21. Schedule of Environmental Commitments

21.1. Introduction

21.1.1. The Proposed Scheme has evolved taking account of environmental considerations throughout the iterative design process in order to avoid or reduce potential environmental impacts where possible.

21.1.2. This chapter provides a summary of the environmental mitigation measures that have been described in each environmental topic chapter (Chapters 7 to 19), which will need to be part of the Proposed Scheme implementation. The Appointed Contractor will be required to carry forward to detailed design the mitigation measures outlined within Table 21.1.

21.2. Construction Environmental Management

21.2.1. The environmental performance of the Appointed Contractor throughout the works will be defined and controlled through the overarching CEMP, which shall be developed by the Appointed Contractor. The CEMP will comply with current legislation and regulations and industry good practice and will require consultation with statutory consultees where relevant. The CEMP should include the following as required:

- Air Quality and Dust Management Plan (identifying suitable mitigation measures to be employed in accordance with the Institute of Air Quality Management Construction Dust Guidance)
- Archaeological Management Plan
- Bio-Security Plan, including the management of invasive, non-native species
- Bird Species Protection Plan
- Carbon Management Plan
- Community Engagement Plan
- Construction Lighting Management Plan

- Designated Sites Protection Plan
- Dewatering Management Plan
- Ecological Management Plan, including specific Species Protection Plans, Designated Sites and Habitat Management Plans
- Flood Response Plan
- Groundwater and Surface Water Management Plans, including Water Quality Monitoring Plan, adherence to Pollution Prevention Guidelines, Flood Response and Pollution Incident Control and Response Plans
- Invasive non-native Species (INNS) Management Plan
- Habitat Protection Plan
- Landscape Ecological Management and Monitoring Plan
- Noise and Vibration Management Plan (identifying how to appropriately control and minimise construction noise and vibration impacts as far as is reasonably possible)
- Peat Management Plan
- Pollution Prevention Measures and Incident Control Plan
- Pre-construction surveys, including ecology and drainage
- Private Water Supply Protection Plan
- Site Waste Management Plan
- Soil and Materials Management Plan
- Species Protection Plan (covering the following species / species groups as a minimum: aquatic species, otter, pine marten, red squirrel, bats, badger, reptiles and any other species as deemed necessary from the pre-construction surveys conducted)
- Surface Water Management Plan and
- Traffic Management Plan, including non-motorised users.

21.2.2. Where those plans listed above are not considered to be required this must be agreed with Transport Scotland.

21.2.3. Volume 4, Appendix 4.2 First Iteration Environmental Management Plan has been produced in accordance with DMRB LA 120 Environmental management plans and sets the framework for the Appointed Contractor to further develop their CEMP.

21.3. Schedule of Environmental Commitments

21.3.1. Table 21.1 collates the mitigation commitments outlined in each environmental topic chapter for ease of reference. The mitigation measures included are contained within Chapters 7 – 19 of this EIA Report.

21.3.2. The Schedule of Environmental Commitments includes the following information:

- mitigation reference number (derived from the environmental topic and mitigation item number)
- location of the measure
- timing of the mitigation measure
- description of the mitigation measure (including its purpose and location)
- the party responsible for overseeing the implementation of the mitigation and
- specific monitoring, consultation and approval required for the mitigation item.

21.3.3. The Appointed Contractor is required to monitor the environmental mitigation and whether the objectives have been achieved. A Completion Record will be included within the Register of Environmental Actions and Commitments as detailed in Volume 4, Appendix 4.2 First Iteration Environmental Management Plan.

21.3.4. Throughout the construction period the Appointed Contractor will be required to ensure that suitably experienced onsite personnel report and monitor the implementation of environmental mitigation. Details of the onsite personnel will be detailed within the Contractor's CEMP.

Table 21.1 - Schedule of Essential Mitigation Commitments

Ref	Location of Measure	Timing of Measure	Description	Mitigation Purpose/ Objective	Party Responsible for Overseeing Implementation	Specific Consultation or Approval Required	Monitoring Requirements
GEN1	Scheme Wide	Construction	The appointed Contractor will, through contractual requirements, be required to produce a CEMP in accordance with DMRB LA 120 'Environmental management plans to provide a framework for the implementation of construction activities and how they intend to operate the construction site. Construction mitigation measures are detailed through the EIA Report and have been included with the table below. The CEMP must be in place prior to the start of construction work and will be developed throughout the construction period as required to avoid, reduce or mitigate construction impacts on the environment and the surrounding community. The CEMP will include but not be limited to, plans including those identified in Section 21.3. A First Iteration Environmental Management Plan has been developed and is included in Volume 4, Appendix 4.2.	To set a framework for the implementation of construction activities in accordance with the mitigation and environmental commitments contained in the EIA Report.	Appointed Contractor	Consultation with Loch Lomond and The Trossachs National Park, Argyll and Bute Council and other statutory bodies and regulatory authorities.	Employer's Requirements in the Contract.
AQ1	Scheme Wide	Construction	Regular water-spraying and sweeping of unpaved and paved roads to minimise dust and remove mud and debris.	To mitigate dust and remove mud and debris.	Appointed Contractor	Not Applicable	On-going monitoring of Construction works by Environmental Clerk of Works (ECoW)
AQ2	Scheme Wide	Construction	Using wheel washes, shaker bars or rotating bristles for vehicles leaving the site where appropriate to minimise the amount of mud and debris deposited on the public road.	To mitigate mud and debris deposited on the public road.	Appointed Contractor	Not Applicable	On-going monitoring of Construction works (ECoW
AQ3	Scheme Wide	Construction	Sheeting vehicles carrying dusty materials to prevent materials being blown from the vehicles whilst travelling.	To mitigate materials being blown from vehicles.	Appointed Contractor	Not Applicable	On-going monitoring of Construction works by ECoW

