Mitigation for protection of the water environment will protect freshwater pearl mussel habitat and will maintain good water quality, especially in terms of sediment loading. Mitigation to protect the water environment will maintain geomorphological regime and ensure no habitat loss/disturbance – refer to Water Environment mitigation measures W1-W15; W18-W20 and W22-W27.	Reduces disturbance to freshwater pearl mussel.	Refer to Water Environment Mitigation	Refer to Water Environment Mitigation	Refer to Water Environment Mitigation
E39	Refer to Water Environment Mitigation	Prevention of pollution to watercourses – refer to Water Environment mitigation measures W1-W15; W18-W20 and W22-W27.	Prevents pollution incidents.	Refer to Water Environment Mitigation	Refer to Water Environment Mitigation	Refer to Water Environment Mitigation
Landscape (Chapter 26)						
L1	Throughout the proposed 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	At design / construction	n/a	n/a

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
			landscape elements, features and sensitive sites.			
L2	Throughout the proposed scheme.	Earthworks: embankment and cuttings constructed to tie in with existing levels and where appropriate, return to slope to 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.	At design / construction	n/a	n/a
L3	Throughout the proposed 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	At design / construction	n/a	n/a
L4	Throughout the proposed scheme.	Drystone walling: to be constructed to local and traditional design, of reclaimed materials form the local vicinity and be approximately 1m high and 0.5m wide.	*Offset* impacts of field boundary severance and replacement of field enclosures.	At construction stage	n/a	Local Authority and maintaining authority
L5	Throughout the proposed 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. 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 *enhance* landscape elements and ecological habitats.	At construction stage	Monitoring of planting/seeding establishment during aftercare period	SNH and the maintaining authority
L6	Throughout the proposed 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.	At design / construction stage	Monitoring of planting establishment during aftercare period	n/a
L7	Throughout the proposed scheme.	Structures: Design of structures such as bridges along the length of the route has been informed by a combination of specialist aesthetic advice, design workshops and consultation with Architecture and Design Scotland and is reported in a series of papers.	Reduction of visual impact of structures though aesthetic design and materials.	At design stage	n/a	Local Authority, Architecture and Design Scotland and maintaining authority
L8	Throughout the proposed scheme.	Planting: Retention of existing trees / vegetation wherever possible / incorporation into new planting proposals	*Prevention* of physical impact on trees / vegetation reduction of	At design / construction stage	n/a	n/a

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
			visual impact of proposals.			
L9	Throughout the proposed 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.	At design / construction stage	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L10	Throughout the proposed scheme.	Public Rights of Way: Reinstate links to path network.	To *reduce* impact on public right of way route severance and *enhance* links to the countryside.	At design / construction stage	n/a	Local Authority and maintaining authority
Loirston (ch206100-207200)						
L11	Western section of realigned A956 / beginning of AWPR ch207000-207200.	Mixed woodland planting to the southern edge of the road.	To screen the road from properties to the south of the AWPR.	At design / construction stage	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L12	Northeastern slip road to A90 and along northern section of AWPR Ch206750-206800.	Mixed woodland planting.	To screen the road from properties to the northeast of the junction.	At design / construction stage	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L13	Cove Road junction ch206950.	Easing of embankment slopes to 1:6.	To improve integration with surroundings and allow potential return to agriculture.	At design / construction stage	n/a	Liaison with local land owners / stakeholders
L14	Charleston Junction A90 eastern slip roads continuing along AWPR at ch206750-206800.	Drystone wall construction.	To integrate with and reinforce existing field pattern and create gateway feature.	At design / construction stage	n/a	n/a
L15	Charleston Junction northwestern slip road to A90 and southwestern slip	Mixed woodland planting.	To reinforce transition between	At design / construction stage	Monitoring of planting establishment	Local Authority and maintaining authority

