21. Schedule of Environmental Commitments

21.1. Introduction

21.1.1. This chapter provides a summary of the mitigation measures identified in the Environmental Statement for implementation during design, prior to construction, during construction and/or during operation of the Proposed Scheme.

21.1.2. The Schedule of Environmental Commitments will be incorporated into the works construction contract documents and the appointed Contractor will be obliged to adhere to these requirements throughout the contract period. The construction commitments will be addressed through the Construction Environmental Management Plan (CEMP).

21.1.3. The measures are presented in the Schedule of Environmental Commitments tables below, with each table including the following information:

- Mitigation Measure Reference.
- Approximate Location.
- Timing of Measure.
- Mitigation Measure Description.
- Aim of the Measure.
- Any Specific Approvals or Consultation.

Table 21.1: General Standard Construction Mitigation

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
Standard A9 Mitigation					
SMC-S1	Throughout proposed scheme	Pre-Construction & Construction	A Construction Environmental Management Plan (CEMP) will be prepared by the Contractor. The CEMP will set out how the Contractor intends to operate the construction site, including construction-related mitigation measures identified below in Tables 21.2 to 21.11. The relevant section(s) of the CEMP will be in place prior to the start of construction work. The CEMP will include, but not be limited to, subsidiary plans relating to: agricultural soils, geology and land contamination; surface water and groundwater (including a Flood Response and Pollution Incident Response Plan); ecology (including specific Species and Habitat Management Plans); landscape, cultural heritage, air quality and noise and vibration.	To provide a framework for the implementation of construction activities in accordance with the environmental commitments and mitigation measures in the ES. It will be developed and evolve to avoid, reduce or mitigate construction impacts on the environment and the surrounding community.	Consultation with the relevant local authorities, other statutory bodies and regulatory authorities (Refer to Tables 21.2-21.11).
SMC-S2	Throughout proposed scheme	Pre-Construction & Construction	Prior to construction an Environmental Coordinator and team of suitably qualified Environmental Clerk of Works (EnvCoW) (i.e. professionally qualified in a relevant environmental discipline) will be appointed by the Contractor. The EnvCoW(s) will report to the Environmental Coordinator and be present on site, as required, during the construction period to monitor the implementation of the mitigation measures identified and ensure that activities are carried out in such a manner to prevent or reduce impacts on the environment.	To monitor the implementation of the mitigation measures identified and ensure that activities are carried out in such a manner to prevent or reduce impacts on the environment.	Approval by Transport Scotland.
SMC-S3	Throughout proposed scheme	Pre-Construction & Construction	Throughout the construction period the Contractor will, as required, contribute towards the overall communications strategy for the A9 Dualling Programme. As part of this the Contractor will appoint a Community Liaison Officer supported by a liaison team as necessary who will: • liaise with the following: relevant local authorities; other statutory bodies and regulatory authorities; community councils and relevant community groups; and businesses	To inform stakeholders and consultees throughout the construction period.	Consultation with the relevant local authorities, other statutory bodies and regulatory authorities, community councils and relevant community groups, and businesses and residents in local

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			and residents in local communities affected by the construction works; • notify occupiers of nearby properties a minimum of two weeks in advance of the nature and anticipated duration of planned construction works that may affect them; • support the production of project communications such as the project website and newsletters; and • establish a dedicated freephone telephone helpline together with a dedicated email address and postal address for enquiries and complaints during the construction phase. The relevant contact numbers, email and postal addresses will as a minimum be displayed on signs around the construction site and will be published on the project website. Enquiries and complaints will be logged in a register and appropriate action will be taken in response to any complaints.		communities affected by the construction works.
SMC-S4	Throughout proposed scheme	Construction	The Contractor will ensure that all site workers receive adequate environmental training relevant to their role prior to working on the construction site, including specific environmental project inductions and 'toolbox talks' on best practice construction methods as appropriate.	To ensure site workers are aware of best practice construction methods, mitigation measures and how they are implemented.	None required

Table 21.2: People and Communities – Community and Private Assets

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
Standard A9 Mitigation					
SMC-CP1	Throughout proposed scheme	Pre-Construction & Construction	Access to/from residential, commercial and industrial and agricultural, forestry and sporting assets will be maintained throughout the construction period by means of signed diversions, where necessary. The estimated duration and location of these diversions will be communicated to affected parties, as required, before they are put in place.	To maintain access to/from residential, commercial and industrial and agricultural, forestry and sporting assets.	None required
SMC-CP2	Throughout proposed scheme	Construction & Operation/Post-Construction	Existing access arrangements to agricultural and forestry land out-with the land made available (LMA) boundary will not be prevented by the construction works during or post construction, unless alternative access is provided for in the Road Orders.	To maintain access to/from residential, commercial and agricultural/forestry land.	None required
SMC-CP3	Throughout proposed scheme	Pre-Construction	Consultation with affected landowners and occupiers will be undertaken on the location and timing of planned construction works to reduce disturbance, where practicable, taking into account the overall construction programme.	To reduce disturbance on affected landowners.	Consultation with affected landowners and occupiers.
SMC-CP4	All agricultural land	Pre-Construction	Notice of intention to commence construction work will be provided to owners and occupiers of agricultural land adjacent to the Proposed Scheme before works commence.	To ensure owners and occupiers of agricultural land adjacent to the proposed scheme are informed of the intention to commence construction work prior to works commencing.	None required
SMC-CP5	All agricultural land	Construction	Where practicable, temporary construction compounds that are required out-with the LMA boundary will not be sited on prime agricultural land or on areas of woodland and forestry.	To reduce potential impacts arising from temporary construction compounds on prime agricultural land or on areas of woodland and forestry.	None required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
SMC-CP6	All agricultural land	Construction & Operation	Where appropriate, temporary fences will be provided during construction for the health and safety of the public and animals and to avoid trespass. Where required, fencing of working areas will be to a standard adequate for excluding any livestock kept on adjoining land. Access by non-authorised personnel will not be permitted, unless prior permission is granted by the Principal Contractor(s).	For the health and safety of the public and animals and to prevent unauthorised site access.	None required
SMC-CP7	All agricultural land	Construction	Where boundary features (e.g. fences, walls and hedges) require temporary or permanent alteration to allow construction, these will be reinstated with appropriate materials to provide a secure boundary.	To provide a secure boundary and reduce disruption to agriculture.	None required
SMC-CP8	Throughout proposed scheme	Construction	Soil resources will be managed in accordance with the 'Construction Code of Practice for the Sustainable Use of Soils on Construction Sites' (Defra, 2009) and Promoting the Sustainable Reuse of Greenfield Soils in Construction (SEPA, et al, 2010) to ensure that soil mitigation measures are fully implemented and soil resources are protected. This will include the careful excavation, storage and replacement of topsoil and subsoil.	To ensure that soil mitigation measures are fully implemented and soil resources are protected.	None required
SMC-CP9	All agricultural land	Construction	Reasonable precautions will be taken during construction to avoid the spreading of soil-borne pests and diseases; animal and crop diseases; tree pests and diseases; and invasive species. A biosecurity protocol will be developed by the Contractor in consultation with the Animal and Plant Health Agency, the Scottish Government's Environment and Forestry Directorate and the Scottish Government's Agriculture, Food and Rural Communities Directorate, taking cognisance of relevant UK and Scottish Government biosecurity guidance.	To avoid the spreading of soil-borne pests and diseases; animal and crop diseases; tree pests and diseases; and invasive species.	Consultation with the Animal and Plant Health Agency, the Scottish Government's Environment and Forestry Directorate and the Scottish Government's Agriculture, Food and Rural Communities Directorate. Consultation with SNH.
SMC-CP10	Throughout proposed scheme	Pre-Construction	Pre-construction drainage surveys will be undertaken to reduce the likelihood of damage or disturbance to field and forestry drainage systems during construction.	To reduce the likelihood of damage or disturbance to field and forestry drainage systems during construction.	Consultation with affected landowners and occupiers.

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			Where required, the integrity of the drainage system will be secured in advance of construction. Repairing and reinstatement of drains affected by construction will be agreed with the landowner/occupier to ensure that land capability is maintained and the risk of flooding is not exacerbated.		
SMC-CP11	Throughout proposed scheme	Pre-Construction	Water supplies for livestock will be identified pre-construction and where supplies are lost or access is compromised by any construction works, temporary and/or permanent alternative supplies will be provided as agreed with the landowner/occupier.	To reduce disruption to landowners/occupiers.	Consultation with affected landowners and occupiers.
SMC-CP12	Throughout proposed scheme	Post-Construction/ Operation	LMA that is declared surplus following completion of construction of the Proposed Scheme (including redundant road pavement and/or access tracks) will be offered back to former owners or their successors in accordance with the Crichel Down Rules.	To return surplus land to former owners or their successors in accordance with the Crichel Down Rules.	Consultation with affected landowners and occupiers.
SMC-CP13	Throughout proposed scheme	Construction	Sporting or fishing rights which exist within working areas may not be accessible during the construction period. Where there are sporting or fishing rights adjacent to the working area, reasonable endeavours will be taken to minimise interference or enjoyment of them while recognising the primary objective to maintain a safe working environment for both contractors and users of the land and water.	To reduce interference or enjoyment of sport/fishing while maintaining a safe working environment for both contractors and users of the land and water.	None required
SMC-CP14	Throughout proposed scheme	Pre-Construction	Where stands of trees are to be affected an appropriate arboricultural and/or windthrow assessment will be undertaken pre-construction and appropriate mitigation employed for the purposes of safety of land and infrastructure.	To address safety risk to land within the proposed scheme and reduce impacts to forestry.	None required
SMC-CP15	Throughout proposed scheme	Post-Construction/ Operation	On completion of works, any land required temporarily for construction works will be reinstated as far as practicable. A photographic and video survey is to be undertaken of any land to be returned to agriculture, to ensure all land is restored as near to its original state as is reasonably practicable.	To ensure appropriate restoration of land following completion of proposed scheme.	None required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
n/a (note)	n/a	n/a	Further to the above, the mitigation item W11 detailed in Table 21.5 (Road Drainage and Water Environment), also applies to avoiding effects to water supplies.	To ensure water supplies are maintained.	n/a (note)
Project Specific Mitigation					
P11-CP16	Throughout Proposed Scheme	Operation	In commercial forests loss of timber through windthrow may occur over a period of years after trees are felled during the construction process. This would be a matter for compensation for an agreed number of years into the operational phase.	Loss of timber through windthrow.	Consultation with landowners and occupiers.

Table 21.3: People and Communities – Effects on All Travellers

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
Standard A9 Mitigation					
SMC-AT1	Throughout proposed scheme	Construction	As far as reasonably practicable, the construction programme will take into account the need to minimise the length of closures or restrictions of access for NMUs.	To minimise length of closures or restrictions of access for NMUs.	None required
SMC-AT2	Throughout proposed scheme	Construction	Where practicable, temporary diversion routes and/or assisted crossings will be provided to maintain safe access for NMUs throughout the construction works. Any closure or re-routing of routes used by NMUs would take cognisance of the 'Roads for All: Good Practice Guides for Roads' (Transport Scotland, 2013). These will be agreed in advance with the relevant local authorities and will be clearly indicated with signage as appropriate.	To maintain safe access for NMUs throughout the construction works.	Any closures will be agreed with Transport Scotland (Rights of Way), CNPA and/or THC (local and core paths).
SMC-AT3	Throughout proposed scheme	Pre-Construction	Where required and practicable, bus stops will be relocated prior to construction with a safe access route provided for NMUs. This will be undertaken in consultation with the relevant Roads Authority and public transport provider.	To maintain access to Public Transport facilities.	Consultation with the relevant Roads Authority and public transport provider.
SMC-AT4	Throughout proposed scheme	Construction	The Contractor will produce a traffic management plan that will include measures to avoid or reduce disruption to the road traffic, and in accordance with the Traffic Signs Manual (Department of Transport, 2009). The plan will include consideration of the timing of works, the location of haul roads to reduce site traffic on the public roads and a well-maintained traffic management system with sweeping of roads to reduce construction debris on the carriageway.	To avoid or reduce disruption to the road traffic.	None required
SMC-AT5	Throughout proposed scheme	Construction	Reasonable precautions will be taken by the Contractor to avoid or reduce road closures. No A9 lane closures will be permitted during peak hours (Mon to Fri) except in exceptional circumstances which are approved by Transport Scotland.	To avoid or reduce road closures and resulting disruptions to traffic.	Approval required from transport Scotland in the event of required A9 lane closures.
SMC-AT6	Throughout proposed scheme	Construction	Road diversions will be clearly indicated with road markings and signage as appropriate. Any road closures	To reduce disruption to the road users.	None required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			will be notified in advance through road signage and appropriate signage will be provided for the duration of the closure.		
SMC-AT7	Throughout proposed scheme	Construction	Appropriate lighting will be provided during any necessary night-time working, taking into account the requirements of Mitigation Items SMC-E10 and SMC-LV4.	To mitigate potential impacts on driver stress such as fear of potential accidents due to inadequate lighting provision.	None required
SMC-AT8	NMU facilities	Construction	General principles for maintaining and improving access for NMUs include: • The requirements of the Equality Act 2010 and 'Roads for All: Good Practice Guides for Roads' (Transport Scotland, 2013) shall be incorporated into the Proposed Scheme wherever practicable; e.g. any bridges, ramps or footpaths shall take into account potential barriers to disabled people such as the gradient or surfacing. • Surfacing of any new paths including alongside roads shall be considered with regard to the type of user and should comply with current standards. • Safety of paths will be improved by providing barriers to segregate traffic from paths in accordance with the Road Restraints Risk Assessment Process. • New cycleways/footpaths shall use non-frost susceptible materials to reduce risk of degradation. Where use of non-frost susceptible materials is not appropriate, a maintenance regime will be developed to avoid degradation of NMU paths.	To maintain access for NMUs and provide appropriate facilities based on use and improve access for NMUs.	None required
n/a (note)	n/a	n/a	Further to the above, the mitigation items detailed in Table 21.7 (Landscape and Visual), Table 21.9 (Air Quality) and Table 21.10 (Noise and Vibration) will reduce the adverse amenity impacts on NMU and vehicle travellers during construction.	To reduce the adverse amenity impacts on NMU and vehicle travellers during construction.	n/a

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
Project Specific Mitigation					
P11-AT9	Throughout Proposed Scheme	Pre-construction & Construction & Post construction	NMU route signage to include provision of a range of warning and informative signs.	Providing navigation and safety benefits.	Consultation with SUSTRANS, CNPA/THC, ScotWays and British Horse Society

