

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

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.

Aberdeen Western Peripheral Route
Environmental Statement 2007
Part C: Southern Leg

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)						
LU1s	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. In addition, the loss will be reduced by re-instatement plans, where appropriate, post construction.	Reduction	Scheme design	None envisaged	None
LU2s	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, 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
LU3s	See Appendix A22.1 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
LU4s	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	Construction Post-construction	Monitoring post construction to access flood risk	None
LU5s	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	Construction Post-construction	None envisaged	District Valuer
LU6s	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. Disturbance will be minimised, where practicable.	Reduction	Pre-construction Construction	None envisaged	None
LU7s	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	Pre-construction Construction	None envisaged	None
LU8s	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	Construction Post-construction	None envisaged	None
LU9s	See Appendix A22.1 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

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

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LU10s	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	Construction	None envisaged	None
LU11s	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 unless otherwise agreed with the occupier.	Reduction	Construction	None envisaged	None
LU12s	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 connections will be made to proposed road boundary treatment, i.e. wall or fence, as appropriate.	Reduction	Construction Post-construction	None envisaged	None
LU13s	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	Construction	None envisaged	None
LU14s	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 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
LU15s	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	Construction	None envisaged	SEERAD
LU16s	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	Construction	None envisaged	None
LU17s	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 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	Reduction and Offset	Construction Post-construction	None envisaged	None

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
		remaining remedial and new drainage works will be undertaken post construction.				
LU18s	See Appendix A22.1 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
LU19s	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	Pre-construction	None envisaged	None
LU20s	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 Offset	Scheme design Pre-construction	None envisaged	None
LU21s	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	Pre-construction	None envisaged	None
LU22s	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	Pre-construction	None envisaged	None
LU23s	See Appendix A22.1 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
LU24s	Refer to Table 35.1	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
LU25s	Refer to Table 35.1	Access will be maintained/ restored to these businesses.	n/a	Scheme design	n/a	None envisaged
Geology Soils Contaminated Land and Groundwater (Chapter 23)						
G1s	<ul style="list-style-type: none"> Crynoch (ch101400-101600) and Gairnhill (ch106750-107150) cuts 	Use of technological methodologies such as low explosive loading densities	Reduces magnitude of impact to low-negligible	Construction	n/a	n/a
G2s	<ul style="list-style-type: none"> 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	Construction	n/a	n/a

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
			pollution.			
G3s	All Southern Leg	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
G4s	All Southern Leg	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.	Operation	n/a	n/a
G5s	<ul style="list-style-type: none"> • eastern branch of road junction at ch101000 • ch101000-102000 • around ch103200 • around ch103300 • around ch104000 • ch106100-108000 • ch110900-111000 • around ch200550 • ch201300-202400 • ch202800-205200 	Road drainage to be lined.	Avoid contamination of groundwater in known areas of groundwater used as water supply.	Operation	n/a	none
G6s	All Southern Leg	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	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

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
			G8			
G7s	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
G8s	All Southern Leg	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
G9s	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	
G10s	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	
G11s	ch203700-204300	No further deepening/excavation of Jameston Ditch.	No increase of drainage from Hare Moss into Jameston Ditch.	Construction Operation	n/a	

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

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Water Environment (Chapter 24)						
W1s	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
W2s	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
W3s	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 (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.
W4s	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		
W5s	All locations	Dust release during blasting activities will be minimised by damping with water.	Minimise sediment release into the environment	Construction		
W6s	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		
W7s	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 local level, detailed contingency plan will be developed to ensure effective mitigation.	Minimise pollutant release into the environment	Construction		
W8s	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		
W9s	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		

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

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W10s	All locations	Any areas of contaminated land identified (Chapter 23 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. 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.
W11s	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.	Minimise sediment release into the environment	Construction		
W12s	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		
W13s	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		
W14s	All locations	An Ecological Clerk of Works (ECoW) will be on site during construction.	Ensure the implementation of appropriate environmental safeguards	Construction		
W15s	All locations	A detailed method statement will be agreed with SEPA prior to start of works on site. A method statement will be provided detailing proposed measures to mitigate release of suspended solids during CAR licensing process.	Compliance with SEPA's requirements for CAR Application process in order to minimise sediment and pollution release into environment from construction activities.	Pre-construction	n/a	SEPA

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
W16s	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
W17s	<ul style="list-style-type: none"> • ch205580 • Side road ch340 • A90 ch790 • ch207020 at the A956 road • ch204040 • ch203900 • ch203650 • Hare Moss • ch200990 • ch200100 • ch101470 • ch102670 • Side road ch163 • Pond access road ch270 • ch107440 	<p>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.</p> <p>If temporary culverts are required, they will be appropriately sized is 0.5% AEP (1:200 years flow) to ensure adequate passage of water during high flow conditions.</p>	Minimise sediment and pollution release into environment	Construction	n/a	n/a
W18s	<ul style="list-style-type: none"> • ch205580 • Side road ch340 • A90 ch790 • ch207030 at the A956 road • ch204040 • ch203900 • ch203650 • ch200990 • ch200100 • ch101470 • ch102670 • Side road ch163 • Pond access road ch270 • ch107440 	<p>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 (CIRIA 1997)). Culverts will be depressed invert to ensure continuity of bed sediments through the structure. Similarly sized bed material will be used to cover bottom of culvert. In areas of high scour potential, baffles will be installed within the culvert to dissipate flow energy and stabilise the bed sediments.</p>	<p>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 through structure.</p>	Operation	<p>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</p>	Details to be agreed with SEPA

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

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W19s	<ul style="list-style-type: none"> ch204601 ch200300 ch102830 ch106085 ch108757 ch800 (A90) 	Detention basins will be designed to attenuate flows of up to the 1:100 year (1% AEP) event and located outwith 0.5%AEP floodplain. They will have additional freeboard to hold run-off from the 1:200 year (0.5% AEP) event..	Minimise impact upon existing flood regime of the watercourse.	Operation	n/a	n/a
W20s	<ul style="list-style-type: none"> ch204601 (Hare Moss) ch200300 ch102830 ch106085 ch108757 ch800 (A90) 	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, CIRIA C648, CIRIA C521 and CIRIA C697. These will be located outwith 0.5%AEP floodplain.	Ensure existing water quality in receiving watercourses does not fail EQS.	Operation	Ongoing monitoring to be undertaken at key outfalls. Monitoring will include ecological (macroinvertebrate) and water quality sampling	Details to be agreed with SEPA
W21s	<ul style="list-style-type: none"> ch204601 (Hare Moss) ch200300 ch102830 ch106085 ch108757 ch800 (A90) 	Ensure construction of outfall is not conducted during periods of high flow	Minimise erosion of river banks	Construction	n/a	n/a
W22s	<ul style="list-style-type: none"> ch204601 ch200300 ch102830 ch106085 ch108757 ch800 (A90) 	Road drainage network will be maintained to ensure maximum efficiency. Maintenance regime will include: <ul style="list-style-type: none"> • maintenance of filter drains, filtration devices; detention basins, treatment ponds and their receiving watercourses, including 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 • 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 (macroinvertebrate) and water quality sampling	Details to be agreed with SEPA
W23s	<ul style="list-style-type: none"> 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 (0.5% AEP) flood levels (in	Minimised sediment release into watercourse during construction and	Construction Operation	n/a	n/a

