# 21 Schedule of Environmental Commitments

## 21.1 Introduction

21.1.1 This chapter summarises the Northern Leg mitigation measures as identified in the ES, which are considered necessary to protect the environment prior to or during construction, or during operation of the AWPR.

21.1.2 The purpose of the Schedule of Environmental Commitments is to collate mitigation measures, both for ease of reference and for use by those overseeing the Contract Documents. It is intended to provide a record of commitments that will be incorporated within the Contract Documents and to which the Contractor will be obliged to adhere throughout the Contract period. However, it is recognised that there may be a need to revise or supplement the commitments as the design proceeds by agreement between the client, the Contractor(s), Scottish Executive, and other parties as appropriate.

21.1.3 The Schedule of Environmental Commitments (Table 21.1) addresses the potential impacts as summarised in the Environmental Impact Tables (Table 20.1). The Mitigation Item Numbers provided in the first column of Table 21.1 enable cross-referencing between these two Tables.

21.1.4 Should the client or contractor propose significant changes or modifications to the proposed development assessed for this EIA, impacts could be different and therefore appropriate mitigation measures to address these impacts would be required. If this is the case, it may be necessary to publish an addendum to the ES, identifying appropriate impacts and mitigation measures. The addendum would include a revised Schedule of Environmental Commitments to reflect any changes which would be included in the Contract Documents. The final design will not give rise to impacts which are any worse than those described in this ES unless a subsequent addendum is issued for consultation.

**Table 21.1 - Schedule of Environmental Commitments**

| Item No. | Approximate chainage/ location | Mitigation Measure | Effect of Mitigation on Impact | Timing of Mitigation Measure | Monitoring Requirements | Additional Consultation Required |
|---|---|---|---|---|---|---|
| **Land Use (Chapter 7)** | | | | | | |
| LU1 | See Appendix A7.5 for details of location required per land interest | Permanent loss of agricultural land and forestry has been reduced through route selection, construction programming, and planning. In addition, loss will be reduced by re-instatement plans where appropriate, post construction. | Reduction in loss of agricultural and forestry land. | Scheme design | n/a | n/a |
| LU2 | See Appendix A7.5 for details of location required per land interest | Access for the land interests to their agricultural land and woodland will be provided at all times during the construction process and post construction. Where appropriate and justified, agricultural overbridges and underpasses will be incorporated into the road design. | Reduction in severance and access restrictions. | Scheme design | n/a | n/a |
| LU3 | See Appendix A7.5 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. | Prevention of damage to soils. | Construction | n/a | n/a |
| LU4 | See Appendix A7.5 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. | Reinstatement of field drainage system and prevention of flooding. | Construction<br>Post-construction | Monitoring post construction to access flood risk | n/a |
| LU5 | See Appendix A7.5 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 a sporting interests, as agreed with the District Valuer. | Offset loss through financial compensation. | Construction<br>Post-construction | n/a | District Valuer |
| LU6 | See Appendix A7.5 for details of location required per land interest | Notice of intention to commence construction work will be given to the owners and occupiers of all land along the route before entry is made to such land. Consultation with the landowners and occupiers will allow agreement to a programme of works that minimises disturbance. Any work will be carried out in accordance with the agreed programme as far as is practically possible. | Minimise disturbance to farm activities. | Pre-construction<br>Construction | n/a | land owner/occupier |

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|---|---|---|---|---|---|---|
| LU7 | See Appendix A7.5 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. | Minimise disturbance to agriculture and forestry activities. | Pre-construction | n/a | n/a |
| LU8 | See Appendix A7.5 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. | Minimise disturbance to agriculture and forestry activities. | Construction<br>Post-construction | n/a | n/a |
| LU9 | See Appendix A7.5 for details of location required per land interest | Agricultural land will be re-instated to a condition as near as is reasonably practicable to that subsisting before the commencement of the works. Topsoil where disturbed will be left in a loose friable condition and where agreed appropriate cover will be replaced. Re-grading where appropriate will be undertaken and land returned to agricultural use. | Minimising disturbance and loss of agricultural land. | Construction<br>Post-construction | n/a | n/a |
| LU10 | See Appendix A7.5 for details of location required per land interest | Where ancillary apparatus and material is sited on agricultural land this will be with agreement of the land owner/occupier. | Minimising the disturbance to farm practices. | Construction | n/a | land owner/occupier |
| LU11 | See Appendix A7.5 for details of location required per land interest | There will be provision of temporary fences, lights and guards in appropriate locations for the protection of the health and safety of the public and animals and to avoid trespass. Where appropriate, fencing of the working area to a standard adequate for the purpose of excluding any stock kept on adjoining land will be undertaken. All temporary fencing will be maintained in position during constructional work and thereafter unless otherwise agreed with the occupier. | Minimising the disturbance to farm practices. | Construction | n/a | land owner/occupier |
| LU12 | See Appendix A7.5 for details of location required per land interest | Where boundary features such as fences, walls and hedges have to be removed to allow construction these will be reinstated with appropriate materials in each case to provide a secure field boundary. | Minimising effect of boundary features and where appropriate, allowing opportunities for enhancement to be incorporated. | Construction<br>Post-construction | n/a | n/a |

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|---|---|---|---|---|---|---|
| LU13 | See Appendix A7.5 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. | Minimising the disturbance to livestock. | Construction | n/a | n/a |
| LU14 | See Appendix A7.5 for details of location required per land interest | Where access will require to be altered either temporarily or permanently as a result of construction, alternative access for stock and machinery will be provided where appropriate in consultation with the land owner/occupier. Additionally, where appropriate recessed access would be provided off main and side roads with loading/unloading area if required. | Minimising the disturbance farm practices. | Construction Post-construction | n/a | land owner/occupier |
| LU15 | See Appendix A7.5 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. | Minimising the risk of spreading soil borne pest and diseases. | Construction | n/a | SEERAD |
| LU16 | See Appendix A7.5 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. | Protecting the soil structure and land capability. | Construction | n/a | n/a |
| LU17 | See Appendix A7.5 for details of location required per land interest | Care taken to ensure that the minimum amount of damage or disturbance to field drains is caused. Laying of new drains will be undertaken as required to keep the affected and adjoining land in good order. Repairing and reinstatement of field drains will be agreed with the land owner/occupier. Where appropriate the integrity of the drainage system will be secured in advance through the installation of header drains (cut off drains) to facilitate construction. All remaining remedial and new drainage works will be undertaken post construction. | Minimising the disturbance to field drainage and where appropriate, allowing for the enhancement of such systems. | Construction Post-construction | n/a | land owner/occupier |
| LU18 | See Appendix A7.5 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. | Minimising the disturbance to livestock. | Construction Post-construction | n/a | n/a |

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|---|---|---|---|---|---|---|
| LU19 | See Appendix A7.5 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. | Minimising the risk of windthrow to woodland areas. | Pre-construction | n/a | n/a |
| LU20 | See Appendix A7.5 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. | Allowing opportunities for enhancement to be incorporated, where appropriate. | Design and pre-construction | n/a | n/a |
| LU21 | See Appendix A7.5 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. | Minimising the loss of trees. | Pre-construction | n/a | n/a |
| LU22 | See Appendix A7.5 for details of location required per land interest | Soil disturbance and compaction from the harvesting and extraction will be minimised. | Minimising disturbance to soil. | Pre-construction | n/a | n/a |
| LU23 | See Appendix A7.5 for details of location required per land interest | Reasonable claims in respect of damage to agricultural land or sporting rights will be payable, as will professional charges. | Offsetting damage through financial compensation. | Pre-construction<br>Construction<br>Post-construction | n/a | n/a |
| LU24 | Refer to Table 20.1 | Where permanent loss of land or demolition of property occurs, consideration will be given to the provision of appropriate financial compensation to relevant landowner, to an amount determined by the District Valuer. | Offsetting loss through financial compensation. | Pre-construction | n/a | District Valuer |
| LU25 | Refer to Table 20.1 | Where access arrangements for businesses are disrupted by the route access will be maintained/restored to these businesses. Diversions and modifications may be required. | Preventing severance and minimising disruption to business access. | Scheme design | n/a | liaison with local business |
| LU26 | Refer to Table 20.1 | Areas of woodland replaced or planted (see ecology/landscape mitigation for further details). | Offsetting loss of woodland. | Design and post-construction | n/a | n/a |

| Item No. | Approximate chainage/ location | Mitigation Measure | Effect of Mitigation on Impact | Timing of Mitigation Measure | Monitoring Requirements | Additional Consultation Required |
|---|---|---|---|---|---|---|
| **Geology, Groundwater and Contaminated Land (Chapter 8)** | | | | | | |
| G1 | ch311100-311300<br>ch321500-322200<br>ch327750-329750<br>ch317550-317700 | Pre-construction and construction monitoring 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 | n/a |
| G2 | ch317350-317650<br>ch320850-321050<br>ch322400-322600<br>ch328200-328400 | Road drainage to be lined | Avoid contamination of groundwater in known areas of groundwater used as water supply | Operation | n/a | n/a |
| G3 | ch327750-329750 | 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 | n/a |
| G4 | ch315700, ch317200, ch318400, ch323250, ch325550, ch327850, ch328550, ch331000 | Additional pre-construction investigation of any areas of known contamination that may be encountered, including land in vicinity of Wester Hatton Landfill. | Avoidance of human contact with contamination, avoiding any potential health and safety risks or risk of environmental pollution. | Construction | n/a | n/a |
| G5 | Potentially all along the route, but more likely at same chainages as listed for G3. | Treatment and removal if necessary of any identified contaminated ground in accordance with the Duty of Care Regulations (1991). | Avoidance of human contact with contamination, avoiding any potential health and safety risks or risk of environmental pollution. | Construction | n/a | n/a |
| G6 | Potentially all along the route, but more likely at same chainages as listed for G3. | Appropriate off-site removal of any contaminated waters, or treatment on site and discharge in compliance with a SEPA Consent to Discharge. | Avoidance of human contact with contamination, avoiding any potential health and safety risks or risk of environmental pollution.<br>Avoidance of impacts on surface water quality. | Construction | n/a | n/a |
| **Water Environment (Chapter 9)** | | | | | | |
| W1 | All locations | Adherence to best practice including SEPA PPG01, PPG04, PPG05, PPG06, PPG07, PPG08, PPG10, PPG13, PPG18 and PPG21. | Avoidance and reduction of construction impacts | Construction | n/a | n/a |