Table 21.4: Geology, Soils and Groundwater

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
Standard A9 Mitigation					
SMC-G1	Throughout Proposed Scheme	Pre-Construction	Prior to construction, consultation will be undertaken with the relevant local authorities and SEPA regarding works in relation to land affected by contamination to support the obligations set out in 'Planning Advice Note 33: Development of Contaminated Land' (Scottish Government, 2000). Any remedial action undertaken in relation to land affected by contamination will be carried out under the appropriate remediation licencing.	To reduce impacts from contaminated land sources.	Consultation with The Highland Council and SEPA
SMC-G2	Throughout Proposed Scheme	Pre-Construction	Prior to construction and where potential contamination has been identified, further site investigations sufficient to determine the extent and type of contaminants present will be undertaken, as necessary, to inform identification of appropriate construction methods and any additional mitigation.	To determine the extent and type of contaminants present and to inform identification of appropriate construction methods and any additional mitigation.	None required
SMC-G3	Throughout Proposed Scheme	Pre-Construction & Construction	Prior to construction, appropriate health and safety and waste management procedures for working with potentially contaminated soils will be established. Waste management procedures will include, but are not limited to: Waste Management Licence Regulations 1994 (as amended by Waste management licensing Amendment (Scotland) Regulations 2003), HSE Guideline Note MS13 Asbestos 1988 and the Health and Safety Commission Approved Code of Practice and Guidance Note. These procedures will be implemented as appropriate during construction.	To ensure appropriate health and safety and waste management procedures for working with potentially contaminated soils are followed.	None required
SMC-G4	Throughout Proposed Scheme	Construction & Operation	Risks to construction and maintenance staff working with/near contaminated land will be mitigated by the implementation of Mitigation Item SMC-G3 in combination with the adoption of appropriate systems of work, including personal protective equipment (PPE) as a last resort. In the event that unrecorded contamination is encountered, works should be stopped and the working	To reduce impacts from contaminated land sources and confirm the safety of construction and maintenance staff.	None required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			procedures reassessed to confirm the working methods remain appropriate.		
SMC-G5	Throughout Proposed Scheme	Construction	Appropriate training of personnel involved in earthworks activities to implement a watching brief to identify potential presence of previously unidentified contamination.	To identify potential presence of previously unidentified contamination.	None required
SMC-G6	Throughout Proposed Scheme	Pre-Construction & Construction	Where required, landowner consultation and site visits will be undertaken to confirm the location and network of septic tanks. Where septic tanks are located within the LMA they will be relocated and/or rebuilt subject to discussion and agreement with the affected landowner(s).	To mitigate the loss of any septic tanks.	Approval from landowners
SMC-G7	Throughout Proposed Scheme	Construction	The Contractor will adhere to appropriate guidance including the 'Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention, National Groundwater and Contaminated Land Centre Report NC/99/77'.	To prevent cross contamination and pollution from piling works undertaken in areas of land affected by contamination.	None required
SMC-G8	Throughout Proposed Scheme	Construction	Prior to disposal, soils will be assessed in line with the 'Waste Classification: Guidance on the Classification and Assessment of Waste' (Technical Guidance WM3) (Natural Resources Wales, SEPA, Northern Ireland Environment Agency, Environment Agency, May 2015) to determine whether they are hazardous or non-hazardous.	To determine whether disposed soils are hazardous or non-hazardous.	None required
SMC-G9	Throughout Proposed Scheme	Pre-Construction	To maximise the reuse of site-won materials on-site (and minimise the need for disposal of waste in line with the principles of the "Waste Hierarchy") whilst ensuring that no risks are posed to human health nor the water environment a soil reuse assessment will be undertaken prior to construction. The soil reuse assessment will identify any potential risks posed to both human health and the water environment from potentially contaminated soils reused throughout the Proposed Scheme.	To identify any potential risks posed to human health and the water environment from potentially contaminated soils reused. In addition, this mitigation item would maximise re-use of site-won materials on-site and minimise the need for disposal of waste in line with the principles of the "Waste Hierarchy" through re-use of excavation arisings (refer to Mitigation Item SMC-M3).	None required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
SMC-G10	Throughout Proposed Scheme	Construction	If peat is encountered during construction, it will be extracted, excavated, stored, with any off-site removal undertaken with cognisance of 'Development on Peatland: Guidance on the Assessment of Peat Volumes, Reuse of Excavated Peat and the Minimisation of Waste' (Scottish Renewables and SEPA, 2012) and will comply with relevant waste management practices under The Waste Management Licensing (Scotland) Regulations 2011.	To comply with relevant waste management practices under The Waste Management Licensing (Scotland) Regulations 2011 and reduce impacts on peatlands.	Consultation with SEPA
n/a (note)	n/a	n/a	Further to the above, the intention is that excavation of soils and peat shall be the standard technique, however, the use of non-excavation techniques (e.g. piling) shall be employed to avoid excavating large volumes of peat material at specific locations on the Proposed Scheme (Feith Mhor and Black Mount). Further details are provided in Appendix 10.3.	n/a	n/a
SMC-G11	Throughout Proposed Scheme	Pre-Construction & Construction	Where concrete materials are proposed to be used, appropriate guidance such as 'Building Research Establishment (BRE) SD1:2005' and 'British Standard (BS) BS8500' should be followed.	To ensure that ground conditions are appropriate for the use of concrete at each given location.	None required
SMC-G12	Throughout Proposed Scheme (where necessary)	Pre-Construction, Construction & Post-Construction	Where potential pollutant pathways for ground gas have been identified, a ground gas monitoring program will be developed prior to construction in adherence to 'CIRIA 665 Assessing Risks Posed by Hazardous Ground Gases to Buildings'. This will include an assessment of gassing issues following receipt of additional ground gas monitoring results at selected boreholes. Appropriate working methods will be developed and adopted during below ground site construction works (including piling works and excavations). This should include as a minimum, gas monitoring undertaken prior to any entry into excavations, confined spaces or below ground structures and use of PPE as a last resort. If significant ground gas issues are identified during construction, further post construction monitoring will be	To mitigate against potential impacts on human health during construction and Off Site Receptors (local residents, transient traffic (foot, road and rail traffic) in the surrounding area) due to ground gas.	None required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			undertaken and/or appropriate gas protection measures will be incorporated into the final design.		
SMC-G13	Throughout Proposed Scheme	Construction	Unless it can be demonstrated by the Contractor via a Quantitative Risk Assessment that no water quality impacts will occur due to leaching from SuDS features, operational SuDS features should be lined. Any potential water quality impacts due to leaching from SuDS features will be addressed through the CAR process.	To mitigate against potential impacts on water quality due to leaching from SuDS features.	Consultation with SEPA
n/a (note)	*n/a*	*n/a*	*As above.*	For drainage network S5, to reduce the impact on water quality for the aquifer supplying the South Aviemore Public Water Supply.	*n/a*
SMC-G14	Throughout Proposed Scheme	Construction	Where required, storage of excavated soils and made ground will be minimised on site (spatially and in duration) and all storage areas will be appropriately lined, with adequate drainage management in place.	To ensure that no polluted water percolates into the ground or contaminated run-off is generated.	None required
SMC-G15	Throughout Proposed Scheme	Pre-Construction	Risk assessments will be required before explosives can be used on site.	To minimise or control the impact of blasting on bedrock geology.	None required
SMC-G16	Throughout Proposed Scheme	Pre-Construction	Risk assessments will be required before explosives can be used on site. The blast design will seek to minimise any potential disturbance.	To minimise or control the impact of blasting on the bedrock aquifer. Blasting physically disturbs a rock face. It can cause geological instabilities which may affect the aquifer by altering groundwater flow paths/flow direction.	None required
n/a (note)	n/a	n/a	Further to the above, the implementation of Mitigation Items detailed in Chapter 11 (Road Drainage and the Water Environment) and the measures detailed in Chapter 16 (Air Quality).	To mitigate the water pollution risk to groundwater and avoid the creation of a statutory nuisance associated with dust	n/a

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
				and air pollution when working with contaminated land.	
Project Specific Mitigation					
P11-G17	South Aviemore groundwater and PWS Slochd 2 abstractions	Pre-Construction, Construction and Post-Construction	A programme of monitoring (water quality sampling) will be undertaken. The frequency and duration of sampling and the water quality parameters to be tested will be agreed. Contingency plans will be drawn up to provide an alternative water supply in the unlikely event of a pollution incident.	To monitor potential construction pollution.	Landowners/users, SEPA and The Highland Council
n/a (note)	n/a	n/a	Extra treatment equipment to be on standby at any works, such as portable sediment removal kits. Filter drains will be lined in the vicinity of the abstraction boreholes and their catchment area, SuDS features will also be lined to prevent infiltration. Any planned works or activity within 500m of the abstraction borehole assets must be notified to Scottish Water at least 30 days in advance of the works commencing with detailed method statements of any works/activities included.	To minimise the impact of potential construction pollution at the south Aviemore Public Supply boreholes.	n/a
P11-G18	PWS Slochd 2 and PWS Slochd 3	Design, Construction	The Contractor will: • accurately locate and map supply lines prior to construction; • take measures to prevent damage to supply lines and to avoid pollution during supply line diversions, excavations and groundworks; • provide an alternative water supply if supply lines are to be temporarily disrupted by the works; and • consult with the owners/users of the affected private water supplies to ensure the effects of any disruption are minimised.	To minimise disruption to the private water supplies.	Landowners and users
P11-G19	Throughout Proposed Scheme	Pre-Construction, Construction (where required),	The contractor will: • revisit the Method C assessment for the proposed filter drains as more detailed GI and groundwater level data becomes available at detailed design;	To avoid impacts on groundwater quality from operational routine runoff.	Consultation with SEPA

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
		Post-Construction	• should the Method C assessment indicate there is a Medium to High Risk to groundwater, further site specific assessment will be carried out; and • if it is concluded that groundwater quality impacts are likely, the proposed filter drains will be lined or alternative appropriate mitigations implemented. Any potential water quality impacts due to leaching from SuDS features will be addressed through the CAR process.		
P11-G20	Cuttings 1, 2, 3, 10, 13, 14, 70, 72, 73, 226, 245, 246 and 248 Pond 4	Pre-Construction, Construction	Further ground investigations, groundwater monitoring and assessment will be carried out pre-construction for those cuttings assessed as having a potentially significant impact on groundwater levels and flows. If the impacts are confirmed as significant, additional mitigation measures may be required, such as containing, channelling and directing groundwater to the down gradient side of the cutting, allowing the discharge to infiltrate back to ground. The potential volume of groundwater seeping into the above cuttings will also be considered in relation to the design of the cutting drainage and potential groundwater abstraction CAR licensing. Ground and surface water monitoring will be required to monitor any changes adjacent to and at Pond 4 during construction due to its close proximity to the scheme.	To avoid impacts to groundwater flows and levels. To comply with The Water Environment (Controlled Activities) (Scotland) Regulations 2011.	Consultation with SNH/SEPA
P11-G21	Throughout Proposed Design	Pre-Construction, Construction (where required), Post-Construction	Pre-construction groundwater monitoring will be carried out at a representative sample of high and moderate groundwater dependency GWDTEs to determine whether they are true GWDTEs. This will comprise a minimum of ten samples over a six month period, with at least five taken during the summer period. Where GWDTEs will be affected by groundwater drawdown in the vicinity of cuttings, any groundwater entering cuttings will be directed to the down gradient side and allowed to infiltrate. Where possible the location and	To mitigate any impacts on GWDTEs.	Consultation with SEPA

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			frequency of these discharges will be designed to replicate the natural groundwater flow as closely as possible. Where GWDTES are located downslope of proposed road embankments, permeable fill material will be used in the embankment construction wherever possible, to maintain groundwater flows. Cross formation drains will be used where practicable to facilitate groundwater through flow. Should a spring issue within the footprint of the scheme this will be dealt with using standard construction practice, however the outflow will be located where it is able to feed the same downslope GWDTE habitat wherever possible. The precise design mitigation for each GWDTE will be devised during the detailed design stage. Monitoring during construction to be determined in consultation with SEPA. Post-construction monitoring will be carried out (a minimum of ten measurements over a twelve month period, for a minimum of three years) until it is demonstrated that receptors are not impacted. Should post-construction monitoring reveal residual impacts, consultation with SEPA will be carried out to determine feasible mitigation measures.		
P11-G22	Throughout Proposed Design	Pre-Construction, Construction (where required)	The Peat Management Plan will be revised and refined during detailed design. At present it is proposed that all soil and peat excavated as part of the Proposed Scheme will be re-used for on-site landscaping purposes, with no excess peat identified. This should continue to be the preferred reuse option. Should the refined design identify an excess of peat, consideration should be given to additional reuse options, both onsite and offsite in preference to disposal. Consultation with landowners and statutory stakeholders will continue to confirm where peat will be stored and re-used as part of the pre-construction phase.	To reduce impacts on soil and peat loss through peat re-use.	Consultation with SEPA

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			Information on WML requirements should be provided by the contractor at detailed design stage as part of the detailed Soil and Peat Management Plan to ensure compliance for any temporary storage, transportation and re-use of soil and peat on-site.		
P11-G23	Throughout Proposed Scheme	Pre-Construction, Construction (where required)	Where soil and peat needs to be temporarily stored and/or naturally dried within the scheme area, pollution prevention requirements will be considered to avoid impacts to surface and groundwater bodies and to comply with 'Development on Peatland: Guidance on the Assessment of Peat Volumes, Reuse of Excavated Peat and the Minimisation of Waste' (Scottish Renewables and SEPA, 2012) and relevant waste management practices under The Waste Management Licensing (Scotland) Regulations 2011. This includes the standard and specific mitigation items included within this chapter and Chapter 11, including: • SMC-G10 To comply with relevant waste management practices under The Waste Management Licensing (Scotland) Regulations 2011 and reduce impacts on peatlands:; • SMC-G14 To ensure that no polluted water percolates into the ground or contaminated run-off is generated; • SMC-W4 In relation to construction site runoff and sedimentation, the Contractor will adhere to GPPs/PGGs (SEPA, 2006-2017) and other good practice guidance (Section 11.2 of Chapter 11 (Road Drainage and the Water Environment)); and • P11-W18 Prior to construction the Contractor shall produce a Surface Water Management Plan (SWMP) (or similar such document) that will be submitted to SEPA for approval as part of the CAR authorisation process for site discharges.	To prevent pollution impacts on the water environment from the temporary storage and handling of soil and peat.	Consultation with SEPA
P11-G24	Rock Cuts at Slochd Beag, Slochd Mor and Slochd Summit.	Pre-Construction	In relation to earthworks proposals that concern the excavation, trimming and stabilisation of rock faces of national importance (SSSI/GCR), the Contractor will	To maximise areas of accessible rock exposure for identified geodiversity sites,	Consultation with SNH

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
		and Construction	adhere to best practice guidance in the conservation of the rock faces, minimizing areas of rock exposure lost beneath concrete, netting/mesh and walling, providing rock faces that can be accessible for research, subject to health and safety risk assessment and due consideration of trunk road operations.	thereby ensuring maintenance of their national importance as key scientific resources.	

Table 21.5: Road Drainage and the Water Environment

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
Standard A9 Mitigation					
SMC-W1	Throughout proposed scheme	Design, Pre-Construction & Construction	In relation to authorisations under CAR, the Contractor will be required to provide a detailed Construction Method Statement which will include proposed mitigation measures for specific activities including any requirements identified through the pre-CAR application consultation process.	To mitigate construction impacts on the water environment.	CAR applications require approval from SEPA.
SMC-W2	Throughout proposed scheme	Pre-Construction & Construction	In relation to flood risk, the Contractor will implement the following mitigation measures during construction: • The Flood Response Plan (as part of the CEMP, refer to Mitigation Item SMC-S1 in Table 21.1) will set out the following mitigation measures to be implemented when working within the functional floodplain (defined here as the 0.5% AEP (200-year) flood extent): ➢ Routinely check the Met Office Weather Warnings and the SEPA Floodline alert service for potential storm events (or snow melt), flood alerts and warnings relevant to the area of the construction works. ➢ During periods of heavy rainfall or extended periods of wet weather (in the immediate locality or wider river catchment) river levels will be monitored using for example SEPA Water Level Data when available/visual inspection of water features. The Contractor will assess any change from base flow condition and be familiar with the normal dry weather flow conditions for the water feature, and be familiar with the likely hydrological response of the water feature to heavy rainfall (in terms of time to peak, likely flood extents) and windows of opportunity to respond should river levels rise.	To reduce the risk of flooding impacts on construction works.	None required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			➢ Should flooding be predicted, works close or within the water features should be immediately withdrawn (if practicable) from high risk areas (defined as: within the channel or within the bankfull channel zone - usually the 50% (2-year) AEP flood extent). Works should retreat to above the 10% AEP (10-year) flood extent) with monitoring and alerts for further mobilisation outside the functional floodplain should river levels continue to rise. • Plant and materials will be stored in areas outside the functional floodplain where practicable, with the aim for temporary construction works to be resistant or resilient to flooding impacts, to minimise/prevent movement or damage during potential flooding events. Where this is not possible, agreement will be required with the Environmental Clerk of Works (EnvCoW). • Stockpiling of material within the functional floodplain, if unavoidable, will be carefully controlled with limits to the extent of stockpiling within an area, to prevent compartmentalisation of the floodplain, and stockpiles will be located >10m from watercourse banks. • Temporary drainage systems will be implemented to alleviate localised surface water flood risk and prevent obstruction of existing surface runoff pathways. Where practicable, temporary haul routes will be located outside of the functional floodplain.		
SMC-W3	Throughout proposed scheme	Pre-Construction, Construction & Post-Construction/ Operation	The Contractor will implement appropriate controls in relation to construction site runoff and sedimentation, including: • avoiding unnecessary stockpiling of materials and exposure of bare surfaces, limiting topsoil stripping to areas where bulk earthworks are immediately programmed; • installation of temporary drainage systems/SuDS systems (or equivalent) including pre-earthworks	To control site runoff and sedimentation and reduce impacts on the water environment.	If flocculants are considered necessary to aid settlement of fine suspended solids, such as clay particles, the chemicals used must first be approved by SEPA.

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			drainage, to reduce potential for contaminated runoff to water features; • pre-earthworks drainage/SuDS with appropriate outfalls to be in place prior to any earthworks activities; • treatment facilities to be scheduled for construction early in the programme, to allow settlement and treatment of any pollutants contained in site runoff and to control the rate of flow before water is discharged into a receiving watercourse; • adherence to CIRIA guidance 'C648 Control of Water Pollution from Linear Construction Projects', SEPA guidance 'WAT-SG-29 Temporary Construction Methods' and relevant sections of 'BS6031:2009 Code of Practice for Earthworks'; • the adoption of silt fences, check dams, settlement lagoons, soakaways and other sediment trap structures as appropriate; • the maintenance and regrading of haulage route surfaces where issues are encountered with the breakdown of the existing surface and generation of fine sediment; • provision of wheel washes at appropriate locations (in terms of proposed construction activities) and >10m from water features and appropriate disposal of dirty water; • limitation of uncontrolled run-off from exposed are areas and newly paved areas; • protecting soil stockpiles using bunds, silt fencing and peripheral cut-off ditches, and location of stockpiles at distances >10m from water features; • provision of peripheral cut-off ditches to intercept runoff from outside the working area such that it does not encroach on the working area; • regular inspection and monitoring of receiving water features;		Where required, temporary discharge consents to be obtained from SEPA through the Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended).