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
		accordance with SPP7), and may accommodate flows of higher return period events due to their structural form.	minimise impact upon geomorphology and riparian zone during the operation by maintaining channel.			
W24s	<ul style="list-style-type: none"> • ch205580 • Side road ch340 • A90 ch790 • ch207030 at the A956 road • ch204040 • ch203900 • ch203650 • Hare Moss • ch200990 • ch200100 • ch101470 • ch102670 • Side road ch150 • Pond access road ch270 • ch107440 	<p>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.</p> <p>New banks of realignment should be appropriately graded</p>	<p>Offset straightening of channel and other culverting proposed on the watercourse by re-introducing geomorphological diversity.</p> <p>Limit bank erosion</p>	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
W25s	<ul style="list-style-type: none"> • ch205580 • Side road ch340 • A90 ch790 • ch207020 at the A956 road • ch204040 • ch203900 • ch203650 • Hare Moss • ch200990 • ch200100 	The diversion of watercourses or pumping away during construction of culverts/realignments will require measures to be implemented to reduce sediment release.	Minimise sediment and pollution 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

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

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	<ul style="list-style-type: none"> • ch101470 • ch102670 • Side road ch150 • Pond access road ch270 • ch107440 					
W26s	<ul style="list-style-type: none"> • ch106085 	Filter drains, a detention basin and 4 treatment ponds will be installed. Ponds will be located outwith the 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
W27s	<ul style="list-style-type: none"> • ch108757 	Filter drains, a detention basin, 3 treatment ponds and a swale will be installed. Ponds will be located outwith the 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
W28s	<ul style="list-style-type: none"> • ch204601 	Filter drains, a detention basin and 3 treatment ponds will be installed during construction. Ponds will be located outwith the 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
W29s	<ul style="list-style-type: none"> • ch800 (A90) 	Filter drains, a detention basin and 1 treatment pond will be installed during construction. Ponds will be located outwith the 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

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

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W30s	<ul style="list-style-type: none"> ch200300 	Filter drains, a detention basin and 2 treatment ponds will be installed prior to construction. Ponds will be located outwith the 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
W31s	<ul style="list-style-type: none"> ch102830 	A filter drain, detention basin and 2 treatment ponds will be installed prior to construction. Ponds will be located outwith the 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
W32s	<ul style="list-style-type: none"> ch205580 Side road ch340 A90 ch790 ch207030 at the A956 road ch204040 ch203900 ch203650 Hare Moss ch200990 ch200100 ch101470 ch102670 Side road ch150 Pond access road ch270 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
W33s	<ul style="list-style-type: none"> 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	Minimise the risk of sediment release and oil and chemical spillage Ensure minimal	Construction	Water quality/ecology monitoring before and after construction	To be agreed with SEPA prior to work commencement).

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
		over watercourse. Enclosed spraying when waterproofing from chemicals entering the watercourse.	concrete spillage and pollutant release Ensure minimal chemical spillage and pollutant release			
W34s	<ul style="list-style-type: none"> • ch200100 • ch100150 • ch101470 • ch102000 	In-channel 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
W35s	<ul style="list-style-type: none"> • ch204601 • ch106085 • ch107440 • (Hare Moss) • ch200100 • ch204040 • ch101470 • ch102000 • ch102670 • ch203900 • ch203650 	Lining of filter drains.	Prevent infiltration to groundwater	Operation	n/a	n/a
W36s	All locations	Works during periods of high flow and extreme low flow should be avoided.	Ensure correct health and safety is adhered to, and impact of pollution/sediment release is minimised.	Operation	n/a	n/a
W37s	<ul style="list-style-type: none"> • ch101470 	2-stage cross-sectional channel form, designed to accommodate flows up to 0.5% AEP (200 year flood), while containing a normal flow channel that is sized to contain the Qmed (50%AEP or 1 in 2 year flood).	Prevent erosion of realigned channel	Construction	n/a	n/a

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
W38s	<ul style="list-style-type: none"> • ch204601 • ch200300 • ch102830 • ch106085 • ch108757 • ch800 (A90) 	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 banks of the channel.	Limit potential for scour around culvert	Construction	n/a	n/a
W39s	<ul style="list-style-type: none"> • ch204601 • ch200300 • ch102830 • ch106085 • ch108757 • ch 800 (a90) 	The outfall must not project out into the channel and should not be located where flow converges with riverbanks.	Minimise erosion of river banks	Construction	n/a	n/a
W40s	<ul style="list-style-type: none"> • ch107305 • ch108585 • ch106175 • ch205955 	Network Culverts will be designed to 1.33 AEP (1 in 75yr) flood event.	Minimise impact upon existing flood regime of the watercourse	Operation	n/a	n/a
W41s	<ul style="list-style-type: none"> • ch205580 • Side road ch340 • A90 ch790 • ch207030 at the A956 road • ch204040 • ch203900 • ch203650 • ch200990 • ch200100 • ch101470 • ch102670 • Side road ch150 	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
W42s	<ul style="list-style-type: none"> • ch107305 • ch108585 • ch106175 • ch205955 	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

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
W43s	<ul style="list-style-type: none"> • ch205580 • Side road ch340 • A90 ch790 • ch207020 at the A956 road • ch204040 • ch203900 • ch203650 • ch200990 • ch200100 • ch101470 • ch102670 • Side road ch150 • Pond access road ch270 • ch107440 	<p>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.</p> <p>Batching or mixing in the vicinity of watercourses will be avoided.</p> <p>All pumps will have drip trays and be set away from watercourses.</p>	Ensure minimal pollutant release.	Construction	n/a	n/a
W44s	<ul style="list-style-type: none"> • ch205580 • Side road ch340 • A90 ch790 • ch207020 at the A956 road • ch204040 • ch203900 • ch203650 • ch200990 • ch200100 • ch101470 • ch102670 • Side road ch150 • Pond access road ch270 • ch107440 	<p>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.</p> <p>Batching or mixing in the vicinity of watercourses will be avoided.</p> <p>All pumps will have drip trays and be set away from watercourses.</p>	Minimise sediment and pollution release into the environment.	Construction	n/a	n/a

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
Ecology and Nature Conservation (Chapter 25)						
Generic Mitigation						
E1s	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	
E2s	All	ECoW to ensure all mitigation agreed is implemented.	Ensure of schedule of commitments are enforced.	Pre-construction		
E3s	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
E4s	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 Construction	n/a	n/a
E5s	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
E6s	All	Cover site safety issues including storage of potentially dangerous materials.	Prevents additional impacts to terrestrial and freshwater habitats.	Construction	n/a	n/a
E7s	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
E8s	All	Covering of pits or provision of mammal ramps to prevent animals	Prevents direct	Construction	n/a	n/a