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
	road adjacent to AWPR.		character types and screen junction and cutting slopes.		during aftercare period	
L16	Embankments between A90 and slip roads at Charleston Junction.	Scattered scrub and wild flower planting.	To blend the junction with the surrounding landscape.	At design / construction stage	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L17	Previous junction cutting to the west of the A90 at Charleston Junction.	Infill existing cutting.	To reintegrate into the surrounding landscape and allow potential return to agriculture.	At design / construction stage	n/a	Liaison with local land owners / stakeholders
L18	North and south of the road at ch206100-206600.	Hydraseed rock cutting	To facilitate the greening of ledges and crevices and integrate with surrounding landscape.	At design / construction stage	n/a	Local Authority and maintaining authority
L19	South of road at ch206250-206350.	Mixed woodland planting.	To integrate with existing woodland.	At design / construction stage	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L20	North of road at ch206100-206250.	Pond and mosaic of wetland scrub and broadleaf woodland.	To offset habitat loss, fragmentation and impacts on protected species.	At design / construction stage	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
Duff's Hill (ch205200-206100)			To replace lost vegetation, enhance woodland edge and increase biodiversity.	At design / construction stage	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L21	Along north and south of road at ch205250-206050.	Mixed woodland planting.				

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
Haremoss (ch202200-205200)						
L22	North and south of AWPR at ch204650-205200, south of the AWPR at ch204250-204500, either side of realigned Causeyport Road south of the AWPR and east of the Causeyport Road to the north of the AWPR.	Easing of embankments.	To integrate the roads with the surrounding landscape and allow the potential return to agriculture.	At design / construction stage	n/a	Liaison with local land owners / stakeholders
L23	Around 4 treatment and detention ponds north of the AWPR at ch204400-204650.	Scrub and riparian woodland planting.	To improve integration with surroundings and promote biodiversity.	At design / construction stage	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L24	North and south of the road ch202550-205200.	Drystone wall construction.	To screen and integrate with landscape pattern.	At design / construction stage	n/a	n/a
L25	North and south of the road on embankment to overbridge at ch203150-203250.	Easing of embankments.	To screen and integrate with landscape pattern.	At design / construction stage	n/a	n/a
L26	South of the road at ch202900-203150.	Mixed woodland planting.	To extend existing woodland around farm buildings to screen buildings.	At design / construction stage	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
Merchant's Croft (ch201100-202200)						
L27	South of road at ch201350-202550 and north of road at ch201100-201400, 201600-201950.	Scrub woodland planting.	To soften appearance of cuttings, replace lost vegetation, visually separate AWPR from realigned track and tie in with existing scrub.	At design / construction stage	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
Blaikiewell (ch200000-201100 and 100000-100100)						
L28	North of the road at ch200000-200600 and east and west of the road at ch1000000-100100.	Scrub, riparian and mixed woodland planting.	To screen and integrate the AWPR and Cleanhill Junction with the surrounding woodland landscape.	At design / construction stage	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L29	Southeast corner of Cleanhill Junction.	Scrub woodland planting.	To screen and integrate Cleanhill Junction into the surrounding landscape.	At design / construction stage	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L29	Along realigned Lochton-Nigg Road northeast of Burnhead Cottages (continuing along the AWPR Ch200500-200600) and south of the Lodge.	Mixed woodland planting.	To screen views of overbridge, replace lost vegetation and link existing woodland.	At design / construction stage	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
Craigingles (ch100100-101400)						
L31	West and east of the AWPR at ch100200-100850.	Mixed woodland planting immediately above rock cut.	To replace lost vegetation and minimise ‘scar’ across hillside.	At design / construction stage	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L32	East of AWPR at ch100850-101450 and west of AWPR at ch100850-101050.	Scrub woodland planting.	To replace lost vegetation at woodland edge.	At design / construction stage	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L33	West of AWPR at ch100950-101430.	Standard tree planting.	To replace and integrate with existing beech tree line.	At design / construction stage	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
Netherly / Altries (ch101400-101900)						
L34	East and west of the AWPR at ch101450-101880	Mixed woodland planting.	To integrate with existing estate woodland and screen views from Kingcausie House and Lodge.	At design / construction stage	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
Dee Valley (ch101900-102800)						
L35	On the south bank of the valley on both sides of the AWPR at ch101900-101980.	Scrub and riparian woodland planting.	To visually separate the Dee and B9077 bridges.	At design / construction stage	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L36	Between AWPR and B979 at ch102100-102800.	Area upfilled and planted with mixed woodland.	To minimise the embankments and visually separate / screen the AWPR from the B9077.	At design / construction stage	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
Urban Type: Milltimber (ch102800-103600)						
L37	East and west of AWPR at ch102800-103600.	Mixed woodland planting.	To replace lost garden and woodland trees and screen views for properties in Milltimber.	At design / construction stage	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L38	West of link road ch103150-103600.	Standard tree planting.	To integrate with existing hedgerow pattern.	At design / construction stage	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
Craigton (ch103600-104400)						
L39	East and west of the AWPR at ch103600-104000 and around outer edge of Milltimber Junction and slip	Mixed woodland planting.	To screen junction, tie in with existing	At design / construction stage	Monitoring of planting establishment	Local Authority and maintaining authority