Ref	Location of Measure	Timing of Measure	Description	Mitigation Purpose/ Objective	Party Responsible for Overseeing Implementation	Specific Consultation or Approval Required	Monitoring Requirements
AQ4	Scheme Wide	Construction	Enforcing speed limits for vehicles on unmade surfaces and site haul roads to minimise dust entrainment and dispersion.	To mitigate dust entrainment and dispersion.	Appointed Contractor	Not Applicable	On-going monitoring of Construction works by ECoW
AQ5	Scheme Wide	Construction	Ensuring any temporary site roads are no wider than necessary to minimise their surface area.	To mitigate footprint of temporary site roads.	Appointed Contractor	Not Applicable	On-going monitoring of Construction works by ECoW
AQ6	Scheme Wide	Pre-Construction / Construction	Damping down of surfaces prior to their being worked.	To mitigate dust levels during construction.	Appointed Contractor	Not Applicable	On-going monitoring of Construction works by ECoW
AQ7	Scheme Wide	Construction	Storing dusty materials away from site boundaries and in appropriate containment (e.g. sheeting, sacks, barrels etc.).	To appropriately contain materials from site boundaries to reduce dust levels.	Appointed Contractor	Not Applicable	On-going monitoring of Construction works by ECoW
AQ8	Scheme Wide	Construction	Securing an adequate water supply (ideally rainwater) on site for the effective suppression of dust.	To mitigate dust levels on site.	Appointed Contractor	Not Applicable	On-going monitoring of Construction works by ECoW

Ref	Location of Measure	Timing of Measure	Description	Mitigation Purpose/ Objective	Party Responsible for Overseeing Implementation	Specific Consultation or Approval Required	Monitoring Requirements
CH1	Scheme Wide	Construction	Archaeological monitoring and recording is proposed in the location of the SuDS detention basin. There is potential for archaeological settlement remains within the footprint of the SuDS as it is within a fertile floodplain and close to a water source which would be suitable for settlement. The monitoring and recording would be required as the area is stripped for groundworks and would identify the presence, nature, extent and condition of any surviving archaeological remains. The loss of the archaeological resource would be mitigated through recording which will ensure that a permanent record of previously unrecorded archaeological remains exists. The methodology for the strip, map and record would be set out within a Written Scheme of Investigation (WSI) to be approved by WoSAS. The works must be undertaken by an appropriately qualified archaeological organisation, registered with CIfA. On completion of the archaeological works, a programme of reporting, analysis, publication (if merited), archiving, and dissemination of the results will be undertaken. This will include a report to WoSAS and the National Record for the Historic Environment. The archive will be placed with HES. This would remove the significant effects.	To mitigate impacts on potential archaeological remains through preservation by record.	Appointed Contractor	West of Scotland Archaeological Service (WoSAS)	Work to be undertaken on site by appropriately qualified archaeological organisation who is a registered organisation of the Chartered Institute for Archaeologists, monitoring of the works will be undertaken by the ECoW.

Ref	Location of Measure	Timing of Measure	Description	Mitigation Purpose/ Objective	Party Responsible for Overseeing Implementation	Specific Consultation or Approval Required	Monitoring Requirements
CH2	BNG / Natural Capital Areas	Construction	Demarcation and avoidance of the Rest and Be Thankful stone (A2) is recommended during construction within the car park area during construction. A buffer of 5m would ensure that the stone is protected from construction vehicles and machinery. Demarcation and avoidance of a memorial stone (A63) and spigot mortar emplacement (A64) is recommended during ground preparation and planting within the BNG / Natural Capital Areas to mitigate impacts. Access should also be maintained for the memorial stone which would enable loved ones to return to the memorial. A suitable buffer of 5m should be maintained during planting to ensure that any root systems do not damage the assets. This would remove the significant effects.	To mitigate impacts to both assets by ensuring that they are not accidently moved or damaged.	Appointed Contractor	Not Applicable	On-going monitoring of Construction works by ECoW
CH3	Scheme Wide	Construction	Stone from sections of walls (A26, A27, A29, A30, A37 and A41) will be retained and used for future reinstatement. This should be done by an experienced drystone wall contractor with experience of working in this area. The walls should be of the same construction and appearance as the sections of retained walls such as A7 and A12. Prior to removal, the sections of wall should be photographed as a means of recording. This would remove the significant effects.	To maintain the character of the stone walls along the main roads.	Appointed Contractor	Drystone Wall Contractor	On-going monitoring of Construction works by ECoW