| Item No. | Approximate chainage/ location | Mitigation Measure | Effect of Mitigation on Impact | Timing of Mitigation Measure | Monitoring Requirements | Additional Consultation Required |
|---|---|---|---|---|---|---|
| W2 | All locations | Runoff and erosion control measures to include perimeter cut-off ditches at the base of embankments; settlement lagoons and site fences on cut slopes, around drainage inlets and any drainage path, hay bales, mulching and 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. ECoW on site during construction period. | SEPA |
| W3 | All locations | Stockpiles will not be located near watercourses. Stockpiles will be covered when not in use and silt fencing provided around the perimeter. Vehicles or vehicle wheels will 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. |
| W4 | All locations | Use bridges to cross watercourses rather than temporary culverts and avoid fording watercourses. | Minimise sediment release into the environment | Construction | | |
| W5 | All locations | Minimise dust release during blasting activities by damping with water. | Minimise sediment release into the environment | Construction | | |
| W6 | All locations | Ensure minimal disturbance to the banks and beds of watercourses and minimal disturbance to existing land drainage systems. | Minimise sediment release into the environment | Construction | | |
| W7 | All locations | Provision of bunded areas with impervious walls and floor lining for the storage of fuel, oil and chemicals. | Minimise pollutant release into the environment | Construction | | |
| W8 | All locations | Storing potential pollutants or undertaking potentially polluting activities (e.g. concrete batching and mixing) will be undertaken away from watercourses, ditches and surface water drains. | Minimise pollutant release into the water environment | Construction | | |
| W9 | All locations | If service diversions need to be carried out, the diversion will be undertaken prior to construction and will be undertaken using good engineering practices to ensure spillage risk is minimised. | Minimise pollutant release into the environment | Construction | | |

| Item No. | Approximate chainage/ location | Mitigation Measure | Effect of Mitigation on Impact | Timing of Mitigation Measure | Monitoring Requirements | Additional Consultation Required |
|---|---|---|---|---|---|---|
| W10 | All locations | Any areas of contaminated land identified (Chapter 8 Geology, Groundwater and Contaminated Land) will be avoided or further investigated if subject to disturbance. Methods to ensure disturbed sediment does not enter the watercourses will be used to prevent contamination of surface water features (temporary sediment removal measure, e.g. settlement lagoons, cut-off ditches, etc). | Minimise sediment and pollution release into environment | Construction | Monitor water quality prior to, and during, construction assessing chemical (temperature, pH, conductivity, suspended solids, heavy metals etc.) and biological parameters (macroinvertebrate communities and macrophytes.) ECoW on site during construction period. | Monitoring locations, parameters, frequency of sampling and discharge limits will be agreed with SEPA /SNH in advance of construction. |
| W11 | All locations | Minimise the duration and spatial extent of works in the vicinity of watercourses and progressive rehabilitation of exposed areas throughout the construction period and avoid, working during periods of low flow, through appropriate timing. | Minimise sediment release into the environment | Construction | | |
| W12 | All locations | Any abstractions from the river will be identified and quantified and formal consent of SEPA will be sought. | Minimise impact on water quality and aquatic species. | Construction | | |
| W13 | All locations | Installation of temporary settlement/sedimentation lagoons, where appropriate. | Minimise sediment and pollution release into environment to ensure compliance with the water quality standards throughout construction. | Construction | | |
| W14 | All locations | An ecological clerk of works (ECO) will be on site during construction. | Ensure the implementation of appropriate environmental safeguards | Construction | | |
| W15 | ch315200<br>ch316390<br>ch316990<br>ch317330 – A96<br>Dyce Drive link road<br>ch319950-320870<br>ch325005 Link Roads<br>ch327500<br>ch329950 – East of A90 North<br>ch330050<br>A90 Middlefield Burn | Watercourse will be diverted or 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.<br>If temporary culverts are required they will be appropriately sized (1:200 years flow) to ensure adequate passage of water during high flow conditions. | Prevent potential adverse impact on water quality and aquatic environment. | Construction | n/a | n/a |

| Item No. | Approximate chainage/ location | Mitigation Measure | Effect of Mitigation on Impact | Timing of Mitigation Measure | Monitoring Requirements | Additional Consultation Required |
|---|---|---|---|---|---|---|
| W16 | ch315200<br>ch316390<br>ch316990<br>ch317330 – A96<br>At the proposed connecting road to Dice Drive<br>ch319950-320870<br>ch325005 – Link Roads<br>ch327500<br>ch329950 – East of A90 North<br>ch330050<br>At A90 Middlefield Burn | Culverts will be designed to pass the 1:200 year flow (0.5% AEP) and must be designed to ensure fish passage following SEERAD guidance and SEPA policy. Culverts will be depressed invert to ensure continuity of bed sediments through the structure. In areas of high scour potential culverts will include scour protection to dissipate flow energy. | Ensure hydrological connectivity of watercourses, maintaining flow patterns and catchment characteristics downstream. Minimise flood risk upstream and downstream of proposed crossing point. Allow sediment transfer and ensure bed connectivity through structure. Prevent potential adverse impact on water quality and aquatic environment. | Operation | On-going monitoring of culvert and realignments following installation will be undertaken including regular inspections for erosion and deposition. In particularly on the Bogenjoss Burn. On-going maintenance and rubbish removal to ensure efficient functioning and minimise impact on flood risk. | Details to be agreed with SEPA |
| W17 | ch317300<br>ch320710<br>ch322930<br>ch323900<br>ch324600 Little Goval Roundabout<br>ch327240<br>ch329940<br>A90 south of New Blackdog Estate<br>Middlefield Burn at the A90 north of Fifehill | Detention basins will be designed to attenuate flows of up to the 1:200 year event back to pre-development rates. | Minimise impact upon existing flood regime of the watercourse. | Operation | n/a | n/a |

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|---|---|---|---|---|---|---|
| W18 | ch317300<br>ch320710<br>ch322930<br>ch323900<br>ch324600 at proposed Little Goval Roundabout<br>ch327240<br>ch329940<br>A90 south of New Blackdog Estate<br>Middlefield Burn at the A90 north of Fifehill | Treatment ponds, detention basins, filter drains/catchpits and all parts of the treatment train will be designed to maximise pollutant removal and will be designed in accordance with best practice set out in CIRIA C609. | Ensure existing water quality in receiving watercourses does not fail EQS. | Operation | Ongoing monitoring to be undertaken at Key outfalls, in particular the outfall at the River Don. Monitoring will include ecological (macroinvertebrate) and water quality sampling. | Details to be agreed with SEPA |
| W19 | ch317300<br>ch320710<br>ch322930<br>ch323900<br>ch324600 at proposed Little Goval Roundabout<br>ch327240<br>ch329940<br>A90 south of New Blackdog Estate<br>Middlefield Burn at the A90 north of Fifehill | Road drainage network will be maintained to ensure maximum efficiency. Maintenance regime will include:<br>maintenance of filter drains, filtration devices; detention basins, treatment ponds and their receiving watercourses;<br>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,<br>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, in particular the outfall at the River Don. Monitoring will include ecological (macroinvertebrate) and water quality sampling. | Details to be agreed with SEPA |
| W20 | ch323150<br>ch323500-324600 | 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 Goval Burn, River Don and the Mill Lade system. Bridges will be designed to ensure minimal (following SPP7) impact upon 1:200yr flood levels. | Minimised sediment release into watercourse during construction and minimise impact upon geomorphology and riparian zone during the operation by maintaining channel. | Operation<br>Construction | n/a | n/a |

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|---|---|---|---|---|---|---|
| W21 | ch315200<br>ch316390<br>ch316990<br>ch317330–A96<br>At the proposed connecting road to Dice Drive<br>ch319950-320870<br>ch325005 – Link Roads<br>ch327500<br>ch329950 – East of A90 North<br>ch330050<br>At A90 Middlefield Burn | Watercourse realignments will be designed to ensure realigned lengths and local gradients are similar to those of the original watercourses. Sensitive realignment design reintroducing meanders, alternating pools and riffle sequences, and morphological diversity where possible to offset straightening of channel and other culverting proposed on the watercourse. | Offset straightening of channel and other culverting proposed on the watercourse by re-introducing geomorphological diversity. | Operation | On-going monitoring of culvert and realignments following installation will be undertaken including regular inspections for erosion and deposition, particularly for the Bogenjoss Burn. | Details to be agreed with SEPA |
| W22 | ch315200<br>ch316390<br>ch316990<br>ch317330 – A96<br>At the proposed connecting road to Dice Drive<br>ch319950-320870<br>ch325005 – Link Roads<br>ch327500<br>ch329950 – East of A90 North<br>ch330050<br>At A90 Middlefield Burn | Diversion or pumping away during construction of culverts/realignments; cut-off ditches and sediment fencing; treatment ponds or settlement/sedimentation lagoons to reduce sediment release. | Minimise sediment release into the environment. | Construction | On-going monitoring of culvert and realignments following installation will be undertaken including regular inspections for erosion and deposition, particularly for the Bogenjoss Burn. | Details to be agreed with SEPA |
| W23 | ch317300 | The installation and operation of Filter Drain, Detention Basin, 3 x Treatment ponds. | EQS levels achieved and accidental spillage reduced to acceptable limits and flows reduced to pre-development rates | Operation | n/a | n/a |
| W24 | ch322930 | The installation and operation of Filter Drain, Detention Basin, 2 x Treatment ponds. | EQS levels achieved and accidental spillage reduced to acceptable limits and flows reduced to pre-development rates. | Construction<br>Operation | n/a | n/a |