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
	road.		plantations and shelterbelt and integrate with bridge and junction structure.		during aftercare period	
L40	West of link road ch103600-104000.	Standard tree / groups of standard trees planting.	To integrate with existing hedgerow pattern.	At design / construction stage	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
Beanshill (ch104400-106000)			To screen junction, tie in with existing plantations and shelterbelt and integrate with bridge and junction structure.	At design / construction stage	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L41	North of overbridge on east and west of AWPR ch104750-104900, continuing above the west cutting to105100, and south of the overbridge above the west cutting ch104650-104750.	Mixed woodland planting.				
L42	West of AWPR at ch105100-106000 and east of the AWPR at ch104900-106000 at the top of the cuttings.	Drystone wall construction.	To provide screening and tie into existing landscape pattern.	At design / construction stage	n/a	n/a
Broomfold (ch106000-107700)			To tie in with existing woodland and screen close views from properties.	At design / construction stage	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L43	West and east of the AWPR at ch106000-107000 continuing to ch107150 to the west.	Mixed woodland planting.				
L44	West of the AWPR at ch107150-107300 and east of the AWPR at ch10700-107300.	Drystone wall construction.	To provide screening and tie into existing landscape pattern.	At design / construction stage	n/a	n/a
L45	West and east of the AWPR at ch107300-107700 continuing to ch107800 to the east.	Mixed woodland planting.	To tie in with existing woodland and screen close	At design / construction stage	Monitoring of planting establishment during aftercare	Local Authority and maintaining authority

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
			views from properties.		period	
Fifeshill / Auchlea (ch107700-108500) and Clinterly / West Brimmond (ch108500-109000)						
L46	Along the top of cuttings for slip roads and at both sides of the road at all approaches to South Kingswells Junction (A944 and minor roads extending 150m and to 300m west of the treatment and detention ponds).	Drystone wall construction.	To provide screening, tie into existing landscape pattern and mark the junction.	At design / construction stage	n/a	n/a
L47	East of the AWPR slip road at ch108550-109100	Mixed woodland planting.	To enclose the junction and screen views from the Friends Burial Ground.	At design / construction stage	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L48	Around South Kingswells Junction behind the new stone walls	Groups of standard tree planting.	To filter views of the junction.	At design / construction stage	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L49	Between the slip roads and the AWPR	Scrub woodland and standard tree planting.	To screen and filter views of the junction.	At design / construction stage	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L50	In the centre of the roundabout	Earth mounding and mixed woodland planting.	To screen views of the AWPR overbridge from the A944.	At design / construction stage	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
Kingswells (ch109000-111300)						
L51	West of the AWPR at ch109050-109150 / 109800-109900 and east of AWPR at ch109200-109850.	Mixed woodland planting.	To tie in with existing woodland and screen close views from properties.	At design / construction stage	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L52	East of the AWPR at ch109850-110400	False cutting (1:3 to AWPR, 1:6 to Kingswells) and mixed woodland planting.	To screen views from Kingswells	At design / construction	Monitoring of planting	Local Authority and maintaining authority