Ref	Location of Measure	Timing of Measure	Description	Mitigation Purpose/ Objective	Party Responsible for Overseeing Implementation	Specific Consultation or Approval Required	Monitoring Requirements
CH4	OMR Cultural Heritage	Pre-Construction	Photographic and documentary recording of a bridge (A6), bridge piers (A43 and A44), and brick structures (A10 and A23) prior to start of construction. The works must be undertaken by an appropriately qualified archaeological organisation. The existing stone for widening bridge A6 should be reused to mirror the original design of the sections which were removed for widening purposes so that the bridge retains the character of the current bridge. Photographic and documentary recording and the reuse of stone would remove the significant effects.	To document condition and character of the bridge (A6) and bridge piers (A43 and A44). Reuse of stone for rebuilding the widened section of A6 will allow it to appear as it did before the works,	Appointed Contractor	Not Applicable	Not Applicable
LV1	Scheme Wide	Pre-Construction, Construction and Post-Construction	Construction activity will be kept to the minimum practicable time to reduce the duration of impacts. Areas will be cleared for construction as close as possible to the works commencing and topsoiling, reseeding and planting will be undertaken as soon as possible after the works are complete, allowing for the appropriate planting/seeding season.	To mitigate duration of overall construction impacts.	Appointed Contractor	Not Applicable	On-going monitoring of Construction works by ECoW
LV2	Scheme Wide	Construction	Work compound and storage areas will, as far as practicable, be located where existing features can provide screening.	To mitigate visibility of compound and storage areas.	Appointed Contractor	Consent for works compound and storage areas to be obtained by the Appointed Contractor	Not Applicable

Ref	Location of Measure	Timing of Measure	Description	Mitigation Purpose/ Objective	Party Responsible for Overseeing Implementation	Specific Consultation or Approval Required	Monitoring Requirements
LV3	Scheme Wide	Construction	Construction areas will be kept tidy and free of litter and debris.	To mitigate litter and debris in construction areas.	Appointed Contractor	Not Applicable	On-going monitoring of Construction works Appointed Contractor
LV4	Scheme Wide	Construction	Work will be avoided during hours of darkness as far as is practicable and where necessary, directed lighting will be used to minimise glare.	To minimise nighttime working and mitigate glare levels from lighting.	Appointed Contractor	Not Applicable	On-going monitoring of Construction works Appointed Contractor
LV5	Scheme Wide	Construction	To protect soil quality: • uncontaminated topsoil for re-use shall be stored in un-compacted mounds up to 2m in height separate from subsoil material; • stripped topsoil shall be used in areas of the same vegetation type; and • subsoil in proposed planting areas shall be replaced after construction and ripped to a depth agreed with the ECoW, landscape architect or soil scientist as appropriate prior to topsoiling and planting.	To mitigate impacts on soil quality.	Appointed Contractor	Not Applicable	On-going monitoring of Construction works by ECoW
LV6	Scheme Wide	Construction	Minimise loss of all existing vegetation as far as practicable. 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 mitigate vegetation loss.	Appointed Contractor	Not Applicable	On-going monitoring of Construction works by ECoW

Ref	Location of Measure	Timing of Measure	Description	Mitigation Purpose/ Objective	Party Responsible for Overseeing Implementation	Specific Consultation or Approval Required	Monitoring Requirements
LV7	Scheme Wide	Construction	Fence off existing trees and shrubs not affected by construction with a suitable type of fencing which shall extend to the root zone of the tree canopy and remain in situ until works are completed. Adhere to BS 5837:2012 trees in relation to design, demolition or construction.	To retain existing trees and shrubs not needing removed during construction.	Appointed Contractor	Not Applicable	On-going monitoring of Construction works by ECoW
LV8	Scheme Wide	Construction	Earthworks/Rock cut proposals will: • use retaining walls where appropriate to avoid extensive cuttings into slopes or large embankments which increase land disturbance • where rock cuttings are required, create formations which are varied and reflect the structure of the rock • rock cuttings shall incorporate embayments, vary the height of ledges, and utilise bunds in the crest of benches to contain rockfall, either alone or in combination, to achieve an irregular and naturalistic appearance • use of mesh shall be avoided and • sensitive grading of earthworks to integrate with surrounding landform and/or reduce requirement for/extent of felling.	To minimise rock cutting and to retain the character of the area.	Appointed Contractor	Not Applicable	Not Applicable
LV9	Debris Flow Shelter	Pre-Construction and Construction	Earthworks will be steepened at the maintenance access to the DFS area to reduce tree felling.	To minimise tree felling.	Appointed Contractor	Not Applicable	Not Applicable
LV10	Scheme Wide	Pre-Construction and Construction	Lighting will be minimised and designed to be as contained as possible within the confines of its purpose for safety.	To mitigate potential lighting impacts during construction.	Appointed Contractor and Designer	Not Applicable	Not Applicable