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
		falling in holes and becoming trapped.	mortality.			
E9s	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
E10s	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
E11s	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
E12s	All	Night time working to be avoided where practicable.	Reduces disturbance to bats, otters and salmonids.	Construction	n/a	n/a
E13s	All	Carriageway lighting reduced or designed to be sympathetic to bats, otters, and salmonids.	Reduces disturbance to bats, otters and salmonids.	Scheme design Operation	n/a	n/a
E14s	All	Use of Sustainable Urban Drainage Systems (SUDS).	Prevents pollution incidents.	Scheme design Post-construction	n/a	n/a
E15s	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
Badger						
E16s	Where setts have been identified (confidential)	Sett exclusion and creation of replacement setts will be in accordance to SNH guidelines. Replacement setts at least 9 months prior to destruction of existing setts.	Prevents direct mortality and minimises disturbance	Pre-construction (9 mths)	As set out in SNH guidelines and in exclusion methodologies	SNH
E17s	Pre-identified locations (confidential)	Artificial setts will be provided to compensate for those setts that lie within the footprint of the scheme and need to be destroyed.	Replaces destroyed setts	Pre-construction	As set out in SNH guidelines and methodology	SNH
E18s	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	Prevent direct mortality and reduce habitat	Construction	n/a	n/a

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
		otters and bats.	fragmentation.			
E19s	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
Bats						
E20s	To be determined	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
E21s	To be determined	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
E22s	To be determined	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
E23s	To be determined	Construction activities will be timed to avoid periods when bats are sensitive to disturbance, i.e. summer and winter. Trees to be felled and buildings to be demolished will be inspected immediately prior to removal by licensed ecologists and a precautionary approach to their removal adapted.	Prevents direct mortality to bats	Pre-construction Construction	n/a	n/a
Breeding and Wintering Birds						
E24s	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
E25s	<u>Habitat Areas</u> S6, S10, S13, S16, S28, S42, S46.	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
E26s	All	Bird boxes will be erected in pre-identified locations.	Compensates for habitat loss.	Construction	n/a	n/a
E27s	All.	Generic mitigation including timing of works should minimise disturbance during construction, while ecological and landscape planting as per terrestrial habitats.	Mitigation will reduce operational Disturbance, Fragmentation and RTA impacts.	Construction	n/a	n/a
Otters						
E28s	<u>Habitat Areas</u> S2, S6, S10, S13, S16, S19, S20, S22-24, S27-29,	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	Prevent direct mortality.	Pre-construction	n/a	n/a

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
	S31, S32, S38-40, S42-45	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.				
E29s	All	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
E30s	<u>Habitat Areas</u> S2, S6, S10, S13, S16, S19, S20, S22-24, S27-29, S31, S32, S38-40, S42-45	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
E31s		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
E32s		Construction of buried culvert or underpass structures with adequate clearance, maintenance of riparian zone and/or mammal ledges below the road scheme. Ensure otters can pass without having to climb up to the road surface during high water levels.	Minimises the impact of habitat fragmentation.	Construction	n/a	n/a
E33s	S28	High span bridge with set-back piers to cross River Dee; Commuting route to be maintained on both banks.	Minimises the impact of habitat fragmentation.	Construction	n/a	n/a
Red Squirrel						
E35s	<u>Habitat Areas</u> S7, S15, S18, S20, S24, S34, S35, S43	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
E36s		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						
E37s	<u>Habitat Areas</u>	Areas identified as being well connected, with high to moderate value to reptiles to be lost or severed will be made unsuitable for	Reduces disturbance and	Prior to site clearance	n/a	n/a

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
	S3, S10, S15, S16, S18, S22, S23, S24, S31, S39,	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.	direct mortality of reptiles.			
Amphibians						
E38s	Habitat Areas S3, S9, S13, S15, S22, S23, S24, S29, S40, S43,	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
E39s	All	Compensatory habitat for protected species will mitigate for habitat loss to amphibians also, whilst underpasses to reduce fragmentation will be designed to be suitable for amphibian use.	Reduces disturbance and fragmentation of amphibian populations	Construction	n/a	n/a
Water Vole						
	No water vole are known to exist in the Southern Leg					
Fish and Freshwater Habitats						
E40s	Habitat Areas F27, S18, S22,S20, S24, S28, S32, S33, S35, S36, S40, S41, S42, S44	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
E41s	Habitat Areas F27, S18, S22,S20, S24, S28, S32, S33, S35, S36, S40, S41, S42, S44	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
E42s	All	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

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
E43s	All	Any lights on site compounds or during construction will be directed away from water.	Prevents disturbance of salmonids	Construction	n/a	n/a
E44s	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
E45s	Habitat Areas F27, S18, S22, S20, S24, S28, S32, S33, S35, S36, S40, S41, S42, S44	Realignments to include meander bends, habitat enhancement and retention of similar river lengths where feasible.	Provides a more natural setting, reduces habitat fragmentation	Construction	n/a	n/a
E46s	Habitat Areas F27, S18, S22, S20, S24, S28, S32, S33, S35, S36, S40, S41, S42, S44	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						
E47s	Agricultural fields west of the A90. Habitat area S2	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
E48s	ch206100 – 206320 Habitat Area S3	Roadside planting for landscape and ecological purposes.	Planting to encourage use of underbridge by bats.	Construction	n/a	n/a
E49s	ch206030-206100. Habitat Area S3	Replacement pond with replacement wet woodland for ecology purposes only.	Mitigates for loss of existing habitat for amphibians	Construction Post-construction	n/a	n/a

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
			and bats.			
E50s	ch205200-206000 Habitat Area S6.	Planting for landscape and ecological purposes.	Mitigates for impacts on red squirrels and habitats and reduces fragmentation.	Construction Post-construction	n/a	n/a
E51s	ch205400 Habitat Area S7	Re-stocking of felled woodland to mitigate impacts to red squirrel mitigates for habitat loss and increase the nature conservation value of felled woodland. Generic mitigation reduces potential pollution.	Compensates for loss of existing habitat, and reduces fragmentation for breeding birds, terrestrial habitat and red squirrel.	Construction Post-construction	n/a	n/a
E52s	ch204650 Habitat Area S10	Roadside planting and replacing habitat loss through siting of detention basins will be mitigated by offset creation of wetlands.	Planting to encourage use of overbridge by bats.	Construction Post-construction	n/a	n/a
E53s	ch202670-202700 Habitat Area S12	Landscape planting to extend the woodland to the roadside.	Compensates for loss of existing habitat and reduces fragmentation for protected species.	Construction Post-construction	n/a	n/a
E54s	ch203150-203275 Habitat Area S13	Additional roadside planting to increase nature conservation value.	Planting to encourage use of overbridge by bats.	Construction Post-construction	n/a	n/a
E55s	ch202000-202100. Habitat Area S14	Standard tree planting for bats to connect S14 with woodland to the north of Greenloaning.	Compensates for loss of existing habitat and reduces fragmentation for bats	Construction Post-construction	n/a	n/a
E56s	ch201110 Habitat Area S15	Woodland extended to roadside by landscape planting.	Compensates for loss of existing habitat and reduces fragmentation for protected species.	Construction Post-construction	n/a	n/a