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
			and Fairly Home Farm.	stage	establishment during aftercare period	
L53	West of the AWPR at ch109900-110200	False cutting and mixed woodland planting.	To screen views from properties to the west.	At design / construction stage	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L54	East of the AWPR at ch110400-110550	Mixed woodland planting.	To screen close views from properties.	At design / construction stage	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L55	West of the AWP above the rock cutting at ch110550-110650 and east of the AWPR above the rock cutting at ch110550-110850	Mixed woodland block planting.	To screen views and tie in with existing woodland.	At design / construction stage	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
Visual (Chapter 27)						
V1	At all major road junctions including: Charleston Jct, Cleanhill Jct, Milltimber Jct, A944 S Kingswells Jct. Junctions of minor roads throughout the proposed scheme	Lighting designed to prevent night time glare and sky glow through use of high- pressure sodium, shallow bowl street lighting.	To minimise adverse visual impacts on night views to dark rural skies.	At design / construction stage	n/a	Liaison with Local Authority and maintaining authority
V2	Throughout the proposed scheme	Passive lighting: Installation of reflective road markings and signage where possible	To minimise adverse visual impacts on night views to dark rural skies.	At design / construction stage	n/a	n/a
Cultural Heritage (Chapter 28)						
CH1	Site 122 Burnhead Cropmark Ch200500 Site 129 Auchintoul Croft Ch202000 Site 145 Great South Road Ch204600 Site 153 Hare Moss Wetland ch205100 - 203650 Site 202 Maryculter Bridge Cropmarks ch101950	Fieldwalking geophysical survey, palaeoenvironmental assessment, intrusive trial trenching of possibly up to 10% of the area identified in the Compulsory Purchase Order (CPO). This will include the targeted areas and blank areas where no archaeological remains are known.	Identify unknown archaeological remains that may be affected by the proposed scheme allow significance of impacts to be fully assessed identify scale and scope of	Pre-Construction	Overseen and monitored by Historic Scotland	Designers Archaeological Consultant

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
	Site 212 Charlestown - Consumption Dyke ch207000 Site 222 West Charlestown Dyke (3) ch280 Site 225 Lochview Croft Dyke (2) ch190 Site 230 West Charlestown Dyke (4) ch280 Site 236 Lochview Croft Dyke (1) ch290 Site 238n Waterside Cropmark ch102470 Site 239 Waterside Enclosure ch102470 Site 273 Milltimber Arrowhead ch103100 Site 277 Milltimber Arrowheadn ch103260 Site 496 Sunnyside Field System ch202650 – 202800		mitigation works.			

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
CH2	Site 190 Dyke South Of Gordon ch206000 Site 205 Hillhead Charlestown Consumption Dyke ch1400 Site 209 Charlestown Farmstead ch206750 - 206960 Site 212 Charlestown - Consumption Dyke ch207000 Site 222 West Charlestown Dyke (3) ch280 Site 225 Lochview Croft Dyke (2) ch190 Site 230 West Charlestown Dyke (4) ch280 Site 236 Lochview Croft Dyke (1) ch290 Site 242 West Charlestown Dyke (5) ch430 Site 246 Deeside Old Railway ch102890 Site 285 Nether Beanshill Sheepfold (1) ch103840 Site 286 Nether Beanshill Well ch104040 Site 287 Nether Beanshill Sheepfold (2) ch104100 Site 346 Beans Hill Pen (1) ch105640 Site 432 Spoutwells Croft ch108825 Site 347 Westfield Farm Flints ch105640 Site 349 Beans Hill Rig (4) ch105450 – 105760 Site 429 Croft Of Hatton ch108700	Detailed photographic or topographic survey building survey archaeological excavation	To record any remains that would be removed during construction.	Pre-Construction	Overseen and monitored by Historic Scotland	Designers Archaeological Consultant

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
CH2 cont.	Site 432 Spoutwells Croft ch108825 Site 441 West Hatton Dyke (2) ch109165 Site 443 West Hatton Dyke (1) ch109170 Site 450 Denhead Of Cloghill Dyke (3) ch109500 Site 462 Cloghill Consumption Dyke ch109825 Site 514 Kingcausie Bridge ch101475 Site 515 Mill building and Lade ch101480 Site 516 Kingcausie Building ch101480 Site 518 Kingcausie Shed ch101250 Site 519 Nether Beanshill Sheep Fold ch104135 Site 520 Nether Beanshill Dyke ch104125 Site 522 Silverburn Bridge ch106500	See Above	See Above	See Above	See Above	See Above
CH3	All (including Site 120 Burnhead Standing Stone (Site of) ch200350) Site 121 Blaikiewell Cairns (1) ch200100 - 100150 Site 156 Kingcausie House Designed Landscape ch100150 - 101900	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 remains	During construction (top soil stripping)	Overseen and monitored by Historic Scotland	Designers Archaeological Consultant
CH4	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
CH5	Site 10 Ury House North Lodge: Listed Building Category B Site 18 Kempstone Hill Standing Stones	Introduce a combination of broadleaved woodland mixed woodland and shrub planting. Grading of embankments and easing cuttings use of appropriate design and material.	To minimize visual impact on setting of known sites of cultural heritage	During construction and operation	None	Designers Landscape Architect