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			• restoration of bare surfaces (seeding and planting) throughout the construction period as soon as possible after the work has been completed, or protecting exposed ground with geotextiles if to be left exposed; • temporary discharge consents to be obtained from SEPA through the Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended), where required; and • any other appropriate measures required following consultation/CAR licencing discussions with SEPA.		
SMC-W4	Throughout proposed scheme	Pre-Construction & Construction	In relation to in-channel working, the Contractor will adhere to GPPs/PPGS (SEPA, 2006-2017) and other good practice guidance, and implement appropriate measures which will include, but may not be limited to: • undertaking in-channel works during low flow periods (i.e. when flows are at or below the mean average) as far as reasonably practicable to reduce the potential for sediment release and scour and using appropriate methods to reduce the risk of pollution; • no in-channel working during the salmonid spawning seasons unless permitted within any CAR license; • minimise the length of channel disturbed and size of working corridor, with the use of silt fences or bunds where appropriate to prevent sediment being washed into the water feature; • limit the removal of vegetation from the riparian corridor and woodland area, retaining a vegetated buffer zone wherever reasonably practicable; and • limit the amount of tracking adjacent to watercourses and avoid creation of new flow paths between exposed areas and new or existing channels.	To reduce impacts on the water environment during in-channel working.	Method statements for any in-channel working require approval by SEPA.
SMC-W5	Throughout proposed scheme	Construction	Where channel realignment is necessary, the Contractor will adhere to good practice guidance and implement appropriate measures which will include, but may not be limited to:	To reduce impacts on the water environment where channel realignment is proposed.	Consultation with SEPA.

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			• once a new channel is constructed, the flow should, where practicable, be diverted from the existing channel to the new course under normal/low flow conditions; • diverting flow to a new channel should be timed to avoid forecast heavy rainfall events at the location and higher up in the catchment (the optimum time will be the spring and early summer months to allow vegetation establishment to help stabilise the new channel banks); • with offline realignments, the flow will be diverted with a steady release of water into the newly constructed realignment to avoid entrainment of fine sediment or erosion of the new channel; • the length of the channel to be realigned will be minimised; and • any proposed realignment works will be supervised by a suitably qualified fluvial geomorphologist. Where realignments result in an increase or decrease of channel gradient, the following principles will be applied by the Contractor: • an increased gradient within the channel (resulting in higher stream energies) will require mitigation in the form of energy dissipation, which could include the creation of step-pool sequence; boulder bed checks; plunge pools at culvert outlets; and/or; increased sinuosity; • a decrease in gradient within the channel will require mitigation in the form of the construction of a low flow channel to minimise the impacts on locally varying flow conditions and reduce the risk of siltation of the channel.		
SMC-W6	Throughout proposed scheme	Construction	In relation to refuelling and storage of fuels, the Contractor will adhere to GPPs/PPGs (SEPA, 2006-2017) and other good practice guidance, and implement appropriate measures which will include, but may not be limited to: • only designated trained and competent operatives will be authorised to refuel plant;	To avoid spillages and reduce impacts on the water environment in relation to refuelling.	None required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			• refuelling will be undertaken at designated refuelling areas (e.g. on hardstanding, with spill kits available, and >10m from water features) where practicable; • appropriate measures will be adopted to avoid spillages (refer to Mitigation Item SMC-W7); • compliance with SEPA CAR General Binding Rules 26, 27 and 28[i]; and • compliance with the Pollution Incident Control Plan (refer to Mitigation Item SMC-S1).		
SMC-W7	Throughout proposed scheme	Construction	In relation to oil/fuel leaks and spillages, the Contractor will adhere to GPPs/PPGs (SEPA, 2006-2017) and other good practice guidance, and implement appropriate measures which will include, but may not be limited to: • stationary plant will be fitted with drip trays and emptied regularly; • plant machinery will be regularly inspected for leaks with maintenance as required; • spillage kits will be stored at key locations on-site and detailed within the Construction Environmental Management Plan (CEMP) (refer to Mitigation Item SMC-S1); and • construction activities will comply with the Pollution Incident Control Plan (refer to Mitigation Item SMC-S1).	To reduce impacts on the water environment in relation to oil/fuel leaks and spillages.	None required
SMC-W8	Throughout proposed scheme	Construction	In relation to chemical storage, handling and reuse, the Contractor will adhere to GPPs/PPGs (SEPA, 2006-2017) and other good practice guidance, and implement appropriate measures which will include, but may not be limited to: • chemical, fuel and oil storage will be undertaken within a site compound, which will be located on stable ground at a low risk of flooding and >10m from any watercourse; • chemical, fuel and oil stores will be locked and sited on an impervious base within a secured bund with 110% of the storage capacity; and	To reduce impacts on the water environment in relation to chemical storage, handling and reuse.	None required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			• pesticides, including herbicides, will only be used if there are no alternative practicable measures, and will be used in accordance with CAR requirements, the manufacturer's instructions and application rates.		
SMC-W9	Throughout proposed scheme	Construction	In relation to concrete, cement and grout, the Contractor will adhere to GPPs/PPGs (SEPA, 2006-2017) and other good practice guidance, and implement appropriate measures which will include, but may not be limited to: • concrete mixing and washing areas will: ➢ be located more than 10m from water bodies; ➢ have settlement and re-circulation systems for water reuse; and ➢ have a contained area for washing out and cleaning of concrete batching plant or ready-mix lorries. • wash-water will not be discharged to the water environment and will be disposed of appropriately either to the foul sewer (with permission from Scottish Water), or through containment and disposal to an authorised site; • where concrete pouring is required within a channel, a dry working area will be created; • where concrete pouring is required within 10m of a water feature or over a water feature, appropriate protection will be put in place to prevent spills entering the channel (e.g. isolation of working area, protective sheeting); and • quick setting products (cement, concrete and grout) will be used for structures that are in or near to watercourses.	To reduce impacts on the water environment in relation to concrete, cement and grout.	Permission required from Scottish Water. Consultation with SEPA.
SMC-W10	Site Compound/ Facilities	Construction	Sewage from site facilities will be disposed of appropriately either to a foul sewer (with the permission of Scottish Water) or via appropriate treatment and discharge as agreed with SEPA in advance of construction and in accordance with 'GPP4 Treatment and	To ensure sewage from site facilities is disposed of appropriately.	Permission required from Scottish Water for disposal to foul sewer or SEPA, in advance of construction, for

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			disposal of wastewater where there is no connection to the public foul sewer' (SEPA, 2017).		appropriate treatment and discharge to a water course.
SMC-W11	Throughout proposed scheme	Construction	In relation to service diversions and to avoid damage to existing services from excavations and ground penetration, including temporary severance of public and private water supplies through damage to infrastructure, the Contractor will: • locate and map all private or public water supply assets and other service infrastructure prior to construction; • take measures to prevent damage to services and to avoid pollution during service diversions, excavations and ground works; and • provide a temporary alternative water supply (e.g. bottled or tankered) if services are to be disrupted or diverted by the works.	To mitigate service diversions and disruptions from excavations and ground penetration.	Consultation with SEPA
SMC-W12	Throughout proposed scheme	Construction	For works within areas identified as potentially containing contaminated land and sediment the Contractor will reduce the risk of surface water pollution to an acceptably low level through: • further site investigation to determine the level of contamination prior to construction to beginning; • the installation of temporary treatment facilities to enable removal of pollutants from surface waters; and • adoption of mitigation measures relating to contaminated land as outlined in Table 21.4. Details of any temporary treatment measures should be agreed with SEPA prior to commencement of construction, following CIRIA guidance including 'C648 Control of Water Pollution from Linear Construction Projects: Technical Guidance', 'C649 Control of Water Pollution from Linear Construction Projects: Site Guide', 'C753 The SuDS Manual' and 'C698 Site Handbook for the Construction of SuDS'.	To reduce risk of surface water pollution from areas identified as potentially contaminated land to an acceptably low level.	Details of any temporary treatment measures to be agreed with SEPA prior to commencement of construction.

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
SMC-W13	Throughout proposed scheme	Design	In relation to in-channel structures and bank reinforcement, design principles and mitigation measures will adhere to good practice (SEPA, 2008 GPG Bank Protection Rivers and Lochs; SEPA 2010 GPG River Crossings, SEPA; 2015 WAT-PS-06-02 Culverting of Watercourses), which will include, but may not be limited to: • non-engineering solutions and green engineering (e.g. vegetation, geotextile matting) to be the preference during options appraisal; • requirements for grey engineering to control/prevent scour (e.g. rock armour, rip-rap, gabion baskets) to be minimised; and • post project appraisal to identify if there are issues that can be investigated and addressed at an early stage.	To reduce impacts of in-channel/bank structures on the water environment.	Consultation with SEPA.
SMC-W14	Throughout proposed scheme	Design	In relation to outfalls, specimen and detailed design will ensure compliance with good practice (e.g. CIRIA, 2015; The Highways Agency DMRB Volume 4 Section 2 Part 7 2004, SEPA, 2008 GPG Intakes and Outfalls), which will include, but may not be limited to: • directing each outfall downstream to minimise impacts to flow patterns; • avoiding projecting the outfall into the watercourse channel; • avoid installation of outfalls at locations of known historical channel migration; • avoid positioning in flow convergence zones or where there is evidence of active bank erosion/instability; • directing an outfall away from the banks of a river to minimise any potential risk of erosion (particularly on the opposite bank); • minimising the size/extent of the outfall headwall where possible to reduce the potential impact on the banks; and	To reduce impacts of outfalls on the water environment.	Consultation with SEPA.

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			• post project appraisal to identify if there are issues that can be investigated and addressed at an early stage. The location of the outfalls along the water features would be refined within the CPO boundary as part of the detailed design. Outfalls have been recommended to be installed at locations that would not excessively alter channel flow and sedimentation patterns.		
SMC-W15	Throughout proposed scheme	Design	In relation to watercourse crossings, specimen and detailed design will ensure compliance with good practice (SEPA, 2010 River Crossings), which will include, but may not be limited to: • Detailed design will mitigate flood risk impacts through appropriate hydraulic design of culvert structures. Flood risk will be assessed against the 0.5%AEP (200-year) plus an allowance for climate change design flood event. Detailed design will mitigate any loss of existing floodplain storage volume, where required, by appropriate provision of compensatory storage. Where culvert extension is not practicable or presents adverse impact on the water environment, appropriately designed replacement culverts may be installed. • Detailed design will mitigate impacts on the water environment through appropriate design of culvert structures and watercourse modifications (e.g. realignments) with respect to fluvial geomorphology, and both riparian and aquatic ecology. • Detailed design of culverts and associated watercourse modifications will incorporate wherever practical: ➢ adherence to design standards and good practice guidance (Section 11.2 of Chapter 11); ➢ allowance for the appropriate conveyance of water and sediment for a range of flows (including at low flow conditions);	To reduce impacts of culverts on the water environment.	Consultation with SEPA.

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			➢ maintenance of the existing channel gradient to avoid erosion at the head (upstream) or tail (downstream) end of a culvert; ➢ avoidance of reduction of watercourse length through shortening of watercourse planform; ➢ minimisation of culvert length; ➢ close alignment of the culvert with the existing water feature; ➢ depressing the invert of culverts to allow for formation of a more natural bed (embedment of the culvert invert to a depth of at least 0.15m to 0.3m); and ➢ roughening of culvert inverts to help reduce water velocities. • Post project appraisal of watercourse crossings will be undertaken to identify if there are issues that can be investigated and addressed at an early stage.		
SMC-W16	Throughout proposed scheme	Design & Construction	In relation to channel realignments, specimen and detailed design will ensure compliance with good practice (Section 11.2 of Chapter 11), which will include, but may not be limited to: • minimising the length of the realignment, with the existing gradient maintained where possible; • design of the realignment in accordance with channel type and gradient; • if required, low flow channels or other design features to reduce the potential for siltation and provide an opportunity to improve the geomorphology of the water feature; • realignment designs will be led by a suitably qualified fluvial geomorphologist; • where realignments result in an increase or decrease of channel gradient, the following principles will be applied:	To reduce impacts of channel realignment on the water environment.	Consultation with SEPA.

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			➢ an increased gradient within the channel (resulting in higher stream energies) will require mitigation in the form of energy dissipation, which could include the creation of a step-pool sequence; boulder bed-checks; plunge pools at culvert outlets; and/or; increased sinuosity; and ➢ a decrease in gradient within the channel will require mitigation in the form of the construction of a low flow channel to minimise the impacts on locally varying flow conditions and reduce the risk of siltation of the channel. • Post project appraisal to identify if there are issues that can be investigated and addressed at an early stage.		
SMC-W17	Throughout proposed scheme	Design & Construction	In relation to drainage discharges the Contractor will implement the following mitigation measures: • The Proposed Scheme includes outfalls that discharge routine road runoff to receiving water features. In Scotland, SuDS are a legal requirement under the Controlled Activities Regulations (CAR) 2011 (as amended); a minimum of two levels of SuDS is intended to be included for all mainline outfalls, in agreement with SEPA and SNH. • SuDS would be designed in accordance with The SuDS Manual, CIRIA C753 (CIRIA, 2015) and SuDS for Roads (SCOTS, 2010) guidance. • For each outfall, a 'treatment train' of SuDS would be incorporated to attenuate the road runoff to pre-development rates, reduce the polluting load carried within this runoff to acceptable levels and significantly reduce the risk of any accidental spillages. See Operation – Specific Mitigation for details. • All of the proposed SuDS systems for the outfalls from the mainline, junctions and side road connections would be designed with an impermeable liner where required	To reduce impacts of drainage discharges on the water environment.	Where required, authorisation for the road drainage discharge under CAR 2011 (as amended) would be obtained from SEPA.

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			to reduce any identified risk of pollution to groundwater, unless otherwise agreed with SEPA by the Contractor. The proposed SuDS for some selected local road drainage networks and access tracks would infiltrate into the ground. • SuDS retention ponds and detention basins would be sized to attenuate and store the 0.5% AEP (200 year) plus climate change flood event and restrict the outflow to the greenfield pre-development runoff rate of 50% AEP (2 year) flood event. SuDS systems would be located where practical outside the functional (0.5% AEP) floodplain; • SuDS features will be seeded/planted reflecting natural localised vegetation patterns. See Chapter 13: Landscape, and associated Landscape and Ecological Mitigation drawings (Figure 13.4); • management of vegetation within ponds and drains through grass cutting, pruning of any marginal or aquatic vegetation (as appropriate to the SuDS component) and removal of any nuisance plants, especially trees; • inspect inlets, outlets, banksides, structures and pipework for any blockage and/or structural damage and remediate where appropriate; • regular inspection and removal of accumulated sediment, litter and debris from inlets, outlets, drains and ponds to avoid sub-optimal operation of SuDS; • adherence to the maintenance plans specific to each SuDS component type as detailed within The SuDS Manual (CIRIA, 2015b); and • Provision of scour protection at the drainage discharge outfall to protect the banks and bed of the receiving water feature and to limit erosion.		