Ref	Location of Measure	Timing of Measure	Description	Mitigation Purpose/ Objective	Party Responsible for Overseeing Implementation	Specific Consultation or Approval Required	Monitoring Requirements
LV11	Rest and Be Thankful Car Park	Pre-Construction and Construction	Rest and Be Thankful car park – materiality, road surfacing, road markings, respect the landscape setting of the Rest and Be Thankful Stone (Category C Listed Building)	To mitigate impacts on landscape setting and on the listed building.	Appointed Contractor and Designer	Not Applicable	Not Applicable
LV12	Scheme Wide	Construction	Mitigation planting to replace trees lost during the construction of the Proposed Scheme. Planting shall aid integration with the landscape character maintaining open views up and down the glen and be based on native species established in the area. Planting density shall be light to align with landscape character or to afford open or glimpsed views of landscape features. Species-rich mixes used 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 low nutrients and suitable low growing, local grass species in areas associated with visibility splays which are capable of withstanding regular cutting. Please refer to Volume 3, Figure 9.3 Landscape and Ecological Mitigation.	To mitigate tree loss by replacement.	Appointed Contractor and Designer	Not Applicable	On-going monitoring of Construction works by ECoW
LV13	Scheme Wide	Pre-Construction and Construction	The detail of any required mammal fencing shall be designed to minimise landscape and visual impact.	To mitigate impacts on mammals from a landscape and visual perspective.	Appointed Contractor and Designer	Not Applicable	On-going monitoring of Construction works by ECoW
LV14	Scheme Wide	Pre-Construction and Construction	The detail of the lighting shall utilise luminaires selected to avoid upward light.	To mitigate potential lighting impacts during construction	Appointed Contractor	Not Applicable	Not Applicable

Ref	Location of Measure	Timing of Measure	Description	Mitigation Purpose/ Objective	Party Responsible for Overseeing Implementation	Specific Consultation or Approval Required	Monitoring Requirements
ECO1	Scheme Wide	Pre-Construction	It is recognised that some additional mitigation may be required as a result of update surveys, particularly if key species colonise working areas or alter their use of areas. This will be defined and applied by the Appointed Contractor based on pre-commencement surveys.	To refine mitigation for impacts on sensitive habitats and protected species.	Appointed Contractor	May require input from NatureScot, consultation, derogation licences and/or amendments to derogation licences (as needed).	On-going monitoring of construction works by EcCoW
ECO2	Beinn an Lochain SSSI	Design Pre-Construction Construction	While the significance of effect of residual impact on the Beinn an Lochain SSSI is predicted to be slight, opportunities to provide additional mitigation through habitat enhancement will be explored during detailed design. The approach to any such measures would be proportionate and would be finalised in consultation with NatureScot and works would be undertaken through agreement with the relevant landowner.	To contribute to resilience of SSSI	Appointed Contractor and Transport Scotland	Consultation with NatureScot may be required.	On-going monitoring of Construction works by EcCoW

Ref	Location of Measure	Timing of Measure	Description	Mitigation Purpose/ Objective	Party Responsible for Overseeing Implementation	Specific Consultation or Approval Required	Monitoring Requirements
ECO3	BNG / Natural Capital Areas	Design Pre-Construction Construction	Habitat in four areas within the Proposed Scheme Boundary will be enhanced as mitigation for terrestrial and aquatic habitat losses. These enhanced habitats will make a positive contribution to biodiversity net gain to address and go beyond the additional mitigation required to offset impacts on terrestrial and aquatic habitats. Biodiversity net gain calculations have been produced to ensure the Proposed Scheme delivers a net gain in line with NPF4 (Volume 4, Appendix 11.2: Biodiversity Legislation, Policy and Guidance). Full details of the proposals for the four enhancement sites are provided within Volume, Chapter 4: The Proposed Scheme and the four sites are described in the Enhancement Site Survey Report (Volume 4, Appendix 11.16). The overarching management and monitoring methods of all enhancement features will be set out in the LEMMP (Volume 4, Appendix 11.15: Outline Landscape and Ecological Management and Monitoring Plan). While work in the four enhancement areas are driven by habitat-based metric calculations, they will also benefit species IEFs including plants, species contributing to the aquatic ecology IEFs, birds, mammals and reptiles and priority invertebrates.	To compensate for losses of terrestrial and aquatic habitat and deliver additional benefits.	Appointed Contractor	Not Applicable	On-going monitoring of Construction works by EcCoW. Any further monitoring to be set out in long term management plans.