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|---|---|---|---|---|---|---|
| W25 | ch320710 | The installation and operation of Filter Drain, Detention Basin, Treatment pond and a Swale. | EQS levels achieved and accidental spillage reduced to acceptable limits and flows reduced to pre-development rates. | Construction<br>Operation | n/a | n/a |
| W26 | ch323900<br>ch324600 at proposed Little Goval Roundabout<br>ch327240<br>ch329940<br>A90 south of New Blackdog Estate<br>Middlefield Burn at the A90 north of Fifehill | The installation and operation of Filter Drain, Detention Basin, Treatment pond. | EQS levels achieved and accidental spillage reduced to acceptable limits and flows reduced to pre-development rates. | Construction<br>Operation | n/a | n/a |
| W27 | ch319950-320870 | Sensitive realignment design. However due to sedimentation risk it was not considered practical to include meanders in this realignment. | Minimise change to morphological diversity and stability of the channel, thereby minimising associated floodrisk. | Construction<br>Operation | n/a | Geomorphologist will be consulted during the detailed design phase. |
| W28 | ch315200<br>ch316390<br>ch316990<br>ch317330 – A96<br>At the proposed connecting road to Dice Drive<br>ch319950-320870<br>ch325005 – Link Roads<br>ch327500<br>ch329950 – East of A90 North<br>ch330050<br>At A90 Middlefield Burn | Geotextile lining through 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, particularly for the Bogenjoss Burn. | Details to be agreed with SEPA |

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| W29 | ch323150<br>ch323500-324600 | Only one mainline approach road (north or south) will be constructed at any one time<br>Sediment fencing will be constructed as a perimeter to the construction footprint to reduce the sediment release<br>Temporary treatment ponds will be constructed to reduce the runoff pollution from the approach road construction<br>Use of plastic sleeve and double false/shuttering when working over watercourse.<br>Enclosed spraying when waterproofing from chemicals entering the watercourse | Minimise the risk of sediment release and oil and chemical spillage<br>Ensure minimal concrete spillage and pollutant release<br>Ensure minimal chemical spillage and pollutant release | Construction | Water quality/ecology monitoring before and after construction | To be agreed with SEPA prior to work commencement). |
| W30 | ch323150<br>ch323500-324600 | No bridging works to be conducted between 14 October and 31 May | Avoid impact upon migratory and spawning salmon | Construction | ECoW | n/a |
| W31 | ch323900 | Temporary realignment and water storage during the construction of the aqueduct – any temporary realignment will maintain current channel capacity. | Minimise flood risk from water storage and minimise sediment/pollutant release into watercourse/environment. | Construction | n/a | n/a |
| W32 | River Don | Mitigation measures should include the phasing of works over a sub-catchment scale i.e. all watercourses in a sub-catchment should not be worked on simultaneously. | Minimise sediment and pollutant release into watercourse/environment. | Construction | n/a | n/a |
| **Ecology and Nature Conservation (Chapter 10)** | | | | *Note: ECoW ensures adherence to all following construction mitigation* | | |
| **Generic Mitigation** | | | | | | |
| E1 | All | Comply with the requirements of the Ecological Clerk of Works (ECoW) | Ensure of schedule of commitments is enforced. | Pre-construction | n/a | n/a |
| E2 | All | ECoW to ensure all mitigation agreed is implemented | Ensure of schedule of commitments are enforced. | n/a | n/a | |
| E3 | All | Ensure that work compounds and access tracks etc are not located in, or adjacent to, areas that maintain habitat value | Prevents additional impacts to terrestrial and freshwater habitats. | Pre-construction<br>Construction | n/a | n/a |
| E4 | All | Establish site fencing to prevent access to areas outside of working areas, particularly in areas adjacent to features of interest/value | Prevents additional impacts to terrestrial and freshwater habitats. | Pre-construction<br>Construction | n/a | n/a |
| E5 | All | Cover site safety issues including storage of potentially dangerous materials | Prevents additional impacts to terrestrial and freshwater habitats. | Construction | n/a | n/a |

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|---|---|---|---|---|---|---|
| E6 | All | Pre-construction surveys in impacted areas for protected species. | Prevents direct mortality and disturbance to breeding. | Pre-construction<br>Construction | n/a | n/a |
| E7 | All | Covering of pits or provision of mammal ramps to prevent animals falling in holes and becoming trapped | Prevents direct mortality. | Construction | n/a | n/a |
| E8 | All | Follow SEPA pollution prevention guidelines to prevent pollution of water courses through siltation or chemicals | Prevents additional impacts to terrestrial and freshwater habitats. | Construction | n/a | n/a |
| E9 | All | Best practice methods will be followed throughout | Prevents additional impacts to terrestrial and freshwater habitats. | Construction | n/a | n/a |
| E10 | All | New landscape planting will comprise native species | Minimise impacts on terrestrial habitats | Construction<br>Post-construction | n/a | n/a |
| E11 | All | A 30 m 'no disturbance' buffer will be adhered to around all badger setts, bat roosts, otter holts & lying up sites, red squirrel dreys and water vole burrows. | Reduces disturbance on protected and sensitive species. | Construction | n/a | n/a |
| E12 | All | Night time working to be avoided where practicable. | Reduces disturbance to bats, otters and salmonids. | Construction | n/a | n/a |
| E13 | Along watercourse crossing points | Carriageway lighting reduced or designed to be sympathetic to bats, otters, salmonids. | Reduces disturbance to bats, otters and salmonids. | Scheme design<br>Operation | n/a | n/a |
| E14 | All | Use of Sustainable Urban Drainage Systems (SUDS). | Prevents pollution incidents. | Scheme design<br>Construction | n/a | n/a |
| E15 | Along watercourse crossing points | Creation of riparian woodland along side burns including species of local importance. | Compensates for habitat loss. Minimises disturbance through noise reduction on otters, water voles and salmonids. | Pre-construction<br>Construction<br>Post-construction | n/a | n/a |
| **Badger** | | | | | | |
| E16 | Where setts have been identified (confidential) | Sett exclusion and creation of replacement setts will be according to SNH guidelines. Replacement setts at least 9 months prior to destruction of existing setts. | Prevents direct mortality and minimises disturbance | Pre- onstruction (9 mths) | As set out in SNH guidelines and in exclusion methodologies | SNH |
| E17 | 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 |

| Item No. | Approximate chainage/ location | Mitigation Measure | Effect of Mitigation on Impact | Timing of Mitigation Measure | Monitoring Requirements | Additional Consultation Required |
|---|---|---|---|---|---|---|
| **Bats** | | | | | | |
| E18 | Habitat Areas<br>N1-N4, N6-N8, N11-N14, N16 N18, N19, N23-N28, N30, N33, N35-N43, N45-N50, N52-N54, N58, N61-N63, N65, N69, N71-N72, N74, N76, N78-N80, N82-N85, N87-N88, N90-N91 | Exclusion of bats from roosts that are to be destroyed. To be undertaken at least 1year in advance of construction. | Prevents direct mortality to bats. | Pre-construction (12 mths) | Provision of replacements roosts as directed by ECoW | SEERAD |
| E19 | | 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 adopted e.g. the sectional felling of trees in spring or autumn. | Prevents direct mortality to bats. | Pre-construction Construction | n/a | n/a |
| E20 | | Use of screens to protect bats which may be roosting in trees during construction | Reduces the risk of direct road mortality | Construction | n/a | n/a |
| E21 | | Works must follow BS 5837 (1991) guidance for trees in relation to construction and to safeguard trees to be retained. | Avoids damaging trees and reduces habitat loss | Construction | n/a | n/a |
| E22 | | Culverts and Underpasses will be designed and managed to allow water to flow through and include lead-in structures or planting | Increases potential use by bats and reduces fragmentation | Scheme design Construction Post-construction | n/a | n/a |
| E23 | | Bat boxes will be erected in pre-identified locations and several buildings will be enhanced to provide potential roosts for bats. | Reduces habitat loss. | Pre-construction Construction | n/a | n/a |
| E24 | | Linear habitat planting will be incorporated along bat flyways and within 30m of bat roosts to direct bats over the scheme. | Reduces the risk of direct road mortality | Scheme design Construction | n/a | n/a |
| **Breeding and Wintering Birds** | | | | | | |
| E25 | Habitat Areas<br>N12-N13, N15-N16, N21, N25, N26, N28, N29, N31-N33, N35, N37-N40, N42-N43, N46-N47, N52, N54-N55, N58-N61, N64, N66, N69, N84-N87, N89, N93-N95 | 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 | Prevents disturbance to breeding birds | Construction | n/a | n/a |

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|---|---|---|---|---|---|---|
| E26 | Habitat Areas<br>N12-N16, N21, N25-N26, N28-N30, N32-N34, N50-N51, N55, N60, N62, N64, N84-N85, N87, N90, N94-N97 | Construction activities in the vicinity of key winter bird habitats will be timed to avoid October to March | Prevents disturbance to wintering birds | Construction | n/a | n/a |
| E27 | Habitat Areas<br>N12-N16, N21, N25, N26, N28-N35, N37-N40, N42-N43, N46-N47, N52, N54-N55, N58-N62, N64, N66, N69, N84-N87, N89, N90, N93- N95 | Woodland and scrub will be planted a predetermined distance away from the carriageway including the provision of a grassland buffer either side of the road allowing a clear sightline for the traffic | Minimise RTAs | Pre-construction<br>Construction | n/a | n/a |
| E28 | | Protective barriers (set back from the alignment) should be installed to deflect flying birds up and over moving traffic | Prevents RTAs | Construction<br>Pre-operation | n/a | n/a |
| E29 | | Planting of dense native tree and scrub species to screen noise and vibration disturbance due to operation of the proposed scheme from birds located within adjacent habitats | Prevents disturbance to breeding birds | Construction<br>Post-construction | n/a | n/a |
| E30 | Habitat Areas<br>N12-N16, N21, N25-N26, N28-N30, N32-N34, N50-N51, N55, N60, N62, N64 N84-N85, N87, N90, N94-N97 | Sympathetic planting of second (and subsequent) stage attenuation ponds | Encourages use by wintering birds. | Construction<br>Post-construction | n/a | n/a |
| **Otters** | | | | | | |
| E31 | Habitat Areas<br>N64, N66, N68, N84-N87, N91, N93, N94, N97, N11-N13, N22-N26, N28, N30, N33, N37-N44 | Exclusions of holts that are to be destroyed, and provision of artificial holt sites and habitat creation at least one year prior to construction. | Prevents direct otter mortality | Pre-construction (12 mths) | Adherence to SNH prescribed measures and method statement. | SNH, SEERAD |
| E32 | | The erection of otter-proof fencing wherever the scheme comes within 150m of a watercourse or a known otter commuting route | Reduces risk of RTAs | Pre-operation | n/a | n/a |
| E33 | | Marking off 3m from watercourses banks | Prevents disturbance to the riparian zone | Construction | n/a | n/a |