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
Project Specific Mitigation					
P11-W18	Throughout Proposed Scheme	Pre-construction & Construction	Prior to construction the Contractor shall produce a Pollution Prevention Plan (PPP), in accordance with SEPA guidance document WAT-SG-75[ii], that will be submitted to SEPA for approval as part of the CAR authorisation process for site discharges. This document will include details of temporary construction drainage and sediment control measures and will take into consideration the phasing of works, topography, land available for treatment of surface water and the location of surface water features. A preliminary assessment of construction SuDS requirements has been carried out, involving calculation of indicative sizes of settlement basins and identification of land that may be of use to the Contractor for the purposes of surface water and sediment control. These land areas lie within the Proposed Scheme construction area boundary (Figure 5.2).	To implement appropriate controls for site runoff and sedimentation and reduce impacts on the water environment.	Approval of the Surface Water Management Plan is required from SEPA. If flocculants are considered necessary to aid settlement of fine suspended solids, such as clay particles, the chemicals used must first be approved by SEPA. Where required, temporary discharge consents to be obtained from SEPA through the Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended).
P11-W19	Throughout Proposed Scheme	Pre-construction	To measure the effectiveness of implemented mitigation measures in protecting downstream water quality and aquatic ecological interests monitoring protocols prior to and during the construction phase will be developed within a site specific Water Quality Monitoring Plan and included in the Pollution Prevention Plan, which will be submitted to SEPA for approval prior to construction as part of the CAR authorisation process for site discharges. This would include, but would not be limited to: • Appointment of a suitably qualified Environmental Clerk of Works (EnvCoW), who will review the scheduling of earthworks, storage of materials, implementation of drainage and surface water treatment measures, and undertake monitoring of water quality, as detailed in	To measure the effectiveness of implemented mitigation measures in protecting downstream water quality and aquatic ecological interests.	Approval of the Water Quality Monitoring Plan is required from SEPA

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			standard Mitigation Items SMC-W1, SMC-W3, SMC-W4, SMC-W6, SMC-W7, SMC-W8, SMC-W9 and SMC-W10; EnvCoW will be provided with the authority to stop works and implement remedial action with immediate effect. • The location of sampling points, frequency and duration of monitoring, sampling parameters, thresholds and protocols for the notification of Stakeholders in the event of failures will be agreed with SEPA. • The monitoring programme will include baseline monitoring prior to construction, and monitoring post construction where deemed necessary. • Upstream control locations will be included, in addition to the main downstream monitoring locations. Water quality monitoring locations will be co-located with proposed aquatic ecology monitoring locations where practicable.		
P11-W20	Throughout the Proposed Scheme, in particular PWS Eilan Cottage and PWS Avielochan	Pre-construction	To ensure the protection of surface water fed PWS a site specific Private Water Supply Protection Plan will be developed and included in the PPP which will be submitted to SEPA for approval prior to construction. This will include, but will not be limited to: • Identification and mapping of all PWS sources and infrastructure that could be impacted by the proposed scheme. • Development of a PWS water quality monitoring programme preconstruction, during construction and post construction. • Development of a PWS contingency plan including provision of an emergency hotline telephone and arrangements for an alternative temporary water supply (tankers or similar). Providing affected properties with an alternative supply prior to construction. Consideration of options will be	To ensure the protection of surface water fed PWS.	Approval of the Private Water Supply Protection Plan is required from SEPA

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			undertaken in consultation with the land owner and may include the use of a mains water supply, for example.		
P11-W21	Throughout the Proposed Scheme	Operation	In relation to culverts (crossings identified on Figure A11.2.2), the Contractor will implement the following measures: • Natural bed substrate: for box culverts (i.e. with an artificial bed) a depressed invert set slightly below the existing bed level is require. This will allow space for natural bed substrates to be imported to form the bed level. For culverts less than 1.2 m diameter or height (internal height) the invert should be buried at least 15 cm below the natural bed level. For culverts 1.2 - 1.8 m diameter or height (internal height) the invert should be buried at least 20 cm below the natural bed level. For culverts greater than 1.8 m diameter or height (internal height) the invert should be buried at least 30 cm below the natural bed level. Baffles (precast or otherwise) may be required if there is a risk of the natural sediment flushing through at high flows. The culvert design should reflect the natural bed profile including bank to bank channel width, channel gradients and substrates where possible. Portal frames which do not possess an artificial bed do not require specific bed mitigation, but do still need an appropriate bed substrate; • Low flow channel: a low flow channel (sized appropriate to each watercourse) should be constructed within the culvert to maintain sufficient water depths and sediment transport through the culvert during normal flow conditions; • Fish passage: a 'buffer' zone will be created up and downstream of culverts to allow for the creation of habitats which will both enhance the watercourse, and incorporate features such as pools which will allow fish to rest before entering the culvert. The overall culvert design should not in any way impede fish passage up and downstream, and the gradient should reflect the	To incorporate sustainable features and maintain flow and appropriate passage for wildlife.	None required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			surrounding landscape, overly steep or shallow gradient should be avoided where possible. The aquatic ecologists together with the fluvial geomorphologists should input to the design; • Bank protection: although each culvert should be considered separately, it is likely that some bed and bank protection will be required upstream at transition between the watercourse and culvert. Hard (grey) bank and bed protection should be avoided where possible. Rip-rap and boulders (or 'greener' solutions where possible) and planted stone and coir rolls are preferable to gabions; • Transition: appropriate inlet and outlet structures should be provided to ensure smooth hydraulic transition and avoid erosion. Headwall arrangements at the upstream and downstream ends of a culvert should be suitably keyed into the bed and banks of the watercourse, should be the shortest length possible, and should be appropriate to the local environment; • Scour pool: scour pools at the outlet of the culvert should be constructed to dissipate energy and provide resting areas for fish. This is especially important for steeper culverts (>3%) and/or where stream powers are high; and Outfalls: it is also important that the alignment of outfalls are designed to reduce scour around the structure and erosion of the adjacent river bed and banks. Discharge from the outfalls should be similar to the adjoining watercourse (see SEPA guidelines for more information).		
P11-W22	Throughout the Proposed Scheme	Operation	In relation to river realignments/diversions (shown in Figure A11.2.2) the Contractor will implement the following measures: • Bed gradient: maintaining the existing bed gradient will ensure the continuity of the existing sediment regime. Too low and excessive substrate may begin to deposit,	To incorporate sustainable features, maintain flow and enhance biodiversity.	None required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			blocking culvert entrances and/or reducing flood flow capacity, this also reduces sediment supply downstream. Too steep and excessive bank erosion and/or bed incision may begin to occur increasing sediment supply downstream (potentially depositing within culverts). Where the design of the road dictates a change to the bed gradient, mitigation will be necessary, which may include features such as step-pools, bed-checks and sediment traps; • Cross-section: the design of an appropriate low flow channel will also ensure the continuity of the existing sediment transport regime. A two-stage or multiple-stage cross-section can provide a wide range of benefits and preserve the existing low flow processes, allowing for natural adjustment and improve system resilience to low flow events. The multiple stage cross-section also encourages a range of habitats to form and accommodates flood flow capacity whilst ensuring a low flow channel is maintained; • Planform: the planform should reflect the existing channel where possible or restore historical planforms where the existing channel has been artificially modified; and • Boundary conditions: existing substrates should be collected, stored (without contamination) and reinstated. Where re-use of is not possible, substrates should be matched to local material. The suitability of substrates should be considered using empirical observations made by a qualified geomorphologist, as well sediment transport calculations (where deemed appropriate) and local sources. Other mitigation features such as woody material, gravel features (bars), vegetation and riffle-pools should be considered to further enhance and restore habitats and natural processes to the watercourse in appropriate locations.		

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			The design of any realignments, especially including features such as steps or bed checks will need to ensure they are suitable (i.e. passable) for any potential migratory fish species present. Consultation between the fluvial geomorphologist and the freshwater aquatic ecologists is essential at the outset. The need for a realignment in all cases should be avoided (or minimised) where possible. Unnecessary modification to a river channel may initiate instability as the channel attempts to recover to a natural course.		
P11-W23	Throughout the Proposed Scheme	Operation	In relation to watercourse bank and bed protection the Contractor will ensure: • where bank protection is required (e.g. culvert inlets and outlets, tight meander bends or vulnerable areas), this should be formed of naturally occurring materials, stone and/or locally sourced hardwood wherever possible (rip-rap may be used at the toe of the bank). If the channel requires more engineered solutions it should be sympathetic to the local landscape and habitats, and used in combination with a planting scheme to improve the aesthetics and long-term stability of the banks. The role of vegetation for channel stability should also not be underestimated and consultation with the landscape architect should be undertaken at the earliest opportunity; and • where it is necessary to protect the bed from bed scour (incision) natural materials (boulders, ideally buried) should be used as opposed to smooth concrete to increase roughness, maintain flow diversity and reduce the risk of transferring the erosion downstream.	To incorporate sustainable features, maintain flow and enhance biodiversity.	None required
P11-W24	Throughout the Proposed Scheme	Pre-construction & Construction	Where culverts are to be built online, early consideration is required of the design and implementation of temporary bypass channels. Temporary bypass channels should be constructed to maintain flow continuity and allow unimpeded fish migration through the watercourse. The design of any bypass diversion should also consider all	To maintain flow continuity and allow unimpeded fish migration through the watercourse.	Consultation with SEPA

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			the items listed above in Mitigation Item P12-W22, especially if intended to be in-situ for a long period of time. Other temporary works such as pipes or over-pumping should be used where a temporary bypass channel cannot be constructed.		
P11-W25	Shunem Pond (Pond 18)	Construction and Operation	To compensate for the loss of Shunem Pond (Pond 18) a new pond will be established immediately adjacent the existing pond. As per Mitigation Item P11-E30 the new pond will be of a similar surface area to the original pond, but with sloping marginal shelves of gradient no greater than 1:8. This will ensure the establishment of an extensive marginal 'drawdown' area. The new pond will be constructed in an area immediately adjacent to the existing pond (as shown in Landscape and Ecological Mitigation plan, Figure 13.4). The new pond may be lined to ensure water retention, subject to ground and soil conditions. In the event pond lining is required, a natural bentonite clay product will be used to ensure the sustained hydrological viability of the replacement pond. The new pond will be 'seeded' with translocated material from the pond lost to the Proposed Scheme. This will include the existing marginal seed bank/marginal vegetated turf and bare-root plant stock (where available), as well as pond sediment. This will encourage rapid establishment of similar successional characteristics as the pond being lost, and maximise the establishment of northern damselfly (Coenagrion hastulatum) aquatic larvae, as part of the wider aquatic macroinvertebrate community. The replacement pond shall be constructed no later than March prior to the loss of their adjacent pond to be lost to the Proposed Scheme. Limited translocation of material (as defined above) will be undertaken in March at the time of construction, to include no more than 10% of the pond perimeter. This will reduce disturbance of the existing pond and the macroinvertebrate community. The pond to be lost shall remain in situ until at least August of the	To maintain biodiversity.	SEPA and SNH

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			same year, allowing for emergence and breeding of adult northern damselfly from the existing pond, maximising the likelihood of oviposition (egg-laying) in the replacement pond. Prior to loss of the existing pond, additional material (as defined above) shall be translocated to the replacement pond, maximising the establishment of the macroinvertebrate community. The replacement pond will otherwise be designed following good practice principles as described by SEPA Guidance on good practice in the management and creation of small waterbodies in Scotland[iii]. CNPA shall be consulted during the detailed design of the replacement pond. An ecological watching brief and fish rescue plan will be instigated in consultation with SNH and SEPA during pond dewatering activities.		
P11-W26	Throughout Proposed Scheme	Construction	Ponds of Local ecological importance or greater and lost to construction will be replaced as near to their original location as practically possible, or within the nearest suitable habitat, whichever is more ecologically advantageous. This links with Mitigation Item P11-E29 and refers directly to the compensation Pond 15 (as shown in Landscape and Ecological Mitigation Plan, Figure 13.4). This will be undertaken at a ratio of 1 pond loss: 1 pond replacement. SuDS and drainage features shall not act to compensate for the loss of any pond; however, SuDS shall be designed to maximise their biodiversity value, in line with the CIRIA SuDS Manual[xiv]. Replacement ponds will be designed following good practice principles as described by SEPA Guidance on good practice in the management and creation of small waterbodies in Scotland[iv]. An ecological watching brief and fish rescue plan will be instigated in consultation with SNH and SEPA during pond dewatering activities.	To compensate for loss of ponds and maintain/enhance habitats for associated species (including fish and invertebrates)	CNPA

Table 21.6: Ecology and Nature Conservation

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
Standard A9 Mitigation					
SMC-E1	Throughout Proposed Scheme	Pre-Construction	Pre-construction surveys will be undertaken to verify and, where required, update the baseline ecological conditions set out in the ES. The scope of the pre-construction surveys will be confirmed with SNH prior to them being undertaken.	To update the baseline ecological conditions set out in the ES.	SNH
SMC-E2	Throughout Proposed Scheme	Pre-Construction	Prior to construction a suitably qualified (or team of suitably qualified) ECoWs will be appointed and will be responsible for implementation of the Ecological Management Plan. The ECoW will: • provide ecological advice over the entire construction programme, at all times as required; • undertake or oversee pre-construction surveys for protected species in the areas affected by the Proposed Scheme; and ensure mitigation measures are implemented to avoid and reduce impacts on ecological features; and • monitor the implementation of the mitigation measures during the construction phase to ensure compliance with protected species legislation and commitments within the ES. The ECoW will be a member of CIEEM and will have previous experience in similar ECoW roles. All ECoWs will be approved by Transport Scotland to be appropriately qualified for the role. The ECoW will be appointed in advance of the main construction programme commencing to ensure pre-construction surveys are undertaken and any advance mitigation measures required are implemented.	To ensure the implementation of the Ecological Management Plan.	None required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
SMC-E3	At watercourses throughout Proposed Scheme	Construction	Noise and vibration will be reduced by working back from the river bank where possible or working within a dry area to avoid implications to fish, such as behavioural changes e.g. avoidance of areas or physical damage to hearing. In addition, soft-start techniques will be applied to piling work procedures to enable sensitive species to evacuate the area.	To protect fish species from noise, vibration and light spill.	None required.
SMC-E4	At watercourses throughout Proposed Scheme	Construction	Where areas are required to be temporarily dewatered to permit construction activities, fish will be removed by means of electrofishing and relocated prior to dewatering.	To protect fish species during de-watering of watercourse sections and in-stream works.	CAR Licence approved by SEPA
SMC-E5	At watercourses throughout Proposed Scheme	Construction	Water flow/passage will be sufficiently maintained to permit movement of Atlantic salmon, brook lamprey and brown/sea trout past areas of dewatering and/or significant alteration of water movement during any construction works within the watercourses. Suitable temporary channels may be implemented so that movement between areas of habitat can be maintained.	To protect fish species during de-watering of watercourse sections and in-stream works.	CAR Licence approved by SEPA
SMC-E6	Throughout Proposed Scheme	Pre-Construction	The Contractor will obtain and comply with the requirements of any protected species derogation licences in respect of works that have the potential to breach applicable conservation legislation necessary to construct the project. Licensing may be for the UK and/or protected species.	To comply with conservation legislation.	SNH
SMC-E7	Throughout Proposed Scheme	Pre-Construction & Construction	Tree felling and vegetation clearance to be minimised as far as practicable and undertaken outside the core bird nesting season (01 March to 31 August) to avoid damage or destruction of occupied nests or harm to breeding birds. If this cannot be achieved, works within the core bird nesting season will require an inspection of vegetation to be cleared for nesting birds by a suitably qualified ecologist no more than 24 hours prior to any works being undertaken. If any nesting birds are identified during the survey, they will be left in situ for their entire nesting period until the young birds have	To protect habitat and fauna during bird nesting season.	None required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			fledged. Alternative approaches to the work will need to be proposed e.g. leaving an exclusion zone around the nest to avoid disturbance. All cleared vegetation will be rendered unsuitable for nesting birds, for example, by covering or chipping depending on the end purpose of the vegetation, or will be removed from the works area.		
SMC-E8	Throughout Proposed Scheme	Pre-Construction & Construction	Any tree felling will be carried out by experienced contractors to reduce direct mortality of protected species according to agreed felling methods between contractors and the ECoW.	To protect fauna during removal of habitat.	None required
SMC-E9	Throughout Proposed Scheme	Pre-Construction, Construction & Post-Construction	Plant and personnel will be constrained to a prescribed working corridor through the use of, where practicable, temporary barriers to minimise the damage to habitats and potential direct mortality and disturbance to animals located within and adjacent to the Proposed Scheme working corridor.	To protect habitats and fauna.	None required
SMC-E10	Throughout Proposed Scheme	Construction	The use of construction lighting will be in accordance with BS5489 Code of Practice for the Design of Road Lighting[v] and follow best available guidance on lighting with regards to protected species (e.g. Bat Conservation Trust (2009)[vi] and Institute of Lighting Engineers (2007)[vii]). The construction lighting design will take into account the need to avoid illuminating sensitive mammal habitats (e.g. for bats and badgers) in locations such as: adjacent to watercourses; along woodland edges; and, where there is known activity identified through pre-construction ecological surveys (refer to Mitigation Item SMC-E1). Where this is not possible the Contractor will agree any exceptions with SNH.	To protect sensitive mammal habitats from illumination.	Exceptions to be agreed with SNH
SMC-E11	Throughout Proposed Scheme	Construction	During construction trees will be protected in line with guidelines provided in BS 5837 Trees in relation to Construction[viii].This includes the following: • establishment of Root Protection Areas (RPA);	To comply with guidelines provided in 'BS 5837 Trees in relation to Construction' (British Standards Institute, 2012).	None required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			• protective fencing will be erected around the RPA to reduce risks associated with vehicles trafficking over roots system or beneath canopies; • selective removal of lower branches of trees to reduce risk of damage by construction plant and vehicles; • prevent soil compaction measures; and maintain vegetation buffer strips (where practicable).		
SMC-E12	Throughout Proposed Scheme	Construction & Post-Construction	Planting will be undertaken to replace any trees that were intended to be retained which are felled or die as a result of construction works. The size, species and location of replacement trees will be approved by Transport Scotland and other relevant stakeholders.	Replacement of trees lost that are to be retained.	Transport Scotland and other relevant stakeholders
SMC-E13	Throughout Proposed Scheme	Construction	Trenches, holes and pits will be kept covered at night or provide a means of escape for mammals, reptiles and amphibians that may become entrapped. Gates to compound areas will be designed sensitively to prevent mammals from gaining access and will be closed at night.	To avoid mammals becoming entrapped in and around compound areas during construction.	None required
SMC-E14	Throughout Proposed Scheme	Construction	Temporary mammal-resistant fencing will be provided around construction compounds following a specification agreed through consultation with Transport Scotland.	To avoid mammals becoming entrapped in and around compound areas during construction.	Transport Scotland
SMC-E15	Throughout Proposed Scheme	Construction	The Contractor will describe within the CEMP (Mitigation Item SMC-S1) the strategy to be implemented for the appropriate treatment of invasive, non-native species (INNS). The strategy will set out appropriate construction, handling, treatment and disposal procedures to prevent the spread of INNS in line with recognised best practice.	To prevent the spread of INNS.	None required
n/a (note)	Throughout Proposed Scheme	Construction	Best practicable means will be employed to avoid the disturbance of sensitive species and habitats with noise, dust and air pollution. The Standard Mitigation Measures	To protect aquatic and terrestrial habitats and species.	n/a