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
E57s	ch201300-201750 Habitat Area S16	Landscape planting.	Compensates for loss of existing habitat and reduces fragmentation for protected species.	Construction Post-construction	n/a	n/a
E58s	ch100000-100100. Habitat Area S19	Landscape planting.	Compensates for loss of existing habitat and reduces fragmentation for protected species.	Construction Post-construction	n/a	n/a
E59s	ch100200-100800 and ch100990. Habitat Area S20.	Landscape planting.	Compensates for loss of existing habitat and reduces fragmentation for protected species.	Construction Post-construction	n/a	n/a
E60s	ch100150-100200. Habitat Area S22.	Wet woodland planting for ecological purposes only.	Planting to encourage use of underpass by bats.	Construction Post-construction	n/a	n/a
E61s	ch101500-101900. Habitat Area S24	Woodland planting.	Compensates for loss of existing habitat and reduces fragmentation for protected species.	Construction Post-construction	n/a	n/a
E62s	ch102150-102850. Habitat Area S29	Ecological planting	Compensates for loss of existing habitat and reduces fragmentation for protected species.	Construction Post-construction	n/a	n/a
E63s	ch102200-103250. Habitat Area S30	Planting for landscape purposes to extend woodland.	Compensates for loss of existing habitat and reduces fragmentation for protected species.	Construction Post-construction	n/a	n/a
E64s	Habitat Area S31	Wildlife bridge plus planting.	Compensates for	Construction	n/a	n/a

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
			loss of existing habitat and reduces fragmentation for protected species.	Post-construction		
E65s	Habitat Area S32	Planting of extra-heavy standard trees, plus roadside mixed woodland.	Compensates for loss of existing habitat and reduces fragmentation for protected species.	Construction Post-construction	n/a	n/a
E66s	ch103800-104100	Roadside planting for landscape and ecology purposes to connect Guttrie Hill to S32.	Compensates for loss of existing habitat and reduces fragmentation for protected species.	Construction Post-construction	n/a	n/a
E67s	ch103980-104550 and ch104680-104800. Habitat Area S36	Roadside planting 3.9ha and woodland to the north (0.3ha at) to connect to the wooded habitats of S37.	Compensates for loss of existing habitat and reduces fragmentation for protected species.	Construction Post-construction	n/a	n/a
E68s	ch104800-104900. Habitat Area S37	Planting for landscape and ecological purposes.	Compensates for loss of existing habitat and reduces fragmentation for protected species.	Construction Post-construction	n/a	n/a
E69s	ch104900-105600. Habitat Area S37	Planting for landscape and ecological purposes.	Compensates for loss of existing habitat and reduces fragmentation for protected species.	Construction Post-construction	n/a	n/a
E70s	ch106000-106500. Habitat Area S40	Planting at ch106000 and riparian woodland and connecting habitat areas of S39 and S42.	Compensates for loss of existing habitat and reduces	Construction Post-construction	n/a	n/a

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
			fragmentation for protected species.			
E71s	ch106500-106580. Habitat Area S42	Planting for landscape and ecological purposes.	Compensates for loss of existing habitat and reduces fragmentation for protected species.	Construction Post-construction	n/a	n/a
E72s	ch106500-106800 Habitat Area S43 .	Planting for landscape and ecological purposes.	Compensates for loss of existing habitat and reduces fragmentation for protected species.	Construction Post-construction	n/a	n/a
E73s	Habitat Area S44	Woodland planting for landscape and ecological purposes.	Compensates for loss of existing habitat and reduces fragmentation for protected species.	Construction Post-construction	n/a	n/a
E74s	ch107350-107700. Habitat Area S45	Planting for landscape and ecological purposes.	Compensates for loss of existing habitat and reduces fragmentation for protected species.	Construction Post-construction	n/a	n/a
E75s	ch108550-109150. Habitat Area S46	Planting for landscape and ecological purposes.	Compensates for loss of existing habitat and reduces fragmentation for protected species.	Construction Post-construction	n/a	n/a
E76s	ch109500. Habitat Area S47	Planting for landscape and ecological purposes.	Compensates for loss of existing habitat and reduces fragmentation for birds, bats and badger.	Construction Post-construction	n/a	n/a
E77s	ch108600-108800 Habitat Area S47	Planting at detention ponds for ecological and landscape purposes.	Compensates for loss of existing habitat and	Construction Post-	n/a	n/a

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
			reduces fragmentation for protected species.	construction		
E78s	ch109500-109900. Habitat Area S48	Planting of species-rich grassland.	Compensates for loss of existing habitat and reduces fragmentation for protected species.	Construction Post-construction	n/a	n/a
E79s	ch207300 - 206850 ch206800 - 205900 ch205900 - 205425 ch204200 - 202675 ch202675 - 202400 ch202400 - 202100 ch202100 - 201500 ch201500 - 200825 ch200825 - 200600 ch200600 - 102250 ch102250 - 102525 ch102525 - 102850 ch103550 - 104975 ch104975 - 105650 ch105650 - 105900 ch105900 - 106950 ch106950 - 107250 ch107250 - 107600 ch107600 - Northern leg	Provision of badger / otter proof fencing.	Prevents RTAs and reduces habitat fragmentation for badgers and otters	Construction Post-construction	Refer to Ecology Chapter and Appendix Reports for details of monitoring requirements	n/a
E80s	Culverts Badgers and otters ch207030, ch790, ch340, ch205580, ch204020, ch203650, ch200990, ch200100, ch101470, ch163, ch102670, ch107440	Provision of multi-use depressed invert box culverts. Landscape planting will be designed to encourage usage.	Prevents RTAs and reduces habitat fragmentation for otters, badgers and bats	Scheme design Construction Post-construction	Refer to Ecology Chapter and Appendix Reports for details of monitoring requirements	n/a

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
	Badgers ch203900 Bats					
E81s	Overbridges Badgers ch206350, ch204620, ch203150, ch202070, ch200630, ch102940, ch104770, ch109540, ch110525 All species: Wildlife Bridge at ch100600	Provision of a multi-use bridge structures. Landscape planting will be designed to encourage usage.	Prevents RTAs and reduces habitat fragmentation for otters, badgers and bats and squirrel	Scheme design Construction Post-construction	Refer to Ecology Chapter and Appendix Reports for details of monitoring requirements	n/a
E82s	Mammal Underpass Badgers ch206000, ch201300, ch100970, ch102000, ch105970, ch107320, ch110150	Provision of multi-use mammal underpasses. Landscape planting will be designed to encourage usage.	Prevents RTAs and reduces habitat fragmentation for badgers and bats.	Scheme design Construction Post-construction	Refer to Ecology Chapter and Appendix Reports for details of monitoring requirements	n/a
E83s	Underbridge 100300, 106500,	Provision of multi-use underbridge. Landscape planting will be designed to encourage usage.	Prevents RTAs and reduces habitat fragmentation for bats and badgers.	Scheme design Construction Post-construction	Refer to Ecology Chapter and Appendix Reports for details of monitoring requirements	n/a
Landscape (Chapter 26)						
L1s	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 landscape elements, features and sensitive sites.	Scheme design Construction	n/a	n/a