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|---|---|---|---|---|---|---|
| E34 | Habitat Areas<br>N60, N61 | Creation of artificial otter holts and enhancement of existing riparian habitat | Compensate for habitat loss for otters, water voles and water shrew | Construction<br>Post-construction | Adherence to SNH prescribed measures | SNH |
| **Red Squirrels** | | | | | | |
| E35 | Habitat Areas<br>Woodland 8, N24, N25, N33-N35, N37-N43, N47, N58, N71, N72 | No clearance for construction works during red squirrel breeding period (Dec-Aug inclusive). Construction works where squirrels present to be avoided during this period. | Prevents disturbance of red squirrels while breeding. | Construction | n/a | n/a |
| E36 | Habitat Areas<br>Woodland 8, N24, N25, N33-N35, N37-N43, N47, N58, N71, N72 | New 'core' areas of woodland to be created. Existing woodland to be managed for red squirrels by removal of species favourable to grey squirrels and planting trees of different age and species composition favourable to red squirrels. | Compensates for the loss of existing habitat, prevents isolation of red squirrel populations, reduces fragmented by providing commuting corridors. | Construction<br>Post-construction | n/a | n/a |
| E37 | Habitat Areas Woodland 8, N24, N25, N33-N35, N37-N43, N47, N58, N71,N72 | Partnership with the Forestry Commission to control grey squirrel numbers. | Reduces and prevents establishment of grey squirrels in the study area and beyond. | Construction<br>Post-construction | n/a | n/a |
| **Reptiles** | | | | | | |
| E38 | Habitat Areas<br>N13, N19, Woodlands 4 &,7 N33, N37-N41, RPH3, RPH4, RPH,6 RPH8, RPH9, RPH13, RPH16-RPH19, RPH21-RPH24, N54-N55, N60-N61, N64, N80, N83-N84, N87. | Areas identified as being well connected, with high to moderate value to reptiles to be lost or severed will be made unsuitable for reptile habitation. Vegetation will be strimmed/removed, searched for reptiles, and timed for periods when reptiles are least vulnerable to disturbance. Any reptiles captured will be released into suitable habitats or in sites already identified but not affected. | Reduces disturbance and potential mortality to reptiles. | Prior to site clearance | n/a | n/a |
| **Amphibians** | | | | | | |
| E39 | Habitat Areas<br>N1, N26, N49, N61, N68, N80 | Destructive searches of pond-side habitat and draining-down of ponds. Any newts captured to 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 |

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|---|---|---|---|---|---|---|
| **Fish and Freshwater Habitat** | | | | | | |
| E40 | Habitat Areas N22-N24, N28, N30, N38 | Activities that require works in watercourses and/or de-watering or re-alignment avoided where possible. If unavoidable, to be undertaken Apr-Sept. | Reduces disturbance to salmonids | Construction | n/a | n/a |
| E41 | Habitat Areas N22-N24, N28, N30, N38 | Fish removed from sections to be de-watered, re-aligned or excavated, using electrofishing, and translocated to appropriate alternative site. | Reduces direct mortality of fish | Construction | n/a | n/a |
| E42 | | Construction works near/in watercourses will avoid the first third of the egg incubation period (mid Oct-end Dec). A 'soft start' approach will be adopted in the event of any piling works. Suspended solid works carried out May-Sept. | Reduces disturbance to salmonids through noise and vibration | Construction | n/a | n/a |
| E43 | | Any lights on site compounds or during construction will be directed away from water. | Prevents disturbance of salmonids | Construction | n/a | n/a |
| E44 | Habitat Area N52 | High span bridges with set-back piers will be constructed over the River Don. | Prevents damage and disturbance to salmonid habitat | Scheme design | n/a | n/a |
| E45 | Habitat Areas N22-N24, N28, N30, N38 | 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 |
| E46 | | 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 |
| E47 | | 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** | | | | | | |
| E48 ref L12 | ch314900 (e), Habitat Area N11 | 1ha of scrub woodland planted east of AWPR for ecology & landscape purposes. | Compensates for loss of existing habitat, and reduces fragmentation for breeding birds, terrestrial habitat and badgers. | Construction Post-construction | n/a | n/a |
| E49 ref L12 | ch314800 (w), Habitat Area N11 | 0.2ha of scrub woodland planted west of AWPR for ecology & landscape purposes. | Compensates for loss of existing habitat, and reduces fragmentation for breeding birds and badgers. | Construction Post-construction | n/a | n/a |
| E50 ref L20 | ch316570-316800 (w), Habitat Areas N28 & N25 | 2 blocks of coniferous woodland planted west of AWPR **2ha** in total for ecology purposes only. | Compensates for loss of existing habitat, and reduces fragmentation for red squirrel, bats and badgers. | Construction Post-construction | n/a | n/a |

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|---|---|---|---|---|---|---|
| E51 | ch317100-317500 (w), Habitat Area N28 | 2.5ha of coniferous woodland planted for ecology purposes only. | Compensates for loss of existing habitat, and reduces fragmentation for red squirrel, bats and badgers. | Construction Post-construction | n/a | n/a |
| E52 | ch317000-317050 (e), Habitat Area N28 | Block of coniferous plantation of 1ha to east of the road and south of A96 for ecology purposes only. | Compensates for loss of existing habitat, and reduces fragmentation for red squirrel, bats and badgers. | Construction Post-construction | n/a | n/a |
| E53 ref L23 | ch317100-317310 (e), Habitat Area N28 | 1.3ha of mixed woodland planted surrounding attenuation ponds for ecology and landscape purposes. | Compensates for loss of existing habitat, and reduces fragmentation for bats and otters. | Construction Post-construction | n/a | n/a |
| E54 | ch318930-319430. (w), Habitat Area N33 and N35 | 2 blocks of mixed woodland to the west of the road (2ha) for ecology purposes only. | Compensates for loss of existing habitat, and reduces fragmentation for red squirrel, bats, badgers, breeding birds | Construction Post-construction | n/a | n/a |
| E55 | ch318500-319450 (w) N34 | 0.8ha of mixed woodland to the west of the road for ecology and landscape purposes. | Compensates for loss of existing habitat, and reduces fragmentation for red squirrel, bats, badgers, breeding birds | Construction Post-construction | n/a | n/a |
| E56 | ch319430-319700 (west) Habitat Area N35 | 2 blocks of coniferous woodland of 3.88ha planted contiguous with Standingstones Wood and Kirkhill Forest North for ecology purposes only. | Compensates for loss of existing habitat, and reduces fragmentation for habitats, red squirrel, bats, badgers, breeding birds. | Construction Post-construction | n/a | n/a |
| E57 ref L32 | ch319970-320400 (w), Habitat Area N37 | 0.4ha strip of scrub woodland planted east of Bogenjoss burn for ecology and landscape purposes. | Compensates for loss of existing habitat, and reduces fragmentation for terrestrial habitats, bats and otters. | Construction Post-construction | n/a | n/a |
| E58 ref L33 | ch320000-320500 (w) Habitat Areas N37 & N41 | 0.5ha strip of riparian woodland planted west of Bogenjoss burn for ecology and landscape purposes. | Compensates for loss of existing habitat, and reduces fragmentation for terrestrial habitats, bats and otters. | Construction Post-construction | n/a | n/a |
| E59 ref L38 | ch320400-320870 (w) Habitat Area N41 | 1.2ha of mixed woodland planted contiguously with East woodlands for ecology and landscape purposes. | Compensates for loss of existing habitat, and reduces fragmentation for terrestrial habitats, red squirrel, badgers, bats and breeding birds. | Construction Post-construction | n/a | n/a |
| E60 | ch320450-320950 (e), Habitat Areas N41 & N42 | 0.4ha of localised scrub patches for ecology & landscaping. | Compensates for loss of existing habitat, and reduces fragmentation for breeding birds, badgers and bats. | Construction Post-construction | n/a | n/a |
| E61 | ch321490-321520 (west) Habitat Area N46 | 0.8ha of coniferous woodland planted contiguous with the eastern leg of East Woodlands for ecology purposes only. | Compensates for loss of existing habitat, and reduces fragmentation for red squirrel, bats, breeding birds and badgers. | Construction Post-construction | n/a | n/a |
| E62 ref L42 | ch321630-322130 (n) | 3 blocks of mixed woodland (0.8ha, 1.8ha and 1.5ha) planted North of Monument Wood for ecology and landscape purposes. | Compensates for loss of existing habitat, and reduces fragmentation for terrestrial habitats, bats, red squirrel, badgers and breeding birds. | Construction Post-construction | n/a | n/a |