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			as detailed in ES Chapter 11 (Road Drainage and the Water Environment), ES Chapter 13 (Landscape and Visual), ES Chapter 16 (Air Quality) and ES Chapter 17 (Noise and Vibration) will be implemented to protect aquatic and terrestrial habitats and species.		
Project Specific Mitigation					
P11-E16	Throughout Proposed Scheme	Pre-Construction & Construction	The working area will be kept to the minimum necessary for construction of the project to reduce habitat loss. A Habitat Management Plan will be produced pre-construction and agreed with SNH. This will include specific plans and measures for working on the border of the Craigellachie SSSI/NNR and Alvie SSSI, as well as other sensitive habitats (such as aspen woodland), detailing avoidance, mitigation and rehabilitation measures to further reduce residual impacts.	To protect all habitats, including those located on the boundary of Craigellachie SSSI/NNR and Alvie SSSI.	SNH
P11-E17	Throughout Proposed Scheme	Pre-Construction & Construction	The removal of any trees identified for retention within the ES will be avoided, and, if unavoidable, shall be undertaken in consultation with CNPA. Assessment of the trees at such locations will be undertaken and where any trees that were intended to be retained are identified as requiring felling or die as a result of construction works these will be replaced. Any changes to the extent of tree removal from that assessed within the ES, will be subject to assessment using the same methods as detailed within the ES to determine the appropriate mitigation requirements. Where required, any additional impacts identified will be appropriately mitigated for using the same methods as detailed within the ES. The size and species of replacement trees will be agreed in consultation with SNH, CNPA and relevant stakeholders, and will take account of management plans of immediately adjacent woodland.	To protect retained trees.	SNH, CNPA, and Forestry Commission
P11-E18	Throughout Proposed Scheme	Construction	Aspen woodland will be avoided where possible. If felling is required, this shall be undertaken in consultation with	To protect aspen and species associated with it (including fungi and invertebrates).	CNPA

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			CNPA and deadwood over 75cm circumference will be retained where practicable.		
P11-E19	Throughout Proposed Scheme	Construction	Areas of temporary habitat loss during construction will be reinstated as soon as practicable. The reinstatement and restoration of habitats will generally be done on a like for like basis or where possible will aim to provide an enhancement where degraded or ecologically poor habitats are present (e.g. improved grassland). This may involve the use of appropriate seed mixes to provide a suitable tie-in with local habitats.	To maintain/enhance biodiversity.	None
P11-E20	Throughout Proposed Scheme	Construction	Mitigation and compensation for the loss of ecologically important habitats will occur through habitat creation. This will include roadside planting, where appropriate, as shown on Landscape and Ecological Mitigation plan (Figure 13.4). Where feasible important habitats will be replaced on a like for like basis, with habitats of a similar type and character to be created within the vicinity of the area where the loss has occurred. Where this is not possible, habitat creation will occur within other suitable areas identified within the Proposed Scheme. In respect of red squirrel, 35ha or greater of created woodland habitat should comprise a mixed species composition favourable to the species as detailed in guidance[ix] within Table 3 of Managing forests as red squirrel strongholds. Landscape planting and newly created habitat will be comprised of locally obtained native species of local provenance, and will comprise a mixture of species. Sowing/planting should be undertaken in the appropriate planting season but as soon as possible following completion of the works to reduce the likelihood of the areas being colonised by invasive, non-native species which are of lower value to wildlife.	To compensate for the loss of ecologically important habitats (including woodland, dry heath, and blanket bog).	None

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			Replacement habitats will be monitored and managed during the aftercare and operation phase of the Proposed Scheme. Where practicable habitat creation will fill in existing gaps in linear vegetation features, adjoin or connect existing blocks of woodland or act as stepping stones between habitat areas.		
P11-E21	Throughout Proposed Scheme	Construction	Planting of new woodland will be undertaken at a variety of locations to mitigate for the loss of ancient woodland which in includes a proposed woodland compensation site (see Landscape and Ecological Mitigation plan Figure 13.4). Soil will be retained from locations of ancient woodland and reused in areas of woodland planting. These soils will be reused in areas of new woodland planting in order to utilise the existing seedbank as much as possible and transfer soil organisms and specialist bacteria that may be adapted to these environments to new areas of woodland. This will include areas that are no longer wooded where appropriate (e.g. areas with a species rich ground layer and associated seed bank). A method statement will be produced detailing the approach to soil translocation and woodland creation. The methodology will be agreed with SNH and CNPA.	To compensate for the loss of ancient woodland.	SNH and CNPA
P11-E22	Throughout Proposed Scheme	Construction	Where practicable, top soil from cleared woodland not on the ancient woodland inventory but still considered important (e.g. aspen woodland or SBL birchwoods) will be stored appropriately for re-use in areas where similar habitat is to be created. See Landscape and Ecological Mitigation plan, Figure 13.4.	To retain the seedbank of cleared woodland (including aspen and SBL birchwoods).	None
P11-E23	Throughout Proposed Scheme	Construction	Where practicable top soils or substrates from areas of Annex I or SBL priority habitat loss, including heath and species rich grassland, will be stored appropriately for re-use in areas where similar habitat is to be created.	To retain the seedbank of lost Annex I/SBL priority habitats.	None

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			See Landscape and Ecological Mitigation plan, Figure 13.4. This includes species rich grasslands and areas of fungi habitat (such as grasslands that have been highlighted as potential waxcap habitat: CNPA priority locations 12, 15, 16, 34 and 55 shown on Figure 12.9) where turves will re-used to retain seed sources and botanical value.		
P11-E24	Throughout Proposed Scheme	Construction	Bird's-foot trefoil (*Lotus corniculatus*) will be added to species mix for heath mitigation planting where practical and appropriate (e.g. not already locally abundant).	To maintain/enhance invertebrate habitat and provide additional foraging resources for wild pollinators.	None
P11-E25	Throughout Proposed Scheme	Construction	Where retained, deadwood will be placed in a variety of locations and conditions to benefit a number of species. Deadwood should be stored in a location away from the working area to prevent risk of damage and then placed within areas of retained woodland or woodland planting at an appropriate time. Similarly, where possible, selected, blasted rock material will be incorporated into retained woodland and woodland planting for the benefit of a range of species including pine marten under the direction of an ECoW. Tree stumps will be retained in situ where felled on the edge of working areas where this does not pose a constraint to the works. Edges of woodland will be scalloped where practicable increasing variety of conditions to reduce the risk of windthrow. Existing stone dykes shall be retained where possible.	To maintain/enhance habitat for species including reptiles, invertebrates, and pine marten.	None
P11-E26	Throughout Proposed Scheme	Construction	If deadwood exists in wooded areas to be lost that are listed within the ancient woodland inventory, this deadwood will be transferred to nearby areas of ancient woodland to be retained or to areas of new woodland creation, to allow the retention and transfer of specialist ancient woodland invertebrates, fungi and bacteria. Ancient or veteran trees to be felled in these areas will	To maintain populations of specialist ancient woodland species, including invertebrates, fungi and bacteria.	None

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			also be moved to new woodland creation areas for the same purposes and to act as an input of new deadwood.		
P11-E27	Throughout Proposed Scheme	Construction	During construction permanent and temporary drainage designs will aim to maintain existing and natural flows and pathways for surface and sub-surface water, in order to maintain links and hydrological connectivity with existing habitats dependant on wet conditions.	To maintain hydrological connectivity between habitats.	None
P11-E28	Throughout Proposed Scheme	Construction	Culverts placed at Allt Cnapach, Aviemore Burn and Caochan Ruadh will be designed as open structures which act to: • retain natural bed substrate within the culvert; • ensure no deterioration (and aim to improve) existing water depth and flow provision within the culvert for migratory fish; and • improve river continuity by replacing existing A9 structures with artificial inverts. The watercourse outlet will be designed to provide appropriate resting pools immediately downstream of the culvert entrance. Marginal/riparian planting will also be implemented to provide cover and mitigate the transition from light to dark at the culvert inlet and outlet. This will ensure fish are not discouraged or prevented from entering or exiting the culvert. All culverts, including channel inlet and outlets, will be constructed with reference to SEPA's Good Practice Guides, namely: • Engineering in the Water Environment Good Practice Guide: Bank Protection Rivers and Lochsx; • Engineering in the Water Environment: Good Practice Guide - River Crossingxi; and • Position Statement WAT-PS-06-02 - Culverting of Watercourses – Position Statement and Supporting Guidancexii.	To maintain aquatic habitats at culverts placed at Allt Cnapach, Aviemore Burn and Caochan Ruadh.	SNH and SEPA

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
P11-E29	Throughout Proposed Scheme	Construction	Ponds of Local ecological importance or greater and lost to construction will be replaced as near to their original location as practically possible, or within the nearest suitable habitat, whichever is more ecologically advantageous. This will be undertaken at a ratio of 1 pond loss: 1 pond replacement. SuDS and drainage features shall not act to compensate for the loss of any pond; however, SuDS shall be designed to maximise their biodiversity value, in line with the CIRIA SuDS Manual[xiv]. Replacement ponds will be designed following good practice principles as described by SEPA Guidance on good practice in the management and creation of small waterbodies in Scotland[xiii]. An ecological watching brief and fish rescue plan will be instigated in consultation with SNH and SEPA during pond dewatering activities.	To compensate for loss of ponds and maintain/enhance habitats for associated species (including fish and invertebrates).	SNH, CNPA, and SEPA
P11-E30	Throughout Proposed Scheme	Construction	A pond at Granish Junction (Pond 18) will be lost as a result of the Proposed Scheme. The new pond will be constructed in an area immediately adjacent to the existing pond (as shown in Landscape and Ecological Mitigation plan, Figure 13.4). The new pond will be designed to occupy a surface area similar in extent to the existing pond being lost, but will include sloping marginal shelves of gradient no greater than 1:8. This will ensure the establishment of an extensive marginal 'drawdown' area. The new pond may be lined to ensure water retention, subject to ground and soil conditions. In the event pond lining is required, a natural bentonite clay product will be used to ensure the sustained hydrological viability of the replacement ponds. The new pond will be 'seeded' with translocated material from their respective pond lost to the Proposed Scheme. This will include the existing marginal seed bank/marginal vegetated turf and bare-root plant stock (where available), as well as pond sediment. This will encourage rapid establishment of similar successional characteristics as the pond being	To compensate for the loss of Pond 18 and maintain/enhance habitat for northern damselfly.	SNH, CNPA, and SEPA

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			lost, and maximise the establishment of northern damselfly (*Coenagrion hastulatum*) aquatic larvae, as part of the wider aquatic macroinvertebrate community. The replacement pond shall be constructed no later than March prior to the loss of their adjacent pond to be lost to the Proposed Scheme. Limited translocation of material (as defined above) will be undertaken in March at the time of construction, to include no more than 10% of the pond perimeter. This will reduce disturbance of the existing pond and the macroinvertebrate community. The pond to be lost shall remain in situ until at least August of the same year, allowing for emergence and breeding of adult northern damselfly from the existing pond, maximising the likelihood of oviposition (egg-laying) in the replacement pond. Prior to loss of the existing pond, additional material (as defined above) shall be translocated to the replacement pond, maximising the establishment of the macroinvertebrate community. The replacement pond will otherwise be designed following good practice principles as described by SEPA Guidance on good practice in the management and creation of small waterbodies in Scotland[xiv]. CNPA shall be consulted during the detailed design of the replacement pond. An ecological watching brief and fish rescue plan will be instigated in consultation with SNH and SEPA during pond dewatering activities.		
P11-E31	Throughout Proposed Scheme	Construction	Construction works (for example, temporary watercourse diversions and in-channel working) to be undertaken taking into account sensitive ecological seasons (e.g. breeding, hibernation or migration seasons) and the potential impact that the type of construction work could have on protected species within that season. Prior to construction, consultation will be undertaken with SNH to confirm the programme of construction works.	To protect aquatic species (including salmonids) and bats during construction works affecting watercourses.	SNH, SEPA, and Spey Fishery Board

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			The key sensitive period for salmonids is mid-October to June, inclusive. However, the most acceptable timing will depend on which sensitive species are present and will be agreed with SEPA, SNH and the Spey Fishery Board. Percussive (hammer) piling will be avoided adjacent to the watercourse in favour of softer alternatives (e.g. silent sheet piling, vibratory sheet piling) where ground conditions allow. Where not possible, soft start piling procedures should be utilised. The soft-start duration should be a period of not less than 20 minutes, and should piling cease for a period greater than 20 minutes, the soft start procedure must be repeated. During any river dewatering and/or in-channel working, an ecological watching brief and fish rescue plan will be instigated in consultation with SNH and SEPA. The key sensitive periods for bats are between May-August (inclusive) when bats form maternity roosts; and between November-February (sometimes extending into October and March dependent on weather conditions) when bats occupy hibernation roosts[xv].		
P11-E32	Throughout Proposed Scheme	Construction	Mitigation measures to avoid or reduce potential impacts on surface waters will be employed, including adherence to Guidance for Pollution Prevention (GPP)[xvi] during construction, and appropriate road drainage and runoff treatment.	To protect fauna and habitats from pollution of surface waters during construction.	None
P11-E33	Throughout Proposed Scheme	Construction	Any permanent watercourse diversion works (including realignments at crossings) will incorporate design measures that enhance both in-channel and riparian habitat quality, e.g. provision of resting pools/spawning habitats for salmonids. Refer to ES Chapter 11 Road Drainage and Water Environment for key watercourse construction and design mitigation commitments.	To enhance in-channel and riparian habitat at diverted watercourses.	None
P11-E34	Throughout Proposed Scheme	Pre-Construction	Species Protection Plans to be produced pre-construction and agreed with SNH. Plans will be produced for the following species: bats, otter, red squirrel, pine marten, great crested newts, reptiles,	To comply with conservation legislation and to protect fauna.	SNH

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
		& Construction	wildcat, water vole, badger and any other species as deemed necessary from the pre-construction surveys. Where appropriate, the Species Protection Plans will include monitoring plans. As an extension to the standardised mitigation listed in SMC E7 consideration will be given to specialised habitat use and untypical breeding strategy employed by crossbill species. In consideration of crossbill species that can potentially nest outside of the main breeding season as (defined as March-August inclusive), felling and vegetation clearance within optimal habitat for these species i.e. pine woodland, will require a nest check at all times of the year.		
P11-E35	Throughout Proposed Scheme	Construction	Appropriate exclusion zones in line with best practice and as agreed with SNH should be maintained. Where exclusion zones of the required size are not possible and if a licence is not needed the amended buffer zone should be agreed with the relevant statutory body.	To comply with conservation legislation and to protect fauna.	SNH
P11-E36	Badger setts	Pre-Construction & Construction	Until a licence from SNH has been granted no working within 30m of an active badger sett. This distance will be increased for operations such as piling, rock coring or blasting works to 100m or more (distance will be confirmed with the ECoW and SNH). The Contractor will obtain and comply with the requirements of the protected species derogation licence in respect of works that will require the exclusion of a badger sett or potential disturbance of a badger sett. Conditions may include the following. Badgers are to be excluded from setts outside of the breeding season 1st December to the 1st July inclusive. All works under licence must be carried out during daylight hours, restricted to between two hours after sunrise and two hours before sunset from 1st March to 31st October, and restricted to between one hour after	To comply with conservation legislation and to protect badgers and badger setts.	Approval and licence required from SNH. Approval required from the ECoW.