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
L2s	Throughout the proposed 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
L3s	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	Scheme design Construction	n/a	n/a
L4s	Throughout the proposed 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 replacement of field enclosures.	Construction	n/a	Local Authority and maintaining authority
L5s	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, 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
L6s	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.	Scheme design Construction	Monitoring of planting establishment during aftercare period	n/a
L7s	Throughout the proposed 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
L8s	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 visual impact of	Scheme design Construction	n/a	n/a

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
			proposals.			
L9s	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.	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L10s	Throughout the proposed scheme.	Public Rights of Way: Reinstate links to path network.	To reduce impact on public right of way route severance and maintain links to the countryside.	Scheme design Construction	n/a	Local Authority and maintaining authority
Loirston (ch206100-207200)						
L11s	Western section of realigned A956 / beginning of AWPR ch207000-207200.	Mixed woodland planting to the southern edge of the road. Standard tree planting adjacent to northbound and eastbound carriageways.	To screen the road from properties to the south of the AWPR.	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L12s	Northeastern slip road to A90 and along northern section of AWPR Ch206820-206920	Mixed woodland planting.	To screen the road from properties to the northeast of the junction.	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L13s	Cove Road junction ch206950.	Easing of embankment slopes to 1:6. Extra heavy standard tree planting around junction.	To improve integration with surrounding and allow potential return to agriculture.	Scheme design Construction	n/a	Liaison with local land owners / stakeholders
L14s	Charleston Junction A90 eastern slip roads continuing along AWPR at ch2069800-206950.	Drystone wall construction.	To integrate with and reinforce existing field pattern and create gateway feature.	Scheme design Construction	n/a	n/a
L15s	Charleston Junction northwestern slip road to	Mixed and scrub woodland planting.	To reinforce transition between	Scheme design Construction	Monitoring of planting	Local Authority and maintaining authority

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
	A90 and southwestern slip road adjacent to AWPR.		character types and screen junction and cutting slopes.		establishment during aftercare period	
L16s	Embankments between A90 and slip roads at Charleston Junction.	Species rich grass planting. Extra heavy standard tree planting by slip road junctions with AWPR.	To blend the junction with the surrounding landscape.	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L17s	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.	Scheme design Construction	n/a	Liaison with local land owners / stakeholders
L18s	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.	Scheme design Construction	n/a	Local Authority and maintaining authority
L19s	Access road to Bothie-Brig and around Hatton Overbridge	Mixed, scrub and broadleaf planting on embankments and cuttings	To provide screening, soften the cuttings and replace lost woodlands	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L20s	South of road at ch206250-206350.	Mixed woodland planting.	To integrate with existing woodland.	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L21s	North of road at ch206050-206250.	Pond and mosaic of wetland scrub and mixed woodland.	To offset habitat loss, fragmentation and impacts on protected species.	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
Duff's Hill (ch205200-206100)						
L22s	Along north and south of AWPR at ch205250-	Mixed woodland planting.	To replace lost vegetation,	Scheme design Construction	Monitoring of	Local Authority and

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
	206050.		enhance woodland edge and increase biodiversity.		planting establishment during aftercare period	maintaining authority
Hare Moss (ch202200-205200)						
L23s	South of the AWPR at ch203300-204600 continuing north and south of AWPR at ch204600-205200; either side of realigned Causeyport Road south and north of the AWPR.	Easing of embankments.	To integrate the roads with the surrounding landscape and allow the potential return to agriculture.	Scheme design Construction	n/a	Liaison with local land owners / stakeholders
L24s	Around treatment and detention ponds north of the AWPR at ch204500-204650.	Scrub woodland planting.	To improve integration with surroundings and provide screening for nearby properties.	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L25s	North and south of the road in various sections ch202200-205200.	Drystone wall construction.	To screen and integrate with landscape pattern and to act as noise barriers to nearby properties.	Scheme design Construction	n/a	n/a
L26s	South of the road on embankments at ch203550-204220.	Scrub, mixed and standard tree planting.	To provide screening to nearby properties.	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L27s	North and south of the road on embankments to Bishopston Accommodation Overbridge at ch203150-203250.	Easing of embankments.	To screen and integrate with landscape pattern.	Scheme design Construction	n/a	n/a
L28s	North and south of the road on embankments to Bishopston Accommodation Overbridge at ch203150-	Scrub, mixed and standard tree planting.	To screen and integrate with landscape pattern and encourage	Scheme design Construction	Monitoring of planting establishment during aftercare	Local Authority and maintaining authority

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
	203250.		usage by bats.		period	
L29s	South of the road at ch202900-203150 and ch 202600.	Broadleaf and mixed woodland planting.	To screen properties and integrate with landscape pattern.	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L30s	North of road at ch202580-202680	Mixed woodland planting.	To provide screening to nearby properties.	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L31s	South of the road at ch202300-202550	Scrub woodland planting.	To visually separate the AWPR from the minor road, provide screening for nearby property and soften the cutting	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L32s	North of the road at ch202200-202300	Reinstatement of stone wall and planting of coniferous trees.	To retain distinctive landscape feature	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
Merchant's Croft (ch201100-202200)				Scheme design Construction	Monitoring of planting establishment during aftercare period	At design / During construction
L33s	South of road at ch201100-201300; ch201440-750; ch201820-202050 and north of road at ch201300-201450; 201500-201700.	Scrub, feathered and standard tree planting.	To soften appearance of cuttings, replace lost vegetation, visually separate AWPR from realigned track and tie in with existing scrub.			
L34s	Along realigned Lochton – Auchlunies road alongside overbridge ch202050	Mixed, scrub and standard tree planting.	To integrate overbridge into landscape and provide screening for nearby	Scheme design Construction	Monitoring of planting establishment	Local Authority and maintaining authority

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
			properties. Standard trees to provide connectivity for bats and birds.		during aftercare period	
L35s	North of road at ch201150	Mixed woodland planting	To provide screening to nearby properties.	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
Blaikiewell (ch200000-201100 and 100000-100100)						At design / During construction
L36s	North of the road at ch200000-200110 continuing at ch100000-100060.	Extra heavy standard tree planting.	To screen Cleanhill Junction and provide intermittent views to surrounding woodland landscape.	Scheme design Construction	Monitoring of planting establishment during aftercare period	
L37s	North of the road at ch200750-201000	False cutting with grading out.	To provide screening for nearby properties	Scheme design Construction	n/a	n/a
L38s	Southeast corner of Cleanhill Junction ch200000-200100, northwest ch100000-100100 and northeast of the junction at ch100060-100100.	Scrub woodland planting.	To screen and integrate Cleanhill Junction into the surrounding landscape.	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L39s	South of the road at ch201100-201500 around ponds	Scrub, mixed and riparian woodland planting.	To screen views to the ponds and pond access road and provide biodiversity	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L40s	North of the road at ch200450 running north-west along Blaikiewell Burn	Riparian woodland planting	To provide screening to nearby properties	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L41s	Along realigned Lochton-Nigg Road northeast of	Mixed and scrub woodland planting.	To screen views of overbridge,	Scheme design Construction	Monitoring of planting	Local Authority and maintaining authority