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|---|---|---|---|---|---|---|
| E63 ref L54 | ch324400 (n), Habitat Area N61 | 0.5ha of mixed woodland planted north of the road including 0.1ha of riparian woodland planted for ecology & landscape purposes. | Compensates for loss of existing habitat, and reduces fragmentation for bats, otter and badger. | Construction Post-construction | n/a | n/a |
| E64 | ch324530-324650 (e) Habitat Area N61 | At Goval, north of the road, east of A947, creation of 0.5ha of land set aside for otter habitat between Goval Mill Lade and Goval Burn | Compensates for loss of existing habitat, and reduces fragmentation for bats, otter and badger. | Construction Post-construction | n/a | n/a |
| E65 ref L54 | ch324400 (s), Habitat Area N61 | 0.8ha of mixed woodland planted south of the road including 0.15ha of riparian woodland for ecology & landscape purposes. | Compensates for the loss of existing habitat, and reduces fragmentation for bats, otter and badger. | Construction Post-construction | n/a | n/a |
| E66 ref L54 | ch324400 (s), Habitat Area N61 | 0.17ha of mixed woodland planted south of the road and south of Goval burn for ecology & landscape purposes. | Compensates for the loss of existing habitat for bats and otter. | Construction Post-construction | n/a | n/a |
| E67 ref L62 | ch325700-325950, (s) Habitat Area N72 | 2 blocks of 1.4ha of mixed woodland planted in Littlejohn's Wood for ecology & landscape purposes. | Replaces felled trees and compensates for loss of existing terrestrial habitats, red squirrel, badger, bats and breeding birds. | Construction Post-construction | n/a | n/a |
| E68 ref L71 | ch328030-321300 (n), Habitat Area N87 | 0.7ha of scrub woodland planted for ecology & landscape purposes. | Compensates for the loss of existing habitat for badger and breeding birds. | Construction Post-construction | n/a | n/a |
| E69 ref L78 | ch330000 (s), Habitat Area N91 | Creation of riparian habitat 0.5ha east of Blackdog for ecology & landscape purposes. | Compensates for the loss of existing habitat for otters and bats. | Construction Post-construction | n/a | n/a |
| E70 ref L77 | ch329900-329950 (n), Habitat Area N91 | Planting of 0.25ha scrub and riparian mosaic on either side of Blackdog Burn for ecology & landscape purposes. | Compensates for the loss of existing habitat for otters and bats. | Construction Post-construction | n/a | n/a |
| E71 ref L89-90 | AWPR and A90 Junction (Fife Hill), Habitat Area N97 | 0.6ha of riparian woodland east and west of A90 junction around attenuation ponds for ecology & landscape purposes (L91).<br><br>0.2ha of riparian woodland east of A90 junction for ecology purposes only.<br><br>0.6ha of scrub and species rich grassland east and west of A90 junction for ecology & landscape purposes (L89-L90). | Compensates for the loss of existing habitat for otters and bats. | Construction Post-construction | n/a | n/a |

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|---|---|---|---|---|---|---|
| E72 | ch314750-315080 (inc. junction) and ch315620-316180<br>ch315000 roundabout side roads<br>ch316180-317500<br>ch315580-316200<br>ch317070 (A96)<br>ch317500-317770<br>ch318020-318400<br>ch319160-319800<br>ch321280-323050<br>ch323390-325220<br>323610 (B9770)<br>ch325220-326990<br>ch327710-329750<br>ch330340-331000<br>ch324100<br>ch324400<br>ch324850 | Provision of badger proof fencing (also suitable for otter) | Prevents RTAs and reduces habitat fragmentation for badgers | Construction<br>Post-construction | n/a | n/a |
| E73 | ch315080-315680.<br>ch316180-317500<br>ch317770-318020.<br>ch318400-319180 (inc. side road).<br>ch319800-321280.<br>ch322850-323040.<br>ch323370-325220.<br>ch323610 (B977 bridge).<br>ch326990-327710.<br>ch329750-330340.<br>ch324100 (Roundabout) | Provision of otter proof fencing (also suitable for badger) | Prevents RTAs and reduces habitat fragmentation for badger, otter, water vole and water shrew | Construction<br>Post-construction | n/a | n/a |

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|---|---|---|---|---|---|---|
| E74 | Otters, Badgers, Bats:<br>ch316390, ch316990, ch317330, ch327500, ch329950, and 5 offline culverts.<br><br>Otters and Badgers:<br>ch315200, ch318450 off-line, ch324800 off-line, ch324870 off-line, and ch325080.<br><br>Otters:<br>ch319950 off-line, ch320100 off-line, ch320220 off-line, ch320260 off-line, ch320500 and ch320870. | Provision of multi-use depressed invert box culverts. | Prevents RTAs and reduces habitat fragmentation for otters, badgers and bats | Design<br>Construction<br>Post-construction | n/a | n/a |
| E75 | Otters and Badgers:<br>ch324230, ch324400 off-line.<br><br>Otters and Bats:<br>ch323950.<br><br>Badgers:<br>ch317850, ch319250, ch321330, ch326280 (Buried structure).<br><br>Otters, Badgers, Bats:<br>ch323610 off-line, ch324400 off-line, and ch324530 (Aqueduct). | Provision of multi-use mammal underpasses landscape planting will be designed to encourage usage | Prevents RTAs and reduces habitat fragmentation for otters, badgers and bats | Design<br>Construction<br>Post-construction | n/a | n/a |

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|---|---|---|---|---|---|---|
| E76 | Badgers<br>Road bridges at ch314970, ch315620, ch316020, ch322540, ch325940, ch326730, ch328560, ch329500<br><br>All species:<br>Green overbridge at ch319960. Wildlife bridge at ch320180.<br><br>Otters, badgers, bats:<br>Wide span bridge river crossing: ch323050-323370 | Provision of a multi-use bridge structures landscape planting will be designed to encourage usage | Prevents RTAs and reduces habitat fragmentation for protected species including otters, badgers, bats and red squirrels | Design<br>Construction<br>Post-construction | n/a | n/a |
| E76 cont'd | Red squirrel:<br>Wire bridge: ch324400 off-line.<br><br>Badgers and bats:<br>Formartine & Buchan Way bridge at ch324620 | see above | see above | Design<br>Construction<br>Post-construction | n/a | n/a |
| **Landscape (Chapter 11)** | | | | | | |
| L1 | Throughout the scheme | Achieve best fit of alignment design with existing contours and landform where possible. Avoid existing features and ecological and archaeological sites | *Prevention* of physical impact on particular landscape elements, features and sensitive sites. | At design / construction | n/a | n/a |
| L2 | Throughout the scheme | Earthworks: embankment and cuttings constructed to tie in with existing levels and where appropriate return slope to agricultural use. Softening of differences of slope gradients at junction and structures etc. by smoothing out of transitions. Careful rounding off of top and bottom of cuttings and embankments | *Reduction* of impact of embankment / cutting gradients on existing levels | At design / construction | n/a | n/a |

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| L3 | Throughout the scheme | Rock Cuttings: Creation of irregular, naturalistic rock faces; integration of pockets of soil and native seed onto ledges and terraces to encourage area of vegetation establishment. | *Reduction* of visual impact of regular cuttings and offset any loss of vegetation | At design / construction | n/a | n/a |
| L4 | Throughout the scheme | Drystone walling: to be constructed to local and traditional design, of reclaimed materials from the local vicinity and be approximately 1m high and 0.5m wide | *Offset* impacts of field boundary severance and replacement of field enclosures | At construction stage | n/a | Local Authority and maintaining authority |
| L5 | Throughout the scheme | Detention Basins and Treatment Ponds: create habitat for wildlife within naturally low areas. Design to look as natural as possible (in consultation with ecologist). Integrate contours with existing and proposed levels. Unobtrusive boundary fencing design. Use of native scrub species for screening of structural features (outfall / inlet/ fencing etc). Wildflower and native grass seeding on open areas | Opportunity to *offset* loss of / impact on and/or *enhance* landscape elements and ecological habitats | At construction stage | Monitoring of planting/seeding establishment during aftercare period | SNH and the maintaining authority |
| L6 | Throughout the scheme | Noise Barriers: where appropriate provision of tree and shrub planting to screen noise barriers and provide continuity of woodland character along road corridor | Reduction of visual impact of noise barriers and offset of loss to woodland elements | At design / construction stage | Monitoring of planting establishment during aftercare period | n/a |
| L7 | Throughout the scheme | Structures: Design of structures such as bridges along the length of the route has been informed by a combination of specialist aesthetic advice, design workshops and consultation with Architecture and Design Scotland | Reduction of visual impact of structures though aesthetic design and materials | At design stage | n/a | Local Authority, Architecture and Design Scotland and maintaining authority |
| L8 | Throughout the scheme | Planting: Retention of existing trees / vegetation wherever possible / incorporation into new planting proposals | *Prevention* of physical impact on trees / vegetation reduction of visual impact of proposals. | At design / construction stage | n/a | n/a |
| L9 | Throughout the scheme | Grass Seeding: dependent on location, grass seed mixes should be supplied: (E.g. roadside verge mix; agricultural mix; species rich mix) | To *reduce/ offset impact* on loss of existing field area and to integrate proposals into landscape character | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| L10 | Throughout the scheme | Public Rights of Way: Reinstate links to path network | To *reduce* impact on public right of way route severance and *enhance* links to the countryside | At design / construction stage | n/a | Local Authority and maintaining authority |