Ref	Location of Measure	Timing of Measure	Description	Mitigation Purpose/ Objective	Party Responsible for Overseeing Implementation	Specific Consultation or Approval Required	Monitoring Requirements
ECO-4	Scheme wide	Design, Pre-Construction and Construction	During detailed design and construction, efforts will continue to aim to reduce habitat losses further. Construction compounds and on-site workings will be sited away from the SSSI and other sensitive habitats (including watercourses) to minimise the risk of pollution. All construction activities will follow good practice procedures to avoid or reduce polluting effects. These include implementation of pollution prevention measures, dust control, and buffer zones around sensitive features. In addition to update surveys to inform protected species licensing requirements, pre-construction ecological surveys will be conducted to update the baseline condition assessment prior to construction starting. Where possible, core hours of working will be adjusted throughout the seasons to minimise work outside hours of daylight. Surface vegetation and soil will be stored appropriately (topsoil, subsoil, and peat storage areas) until required for reinstatement. Toolbox talks will be delivered to all construction staff by the EcCoW.	To mitigate the risk of pollution from construction activities and impacts on protected species	Appointed Contractor	Not Applicable	Pre- construction ecological surveys, any licence requirements Tool box talks and on-going monitoring of Construction works by EcCoW

Ref	Location of Measure	Timing of Measure	Description	Mitigation Purpose/ Objective	Party Responsible for Overseeing Implementation	Specific Consultation or Approval Required	Monitoring Requirements
ECO-5	Scheme wide	Design, Pre-Construction and Construction	A Construction Environmental Management Plan (CEMP) will be produced (refer to Volume 2, Chapter 4: The Proposed Scheme and Volume 2, Chapter 21: Schedule of Environmental Commitments). Species Protection Plans (SPP) will be produced as part of the CEMP covering the following species / species groups as a minimum: otter, birds, pine marten, red squirrel, bats, badger, reptiles and any other species as deemed necessary from the pre-construction surveys conducted (see further details below). Designated Sites and Sensitive Habitats Precautionary Working Method Statement and an Aquatic SPP (see further details below) will also be produced. A suitably experienced and (where required) licensed ecologist commissioned by the Appointed Contractor will: • Complete pre- works ecology surveys to confirm the current understanding of the constraints and update the current baseline information where required. While existing data have been shared in this document, this does not take the place of the update survey that the Appointed Contractor's ecologist must undertake. • Apply for any EPS or other protected species licences if requirements for these are identified.	To mitigate the impacts on species	Appointed Contractor - experienced and (where required) licenced ecologist	Apply for any EPS licences if required	Pre- construction ecological surveys, apply for EPS licences (if required) and on-going monitoring of Construction works by EcCoW

Ref	Location of Measure	Timing of Measure	Description	Mitigation Purpose/ Objective	Party Responsible for Overseeing Implementation	Specific Consultation or Approval Required	Monitoring Requirements
ECO-5 (cont)	Scheme wide	Design, Pre-Construction and Construction	The EcCoW will directly oversee all works within a 50m radius of designated sites for nature conservation and IEF habitats. A Designated Site and Sensitive Habitats Precautionary Working Method Statement (PWMS) will be appended to the CEMP. It will be produced in consultation with NatureScot. This PWMS will detail precautionary measures for all works within these features themselves or within a 50m radius of these designated sites for nature conservation: SSSI; Annex I habitats and other Habitat IEFs. This PWMS will also include measures relating to works at a greater distance if there are risks of indirect effects, cross referencing the main CEMP for general measures such as dust control where appropriate.	To mitigate the impacts on species	Appointed Contractor - experienced and (where required) licenced ecologist	Apply for any EPS licences if required	Pre- construction ecological surveys, apply for EPS licences (if required) and on-going monitoring of Construction works by EcCoW
ECO-6	Scheme wide	Pre-construction and Construction	The Aquatic Ecology SPP will detail methods to be adhered to during all construction works, especially in-stream works. The Aquatic Ecology SPP will include timing restrictions on certain in-channel construction works to avoid sensitive lifecycle stages of the fish present, covering watercourses identified depending on their suitability for fish. This approach will be confirmed through SEPA engagement as part of the CAR authorisation process. If it is found that dewatering will be required for any watercourse extent that currently supports fish the SPP will also include translocation methods. The EcCoW will directly supervise all working within watercourses and within a 10m buffer. The Aquatic Ecology SPP will address sensitivity (to noise and vibration) of those fish species present.	To mitigate the impact on aquatic ecology during the in-stream works	Appointed Contractor -	SEPA Engagement and CAR Authorisation	On-going monitoring of Construction works within watercourses by EcCoW

Ref	Location of Measure	Timing of Measure	Description	Mitigation Purpose/ Objective	Party Responsible for Overseeing Implementation	Specific Consultation or Approval Required	Monitoring Requirements
ECO-7	Scheme wide	Pre-construction and Construction	The Bird SPP will include standard methods including timing of vegetation clearance, pre-clearance surveys and watching briefs (if required). Works in Receptor 1 will include erection of bird nesting boxes as mitigation for the reduction in nesting opportunities as vegetation created and enhanced matures. Long-eared owl have been recorded and an assumption has been made that they breed in the local area, and therefore nest baskets suitable for them will be installed as part of wider provision, contributing to mitigation on a precautionary basis. Provisions for golden eagle will be included in the Bird SPP and this will include the detailed the mitigation outlined in Volume 4, Appendix 11.1: Report to inform Habitats Regulations Appraisal. Provisions for golden eagle that will be included within the SPP / CEMP will include, but are not limited to: • Golden eagle roost surveys to be undertaken within appropriate buffer of the Proposed Scheme. The purpose of the surveys will be to establish presence / location of any roosting birds. To be undertaken by a NatureScot Schedule 1 licensed surveyor. Should roosting birds be located within the buffer, procedures will be set out to avoid impacts (e.g. stand-off periods and flexibility in working hours / locations for potentially disturbing works elements so as to prevent disturbance to individual birds). • Presence of suitably qualified and experienced and licensed ornithologist / EcCoW during relevant works.	To mitigate the impacts during vegetation clearance and on birds	Appointed Contractor -	Not Applicable	Presence of suitably qualified and experienced ecologist during relevant works and on-going monitoring of Construction works by EcCoW