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
	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		significance.			
Air Quality (Chapter 29)						
n/a	n/a	n/a	n/a	n/a	n/a	n/a
Traffic Noise and Vibration (Chapter 30)						
N1-N18	ch108850 ch108300 ch107750 ch106900 ch106450 ch105000 ch103600 ch103400 ch102400 ch102550 ch101900 ch101050 ch200550 ch202550 ch204800 ch205450 ch206250 ch206850	Operational mitigation measures to be determined in 2007 EAR.	To be assessed in 2007 EAR.	Scheme design/ Operation	n/a	To be determined at a later date
N19	All	Construction mitigation measures provided as measure D7 (in Disruption due to Construction section below).	To minimise the noise and vibration nuisance during construction work.	During Construction	n/a	n/a

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
Pedestrians Cyclists Equestrians and Community Effects (Chapter 31)						
P1	n/a	Provision of NMU specific under/over bridge.	Avoidance of severance and maintenance of access.	At design/ construction	n/a	n/a
P2	ch203300 ch100950 ch102200 ch106000 ch107300 ch109500	Provision of farm accommodation under/over pass suitable for NMU use.	Avoidance of severance and maintenance of access.	At design/ construction	n/a	n/a
P3	ch207000 ch103100 ch108500	Provision of traffic signals to enable NMU crossing.	Addition of or improvement to safety measures.	At design/ construction	n/a	n/a
P4	ch203150-203300 ch202000-202550 ch201750-202000 ch200600-201250 ch100300-100800 ch100900-101000 ch102100-102650 ch103100-104000 ch103750-104000 ch107100-107300 ch107300-108000 ch109300-109500 ch109500-109800 ch109500-109850	Creation of NMU verge/track to maintain access.	Avoidance of severance and maintenance of access.	At design/ construction	n/a	n/a
P5	ch203150-203300 ch202000-202550 ch201750-202000 ch200600-201250 ch100300-100800 ch100900-101000 ch102100-102650 ch102850-102900 ch103100-104000 ch103750-104000 ch107100-107300 ch107300-108000 ch109300-109500 ch109500-109800 ch109500-109850	Diversion or alternate route.	Avoidance of severance and maintenance of access.	At design/ construction	n/a	n/a
P6	All	Safety provisions e.g. lighting of underpasses, equestrian	Avoidance of	At design/	n/a	n/a

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
		parapets, slip resistant surfacing, solid infill panels.	severance and maintenance of pedestrian and others access to community facilities.	construction		
P7	All areas subject to replanting.	Refer to relevant landscape and noise commitments for amenity mitigation measures.	Improve amenity value of journeys.	At design/ construction	n/a	n/a
Vehicle Travellers (Chapter 32)						
VT1	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.	During operation	n/a	n/a
VT2	All components of proposed 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.	Integral to scheme design	n/a	n/a
Disruption due to Construction (Chapter 33)						
D1	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 and construction phase.	None	Farmer / landowner

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
D2	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 and construction phase.	None	Farmer / landowner
D3	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 and construction phase.	None	Farmer / Business Proprietor
D4	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 phase.	Ongoing monitoring during construction to ensure effectiveness of measures. Supervision by engineer.	SEPA SNH
D5	All areas	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; Switching off machinery and vehicles not in use, particularly in areas close to properties; 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.	To minimise the generation of dust / emissions during construction.	Pre-construction and During construction	Ongoing monitoring during construction to ensure effectiveness of measures.	Local Authorities

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
D6	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 phase.	None	Local Authorities, Local Residents
D7	All areas	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 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.	To minimise the noise and vibration nuisance during construction work.	During construction	Noise monitoring to ensure noise level limits are achieved.	On receiving detailed construction methodology, more accurate noise predictions can be made
D8	All routes used by pedestrians and others in vicinity of proposed scheme	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. Exact details of such provision will be agreed between the Contractor and the Roads Authorities as part of the contractual	To avoid obstruction of routes used by pedestrians and others due to construction	Pre-construction and during construction	Ongoing monitoring during construction to ensure effectiveness of measures.	Scottish Executive Local Councils

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
		process.	activities.			
D9	All areas	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.	During construction	None	Scottish Executive
D10	All locations where proposed route ties in with existing routes	Lane closures will not be permitted during peak hours except in exceptional circumstances. 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.	During construction	None	Scottish Executive Local Councils
Policies and Plans (Chapter 34)						
Refer to specific Chapters of Environmental Statement.						