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| **Overhill (ch314800-316300)** | | | | | | |
| L11 | Throughout section | Groups of feathered trees along new field boundaries and along road edge | To reflect existing open character and soften and frame views from local properties, roads and paths | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| L12 | North Kingswells junction | Scrub woodland planting around North Kingswells junction | To strengthen remaining woodlands and reflect landscape character and screen views of the junction | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| L13 | Northbound ch315120-315620<br>Southbound ch315260-315630 | Drystone walls | To tie into existing walls and reflect existing landscape pattern | At design / construction stage | n/a | Liaison with Local land owners / stakeholders |
| L14 | Southbound ch316000-316450 | False cutting and scrub woodland between AWPR and the Chapel of Stoneywood to Fairley access road | To provide screening between mainline and access road | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| L15 | Ashtown overbridge ch316020 | Overbridge embankments eased | To improve integration with surrounding landform | At design / construction stage | n/a | n/a |
| **Craibstone (ch316300-317500)** | | | | | | |
| L16 | Craibstone<br>Alongside A96 | Mixed woodland | To integrate with existing woodland character on south side of the road | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| L17 | Within A96 roundabout junction and along A96 | Graded landform and formal tree planting | To highlight approach to Aberdeen and airport | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| L18 | Along Green Burn and to the north of the A96 roundabout junction | Scrub and mixed woodland planting | To enclose Green burn and roundabout junction and screen views of the route from properties | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| L19 | Southbound ch316440-317000 | Mixed woodland planting | To screen views from Craibstone College buildings including residences and integrate with adjoining woodland areas and path network | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority, Craibstone College and maintaining authority |
| L20 | Southeast of the A96 roundabout junction | False cutting and mixed woodland planting | To screen views to A96 roundabout junction from Craibstone properties to east of AWPR | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| L21 | Between Northern Leg and slip roads ch316900 to ch317200 | Scrub woodland planting | To screen views between new road and slip roads | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |

| Item No. | Approximate chainage/ location | Mitigation Measure | Effect of Mitigation on Impact | Timing of Mitigation Measure | Monitoring Requirements | Additional Consultation Required |
|---|---|---|---|---|---|---|
| L22 | Northbound ch317200-317380 | False cutting and mixed woodland | To screen views from properties west of AWPR at Chapel of Stoneywood | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| L23 | Around 4 retention ponds and the Green Burn | Mixed woodland planting | To improve integration with surroundings and promote biodiversity and assist with screening | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| L24 | All existing woodland in Craibstone area | Protection of woodland | To minimise losses | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| L25 | Alongside A96 road | Formal tree planting (Extra Heavy / Semi Mature trees) | To highlight approach of Aberdeen and Airport | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| L26 | Northbound ch316450-316900 | Coniferous and mixed woodland planting | To screen views and integrate with adjoining woodland areas west of SAC estate | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| L27 | Northbound and Southbound ch317200 - 317400 | Embankments eased | To improve integration with the surrounding landform | At design / construction stage | n/a | n/a |
| **Newton Open Farmland (ch317500-318900)** | | | To integrate road with surrounding landform and allow potential return to agriculture | At design / construction stage | n/a | Liaison with Local land owners / stakeholders |
| L28 | Northbound and southbound ch317800 – 318800 & either side of South Kirkhill Industrial Estate Link Road | Easing of embankments | | | | |
| L29 | Northbound ch318100-318750 and Southbound ch317800-318750 and along either side of South Kirkhill Industrial Estate Link Road | Drystone walls | To tie into existing walls and reflect existing landscape pattern | At design / construction stage | n/a | Liaison with Local land owners / stakeholders |
| L30 | Throughout section ch317500-318900 | Groups of feathered tree planting and scrub woodland along field boundaries, false cuttings and road edge | To reflect existing pattern of vegetation | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |

| Item No. | Approximate chainage/ location | Mitigation Measure | Effect of Mitigation on Impact | Timing of Mitigation Measure | Monitoring Requirements | Additional Consultation Required |
|---|---|---|---|---|---|---|
| L31 | Northbound ch317600-318500 and on northern edge of South Kirkhill Industrial Estate Link Road | False cutting and noise barrier | To provide screening and noise attenuation for properties at Greenacres and Walton View | At design / construction stage | n/a | n/a |
| L32 | Southbound ch317500 - 317700 | False cutting | To provide screening for Walton Cottages | At design / construction stage | n/a | n/a |
| L33 | Southern edge of South Kirkhill Industrial Estate Link Road | Landscape bund and scrub planting | To provide general screening for properties | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| L34 | Northbound ch318780-318920<br>Southbound ch318780-318850 | False cuttings and scrub woodland planting | To provide screening for Howemoss Farm and Balgosie | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| **Tyrebagger Hill / Kirkhill (ch318900-322300)** | | | | | | |
| L35 | Northbound<br>ch318900-319450<br>ch320420-322880<br>Southbound<br>321580-321780<br>322000-322080 | Mixed woodland planting | To marry into adjoining woodlands and provide screening of road from Bogenjoss House | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| L36 | Northbound alongside realigned Bogenjoss Burn | Riparian woodland planting | To improve integration with surroundings and promote biodiversity | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| L37 | Northbound between mainline and realigned access track to Bogenjoss House | Scrub woodland planting | To provide screening to access road | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| L38 | Northbound ch320360 to 320600 | Noise barrier | To provide screening and noise attenuation for Bogenjoss House | At design / construction stage | Monitoring of planting establishment during aftercare period | n/a |
| L39 | Northbound ch318900-319400 | Easing of embankments | To improve integration with surroundings | At design / construction stage | n/a | n/a |

| Item No. | Approximate chainage/ location | Mitigation Measure | Effect of Mitigation on Impact | Timing of Mitigation Measure | Monitoring Requirements | Additional Consultation Required |
|---|---|---|---|---|---|---|
| L40 | On field remnants – Southbound ch319450-319580 and ch319700-319820 and throughout character area | Scrub woodland planting | To screen views from properties, maintain setting of Tyrebagger Hill stone circle (SAM refer to Cultural Heritage schedule) and help integrate road into surroundings and reflect existing landscape pattern | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| L41 | Southbound ch319250-319450 and ch319580-319700 | Drystone walling to enclose severed fields | -to enclose severed fields and reflect existing landscape pattern | At design / construction stage | n/a | Liaison with local land owners / stakeholders |
| L42 | Southbound ch318800 South Kirkhill junction to ch319600 | False cutting and scrub woodland planting | To assist screening traffic movement and the road corridor from the wider landscape | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| L43 | Wildlife overbridge ch319950 | Overbridge embankments eased | To improve integration with the surrounding landform | At design / construction stage | n/a | n/a |
| L44 | Northbound ch321000-321500 | Easing of embankments to allow a potential return to agriculture | To integrate with surrounding landform, allow potential return to agriculture and mitigate the road in views from the wider landscape | At design / construction stage | n/a | Liaison with local land owners / stakeholders |
| L45 | Northbound and Southbound ch320500-321000 | Easing of gradients and scrub woodland planting | To improve integration with the surrounding landform of the Bogenjoss valley and soften views from the road | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| L46 | Northbound ch320900-322150 | Mixed woodland planting | To screen traffic movement and the road in views from Pitmedden Road, Pitmedden House estate properties and in distant views | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| L47 | Northbound ch321500 and ch322200 | Drystone walls to enclose fields | To enclose field boundaries | At design / construction stage | n/a | Liaison with local land owners / stakeholders |
| L48 | Northbound at East Woodland ch320900 | Broadleaved woodland around ponds | To improve integration with surroundings | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| **Newton Open Farmland (ch322300-322800)** | | | | | | |
| L49 | Northbound and Southbound ch322200-322800 | Easing of embankments to allow a potential return to agriculture | To improve integration with surrounding landform and allow potential return to agriculture | At design / construction stage | n/a | Liaison with Local land owners / stakeholders |
| L50 | Northbound and southbound ch322200 to 322500 | False cuttings and scrub woodland | To assist in screening road from nearby properties and the wider landscape | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| L51 | Northbound ch322150-322600 | Noise barrier | To provide screening and noise attenuation for Lyndmoor and Tilybrig | At design / construction stage | n/a | n/a |

| Item No. | Approximate chainage/ location | Mitigation Measure | Effect of Mitigation on Impact | Timing of Mitigation Measure | Monitoring Requirements | Additional Consultation Required |
|---|---|---|---|---|---|---|
| L52 | Northbound and Southbound ch322500 to 322800 | Easing of embankments and scrub woodland planting | To complement the bridge over the River Don and reduce impact on the River Don Valley | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| **Lower Goval Valley (ch322800-324000)** | | | To complement the bridge over the River Don and the realigned B9777 and reduce impact on the River Don Valley | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| L53 | Northbound and Southbound ch322800-323700 | Easing of embankments and scrub woodland planting | | | | |
| L54 | Around 3 retention ponds and access roads | Scrub woodland planting | To improve integration with surroundings | At design / construction stage | n/a | Local Authority and maintaining authority |
| L55 | Alongside sections of the realigned B977 and northbound ch323600-324100 and southbound ch323600-323950 | Drystone walls | To tie into existing walls and reflect landscape pattern | At design / construction stage | n/a | Liaison with Local land owners / stakeholders |
| L56 | Southbound ch3223450-323620 | False cutting and scrub woodland planting | To assist screening views from Goval Villa | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| L57 | Northbound ch323650-324050 | Cutting to be graded out and to allow a potential return to agriculture | To tie smoothly into existing levels and allow potential return to agriculture | At design / construction stage | n/a | Liaison with Local land owners / stakeholders |
| L58 | Southbound around 2 retention ponds and Goval Burn | Riparian woodland planting | To improve integration with surroundings | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| **Goval Open Farmland (ch324000-325350)** | | | To link existing broadleaved woodland of Goval Belt | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| L59 | Northern section of realigned A947 | Broadleaved woodland planting | | | | |
| L60 | Around Goval junction and alongside Northern Leg | Scrub and mixed woodland planting | To assist in screening views | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| L61 | Around Goval junction northbound ch324650-326400 and along southbound slip road from Goval junction southbound ch324600-324800 | False cuttings and scrub woodland planting | To assist screening views from properties to the north and south of the junction and the Formartine and Buchan Way | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |