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
	Burnhead Cottages (continuing along the AWPR Ch200500-200600) and south of the Lodge.		replace lost vegetation and link existing woodland.		establishment during aftercare period	
L42s	North and south of the road at ch200650-201100	Feathered tree, mixed and scrub woodland planting	To provide screening to nearby properties	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
Craigingles (ch100100-101400)						
L43s	West and east of the AWPR at ch100200-100850.	Mixed, scrub and broadleaf woodland planting immediately above cuttings.	To replace lost vegetation and minimise 'scar' across hillside.	Scheme design Construction	Monitoring of planting establishment during aftercare period	At design / During construction
L44s	Along Blaikiewell Burn , at either side of Blaikiewell Burn Underbridge ch100140-100160	Riparian and scrub woodland planting.	To replace lost vegetation at burn and encourage usage by bats.	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L45s	Along Maryculter Road, at either side of Maryculter Road underbridge at ch 100200	Standard and extra heavy standard tree planting.	To replace lost vegetation and encourage usage by bats.	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L46s	Around Kingcausie / Eastland Underbridge at ch100900-100980	Mixed woodland and extra heavy standard tree planting.	To reflect local planting, integrate underpass into landscape and encourage usage by bats.	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L47s	East of AWPR at ch101000-101150 and west of AWPR at ch101000-101250.	Scrub, mixed and extra heavy standard tree planting.	To provide screening for nearby properties and integrate with existing planting.	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
Netherly / Altries (ch101400-101900)						
L48s	East of the road at ch101500-101850 and west of the road at ch1017000-	Mixed, broadleaf and extra heavy standard tree planting.	To provide screening for	Scheme design	Monitoring of planting	Scheme design

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
	101850.		nearby properties, integrate with existing planting and replace lost vegetation.	Construction	establishment during aftercare period	
L49s	West of the road at ch101550-101750	Drystone wall construction.	To integrate with surrounding landscape features and provide screening and noise reduction.	Scheme design Construction	n/a	n/a
Dee Valley (ch101900-102800)						
L50s	On both sides of the AWPR at ch102250-102800.	Mixed, broadleaf, scrub and riparian woodland planting.	To screen the road from nearby properties and the B979.	Scheme design Construction	Monitoring of planting establishment during aftercare period	At design / During construction
L51s	Between AWPR and B979 at ch102100-102800.	Area upfilled and graded out.	To minimise the visual impact of large embankment from the B979 and surrounding properties.	Scheme design Construction	n/a	n/a
L52s	Around ponds at ch102700-102800	Broadleaf and riparian woodland planting.	To integrate with surrounding landscape features, increase biodiversity and provide screening for nearby properties	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
Urban Type: Milltimber (ch102800-103600)						
L53s	East and west of AWPR at ch102800-103250, continuing east of the AWPR at ch103250-103600.	Mixed and broadleaf woodland planting.	To replace lost garden and woodland trees and screen views	Scheme design Construction	Monitoring of planting establishment during aftercare	At design / During construction

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
			for properties in Milltimber.		period	
L54s	West of new link road ch103150-103600.	Standard tree planting.	To integrate with existing hedgerow pattern.	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L55s	East of new link road between link road and main alignment	Drystone wall construction.	To integrate with surrounding landscape features and provide screening and noise reduction.	Scheme design Construction	n/a	n/a
Craigton (ch103600-104400)						At design / During construction
L56s	East of the AWPR at ch103600-104000 and west of the AWPR at ch103800-104000 immediately south of Milltimber Junction towards the top of, and above the cutting.	Mixed woodland planting.	To screen junction, tie in with existing plantations and shelterbelt and integrate with bridge and junction structure.	Scheme design Construction	Monitoring of planting establishment during aftercare period	
L57s	West of link road ch103600-104000.	Broad leaf woodland and extra heavy standard tree planting.	To integrate with existing hedgerow pattern.	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L58s	East of new link road between link road and main alignment following road round towards the overbridge.	Drystone wall construction.	To integrate with surrounding landscape features and provide screening and noise reduction.	Scheme design Construction	n/a	n/a
Beanshill (ch104400-106000)						At design / During construction
L59s	North of overbridge on east and west of Milltimber junction and AWPR.	Mixed and scrub woodland and feathered tree planting.	To screen junction, tie in with existing plantations and	Scheme design Construction	Monitoring of planting establishment during aftercare	

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
			shelterbelt and integrate with bridge and junction structure.		period	
L60s	West and east of the AWPR and around new Contlaw Road Overbridge and realigned minor road junctions at ch104650-104850.	Mixed woodland and standard tree planting.	To screen properties and connect woodland fragments for birds and bats.	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L61s	West of mainline from ch105150-105600 and east of mainline at ch105650-105800	Scrub and coniferous woodland planting.	To integrate with existing scrub / coniferous patches and connect fragmented woodland.	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L62s	East of AWPR at ch104550-104850 around Contlaw Road Overbridge and minor roads; and east of AWPR at ch105350-106000.	Drystone wall construction.	To provide screening and tie into existing landscape pattern.	Scheme design Construction	n/a	n/a
L63s	East and west of the AWPR and along either side of the Beanshill Accommodation Underpass and realigned track.	Scrub woodland planting.	To connect woodland fragments for protected wildlife species.	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
Broomfold (ch106000-107700)						
L64s	West and east of the AWPR at ch106000-107000 continuing to ch107100 to the west.	Mixed, scrub and broadleaf woodland planting.	To tie in with existing woodland and screen close views from properties.	Scheme design Construction	Monitoring of planting establishment during aftercare period	At design / During construction
L65s	Along realigned Gairn Burn and around detention / treatment ponds at ch 106050-106250 and ch104450-106600 to the west of the AWPR	Riparian scrub woodland planting.	To replace lost scrub, integrate into the surrounding landscape and encourage	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
			protected wildlife.			
L66s	West of the AWPR at ch107100-107300 and east of the AWPR at ch106750-107300.	Drystone wall construction.	To provide screening and tie into existing landscape pattern.	Scheme design Construction	n/a	n/a
L67s	West and east of the AWPR at ch107300-107700.	Mixed woodland planting and area of scrub woodland planting.	To tie in with existing woodland and screen close views from properties.	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L68s	West of main alignment and to the west of access track at ch107300-107700	Mixed, scrub and standard tree planting.	To tie in with existing patterns and screen close views from properties.	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
Fifeshill / Auchlea (ch107700-108500) and Clinterly / West Brimmond (ch108500-109000)						
L69s	Along the top of northbound slip road cutting and along the top of the realigned Criglug – Broomhill road to the south of South Kingswells Junction continuing along the A944 for approximately 100 meters to the east and west of the junction.	Drystone wall construction.	To provide screening, tie into existing landscape pattern and mitigate combined impacts at junction.	Scheme design Construction	n/a	At design / During construction
L70s	East of the AWPR slip road at ch108350-108450; and at ch108550-108900. West of the mainline and n/b slip road at ch108800-109000.	Mixed woodland planting.	To enclose the junction and screen views from the Friends Burial Ground and nearby properties.	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L71s	Around South Kingswells Junction in the centre of the roundabout, on southern, western and eastern	Groups of standard tree planting.	To filter views of the junction, and mitigate junction in an appropriate	Scheme design Construction	Monitoring of planting establishment during aftercare	Local Authority and maintaining authority