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			sunrise and one hour before sunset from 1st November to 28th February. Any lighting used to accommodate such works must be positioned to minimise light spill onto suitable commuting habitat and will be subject to ECoW approval. Any other licence conditions still to be specified will be adhered to. The ECoW may stop site activities at any time should they consider that the works are having an impact on badger activity or sett stability (not covered by the SNH badger licence).		
P11-E37	Throughout Proposed Scheme	Pre-Construction & Construction	The ECoW will monitor badger activity at setts within the study area (including a 100m radius) over the entire construction programme using the methodology outlined below. The methodology will include surveying for evidence of badger activity including setts, latrines, paw prints, snuffle holes (created when foraging), track-ways, hairs (caught on fencing) and scratching posts. Where new setts are identified, the location, number of entrances, and level of activity will be recorded, and an assessment of the likely status made based on the available evidence. Setts will be classified following the criteria given in ES Appendix 12.4 (Table 2.1 (based on Harris, Cresswell and Jefferies, 1989[xvii]). At the discretion of the ECoW other monitoring methods will include, camera-traps and sand pads. The sand pads and camera traps will be checked regularly.	To comply with conservation legislation and to protect badgers and badger setts.	Approval required from the ECoW. Approval maybe required from SNH (confirm with ECoW).
P11-E38	Throughout Proposed Scheme	Pre-Construction & Construction & Post Construction	Permanent badger fencing and tunnels to be installed, where indicated on the Landscape and Ecological Mitigation plan (Figure 13.4), prior to scheme completion. Fencing design will follow SNH guidance and will be installed under direction of the ECoW. The recommended specification is as follows: at least 1.2m	To protect badgers from road traffic accidents.	Deviations to be agreed with SNH

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			high galvanised welded mesh (of at least 2.5mm gauge) above ground level, with a maximum mesh size of 100 x 50mm attached to fence posts and topped with barbed wire. Below ground, the mesh should be dug in to a depth of 300mm, and 300mm horizontal lap. Mammal underpass will follow DMRB specification using Class M 600mm diameter concrete pipes - widened at the entrances) The approach is to be 'softened' through the use of appropriate planting.		
P11-E39	Throughout Proposed Scheme	Pre-Construction & Construction & Post Construction	The badger fencing will be maintained for at least five years after completion. Following construction, the badger fencing will be maintained in an effective condition, with any repairs as a consequence of wear and tear or damage undertaken in a timeous manner.	To protect badgers from road traffic accidents.	Deviations to be agreed with design team and SNH
P11-E40	Throughout Proposed Scheme	Post Construction	In the event that badger road traffic accidents are identified along the Scheme over the five-year period following construction completion requirements for additional/alternative fencing will be discussed and agreed with a suitably experienced ecologist and SNH to prevent badger mortality.	To protect badgers from road traffic accidents.	To be agreed with SNH
P11-E41	Throughout Proposed Scheme	Construction	At structures and crossing locations, planting will be designed with the aim of encouraging bats to fly over the A9 carriageway, above potential collision height with traffic, or to encourage bats to fly through structures beneath the carriageway. Locations of prescribed planting design are included within the Landscape and Ecological Mitigation Plan (Figure 13.4) with principles of planting also included. In line with P11-E34, a post-construction monitoring programme will be defined within the bat species protection plan. This will determine the use of bat 'hop over/fly-under' locations and new structures beneath the carriageway. Results from this monitoring will help demonstrate the effectiveness of implemented crossing	To maintain/enhance bat crossing locations.	None

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			location mitigation and inform future maintenance of roadside vegetation to ensure bat commuting to either side of the carriageway is maintained.		
P11-E42	Throughout Proposed Scheme	Construction	No working within 30m of known roost locations during the hours of darkness taken to be 30 minutes before sunset through to 30 minutes after sunrise. Where works are required, the nature of the works should be discussed with the ECoW to establish what mitigation measures are required. Works may only take place with the agreement of the ECoW.	To prevent disturbance to bats leaving/entering roosts.	None
P11-E43	Throughout Proposed Scheme	Construction	The confirmed roost at ST08 – Red Stag Lodge will necessitate the removal of the roof by hand and in the presence of a licensed bat worker. Any bats uncovered during roof removal works will be captured and translocated to the compensatory bat box (ref. P11-E45). Demolition of Red Stag Lodge should then be completed under a watching brief by a licenced bat worker.	To comply with conservation legislation and protect roosting bats.	None
P11-E44	Throughout Proposed Scheme	Construction	All trees assessed with bat roost potential that require to be pruned or felled to accommodate the Proposed Scheme will be subject to a pre-felling inspection no more than 24 hours prior in search of roosting bats. Where features cannot be wholly assessed and ambiguity exists over the possible presence of bats, trees will be 'soft-felled' (i.e. felled in small sections) with care taken not to compromise the integrity of any potential roost feature in order to safeguard any potential bats present. Rock faces subject to blasting or reprofiling works, will be surveyed for the presence of bat roosts. Any bats present within roosts will be translocated to bat boxes erected to mitigate the loss of the roost and proportionate to the type of roost to be lost (see P11-E45). Location of bat box placement will be under direction and guidance of a bat licensed ecologist and be in accordance with P11-E45. Thereafter, the roost and any features with roost potential within a 10m	To comply with conservation legislation and protect roosting bats.	None

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			circumference of the roost, will be filled with expanding foam (or equivalent).		
P11-E45	Throughout Proposed Scheme	Pre-Construction & Construction	European Protected Species licences will be in place for all bat roosts to be removed or disturbed. Any bat roosts to be lost will be replaced with bat boxes (or other suitable roosting feature), to be erected prior to the loss of the roost. The requirement for replacement roosts will be determined following pre-construction surveys. Where roosts have already been identified, locations for compensatory bat boxes have been identified and are presented within the Landscape and Ecological Mitigation plan (Figure 13.4). However, their ultimate placement within those predefined areas will be completed under guidance of a Suitably Qualified Ecologist/ECoW. The specification of mitigation bat box will be proportionate to that of the roost to be lost and selected by the suitably qualified ecologist/ECoW, with two bat boxes provided for each roost lost.	To comply with conservation legislation and protect roosting bats. To replace bat roosting habitat.	SNH
P11-E46	Three blasting locations: Slochd Beag CH21800-22000 Slochd Mor CH23000-23400 Slochd Summit CH23900-24200	Pre-Construction & Construction	Birds nesting on rock faces at the three blasting locations present a potential constraint to works, and measures to prevent nesting will be put in place to avoid damage to or destruction of nests during blasting. Measures will comprise a combination of the following actions as determined to be appropriate through regular monitoring of the rock faces by ornithologists: • Attempts will be made during the winter prior to blasting to make nesting ledges used repeatedly by birds unsuitable to support nests. Wire mesh, netting, spikes or similar control measures will be used. • Bird deterrents will be deployed to prevent breeding birds, starting in late winter/early spring before nesting sites are occupied. Deterrent methods employed by farmers will be used, and may include visual distractions (kites, spinning reflectors, etc) and automated explosive bird scarers (gas guns or similar)	To comply with legislation and protect nesting birds during blasting works.	SNH

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			aimed at the rock face. Falconry will also be considered to disperse birds prospecting for nest sites. • Blasting will be a controlled and targeted activity. In addition to consideration of ecological constraints, vibration limits will be in place to safeguard surrounding infrastructure. It is considered these limits will minimise the impact to ledges suitable for nesting birds outside of the blasting zone. These measures are, in-combination, expected to be successful in preventing the use of the three rock faces for nesting. However, monitoring throughout the late-winter, spring and summer of the pre-construction and construction periods by ornithologists will determine the success of the above measures. If nest sites are established then blasting at that particular rock face will be suspended. Immediate consultation with SNH would take place to discuss possible mitigation/licensing options/agreements in order to allow blasting operations to recommence (given potential implications upon project programme, /agreements with neighbouring landowners (e.g. Network Rail), and HRA mitigation.		
P11-E47	Three blasting locations: Slochd Beag CH21800-22000 Slochd Mor CH23000-23400 Slochd Summit CH23900-24200	Pre-Construction & Construction	Blasting is required at three locations to modify rock faces in preparation for construction. Mitigation to reduce this potential interruption of capercaillie lekking behaviour outside of the peak March to May period will be incorporated into the scheme blasting plan and in the Capercaillie Protection Plan. This will involve the following measures: • one blast per week only: to reduce frequency of blasts; • blasts timed to minimise disturbance during lekking periods i.e. scheduled for midday as far as is practical. It is noted that blast timing is subject to suitable intervals in Network Rail's schedule for the Highland Main Line which represents a significant constraint on the work. Of note, Network Rail has requested that	To avoid disturbance of lekking capercaillie during blasting works.	SNH

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			consideration be given to blasting operations taking place at night. If this is necessary, blasts will not be conducted from one hour before dawn until 9am between 1st March to end of May, to reduce disturbance during peak lekking periods; • good practice measures during blasting, such as: - acoustic bunds to reflect the wave; - direction of firing away from sensitive locations; - not overcharging blast holes; - good use of stemming (material that backfills the drill holes for blasting); - avoiding venting of explosive gases along rock fractures; - correct burden thicknesses; - avoiding the use of detonation cords (or making sure that they are covered by sufficient burden); - avoiding the use of secondary blasting; - minimise area of heave and total charge; and - avoid blasting in adverse weather condition (e.g. when wind direction is towards sensitive locations).		
P11-E48	Throughout Proposed Scheme	Pre-Construction & Construction	All protection measures for capercaillie during construction will be included with the Capercaillie Protection Plan/Bird Protection Plan. This will include a toolbox talk to explain all measures. Exclusion zones will be applied to reduce disturbance to capercaillie from both noise and visual disturbance sources. These zones will be defined as: • 1km exclusion zone from a known lek (all human activities); • 500m exclusion if a potential lek is observed (all human activities). If confirmed as a lek following a survey, this should be increased to 1km exclusion within 24 hours;	To avoid disturbance of capercaillie whilst lekking and foraging.	SNH

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			• 100m exclusion if nesting site discovered during activities; • if indication of nesting discovered prior to start of human activities, work should cease or temporarily be moved away from suitable habitat until 15 June of that year; • 100m exclusion where a brood is accidentally disturbed during human activities, for several hours to allow re-grouping of the brood and facilitate their movement away from the disturbance source. Special measures will be put in place to protect leks: • construction within 1km of known lek sites will have a seasonal working window applied: no works will be conducted within this exclusion zone from 1st March to 31st August. Where this is not possible, sound barriers will be used to reduce noise to an acceptable level and the following activities will be prohibited between dusk through to 9am the following morning during this period: • tipping, dumping, transfer and/or movement of aggregate; • drilling, hammering, piling, digging or rock breaking/crushing (including the use of vibratory machinery), and • mechanical means of vegetation clearance and tree felling (for example using a chainsaw). • sensitive lighting during construction phase around Black Mount Junction to reduce visual disturbance/light pollution to capercaillie; • personnel and vehicles/machinery will not enter areas of woodland out with the working area at any time of day, including along paths or tracks, in woodland where capercaillie are known to be present; and		

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			• if a capercaillie is observed during works at any time, works must cease and the ECoW consulted. The ECoW will determine if there is evidence of nesting and enforce the appropriate exclusion buffer; • screening of construction areas during the lekking season (1st March to end May) that have direct line of sight to known leks. Screening in this area should be high enough to visually mask any machinery from the woodland to the south and be of a different colour to the surrounding vegetation so it is obvious to flying birds thus reducing potential for collision. Screening of other areas within 1km of leks is not deemed to be either necessary, due to existing woodland cover creating a natural visual barrier, or viable, due to local topography. The following measures will be incorporated into the Capercaillie Protection Plan: • Parking in designated areas only. Designated areas will not include land within Carn bad nan Luibhean or Baddengorm Woods woodland areas, and; • Screening of construction compounds from the surrounding area (all year).		
P11-E49	Ponds 15, 17, 24, 33, 45 and 72	Construction	eDNA testing should be undertaken on ponds 15, 17, 24, 33, 45 and 72 between 15th April to the 30th June in the year prior to construction commencing. If a positive eDNA result is recorded then the Species Protection Plan will be implemented.	To confirm presence/absence of great crested newts and, where present, protect individuals during construction.	None
P11-E50	Around ponds 17, 33, 45 and 72	Construction	All vegetation clearance within 250m of ponds 17, 33, 45 and 72 will be undertaken following a Precautionary Method of Working (PMW) for great crested newts. This PMW will be produced by a suitability qualified ecologist and will include details on approaches and timings for vegetation clearance and methods for hand searches of	To comply with conservation legislation and to protect great crested newts and their habitat.	SNH

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			vegetation by an ecologist. The mitigation measures for Pond 45 include the provision of egg laying plants and timing restrictions for in situ pond works (between November and late January when great crested newts are less likely to be in the pond). An EPS licence application with a detailed mitigation plan will be produced for Pond 15 and Pond 24. This mitigation measure may not be required and will depend on the outcome of the pre-construction eDNA surveys.		
P11-E51	Around Ponds 33 and 72	Pre-Construction & Construction	A Precautionary Method of Working document will be developed and adopted within areas suitable to support reptiles. This will detail requirements with respect to seasonal working and reptiles and approaches to vegetation and hibernacula clearance. This document should be agreed with SNH. This document will detail the approaches to follow to ensure that no reptiles are killed or injured.	To protect reptiles within areas of suitable habitat during construction.	SNH
P11-E52	Throughout Proposed Scheme	Pre-Construction & Construction	Tree felling in areas with red squirrel dreys will be timed outside of the red squirrel breeding season (February to September). Where these timescales cannot be achieved the ECoW will determine an appropriate course of action. All tree felling in locations where dreys are present (active or inactive) will be supervised by the ECoW. A SNH derogation licence must be in place for the removal of all active dreys (and dreys where activity levels cannot be confirmed).	To comply with conservation legislation and protect red squirrels and their dreys.	If licence required - SNH
P11-E53	At wildcat crossing points	Pre-Construction & Construction	Temporary wildcat fencing will be installed prior commencement of the construction phase, terminating at the edge of construction works. Permanent wildcat fencing to be installed at identified crossings, the scope and design of which is to be agreed with SNH. The specification of the fencing will follow that of the permanent fencing. The installed fencing will be subject to checking and approval by the ECoW prior to works commencing. Where deviations to this are required for	To protect wildcats from road traffic accidents.	SNH

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			constructability purposes, these will be agreed with the ECoW and SNH.		
P11-E54	Throughout Proposed Scheme	Construction	Pre-construction surveys will include the identification of hedgehog nesting and hibernation sites. Prior to construction and outwith the hedgehog hibernation period (October to March inclusive) identified nesting and hibernation sites will be dismantled by hand and re-located outwith the construction area and within suitable, retained habitat for hedgehog, within the Proposed Scheme, under the supervision of the ECoW. This will allow nesting and hibernation sites to be used during construction.	To protect hedgehog nesting and hibernation habitat.	None
P11-E55	Throughout Proposed Scheme	Construction	Habitat manipulation will be undertaken for key areas for brown hare (Lynwilg Farm, Granish; Kinveachy, Carrbridge; southbound at Baddengorm; and northbound at An Slochd Beag). Habitat manipulation should consist of strimming vegetation early in the year (February) prior to works commencing and should include a buffer of 5m from working areas. Prior to strimming, a check should be made by the ECoW to ensure no hares or breeding birds are present. Where vegetation is more than 15cm high, a phased cut is recommended. The first cut should reduce the vegetation to 15cm. The second cut should then be taken to ground level. Habitat manipulation may be required to be maintained for the duration of works within the brown hare breeding period as directed by the ECoW. Where this is not possible, then 24 hours prior to works, the working area will be checked by the ECoW. Should a leveret be found an exclusion buffer of 30m will be applied by the ECoW and maintained for the duration of weaning period (30 days)[xviii]. Adult hares will be allowed to move out of the construction area of their own accord. Once moved, the ECoW will provide authorisation to proceed with works in that area.	To protect brown hare, mountain hare and breeding birds during construction.	None

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
P11-E56	Local value watercourses/waterbodies	Construction	No working or artificial lighting within 50m of watercourses/waterbodies during the hours of darkness, taken to be 30 minutes before sunset to 30 minutes after sunrise, unless specifically agreed with SNH. Due to the geographical location of the Scheme and for reasons of practicality, works taking place between the months of November and February (inclusive) may be permitted up to 7pm and from 7am, with no works taking place between these hours, subject to the nature of the works and following discussion with the ECoW. Any lighting used to accommodate such works must be positioned to minimise light spill onto watercourses/waterbodies and will be subject to ECoW approval. The ECoW will monitor otter activity upstream and downstream of the works using camera traps and may stop site activities at any time should they consider that the works are having an impact on otter activity.	To prevent disturbance to otters using Local value watercourses/waterbodies.	Working times to be agreed with the ECoW
P11-E57	Authority Area value watercourses/waterbodies (Bogbain Burn, Caochan Ruadh, Loch Alvie)	Construction	No working or artificial lighting within 50m of watercourses/waterbodies during the hours of darkness, taken to be 30 minutes before sunset to 30 minutes after sunrise, unless specifically agreed with SNH. The ECoW will monitor otter activity upstream and downstream of the works using camera traps and may stop site activities at any time should they consider that the works are having an impact on otter activity.	To prevent disturbance to otters using Authority Area value watercourses/ waterbodies.	Approval required from the ECoW
P11-E58	International value watercourses (River Dulnain, Allt nan Ceatharnach, Allt na Criche (Lynwilg))	Construction	No working or artificial lighting within 50m of watercourses during the hours of darkness, taken to be 30 minutes before sunset to 30 minutes after sunrise, unless specifically agreed with SNH. The ECoW will monitor otter activity upstream and downstream of the works using camera traps and may stop site activities at any time should they consider that the works are having an impact on otter activity. When site activities are taking place at more than one International value watercourse at any one time, this will	To prevent disturbance to otters and fish using International value watercourses.	Approval required from the ECoW