| Item No. | Approximate chainage/ location | Mitigation Measure | Effect of Mitigation on Impact | Timing of Mitigation Measure | Monitoring Requirements | Additional Consultation Required |
|---|---|---|---|---|---|---|
| L62 | Northbound and southbound ch324500-326400 | Easing of embankments | To improve integration of road with surrounding landform | At design / construction stage | n/a | n/a |
| L63 | Southbound ch325100-325400 | Easing of embankment | To integrate road with surrounding landform and allow potential return to agriculture | At design / construction stage | n/a | Liaison with Local land owners / stakeholders |
| L64 | Southbound ch324600-325100 around 2 retention ponds and Corsehill Burn | Riparian woodland planting | To improve integration with surroundings | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| L65 | Both sides of realigned A947 | Grade and ease embankments | To reflect undulating landform and visually integrate road with surroundings | At design / construction stage | n/a | Liaison with Local land owners / stakeholders |
| L66 | Both sides of realigned A947 | Broadleaved and mixed woodland planting | To screen movement of traffic on A947 from nearby properties | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| L67 | Southbound ch323950-324230 | Noise barrier (drystone wall) | To provide noise attenuation to Parkhill Cottage, Parkhill Pumping Station | At design / construction stage | n/a | Liaison with Local land owners / stakeholders |
| L68 | A947 Goval junction roundabout ch324800 | Existing Scots Pine trees | To be retained as possible | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| **Braes of Don (southern end of A947 realignment)** | | | To replace existing TPO trees lost to the route, tie into existing woodland and provide screening for Old Toll House | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| L69 | Alongside realigned A947 through Parkhill Estate | Mixed woodland planting | | | | |
| L70 | To either side of the A947 overbridge | Grade embankments | To reflect undulating landform and visually integrate road with surroundings | At design / construction stage | n/a | n/a |
| L71 | Southern section of the A947 Northbound | Noise barrier | To provide noise attenuation to Old Toll House and The Bungalow | At design / construction stage | n/a | n/a |
| **Red Moss wooded farmland (ch325350-326000)** | | | To reduce visual impact on properties at Corsehill | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| L72 | Southbound ch325400-325950 | Mixed woodland planting | | | | |
| L73 | At B977 overbridge | Ease embankments of overbridge | To improve integration with surrounding landform | At design / construction stage | n/a | n/a |

| Item No. | Approximate chainage/ location | Mitigation Measure | Effect of Mitigation on Impact | Timing of Mitigation Measure | Monitoring Requirements | Additional Consultation Required |
|---|---|---|---|---|---|---|
| **Perwinnes Open Farmland (ch326000-328200)** | | | | | | |
| L74 | Northbound ch326000-324000 | False cutting, mixed woodland & extra heavy tree planting | To assist screening of views from properties east of Littlejohn`s Wood and reflect landscape pattern | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| L75 | Northbound and southbound ch327200-327700 | Easing of embankments | To improve integration with surroundings and a potential return to agricultural use | At design / construction stage | n/a | Liaison with Local land owners / stakeholders |
| L76 | Northbound and southbound ch326400-327500 | Groups of feathered tree planting | To reflect existing field boundary character and soften views of road from Lochgreens Farm | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| L77 | Southbound ch326800-327700 | False cutting and Noise Barrier (drystone wall) | To screen views and provide noise attenuation for Lochgreens Cottage | At design / construction stage | n/a | Liaison with Local land owners / stakeholders |
| L78 | Northbound ch326800-327500 | Drystone walls | To tie into existing walls and replace those lost to the route | At design / construction stage | n/a | Liaison with Local land owners / stakeholders |
| L79 | Lochgreens access overbridge | Easing of overbridge embankments | To improve integration with surrounding landform | At design / construction stage | n/a | n/a |
| L80 | Northbound ch327500-327480 around 2 retention ponds | Riparian woodland planting | To integrate with surroundings and promote biodiversity | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| L81 | Northbound ch327800-328300 | Scrub woodland planting | To screen views of the Northern Leg from properties | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| L82 | Southbound ch327950-328150 | Scrub woodland planting | To minimise the diagonal cut across the landscape | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| **Potterton Open Farmland (ch328200-A90 North junction)** | | | | | | |
| L83 | Northbound and southbound ch328200-328900 | Drystone walling | To tie into existing walls and reflect landscape pattern | At design / construction stage | n/a | Liaison with Local land owners / stakeholders |
| L84 | Area around B999 | Realignment of Northern Leg | To minimise loss of existing mature trees | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| L85 | Alongside realigned B999 | Extra heavy standard tree planting | To replace those lost to the route and strengthen landscape pattern | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |

| Item No. | Approximate chainage/ location | Mitigation Measure | Effect of Mitigation on Impact | Timing of Mitigation Measure | Monitoring Requirements | Additional Consultation Required |
|---|---|---|---|---|---|---|
| L86 | B999 overbridge | Easing of embankments | To improve integration within surrounding landform | At design / construction stage | n/a | n/a |
| L87 | Over Blackdog Burn northbound and southbound ch329050 | Easing of embankment and scrub planting | To improve integration with surrounding landform | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| L88 | Southbound ch329800-330080 around 2 retention ponds and Blackdog Burn | Riparian woodland planting | To improve integration with surroundings and promote biodiversity | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| L89 | Northbound ch330250-330700 | Scrub woodland planting | To screen views between traffic and Middleton Steadings | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| L90 | Northbound alongside new access road to Middleton Steadings | Drystone walls | To tie into existing walls and improve integration with surroundings | At design / construction stage | n/a | Liaison with Local land owners / stakeholders |
| L91 | West and south west of A90 roundabout junction | Ease embankments | To improve integration with surroundings and allow a potential return to agriculture in the southwest | At design / construction stage | n/a | Liaison with Local land owners / stakeholders |
| L92 | Between A90 junction and Middleton Farm | Scrub woodland planting | To screen views of traffic movement | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| L93 | Around 2 retention ponds and access track northwest of the A90 roundabout junction | Riparian woodland planting | To improve integration with surroundings and promote biodiversity | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| L94 | Within A90 roundabout junction | Sculpting of landform and seeding undertaken using coastal grass mixes | To reflect coastal location | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| L95 | Between A90 and new Blackdog Road | False cutting and scrub woodland planting on cutting and around ponds | To screen views between the A90 and Blackdog road | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| L96 | Southbound of A90 between Blackdog Croft and Blackdog Road | False cutting and scrub woodland planting on cutting and around ponds | To screen views between Blackdog Road and property | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |

| Item No. | Approximate chainage/ location | Mitigation Measure | Effect of Mitigation on Impact | Timing of Mitigation Measure | Monitoring Requirements | Additional Consultation Required |
|---|---|---|---|---|---|---|
| L97 | Southeast of the A90 roundabout junction between the Blackdog Industrial Estate access and slip road link to A90 | False cutting and scrub woodland planting | To reduce visual impact of elevated roundabout on Blackdog Industrial Estate and properties (The Gables and Blackdog Heights) | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| L98 | Northeast of the A90 roundabout junction between A90 and Wester Hatton Cottages access road | False cutting and scrub woodland planting | To screen views between roads | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| L99 | Northwest of the A90 roundabout junction between A90 and Wester Hatton Farm access road | False cutting and scrub woodland planting | To screen views between roads | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| L100 | Around the 2 retention ponds northeast of the A90 roundabout junction | Riparian woodland planting | To improve integration with surroundings and promote biodiversity | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| L101 | Area lying north of the retention ponds northwest of the A90 roundabout junction | Drystone walling | To tie into existing walls and reflect existing landscape pattern | At design / construction stage | n/a | Liaison with Local land owners / stakeholders |
| L102 | Throughout Scheme | Mitigation planting and earthworks for indirectly affected areas | To assist integration of the road corridor into surroundings | At design / construction stage | Monitoring of planting establishment during aftercare period | Local Authority and maintaining authority |
| **Visual (Chapter 12)** | | | | *Note: landscape mitigation detailed above will also mitigate visual impacts* | | |
| V1 | At all major road junctions including: N Kingswells Jct, South Kirkhill Jct, A947 Goval Jct, A90N Jct, A96 Jct. Minor roads throughout the scheme | Lighting designed to prevent night time glare and sky glow through use of high-pressure sodium, shallow bowl street lighting | To minimize adverse visual impacts on nigh views to dark rural skies | At design / construction stage | N/a | Liaison with Local Authority and maintaining authority |
| V2 | Throughout the scheme | Passive lighting: Installation of reflective road markings and signage where possible | To minimise adverse visual impacts on night views to dark rural skies | At design / construction stage | N/a | N/a |

| Item No. | Approximate chainage/ location | Mitigation Measure | Effect of Mitigation on Impact | Timing of Mitigation Measure | Monitoring Requirements | Additional Consultation Required |
|---|---|---|---|---|---|---|
| **Cultural Heritage (Chapter 13)** | | | | | | |
| CH1 | % of CPO plus:<br>Site 183, ch324550<br>Site 218, ch324240<br>Site 314, ch325830<br>Site 335, ch323300<br>Site 362, A90N Jct<br>Site 367, ch322190 | Fieldwalking, geophysical survey, intrusive trial trenching, possibly up to 10% of the area identified in the Compulsory Purchase Order (CPO) including the targeted areas, which may be of archaeological importance.<br>• measurement of stone (Site 218)<br>• inspection/assessment by paleoenvironmental scientist (site 314)<br>• staged programme of archaeological evaluation (site 335)<br>• strip and record pre-construction (site 367) | Identify unknown archaeological remains that may be affected by the scheme, allow significance of impacts to be fully assessed, identify scale and scope of mitigation works. | Pre-Construction | Overseen and monitored by Historic Scotland | Designers Archaeological Consultant |
| CH2 | % of CPO plus:<br>Site 120, ch316000<br>Site 123, ch316330<br>Site 137, ch320120<br>Site 138, ch320120<br>Site 139, ch320150<br>Site 170, ch323930<br>Site 201, ch329170<br>Site 208, A90N Junction<br>Site 279, ch321820<br>Site 362, A90N Junction | Detailed photographic or topographic survey, archaeological excavation, strip and record operation on ten sites, and any further sites identified under CH1 | To record any remains that would be removed during construction. | Pre-Construction | Overseen and monitored by Historic Scotland | Designers Archaeological Consultant |
| CH3 | Site 154c, ch322350 | Building recording on Site 154c | To preserve by record buildings on which the scheme would have a direct physical impact. | Pre-Construction | Overseen and monitored by Historic Scotland | Designers Archaeological Consultant |
| CH4 | Site 136, ch319780<br>Site 296, ch322750<br>Site 345, ch317360<br>Site 348, ch322920 | Watching brief or strip and record operation to identify any archaeological remains uncovered during construction. Assessment of the nature and significance of impacts, and any requirement for a further mitigation strategy. | Identify and record previously unidentified archaeological remains | During construction (top soil stripping) | Overseen and monitored by Historic Scotland | Designers Archaeological Consultant |
| CH5 | All sites and areas | Make location of identified site 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 | Designers Archaeological Consultant |