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
	approaches.		manner by identifying urban connection		period	
L72s	In the centre of the roundabout	Earth mounding in horseshoe shape.	To mitigate the impact of the AWPR embankment.	Scheme design Construction	n/a	n/a
L73s	Around the ponds and adjacent to realigned entrance to Kingsfield Industrial estate	Riparian and scrub woodland planting.	To screen views to the ponds and towards the junction from the industrial estate.	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
Kingswells (ch109000-111300)						At design / During construction
L74s	West of the AWPR at ch109000-109150; 109800; and east of AWPR at ch109300-109500 and 109800.	Mixed woodland planting.	To tie in with existing woodland and screen close views from properties.	Scheme design Construction	Monitoring of planting establishment during aftercare period	
L75s	East of the AWPR at ch109850-110400	False cutting and mixed woodland planting (locally graded to ensure retention of existing pond and maximum existing tree cover).	To screen views from Kingswells and Fairly Home Farm.	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L76s	West of the AWPR at ch109900-110200	Graded out embankment and mixed and scrub woodland planting.	To screen views from properties to the west.	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L77s	Realigned access tracks east and west of the main line and Fairley Cloghill Accommodation Overbridge ch109300-109800; and along realigned road east and west of the Derbeth Overbridge ch110530; and west of AWPR at ch110650-110800	Scrub woodland and standard tree planting.	To screen views, tie in with existing vegetation and increase connectivity for protected wildlife species	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L78s	East of AWPR at ch108900-109250; and at	Drystone wall construction	To provide screening, replace	Scheme design Construction	n/a	n/a

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
	ch110800-111200; and along realigned road to the west of Derbeth Overbridge		lost drystone walling and tie into existing landscape pattern.			
L79s	East of the AWPR at ch110400-110500	Scrub woodland planting.	To mitigate against habitat loss.	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
L80s	West of the AWP above the cutting at ch110550-110650; and 110850-111200 and east of the AWPR above the rock cutting at ch110550-110800	Coniferous woodland planting.	To screen views, tie in with existing woodland and replace lost habitat for protected wildlife species.	Scheme design Construction	Monitoring of planting establishment during aftercare period	Local Authority and maintaining authority
Visual (Chapter 27)						
V1s	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.	Scheme design Construction	n/a	Liaison with Local Authority and maintaining authority
V2s	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.	Scheme design Construction	n/a	n/a
Cultural Heritage (Chapter 28)						
CH1s	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 mitigation works.	Pre-construction	Overseen and monitored by Historic Scotland	Designers Archaeological Consultant

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

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					
CH2s	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	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

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
	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 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					

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
	ch101250 Site 519 Nether Beanshill Sheep Fold ch104135 Site 520 Nether Beanshill Dyke ch104125 Site 522 Silverburn Bridge ch106500					
CH3s	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	Construction (top soil stripping)	Overseen and monitored by Historic Scotland	Designers Archaeological Consultant
CH4s	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
CH5s	Site 151 Glenburnie Manse Site 157 Eastland House Sites 176 & 184 Kingcausie House, Sundial 1 & 2 Site 185 Kingcausie House Site 191 Milton Bridge Site 193 Mill Inn Site 278 Kippie Lodge, Garden Site 279 Kippie Lodge Site 306 Peterculter, Old Parish Site Church Site 309 Beans Hill Complex Site 431 Friends' Burial Ground Site 444 Consumption Dykes	Introduce a combination of broadleaved woodland, mixed woodland and shrub planting. Drystone walling and false cutting to be used as appropriate.	To minimize visual impact on setting of known sites of cultural heritage significance.	Construction Operation	None	Designers Landscape Architect

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
	Site 448 Longcairn Site 457 Cloghill Sundial Site 458 Cloghill House Site 460 Cloghill Offices Site 472 Fairley House					
Air Quality (Chapter 29)						
n/a	n/a	n/a	n/a	n/a	n/a	n/a
Traffic Noise and Vibration (Chapter 30)						
N1s	ch200650 – 200950 ch109900 – 110300	False cuttings – Kemehede, Cleanhill and Fairley Home Farm, Kingswells	Attenuate noise generated by traffic on the proposed scheme in these areas.	Scheme design	n/a	n/a
N2s	N2	All road sections	Use of low noise road surfacing.	Reduction in noise generated by traffic travelling on the proposed scheme.	n/a	n/a
N3s	Newtonsyde & Novara, Nigg, AB12 3LL	Noise barrier installation. 2 no. barriers with height of 1.0m and 2.8m proposed based on current design.	To reduce noise levels to achieve 59.5dB threshold.	Construction	n/a	n/a
N4s	Midfield Cottage, Portlethen, AB12 4RT	Noise barrier installation. Barrier height of 1.0m proposed based on current design.	As Above	As Above	n/a	n/a
N5s	Heatherknowe, Blairs, AB12 5YA	Noise barrier installation. Barrier height of 2.2m proposed based on current design.	As Above	As Above	n/a	n/a
N6s	Whitestones, Blairs, AB12 5YT	Noise barrier installation. Two barriers (2.7m and 2.0m height) proposed based on current design.	As Above	As Above	n/a	n/a
N7s	Blair-Crynoch, Blairs, AB12 5YX	Noise barrier installation. Barrier height of 1.0m proposed based on current design.	As Above	As Above	n/a	n/a
N8s	Eastlands (Eastland Cottage and Eastland House), Maryculter, AB12 5FS	Noise barrier installation. Barrier height of 2.0m proposed based on current design.	As Above	As Above	n/a	n/a
N9s	Corbie Lodge and Corbie Lynn, Maryculter, AB12	Noise barrier installation. Barrier height of 1.2m proposed based on current design.	As Above	As Above	n/a	n/a

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
	5FT					
N10s	Camphill, Milltimber, AB13 0AP and The Gables, Milltimber, AB13 0AA	Parapets 1.2m high on both sides of River Dee bridge proposed based on current design. Noise barrier installation. Barrier height of 4.0m proposed based on current design: Dee crossing to Old Deeside Line Walk Noise barrier installation. Barrier height of 2.5m proposed based on current design: south verge A93 junction.	As Above	As Above	n/a	n/a
N11s	Approx 10 properties (Milltimber Brae/Culterhouse Road/North Deeside Road)	Noise barrier installation. Three barriers (2.5m, 2.0m and 1.5m height) based on current design: Station Road south, returning along North Deeside Line. Noise barrier installation. Three barriers (2.5m, 1.5m, 2.5m and 3.0m height) proposed based on current design: A93 to Culterhouse Road. Noise barrier installation. Barrier height of 1.0m proposed based on current design: east verge of junction link road. Noise barrier installation. Barrier height of 1.2m proposed based on current design:north of Culterhouse Road.	As Above	As Above	n/a	n/a
N12s	Hillview	Noise barrier installation. Two barriers with height of 1.5m proposed based on current design.	As Above	As Above	n/a	n/a
N13s	Gairmpark	Noise barrier installation. Barrier height of 2.5m proposed based on current design. Parapets 2.0m high on both sides of bridge at Silverburn proposed based on current design.	As Above	As Above	n/a	n/a
N14s	East Silverburn	Noise barrier installation. Barrier height of 2.5m proposed based on current design.	To reduce noise levels to achieve <1dB above 59.5dB threshold.	As Above	n/a	n/a
N15s	Craiglug, Brackendale and Aonachrigh	Noise barrier installation. Barrier height of 3.0m proposed based on current design.	To reduce noise levels to achieve 60dB	As Above	n/a	n/a