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			be subject to ECoW approval, to avoid any cumulative impact on otter activity. This includes any works taking place within 50m of the watercourse.		
P11-E59	Various locations shown on Figure 13.4	Pre-Construction & Construction	Permanent otter fencing to be installed 100m either side of watercourse crossings, where indicated on the Landscape and Ecological Mitigation plan (Figure 13.4), to be installed prior to scheme completion. Design will follow SNH guidance[xix] and will be checked and approved by the ECoW. The recommended specification is as follows: at least 1.2m high galvanised welded mesh (of at least 2.5mm gauge) above ground level, with a maximum mesh size of 100 x 50mm attached to fence posts and topped with barbed wire. Below ground, the mesh should be dug in to a depth of 300mm, or 100mm with a horizontal lap on the otters' side of 300-450mm. Temporary otter fencing must be installed prior to commencement of the construction phase, 100m either side of all watercourse crossings where indicated on the Landscape and Ecological Mitigation plan (Figure 13.4). Specification should follow that of the permanent fencing, where deviations to this are required for constructability purposes, these should be agreed with the ECoW and SNH.	To protect otters from road traffic accidents.	Deviations to be agreed with SNH
P11-E60	River Dulnain, Allt nan Ceatharnach and Allt na Criche (Lynwilg)	Pre-Construction & Construction	No in-channel works or bank piling activity associated with crossing and outfall construction on the River Dulnain, Allt nan Ceatharnach and Allt na Criche (Lynwilg) shall be undertaken between October- June inclusive.	To avoid key spawning, development and emergence periods for Atlantic salmon and sea lamprey, as well as the smolt run for Atlantic salmon.	None
P11-E61	Allt nan Ceatharnach and Allt na Criche (Lynwilg).	Pre-Construction & Construction	With the exception of temporary dewatering, no working within wetted river channel shall be undertaken on the Allt nan Ceatharnach and Allt na Criche (Lynwilg). No working within the wetted channel shall be undertaken on the River Dulnain.	To avoid acoustic disturbance and water pollution/sedimentation.	None

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
P11-E62	Throughout Proposed Scheme to north of Granish Junction	Pre-Construction	Wood ant nests from across the impacted area, representing the genetic diversity of the impacted population, will be translocated to suitable receptor sites, before the commencement of construction. Potential receptor sites for translocation adjacent to the Proposed Scheme include Kinveachy Forest. However, this is not considered a fixed receptor site and further survey work is required before construction commences to confirm the site's suitability. Translocation will follow methods adopted during the A9 Kincraig to Dalraddy widening[xx] (Project 10) and for receptor sites outside the road corridor will follow the Scottish Code for Conservation translocations[xxi]. Previous experience has shown that, depending on the timing, wood ant nests may recolonise sites after translocation but before construction. Where possible, nests will be moved to adjacent areas, immediately prior to construction, although the timing and receptor site selection will be dictated by construction operations. A Species Protection Plan, including a monitoring plan, will be produced for wood ants pre-construction and agreed with CNPA to allow sufficient time for land holder agreements, any site preparation required, and translocation of existing nests in the optional time of year (spring), therefore avoiding delays to construction. The plan shall detail the following: • a detailed methodology, based on successes/failures of previous work on the A9; • all necessary data to be carefully recorded so that monitoring work can be undertaken and comparisons made (e.g. time of translocation, weather, type of supplementary food provided); • all translocation work to take place in spring unless absolutely necessary;	To maintain diversity of impacted populations of wood ants.	CNPA

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			• an estimate of how many nests require translocation (based on evidence from Project 10 that larger nests are more likely to survive); • the species of wood ant that require to be translocated; • location and details of receptor sites, both within the LMA and any off-line receptor sites; all receptor sites to be marked on a map; • all receptor sites to be marked on the ground throughout construction - these areas will be strictly off limits to all construction; • protection measures for nests that can be retained alongside the road during construction; • where possible, factor in the requirement for 'extra' space to be made available for additional nests discovered immediately prior to construction; and • a commitment to monitor the nests for at least 5 years post-construction, with detailed instructions as to the data collected during monitoring visits.		

Table 21.7: Landscape and Visual

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
Standard A9 Mitigation					
SMC-LV1	Throughout proposed scheme	Construction	The construction programme will be kept to the minimum practicable time to reduce the duration of any landscape and visual impacts and areas will be cleared for construction as close as possible to works commencing and topsoiling, reseeding and planting shall be undertaken as soon as practicable after sections of work are complete.	To reduce the duration of any landscape and visual impacts.	None required
SMC-LV2	Throughout proposed scheme	Pre-Construction & Construction	As far as practicable, construction plant and materials storage areas will be appropriately sited to minimise their landscape and visual impact.	To reduce landscape and visual impact of plant and material storage areas.	None required
SMC-LV3	Throughout proposed scheme	Construction	Construction sites will be kept tidy (e.g. free of litter and debris).	To reduce visual impact of construction sites.	None required
SMC-LV4	Throughout proposed scheme	Construction	Work during hours of darkness will be avoided as far as practicable, and where necessary, directed lighting will be used to minimise light pollution/glare. Lighting levels will be kept to the minimum necessary for security and safety.	To reduce light pollution/glare during night-time working.	None required
SMC-LV5	Throughout proposed scheme	Construction	To protect soil quality for the purposes of landscape planting, the following measures will be implemented: • Uncontaminated topsoil for re-use shall be stored in un-compacted mounds no more than 2m in height, and stored separately from subsoil material. Topsoil stripped from areas designated as Ancient Woodland shall be stored separately to all other topsoil and sub-soil material, in un-compacted mounds no more than 2m in height. • Stripped topsoil shall be used in areas of the same proposed vegetation type to utilise the existing natural seed bank. • Subsoil in planting areas shall be replaced after construction and ripped to a minimum of 450 mm prior to topsoiling and planting.	To protect soil quality for the purposes of landscape planting.	None required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			• Proposed planting areas in existing arable and pasture land, not subject to construction activity, will be ripped to 600 mm to alleviate compaction.		
SMC-LV6	Throughout proposed scheme	Construction	The construction will be managed such that the loss of any existing woodland, scrub, heath, mire, grassland vegetation, marshland, swamps and isolated trees and shrubs not affected by the permanent works is minimised.	To limit vegetation loss as far as practicable.	None required
SMC-LV7	Throughout proposed scheme	Pre-Construction	All existing trees and shrubs not affected by the construction of the permanent works shall be fenced off with a suitable type of temporary fencing in accordance with BS5837. Fencing shall extend to the drip line of the tree canopies (unless otherwise agreed by an arboricultural advisor), and shall be erected prior to any construction activities in that area and shall remain for the entire period of construction in that area.	To protect existing trees and shrubs unaffected by the proposed scheme.	None required
n/a (note)	n/a	n/a	Further to the above, Mitigation Items SMC-E7 and SMC-E8 will be implemented to protect vegetation which is identified to be retained.	To protect vegetation which is identified to be retained.	n/a
Project Specific Mitigation					
P11-LV8	Retaining Walls: south of Avie Lochan, B9152 south of Aviemore, Craig Dhu Underpass, Macdonald Hotel, Milton and High Burnside, Aviemore; Kinveachy, Dulnain Crossing, Black Mount Junction and Slochd SuDS access tracks. Grading of Earthworks: Aviemore South Junction; Granish	Pre-Construction and Construction	Earthworks/Rock Cut proposals will: • Use retaining walls where appropriate to avoid extensive cuttings into slopes or large embankments which increase land disturbance or avoid the HML; • where rock cuttings are required, create formations which are varied and reflect the structure of the rock; • rock cutting shall incorporate embayments, vary the height of ledges, and utilise bunds on the crest of benches to contain rockfall either alone. or in combination, to achieve an irregular and naturalistic appearance; • where mesh is used as a means of engineering control for rock cuts, the mesh will be contoured to the rock face and not merely 'draped' upon it. A low diameter wire and large apertures is used with faceplate areas	To reduce effects of cuttings and embankments and integrate the scheme into the landscape.	None required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
	Junction and Black Mount Junction; Chainage 5500-7000 northbound (Craigellachie NNR); Chainage 10650-11000 Southbound (Avie Lochan); Macdonald Hotel, Scandinavian Village and Slochd Rock Cuts: Slochd Beag, Slochd Mor and Slochd Summit.		minimised. The mesh boundary shall be folded back to the manufacturers minimum excessive tails; and • sensitive grading of earthworks to integrate with surrounding landform and/or reduce requirements for/extent of felling.		
P11-LV9	Throughout proposed scheme	Pre-Construction and Construction	The following shall apply to SuDS features: • earthworks shall integrate with the surrounding landform; and • planting of woodland shall be incorporated near SuDS features to enhance wildlife and create visual interest.	To mitigate visual intrusion of SuDS features and enhance their visual amenity and wildlife value.	None required
P11-LV10	Railway Cottages (B9152 south of Aviemore); March Cottage (south of Aviemore);	Pre-Construction and Construction	Noise barriers shall be screened with the use of localised native planting to help reduce visual impact.	Where noise mitigation is required.	None required
P11-LV11	Retaining wall on B9152 south of Aviemore; Craig Dhu Underpass and retaining wall; Craigellachie NMU Underpass;	Pre-Construction and Construction	The design of structures along the entire proposed scheme has been informed by specialist aesthetic advice and design meetings in order to reduce impacts on the landscape and visual receptors. This includes the use of natural stone treatments on select structures.	To reduce impact on landscape and visual receptors.	None required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
	Milton NMU Underpass and retaining wall; NCN7 Underpasses, Slochd.				
P11-LV12	Walls at Granish Junction roundabout	Pre-Construction and Construction	The design shall incorporate low level natural stone walls to replicate the local landscape character and enhance the 'gateway' to Aviemore.	To enhance local landscape character and enhance the gateway to Aviemore.	None required.
P11-LV13	Aviemore South Junction; Granish Junction	Pre-Construction and Construction	The design of the junctions shall reflect their role as 'gateways' to Aviemore. The design of Aviemore South, Granish, Black Mount Junction loops and the area at the drainage channel structure at Slochd Mhuic South underpass shall incorporate large boulders to reflect the local landscape character and help to integrate the structures into the landscape.	To enhance local landscape character and enhance the gateway to Aviemore.	None required.
P11-LV14	Throughout proposed scheme	Pre-Construction and Construction	Retention of existing trees and vegetation and incorporation with new planting proposals. Trees shall only be removed where it can be demonstrated that this is required for construction or safety purposes.	To retain existing trees and vegetation wherever possible.	None required
P11-LV15	Throughout proposed scheme	Pre-Construction and Construction	Mitigation planting to replace trees lost during the construction of the proposed scheme.	To mitigate impacts of felling and woodland loss.	None required
P11-LV16	Throughout proposed scheme	Pre-Construction and Construction	Landform shall be squared off to maintain or create a bund to contribute to screening of views for receptors.	To provide screening for receptors.	None required
P11-LV17	Black Mount Junction	Pre-Construction and Construction	Use of landlocked areas for landscape mitigation.	To reduce impacts on agricultural operations.	None required
P11-LV18	Throughout proposed scheme	Pre-Construction	Planting shall aid integration with the landscape character, and be predominantly based on native species established in the area.	To ensure planting integrates with local landscape character.	None required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
		and Construction			
P11-LV19	Throughout proposed scheme	Pre-Construction and Construction	Species rich mixes for the majority of grass verges with the aim of integrating these into the wider landscape character. The exception to this will be the use of less diverse grass species in areas associated with visibility splays which are capable of withstanding regular cutting.	To integrate verges into the local landscape.	None required.
P11-LV20	Lynwilg Farm; Kinakyle; Craig Dhu retaining wall (B9052 south of Aviemore); Craigellachie NMU; Macdonald Hotel; Scandinavian Village; Milton/High Burnside; Aviemore South Junction and Granish Junction.	Construction	Large specification trees shall be used where screening or filtering of views is required in the year of opening, or where the area acts as a 'gateway' to a key location.	To afford screening or filtering of views for visual receptors in the year of opening.	None required.
P11-LV21	All Rock Cuts	Construction	Topsoil shall be incorporated to the new rock cut configurations to assist natural regeneration. Where it is considered that a more immediate solution is required, hydroseeding shall be undertaken.	To align with localised landscape character and create visual amenity.	None required.
P11-LV22	Throughout Route	Construction	Tarmac surface on access tracks to SuDS will be limited to those tracks which lead to residential properties.	To align with landscape character and reduce visual effect.	None required.
P11-LV23	Loch Alvie, open area north of Black Mount, Slochd Beag, and Slochd Summit	Construction	Planting or density of planting shall be light to align with landscape character or to afford open or glimpsed views of landscape features.	To align with landscape character and to afford, maintain or enhance views to key features.	None required.
P11-LV24	Throughout Route	Construction	The detail of the mammal fencing shall be designed to minimise visual impact.	To reduce impact on the landscape and visual resource.	None required (this was agreed with Scottish Natural Heritage as part of the A9 Dualling

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
					Environmental Steering Group.
P11-LV25	Chainage 4700 Grampian Road; Chainage 7400 Old Meall Road; and Chainage 23700 and 24400 – NMU Underpasses, Slochd	Construction	The detail of the lighting shall: • restrict column heights to below the apparent tree line • utilise luminaires selected to avoid upward light; and • utilise G4 glare glass.	To reduce impact on the landscape and visual resource.	Cairngorm National Park Authority (in relation to the Special Landscape Qualities of Dark Skies)

Table 21.8: Cultural Heritage

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
Standard A9 Mitigation					
SMC-CH1	Throughout the proposed scheme	Construction	The Contractor will consult with the relevant local authority and Historic Environment Scotland (HES) should any archaeological or cultural heritage finds or sites be discovered or revealed during construction to enable appropriate measures to be implemented to mitigate potential impacts.	To enable appropriate mitigation measures to be implemented to mitigate impacts on assets found during construction.	Relevant Local Authority and Transport Scotland's cultural heritage advisor. HES if affecting Scheduled Monument, Category A Listed Building, Historic Battlefield or Garden & Designed Landscape.
Project Specific Mitigation					
P11-CH2	Throughout proposed scheme	Pre-construction and construction	Archaeological Trial Trenching will be undertaken in advance of construction to mitigate the impact on a number of potential archaeological sites. These final locations and percentage proposed for trenching will be discussed and agreed with Transport Scotland's Archaeological Advisor and the Highland Council Historic Environment Team. The Trail Trenching will inform the nature and scope of any subsequent mitigation if required.	To make a permanent record of any affected archaeological remains.	The Highland Council Historic Environment Team and Transport Scotland's cultural heritage advisor.
P11-CH3	Throughout proposed scheme	Pre-construction and construction	A permanent record of any affected previously unknown archaeological remains to be made which can include the use of Strip, Map and Excavate measures in advance of construction to mitigate the impact upon any such sites discovered during the course of the works.	To make a permanent record of any affected previously unknown remains.	The Highland Council Historic Environment Team and Transport Scotland's cultural heritage advisor. Historic Environment Scotland if mitigation includes Scheduled Monument, Category A Listed Building, Historic Battlefield or Garden & Designed Landscape

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
P11-CH4	Throughout proposed scheme	Pre-construction and construction	A permanent record of any affected archaeological remains to be made through a targeted Archaeological Watching Brief to be undertaken during construction in order to mitigate the impact on the Dunkeld – Inverness Military Road.	To make a permanent record of any affected archaeological remains associated with the Military Road	The Highland Council Historic Environment Team and Transport Scotland's cultural heritage advisor.
P11-CH5	At sites 7 (burial cairn), 9 (cairnfield), 154 (cairn), 159 (structure), 160 (cairn), 216 (field boundary), 217 (cairn) and 218 (kiln)	Pre-construction and construction	An earthwork (measured) survey to be carried out at sites 7 (burial cairn), 9 (cairnfield), 154 (cairn), 159 (structure), 160 (cairn), 216 (field boundary), 217 (cairn) and 218 (kiln) prior to any phases of Archaeological Strip Map and Excavate.	To make a permanent record of any affected upstanding archaeological features or remains.	The Highland Council Historic Environment Team and Transport Scotland's cultural heritage advisor.
P11-CH6	Sites 7, 8, 9, 217 & 218	Pre-construction and construction	Archaeological Strip Map and Excavate of area around sites 7, 8, 9, 217 & 218. This will be undertaken in advance of construction to highlight, locate and infer subsequent mitigation on any remains which may be present relating to known Prehistoric activity within the area.	To inform any subsequent excavation of any sub-surface archaeological remains that may be present. This will aid preservation by record prior to any construction.	The Highland Council Historic Environment Team and Transport Scotland's cultural heritage advisor.
P11-CH7	Sites 154 (cairn)	Pre-construction and construction	Archaeological Strip Map and Excavate of area around sites 154 (cairn). This will be undertaken in advance of construction to highlight, locate and infer subsequent mitigation on any remains which may be present relating to known Prehistoric activity within the area.	To inform any subsequent excavation of any sub-surface archaeological remains that may be present. This will aid preservation by record prior to any construction.	The Highland Council Historic Environment Team and Transport Scotland's cultural heritage advisor.
P11-CH8	Sites 159 (structure) & 160 (cairn)	Pre-construction and construction	Archaeological Strip Map and Excavate of area around sites 159 (structure) & 160 (cairn). This will be undertaken in advance of construction to highlight, locate and infer subsequent mitigation on any remains which may be present relating to known prehistoric activity within the area.	To inform any subsequent excavation of any sub-surface archaeological remains that may be present. This will aid preservation by record prior to any construction.	The Highland Council Historic Environment Team and Transport Scotland's cultural heritage advisor.
P11-CH9	Sites 144 & 162.	Pre-construction and construction	An earthwork (measured) survey to be carried out at sites 144 & 162. To allow for a permanent record of any upstanding archaeological features or remains relating to the Military Road. This includes the section of the military road at Granish Junction, likely to be affected by access tracks to the SuDS ponds.	To make a permanent record of any affected upstanding archaeological features or remains.	The Highland Council Historic Environment Team and Transport Scotland's cultural heritage advisor.