Ref	Location of Measure	Timing of Measure	Description	Mitigation Purpose/ Objective	Party Responsible for Overseeing Implementation	Specific Consultation or Approval Required	Monitoring Requirements
ECO-7 (cont)	Scheme wide	Pre-construction and Construction	• Should helicopter use be required, flexibility in timing of, and routes used by, helicopter depending on number of journeys and time of year (i.e. seeking to avoid the sensitive eagle breeding period), and landing / take off positions with cognisance to timing and the effect these journeys may have on bird behaviour. Should helicopter use be required, a helicopter-use method statement will be agreed with NatureScot in advance of any flights commencing. • Flexibility in travel routes to and from the works areas, depending on anticipated vehicle numbers / type and with cognisance to timing and weather and the effect these may have on bird behaviour. • Consultation with ARSG, NatureScot and other relevant bodies, as appropriate. The Appointed Contractor will seek information on the movements of any satellite tagged golden eagles present with the vicinity of the Proposed Scheme prior to the start of works. • Defined working areas and exclusion areas where necessary, the latter to be agreed with the ornithologist / EcCoW. • Defined flight paths for helicopter and exclusion zones (if necessary, in future). Good practice measures to mitigate general local environmental impacts such as pollution prevention measures and measures to reduce noise will also be applied through the CEMP. No additional mitigation is proposed, unless pre-works surveys or surveys during construction indicate unexpected issues, such as a Schedule 1 species being found in proximity to the works. If this occurs, then expert ecological advice will inform further measures.	To mitigate the impacts during vegetation clearance and on birds	Appointed Contractor -	Not Applicable	Presence of suitably qualified and experienced ecologist during relevant works and on-going monitoring of Construction works by EcCoW

Ref	Location of Measure	Timing of Measure	Description	Mitigation Purpose/ Objective	Party Responsible for Overseeing Implementation	Specific Consultation or Approval Required	Monitoring Requirements
ECO-8	Scheme wide	Pre-Construction and Construction	The Otter SPP will include the detailed the mitigation outlined in Volume 4, Appendix 11.1: Report to inform Habitats Regulation Appraisal. This includes: • Detail of pre-works otter survey and appropriately experienced and licensed EcCoW to be present on-site during works (as necessary). • Restriction of working hours within the vicinity of watercourses so as to prevent disturbing works activities being undertaken when otter are most likely to be active (within two hours after sunrise and two hours before sunset). NatureScot standing advice is that this can be reduced to one hour between November and February (inclusive) because of the limited daylight. • Procedure for obtaining EPS licences as necessary. • Trenches, holes and pits will be kept covered at night or provide a means of escape for animals. • Defined working areas and exclusion areas and protection of retained habitat. • Use of lighting in accordance with BS5489 Code of Practice for the Design of Road Lighting. Any temporary lighting will be directed towards works areas to minimise light spill. • Provision of Habitat Protection Plan (HPP) detailing general good practice measures that will protect the wider local environment, including otter prey species and habitats during works.	To mitigate the impacts on otter	Appointed Contractor -	Apply for any EPS licences if required	Pre- construction ecological surveys, apply for EPS licences (if required) and on-going monitoring of Construction works by EcCoW

Ref	Location of Measure	Timing of Measure	Description	Mitigation Purpose/ Objective	Party Responsible for Overseeing Implementation	Specific Consultation or Approval Required	Monitoring Requirements
ECO-8 (cont)	Scheme wide	Pre-Construction and Construction	• Monitoring of flood risk potential to inform site activities. • Controls on topsoil strips and management of exposed ground. • Storage of plant and materials outside the functional floodplain. • Protocols for management of incidental spillages. • Protocols for working with sealing materials such as concrete adjacent to watercourses. • Defined working areas and exclusion areas and protection of retained habitat. • The risk of pollution will be controlled by strict adherence to best practice procedures (including Guidance for Pollution Prevention (GPP), (NetRegs, 2011), and Construction Industry Research and Information Association (CIRIA, 2001) guidance). Design measures described above, including habitat restoration and mammal fencing, will also contribute to mitigation for otter. Mammal fencing appropriate for otter will be utilised if confirmed to be required during detailed design to prevent otter being pushed onto the A83 carriageway. Under the CEMP, general good practice measures to mitigate general environmental impacts such as duration and timing of noisy activities will be minimised. Methods that reduce noise disturbance such as choice of equipment or 'soft-start' techniques will be used, where work increases gradually at the start of a work period.	To mitigate the impacts on otter	Appointed Contractor -	Apply for any EPS licences if required	Pre- construction ecological surveys, apply for EPS licences (if required) and on-going monitoring of Construction works by EcCoW