| Item No. | Approximate chainage/ location | Mitigation Measure | Effect of Mitigation on Impact | Timing of Mitigation Measure | Monitoring Requirements | Additional Consultation Required |
|---|---|---|---|---|---|---|
| CH6 | Site 134, ch319820<br>Site 283, ch315700<br>Site 284, ch315720<br>Site 159, ch322500 | Introduce an combination of broadleaved woodland, mixed woodland and shrub planting (Site 134, 283, 284)<br>Grading of embankments and easing cuttings, use of appropriate design and material (Site 159) | To minimize visual impact on setting of known sites of cultural heritage significance.<br><br>Refer to landscape mitigation. | During construction and operation | n/a | Designers Landscape Architect |
| **Air Quality (Chapter 14)** | | | | | | |
| No mitigation required | | | | | | |
| **Pedestrians, Equestrians, Cyclists and Community Effect (Chapter 16)** | | | | | | |
| P1 | ch315000-315250 (C14)<br>ch316000-316400<br>ch316400-316700 (C15)<br>ch316800-316950 (C15/16)<br>ch318800-319150 (C18)<br>ch321550-321800 (C21)<br>ch324800 (C24) | Provision of diversion via new verge/track to maintain access. | Avoidance of severance and maintain pedestrian and others access to community facilities. | At design / construction | n/a | n/a |
| P2 | ch315000 (C13/C14)<br>ch316000<br>ch317050 (C16)<br>ch317800 (C17)<br>ch320200 (C19/C20)<br>ch324800<br>ch325900 (C24)<br>A90 junction (C25) | Provision of diversion via vehicular underpass/overbridge. | Avoidance of severance and maintain pedestrian and others access to community facilities. | At design / construction | n/a | n/a |
| P3 | ch324600 (C22/C23) | Provision of diversion via NMU specific underpass. | Avoidance of severance and maintain pedestrian and others access to community facilities. | At design / construction | n/a | n/a |
| P4 | ch321800 (C21) | Provision of diversion via farm accommodation underpass/overbridge. | Avoidance of severance and maintain pedestrian and others access to community facilities. | At design / construction | n/a | n/a |
| P5 | ch318900 (C18) | Provision of diversion via pipeline structure. | Avoidance of severance and maintain pedestrian and others access to community facilities. | At design / construction | n/a | n/a |

| Item No. | Approximate chainage/ location | Mitigation Measure | Effect of Mitigation on Impact | Timing of Mitigation Measure | Monitoring Requirements | Additional Consultation Required |
|---|---|---|---|---|---|---|
| P6 | All | Safety provisions e.g. lighting of underpasses, equestrian parapets, slip resistant surfacing, solid infill panels. | Avoidance of severance and maintain pedestrian and others access to community facilities. | At design / construction | n/a | n/a |
| P7 | All areas subject to replanting. | Refer to relevant landscape commitments L6-L92 for amenity mitigation measures. | Improve amenity value of journeys | At design / construction | n/a | n/a |
| **Vehicle Travellers (Chapter 17)** | | | | | | |
| VT1 | All road sections as appropriate | See landscape and visual (L1-L92; V1-V2) mitigation measures for details which include:<br>• protection of established trees, woodland and drystone walls to maintain landscape character;<br>• use of different planting types to create species diversity along route;<br>• planting on earthwork areas to minimise sense of enclosure;<br>• new drystone walls on realigned field boundaries to fit with landscape character;<br>• grass seeding on verges and rock cuts to enhance visual amenity;<br>• riparian planting around attenuation ponds to create new habitats and visual interest; and<br>• regrading of some earthworks to allow for potential return to agricultural use. | Mitigation planting will help to soften harsh embankments and cuttings and integrate the road into the surrounding areas. Many of the views will become more enclosed as planting matures, while others will become framed by woodland, allowing a sequence of attractive views for travellers. | Operation | n/a | n/a |
| VT2 | All components of scheme | Adherence to appropriate roads design standards including the DMRB where reasonably practicable. | Reduction of driver stress where possible | Scheme design | n/a | n/a |
| **Disruption due to Construction (Chapter 18)** | | | | | | |
| D1 | All agricultural land | • Restrict construction works and activities to a defined working corridor.<br>• Careful siting of site compounds and design of access/egress routes.<br>• Adherence to best practice to control dust generation and dispersal. | Avoidance of damage to agricultural capability of land, and prevention, where possible, of disruption to farming practices. | Pre-construction and construction | n/a | Farmer / landowner |
| D2 | All agricultural land | Provision of temporary access/egress and clear signage. | Maintenance of access to/from farms and to agricultural land suitable for agricultural vehicles, deliveries etc. | Pre-construction and construction | n/a | Farmer / landowner |

| Item No. | Approximate chainage/ location | Mitigation Measure | Effect of Mitigation on Impact | Timing of Mitigation Measure | Monitoring Requirements | Additional Consultation Required |
|---|---|---|---|---|---|---|
| D3 | Operational business premises | Provision of temporary access/egress and clear signage. | Maintenance of access to/from business premises for staff, deliveries and customers. | Pre-construction and construction | n/a | Farmer / Business Proprietor |
| D4 | All areas | • Sensitive siting of site compounds, parking/storage areas.<br>• Keeping construction site tidy.<br>• Minimise periods of night-time working and use directional lighting to minimise glare.<br>• Using existing or temporary screening where appropriate. | To minimise the visual impact of the construction works. | Construction | Ongoing monitoring during construction to ensure effectiveness of measures.<br><br>Supervision by engineer. | SEPA<br><br>SNH |
| D5 | All areas | • Avoiding unnecessary stockpiling of bulk materials likely to be subject to wind-blow;<br>• Placing stockpiled materials away from potentially sensitive receptors;<br>• maintaining site and public roads to minimise the accumulation of mud on road surfaces;<br>• Minimising drop heights during the handling of bulk materials;<br>• Undertaking regular vehicle maintenance to ensure that emissions of soot and other pollutants in vehicle exhausts are minimised;<br>• Switching off machinery and vehicles not in use, particularly in areas close to properties;<br>• watering exposed soil surfaces (during drying conditions);<br>• Covering trucks transporting dust-producing material leaving or entering construction site;<br>• Reducing construction vehicle travel speeds on unpaved surfaces;<br>• Maintaining equipment as per manufacturers' specifications, this will be specified in the Contract Documents to reduce emissions during construction; and<br>• Conform to all relevant local authority requirements or restrictions for dust generation during construction. | To minimise the generation of dust / emissions during construction. | Pre-construction and During construction | Ongoing monitoring during construction to ensure effectiveness of measures. | Local Authorities |

| Item No. | Approximate chainage/ location | Mitigation Measure | Effect of Mitigation on Impact | Timing of Mitigation Measure | Monitoring Requirements | Additional Consultation Required |
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| D6 | All areas | • The Contractor will be required to keep a record of any concerns from residents about air quality during construction and the actions taken. | Advise the local community of proposed works and activities that could give rise to dust and provide local residents with a named contact to respond to any air pollution concerns or nuisance. | Construction phase. | None | Local Authorities, Local Residents |
| D7 | All areas | • Use of noise barriers to reduce noise levels (from machinery) at receptor locations;<br>• Ensure that piling works are kept to a practicable minimum;<br>• Ensuring that all equipment is maintained according to manufacturers' specification;<br>• Suitable distancing of any noisy plant from sensitive locations;<br>• Switching off machinery and vehicles not in use, particularly close to properties;<br>• Noise monitoring, with recorded data made available to local Council Environmental Health Departments;<br>• 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.<br>• Threshold limits for noise and vibration, to be agreed with Fife, Falkirk Clackmannanshire Councils, will be stated within the contract documents;<br>• Vibration monitoring; and<br>• Undertaking dilapidation surveys of selected properties;<br>• advise the local community of proposed works and activities that could give rise to noise nuisance; and<br>• Provide local residents with a named contact to respond to any noise/vibration concerns or nuisance. The Contractor will be required to keep a record of any concerns and the remedial actions taken. | To minimise the noise and vibration nuisance during construction work. | During construction | Noise monitoring to ensure noise level limits are achieved. | On receiving detailed construction methodology, more accurate noise predictions can be made |

| Item No. | Approximate chainage/ location | Mitigation Measure | Effect of Mitigation on Impact | Timing of Mitigation Measure | Monitoring Requirements | Additional Consultation Required |
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| D8 | All routes used by pedestrians and others in vicinity of proposed road scheme | • Existing routes to be maintained or re-routed as far as possible during construction of the new road. Such provision would be subject to normal site safety constraints.<br>• Exact details of such provision will be agreed between the Contractor and the Scottish Executive as part of the contract process. | To avoid obstruction of routes used by pedestrians and others due to construction activities. | Pre-construction and during construction | Ongoing monitoring during construction to ensure effectiveness of measures. | Scottish Executive<br>Local Councils |
| D9 | All areas | • Avoidance of road closures where possible.<br>• Road diversions to be clearly indicated with signs and road markings, and any night-time diversions/changes should be lit.<br>• Timing of works vehicles to avoid peak traffic periods. | To minimise increases to driver stress. | During construction | None | Scottish Executive |
| D10 | All locations where proposed route ties in with existing routes | Lane closures will not be permitted during peak hours except in exceptional circumstances. | To minimise increases to driver stress. | During construction | None | Scottish Executive |
| **Policies and Plans (Chapter 19)** | | | | | | |
| Refer to specific Chapters of Environmental Statement. | | | | | | |