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
P11-CH10	Site 6 (Sheiling Hut) and site 142/143	Pre-construction and construction	A Level 2 Building recording survey will be made of site 6 (Sheiling Hut) and 142/143, the remains of the Sluggangranish Structure, to provide a permanent record prior to demolition during any construction.	Provide a permanent record of the building and its remains in its current form and the resulting report will be lodged with the HHER.	The Highland Council Historic Environment Team and Transport Scotland's cultural heritage advisor.
P11-CH11	Throughout proposed scheme	Pre-construction and construction	Archaeological Excavation will be undertaken in advance of construction (if possible) to mitigate the impact upon any remains which are uncovered during the trial trenching. Other sites, such as those located during the Geophysical Survey may also be candidates for full excavation, rather than Trial Trenching. Exact areas to be discussed and agreed with the Highland Council Historic Environment Team.	To make a permanent record of any affected archaeological remains.	The Highland Council Historic Environment Team and Transport Scotland's cultural heritage advisor. Historic Environment Scotland if mitigation includes Scheduled Monument, Category A Listed Building, Historic Battlefield or Garden & Designed Landscape.
P11-CH12	Throughout proposed scheme	Pre-Construction	A photographic record of the current landscape (particularly in areas where large new infrastructure, such as junctions and bridges) will be undertaken to record the existing landscape prior to construction of the Proposed Scheme.	To make a permanent record of the current historic landscape.	The Highland Council Historic Environment Team and Transport Scotland's cultural heritage advisor.
P11-CH13	Site 219 (enclosure) and site 220 (earthwork)	Pre-construction and construction	Site 219 (enclosure) and site 220 (earthwork) will be marked and avoided during construction. The implementation of a toolbox talk for construction taking place around the area near the structure will negate the need for archaeological monitoring.	To avoid impact on the two features and negate the need for archaeological monitoring.	The Highland Council Historic Environment Team and Transport Scotland's cultural heritage advisor.

Table 21.9: Air Quality

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
Standard A9 Mitigation					
SMC-AQ1	Throughout proposed scheme	Construction	In relation to minimising fugitive dust emissions from earthworks, material storage and concrete batching the following mitigation items will be implemented: • stockpiles and mounds will be at a suitable angle of repose to prevent material slippage, will be enclosed or securely sheeted, and/or kept damped as necessary during dry weather; • the surfaces of any long-term stockpiles which give rise to a risk of dust or air pollution will be covered with appropriate sheeting or will be treated to stabilise the surfaces; • mixing of large quantities of concrete will be carried out only in enclosed or shielded areas; • all handling areas will be maintained in a dust free state as far as is practicable with sprinklers and hoses used to prevent dust escaping from the site boundaries; and • procedures will be established so that the site is regularly inspected for spillage of dusty or potentially dusty materials and any such spillage would be dealt with promptly where necessary to prevent dust nuisance.	To reduce fugitive dust emissions from earthworks, material storage and concrete batching.	None required
SMC-AQ2	Throughout proposed scheme	Construction	In relation to minimising dust from vehicle movements within the site the following mitigation items will be implemented: • the Contractor will employ appropriate measures, such as covering materials deliveries or loads entering and leaving the construction site by a fixed cover or sheeting appropriately fixed and suitable for the purposes of preventing materials and dust spillage; • where unsurfaced routes are identified as creating dust emissions during periods of dry weather, surfaces will be regularly dampened down using water bowsers; and	To reduce dust from vehicle movements.	None required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			• appropriate speed limits will be established and enforced over all unmade surfaces.		
SMC-AQ3	Throughout proposed scheme	Construction	In relation to appropriate cleaning of public roads the following mitigation items will be implemented: • the edges wheel washing facilities will be installed as required and heavy vehicles will be required to use the facilities prior to leaving the site; • subject to approval from Transport Scotland and the network operator, public roads immediately outside the site entrance will be cleaned using vacuum sweeper brushes and other specialised road cleaning equipment as necessary to maintain an appropriate state of cleanliness; and • roads and footpaths adjacent to the proposed scheme will be cleaned, with damping if necessary.	To reduce potential of dust from public roads.	Approval required from the Roads Authority.
Project Specific Mitigation					
P11-AQ4	Throughout Proposed Scheme	Construction	Suitable mitigation measures to be employed for a 'medium' risk category site have been identified from the IAQM Construction Dust Guidance.	To reduce the potential for dust emissions to cause nuisance.	None required

Table 21.10: Noise and Vibration

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
Standard A9 Mitigation					
SMC-NV1	SMC-NV1	Throughout Proposed Scheme	A scheme of noise and vibration monitoring will be agreed with the Environmental Health Officer of Highland Council, and noise and vibration limits will be contained within the Construction Environmental Management Plan (CEMP). The CEMP will be prepared by the appointed contractor, and will include the following: • Arrangements for communicating construction details, and likely noisy activities, with local communities and residents, including points of contact; • Detailed methodologies for each construction activity; • Detailed programmes for each phase of construction; • Identification of the construction activities likely to generate the highest levels of noise, based on working areas; • Prediction of noise levels from these activities following methods given in BS 5228-1; • Identification, in consultation with The Highland Council, of appropriate hours of working and construction noise limits; • An assessment of predicted impacts against the agreed construction noise limits; • Identification of appropriate noise mitigation measures; and • Noise monitoring and reporting procedures.	To predict the noise and vibration levels during the construction of the Proposed Scheme. It will include the design of receptor specific mitigation, over and above the standard mitigation detailed in SMC-NV2, where required.	The Highland Council Environmental Health Officer
SMC-NV2	SMC-NV2	Throughout Proposed Scheme	The adoption of Best Practicable Means (BPM), as defined in the Control of Pollution Act 1974, and the guidance on good practice presented in PAN 50, will be used to control noise and vibration from construction activities, and will include the following: • Maintaining good public relations with local residents that may be affected by noise from the construction	To reduce, as far as practicable, the level of noise to which operators and others in the vicinity of site operations would be exposed.	The Highland Council if any working outwith normal working hours

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			works. Effective communication should be established, keeping local residents informed of the type and timing of works involved. Effective methods of keeping local residents informed include leaflet drops, posters, public meetings, exhibitions and guided site visits; • Provision of contact details for a site representative so that noise and vibration complaints arising from construction works are dealt with pro-actively and that subsequent resolutions are communicated to the complainant; • All site staff would receive appropriate periodic environmental training throughout the construction period; • Night-time working would be avoided where possible; • Careful planning of construction activities and selection of plant to reduce noise emissions; • The use of temporary acoustic barriers where appropriate; • Locating static noisy plant in use as far away from sensitive receptors as is feasible for the particular activity; • Using suitable equipment and ensuring such equipment is properly maintained and operated by trained staff; • Using silenced equipment where possible, in particular silenced power generators if night-time power generation is required for site security or lighting; • Vehicles and plant to be properly maintained and operated according to manufacturers' recommendations, in such a manner as to avoid causing excessive noise • Engine compartments should be closed when equipment is in use and the resonance of body panels and cover plates reduced through the addition of suitable dampening materials; • Where practicable, rubber linings would be used on chutes and dumper trucks, etc.;		

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			• Ensuring plant machinery is turned off when not in use; • Speed limits on access roads or tracks for HGVs; • Care to be taken regarding the needs for reversing alarms, where possible, install non-tonal alarms; • The gradient of any temporary haul road or track connecting work areas to the road network to be kept to a minimum; • Deliveries would be programmed to arrive during daytime hours only; • Drop heights would be minimised when loading/unloading vehicles; • Ensuring that vehicles do not park or queue for long periods outside sensitive receptors with engines running unnecessarily; • The timing of vehicle movements to and from site; where possible these should be limited to less-sensitive times of day; • The routing of vehicle movements to and from site; where possible these should prioritise routes with fewer (or more distant) noise-sensitive receptors; • The provision of alternative routes to spread impacts across multiple routes; • The application of traffic management, including speed limits for construction traffic in the most sensitive areas; • Generators and water pumps required for 24-hour operation should be silenced and/or screened as appropriate; • Where possible, the use of mains electricity rather than generators. In addition, noisy construction activities are to be reduced as far as is reasonably practicable between the hours of 13.00 to 19.00 on Saturdays. Where works are required outside standard hours, the use of silenced equipment and plant is suggested, or temporary barriers installed in		

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			order to reduce noise at sensitive receptors to below BS 5228-1 threshold values where practicable. If appropriate, the Contractor may request prior consent under Section 61 of CoPA. This consent would include details of the works and the method; and proposed noise and vibration mitigation.		
Project Specific Mitigation					
P11-NV3	Where blasting works are proposed	Pre-construction and Construction	In order to manage potential impacts from blasting works the following mitigation measures would be employed to mitigate vibration and air overpressure levels: • The affected local community shall be notified of the proposed blasting times; • During blasting site sentries at key locations to warn people in advance and maintain a suitable safe distance; • Installed blast signs around the rock cut areas on publicly accessible routes; • Use pre-blast warning sirens to warn both human and non-human receptors; • Care would be taken with the development of faces, and with trial blasts, as anomalous vibration levels might be produced when there is no free face to relieve the energy produced; • Appropriate burden would be ensured to avoid over or under confinement of the charge; • Accurate drilling and setting out would be undertaken; • Charge levels would be appropriate; • Stemming with appropriate material such as sized gravel or stone chippings would be undertaken; • Decking charges/in hole delays/delay detonation would be used to ensure smaller Maximum Instantaneous Charges (MICs); • A series of groundborne vibration measurements and air overpressure measurements would be undertaken to	To reduce potential impacts on residents, etc. associated with blasting works.	Local residents, CNPA, THC

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			determine compliance with appropriate criteria (adopted from BS 5228-2). These measurements would initially be undertaken for a series of smaller charge weights, which would only be increased following analysis of the measured vibration levels and determination of likely compliance with applicable limits for higher charge weights; • Each charge would be individually designed to maximise efficiency and reduce energy loss through vibration and air overpressure; • The use of surface detonating cords and secondary blasting would be avoided where possible; • The areas of heave and the total charges would be minimised; • Blasting in adverse weather conditions would be avoided where possible, i.e. wind in the direction of sensitive receptors; • All blasting would be undertaken in accordance with the blast plan. This is updated following a blast, if required.		
P11-NV4	Throughout Proposed Scheme	During Construction	Specific mitigation may be required for locations where potentially significant effects are indicated. This mitigation would be confirmed when the final selection of plant and equipment is known and the impacts reassessed. Mitigation may take the form of solid site hoardings. Depending on the scheduling of works there may be a need to consider specific arrangements to manage night-time construction impacts for residents. Such arrangements will be agreed between the Contractor and residents.	To reduce impact on residents during construction.	None required
P11-NV5	At specific defamed locations	Construction and Operation	An indicative scheme of noise mitigation has been proposed, the design criteria for the noise barriers is to reduce operational noise levels to below significant impact.	To reduce predicted traffic noise impacts.	None required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			Specification of noise barriers shall be at least B3, as classified under BS 1793-2. Three permanent noise barriers are specified and are mapped in Figure 17.8. • EB1 noise barrier is 53 m long, 1.4 m high, is located adjacent to the B9152 and limits operational noise impact at Railway Cottages, adjoining semi-detached bungalows; • EB2 noise barrier is 45 m long, 1.4 m high, is located adjacent to the B9152 and limits operational noise impact at Railway Cottages, adjoining semi-detached bungalows; and • EB3 noise barrier is 93 m long, 2.3 m high, is located adjacent to the A9 and limits operational noise impact at March Cottage.		

Table 21.11: Materials

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
Standard A9 Mitigation					
SMC-M1	Throughout proposed scheme	Pre-Construction & Construction	Prior to construction a Site Waste Management Plan (SWMP) will be developed as part of the CEMP (see Mitigation Item SMC-S1) to set out how all construction phase materials will be managed and it will be updated regularly during the construction of the proposed scheme. The SWMP will identify, prior to the start of construction works, the types and likely quantities of wastes that may be generated and it will set out, in an auditable manner, how waste will be reduced, re-used, managed and disposed of in accordance with relevant Zero Waste Scotland Guidance. The SWMP will include specific materials management and soil management plans developed under voluntary and industry regulated Codes of Practice including: • Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (DEFRA, 2009); • Land Remediation and Waste Management Guidelines (SEPA, 2009); and • Promoting the Sustainable Re-use of Greenfield Soils in Construction (SEPA, 2010). Appropriate waste minimisation and associated KPI targets will also be included.	To set out how all construction phase materials will be managed.	Consultation and approval from the Local Authority and/or SEPA as applicable to regulatory requirements.
SMC-M2	Throughout proposed scheme	Pre-Construction & Construction	The Contractor will comply with all relevant waste legislation in relation to waste handling, storage, transport and disposal (e.g. The Waste Framework Directive) and consultation with SEPA for advice on waste practice, licences and exemptions where appropriate.	To ensure waste handling, storage, transport and disposal is compliant with all relevant waste legislation.	Consultation with SEPA.

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
SMC-M3	Throughout proposed scheme	Pre-Construction, Construction, Operation	The Contractor will apply the principles of the 'Waste Hierarchy' (Prevention, Preparing for Re-use, Recycling, Other Recovery, Disposal) to minimise waste generation, maximise re-use of site-won materials on-site and minimise the need for disposal of waste. Where re-use is not possible within the proposed scheme, alternative re-use and recycling options will be sought off-site with disposal the final option, with clear justification of options provided.	To reduce waste generation, maximise re-use of site-won materials on-site and reduce the need for disposal of waste.	None required
SMC-M4	Throughout proposed scheme	Pre-Construction & Construction	The Contractor will implement Zero Waste Scotland's Design for Resource Efficient Construction Principles.	To make the best use of materials, over the lifecycle of the proposed scheme's built assets, to reduce embodied carbon emissions.	None required
SMC-M5	Throughout proposed scheme	Pre-Construction & Construction	The key material elements (i.e. aggregates, asphalt, cement, precast concrete products, ready-mixed concrete and steel) used within the proposed scheme shall be specified to be responsibly sourced.	To reduce impacts associated with the extraction and manufacture of materials.	None required
SMC-M6	Throughout proposed scheme	Pre-Construction & Construction	All timber and timber products shall be sourced from independently verifiable legal and sustainable sources.	To reduce impacts associated with the extraction and manufacture of materials.	None required
SMC-M7	Throughout proposed scheme	Design Pre-Construction Construction	Alternatives to primary aggregates shall be investigated, including opportunities to use recycled or secondary aggregates in the construction of the proposed scheme; either sourced from construction, demolition and excavation waste obtained on-site or off-site; or secondary aggregates obtained from a non-construction or post-consumer or industrial by-product source.	To reduce impacts associated with the extraction, manufacture and transport of materials and to reduce waste generation, maximise re-use of site-won materials on-site and reduce the need for disposal of waste.	None required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
n/a (note)	n/a	n/a	Further to the above, the following mitigation items detailed in Table 21.2 (Community and Private Assets), Table 21.4 (Geology, Soils and Contaminated Land), Table 21.5 (Road Drainage and the Water Environment) and Table 21.9 (Air Quality) will be implemented to ensure the appropriate management and handling of materials: Mitigation Items SMC-CP8, SMC-G3, SMC-G8, SMC-G9, SMC-G11, SMC-G15, SMC-W2, SMC-W6 to SMC-W10, SMC-AQ1 and SMC-AQ2.	To ensure the appropriate management and handling of materials.	n/a

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