Ref	Location of Measure	Timing of Measure	Description	Mitigation Purpose/ Objective	Party Responsible for Overseeing Implementation	Specific Consultation or Approval Required	Monitoring Requirements
ECO-9	Scheme wide	Pre-Construction and Construction	SPPs will be produced for: bats, badger, pine marten, red squirrel, and reptiles. Each SPP will set out necessary measures including pre-construction surveys, precautionary methods of working, cross references to any EPS or other protected species licences, and any necessary compensation and monitoring. Compensation may include licensed measures (such as bat boxes as compensation for loss of known bat roosts) or general measures (such as bat boxes to compensate for loss of wider roosting opportunities and reptile hibernacula to increase carrying capacity). All methods will follow relevant NatureScot guidance. Design measures described above, including habitat restoration and mammal fencing, will also contribute to mitigation for these species. For each species / group with legal protection, the measures will include: • Timing and methods of work to protect individual animals from harm; • Compensation for loss of protected features, such as bat roosts; • Habitat restoration in temporary works areas; and • For species where habitat losses could affect local assemblage carrying capacity, relevant habitat enhancement. This is only anticipated to be potentially required for reptiles as part of the embedded mitigation. While no measures are set out specifically for mountain hare, brown hare or common amphibians, these species would be protected by general mitigation measures and allowed to move to safety if encountered during ecological checks prior to vegetation clearance.	To mitigate the impacts on protected species	Appointed Contractor -	Apply for any EPS licences if required	Pre- construction ecological surveys, apply for EPS licences (if required) and on-going monitoring of Construction works by EcCoW

Ref	Location of Measure	Timing of Measure	Description	Mitigation Purpose/ Objective	Party Responsible for Overseeing Implementation	Specific Consultation or Approval Required	Monitoring Requirements
ECO-10	Scheme wide	Design, Pre-Construction and Construction	A Landscape Ecological Management and Monitoring Plan (LEMMP) will be prepared prior to construction by the Appointed Contractor detailing areas of habitat creation, management, and monitoring required as part of the Proposed Scheme (this will be an updated and expanded version based on the high-level contents set out in the Outline LEMMP (Volume 4, Appendix 11.15)). This will take into account the results of the pre-construction surveys. The LEMMP will include details of habitat creation, enhancement and re-instatement. The LEMMP will provide details on landscape planting, species composition (including the use of native planting) for the Proposed Scheme, including habitat enhancement plans and an appropriate INNS management plan for the enhancement sites. It will also include monitoring and maintenance of all embedded and additional mitigation measures for protected and notable species, such as bird and bat boxes, as well as any artificial compensatory badger setts and otter holts, should they be required (subject to pre-construction surveys). The information in the Outline LEMMP and this chapter will inform production of the LEMMP and CEMP, and appended documents including the SPPs and the Designated Sites and Sensitive Habitats PMWS. The Outline LEMMP should be read with Volume 3, Figure 9.3 Landscape and Ecological Mitigation Plan. Monitoring will be undertaken in accordance with any NatureScot EPS or other protected species licences required for the Proposed Scheme. Adaptive management will be applied if required, based on the results of monitoring.	To mitigate the impacts on habitats and protected species	Appointed Contractor	May require input from NatureScot, consultation.	On-going monitoring of Construction works by EcCoW

Ref	Location of Measure	Timing of Measure	Description	Mitigation Purpose/ Objective	Party Responsible for Overseeing Implementation	Specific Consultation or Approval Required	Monitoring Requirements
GSG1	Scheme wide	Design, Pre-Construction and Construction	• Creation and implementation of a Soil and Materials Management Plan (SMMP) which will detail the appropriate way to segregate and store materials on site such as the storage of stockpiles away from watercourses in designated locations, segregation of material and storage of any contaminated arisings in a lined skip/on an impermeable membrane, keeping storage periods as short as possible; when stripping, stockpiling or placing soil, do so in the driest condition possible and use tracked equipment where possible to reduce compaction, and soil re-use criteria and placement techniques. The risks posed by any soil contamination can be reduced by ensuring that made ground materials are maintained under hardstanding or, if appropriate, placed under a clean layer of subsoil and topsoil. This will be managed during construction under the Standards for Highways Works Series 600 2024 and the Sustainable reuse of soils BS ISO 18504 published in 2017 or BS ISO 15176: 2019. • Creation and implementation of a Surface Water Management Plan (SWMP) detailing control and treatment measures for excavation and surface water runoff.	To mitigate against impact to carbon rich soils, geology, GWDTE, groundwater and surface water quality	Appointed Contractor and Designer	Consultation with SEPA and Local Authority	On-going monitoring of Construction works by the Appointed Contractor and appropriate specialists.