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
N16s	Moss-side of Auchlea (including Kingswood Learning Centre)	Noise barrier installation. Barrier height of 1.6m proposed based on current design.	To reduce noise levels to achieve 59.5dB threshold.	As Above	n/a	n/a
N17s	Tigh-na-brauaich	Noise barrier installation. Barrier height of 2.6m proposed based on current design.	As Above	As Above	n/a	n/a
N18s	Benview and Lythewood	Noise barrier installation. Barrier height of 2.8m proposed based on current design.	As Above	As Above	n/a	n/a
N19s	Westholme	Noise barrier installation. Barrier height of 1.7m proposed based on current design.	As Above	As Above	n/a	n/a
N20s	West Hatton and Highfield	Noise barrier installation. Barrier height of 3.0m proposed based on current design.	As Above	As Above	n/a	n/a
N21s	The Steadings and Woodside of Cloghill	Noise barrier installation. Two barriers (3.5m and 3.0m height) proposed based on current design.	As Above	As Above	n/a	n/a
N22s	The Coach House and Bonvista	Noise barrier installation. Barrier height of 1.5m proposed based on current design.	As Above	As Above	n/a	n/a
Pedestrians Cyclists Equestrians and Community Effects (Chapter 31)						
P1s	n/a	Provision of NMU specific under/over bridge.	Avoidance of severance and maintenance of access.	Scheme design Construction	n/a	n/a
P2s	ch203300 ch100950 ch102200 ch106000 ch107300 ch109500	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
P3s	ch207000 ch103100 ch108500	Provision of traffic signals to enable NMU crossing.	Provision of safe crossing for users.	Scheme design Construction	n/a	n/a
P4s	ch203150-203300 ch202000-202550 ch201750-202000 ch200600-201250 ch100300-100800 ch100900-101000 ch102100-102650	Creation of NMU verge/track to maintain access.	Avoidance of severance and maintenance of access.	Scheme design Construction	n/a	n/a

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
	ch103100-104000 ch103750-104000 ch107100-107300 ch107300-108000 ch109300-109500 ch109500-109800 ch109500-109850					
P5s	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.	Scheme design Construction	n/a	n/a
P6s	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
P7s	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 32)						
VT1s	All road sections as appropriate	See landscape and visual mitigation measures.	Mitigation planting will help to soften harsh embankments and	Operation	n/a	n/a

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
			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.			
VT2s	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.	Scheme design	n/a	n/a
Disruption due to Construction (Chapter 33)						
D1s	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
D2s	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
D3s	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

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
D4s	All areas	<p>Sensitive siting of site compounds, parking/storage areas.</p> <p>Keeping construction site tidy.</p> <p>Minimise periods of night-time working and use directional lighting to minimise glare.</p> <p>Using existing or temporary screening where appropriate.</p>	To minimise the visual impact of the construction works.	Construction	<p>Ongoing monitoring during construction to ensure effectiveness of measures.</p> <p>Supervision by engineer.</p>	<p>SEPA</p> <p>SNH</p>
D5s	All areas	<p>Avoiding unnecessary stockpiling of bulk materials that are likely to be subject to wind-blow;</p> <p>Placing stockpiled materials away from potentially sensitive receptors;</p> <p>maintaining site and public roads to minimise the accumulation of mud on road surfaces;</p> <p>Minimising drop heights during the handling of bulk materials;</p> <p>Undertaking regular vehicle maintenance to ensure that emissions of soot and other pollutants in vehicle exhausts are minimised;</p> <p>Switching off machinery and vehicles not in use, particularly in areas close to properties;</p> <p>watering exposed soil surfaces (during drying conditions);</p> <p>Covering trucks transporting dust-producing material leaving or entering the construction site;</p> <p>Reducing construction vehicle travel speeds on unpaved surfaces;</p> <p>Maintaining equipment as per manufacturers' specifications, this will be specified in the Contract Documents to reduce emissions during construction; and</p> <p>Conform to all relevant local authority requirements or restrictions for dust generation during construction.</p>	To minimise the generation of dust / emissions during construction.	Pre-construction Construction	Ongoing monitoring during construction to ensure effectiveness of measures.	Local Authorities
D6s	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	Construction	None	Local Authorities, Local Residents

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
			concerns or nuisance.			
D7s	All areas	<p>Use of temporary noise barriers to reduce noise levels (from machinery) at receptor locations;</p> <p>Ensure that piling works are kept to a practicable minimum;</p> <p>Ensuring that all equipment is maintained according to manufacturers' specification;</p> <p>Suitable distancing of any noisy plant from sensitive locations;</p> <p>Switching off machinery and vehicles not in use, particularly close to properties;</p> <p>Noise monitoring, with recorded data made available to local Council Environmental Health Departments;</p> <p>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.</p> <p>Threshold limits for noise and vibration, to be agreed with Aberdeen City and Aberdeenshire Councils, will be stated within the contract documents;</p> <p>Vibration monitoring; and</p> <p>Undertaking dilapidation surveys of selected properties; advise the local community of proposed works and activities that could give rise to noise nuisance; and</p> <p>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.</p>	To minimise the noise and vibration nuisance during construction work.	Construction	Noise monitoring to ensure noise level limits are achieved.	On receiving detailed construction methodology, more accurate noise predictions can be made
D8s	All routes used by pedestrians and others in vicinity of proposed 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 contractual 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
D9s	All areas	<p>Avoidance of road closures where possible.</p> <p>Road diversions to be clearly indicated with signs and road markings, and any night-time diversions/changes will be lit.</p> <p>Timing of works vehicles to avoid peak traffic periods.</p> <p>Exact details of such provision will be agreed between the</p>	To minimise increases to driver stress.	Construction	None	Scottish Executive

Aberdeen Western Peripheral Route

Environmental Statement 2007

Part C: Southern Leg

Item Number	Approximate Chainage/ Location	Mitigation Measure	Effect of Mitigation on Impact	Timing of Mitigation Measure	Monitoring Requirements	Additional Consultation Required
		Contractor and the Roads Authorities as part of the contract process.				
D10s	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.	Construction	None	Scottish Executive Local Councils
Policies and Plans (Chapter 34)						
Refer to specific Chapters of Environmental Statement.						