Ref	Location of Measure	Timing of Measure	Description	Mitigation Purpose/ Objective	Party Responsible for Overseeing Implementation	Specific Consultation or Approval Required	Monitoring Requirements
GSG1 (cont)	Scheme wide	Design, Pre-Construction and Construction	• Implementation of a Dewatering Management Plan (DMP) would be required for any dewatering activities being carried out. This document would outline how to remove excess water from the construction site and minimise environmental impacts, enabling groundwater recharge whilst taking account of local slope stability. Any dewatering activities will be compliant with industry standards and best practice and the PMP. Working areas are to be kept to a minimum for construction of the project to reduce habitat loss. • Review and verification of private water supply information to ensure source types, locations and related assets are confirmed pre- construction.	To mitigate against impact to carbon rich soils, geology, GWDTE, groundwater and surface water quality	Appointed Contractor and Designer	Consultation with SEPA and Local Authority	On-going monitoring of Construction works by the Appointed Contractor and appropriate specialists.
GSG2	Scheme wide	Design	Further ground investigations and groundwater monitoring to refine the estimation of groundwater drawdown and radii of influence. This data will also be required to assess the groundwater volumes seeping into the cuttings, including the LTS catch pit, which will inform the cutting drainage design. Due to potential slope instability, it is envisaged that any groundwater collected shall be transferred to the surface water drainage system. If further GI data suggests groundwater seepage into the cuttings is likely to be substantial then groundwater cut-off walls may be required. The road drainage and cut-off drainage elements will discharge to watercourses.	To mitigate against impact to GWDTE, groundwater and surface water quality	Designer	Not Applicable	Monitoring will take place post GI for groundwater during design phase

Ref	Location of Measure	Timing of Measure	Description	Mitigation Purpose/ Objective	Party Responsible for Overseeing Implementation	Specific Consultation or Approval Required	Monitoring Requirements
GSG3	Scheme wide	Design	Linked with GSG2, data with relevance to M10 habitats shall be reviewed against previous findings to verify the assessment outcome. On the basis that uncertainty remains, groundwater level and water quality monitoring shall be undertaken in accordance with SEPA LUPS- GU31 guidance, including locations both upslope and downslope of the Proposed Scheme covering the period preceding construction until post-construction, across a number of seasons. Ecological monitoring would be undertaken in parallel for any change to community in comparison to baseline. This data shall be used to update and refine the M10 habitat assessment. Should outcomes emerge that indicate these habitats are subject to a residual effect greater than current assessment, proportionate design measures shall be considered in latter design stages. These could include sub-surface cross-drains, to enable shallow groundwater pathways to continue supply to downslope habitats. This approach will ensure any effect upon GWDTE, based on emerging information, does not exceed slight adverse significance. SEPA shall be consulted at all above stages.	To mitigate against impact to GWDTE and groundwater quality.	Designer	Consultation with SEPA	Monitoring will take place post GI for groundwater during design phase
MW1	Scheme wide	Pre-Construction	Where aggregates for earthworks, drainage and pavement need to be imported, the current commitment is to procure these from sources local to the Proposed Scheme, such as authorised quarries.	To promote local sourcing	Appointed Contractor	Not Applicable	Not Applicable
MW2	Scheme Wide	Pre-Construction	Aim to achieve the regional aggregate recycled content target of 25% as a minimum, in line with the DMRB LA 110, Appendix E/1. For example, this can be achieved through considering the use of recycled aggregate supplied from local quarries, where feasible.	To reach recycled content target of 10% (minimum).	Appointed Contractor	Not Applicable	On-going monitoring of Construction works by ECoW

Ref	Location of Measure	Timing of Measure	Description	Mitigation Purpose/ Objective	Party Responsible for Overseeing Implementation	Specific Consultation or Approval Required	Monitoring Requirements
MW3	Scheme Wide	Pre-Construction	The Appointed Contractor will consider how 100% reuse, recovery or recycling could be achieved and provide justification where this is not considered viable in terms of cost, safety and / or material quality or performance and must achieve not less than 70% inert and non-hazardous material recovery, in accordance with paragraph 3.17 of DMRB LA 110. The recovery of any construction and demolition waste which is geotechnically or chemically unsuitable for reuse within the Proposed Scheme will require disposal or treatment prior to any reuse off-site, in accordance with the current waste regulatory framework. This will be managed in accordance with the CEMP, as part of an MMP.	To consider how 100% reuse, recovery or recycling could be achieved.	Appointed Contractor	Not Applicable	Not Applicable
MW4	Scheme wide	Pre-construction and Construction	Arisings would be suitably stockpiled to maximise reuse by minimising quality degradation, damage and other loss. Providing a management framework for this approach, the CEMP would be developed by the Appointed Contractor with commitments to, and information on, stockpile location, underlying soil type and condition, methods for prevention of erosion and leachate generation and use of appropriate signage. It is anticipated that the finalised CEMP would be submitted for approval by the relevant Planning Authority prior to the commencement of the Proposed Scheme.	To maximise reuse of materials minimising quality degradation	Appointed Contractor	Not Applicable	Not Applicable
MW5	Scheme wide	Construction	The Appointed Contractors' Site Waste Manager will also document within a Site Waste Management Plan (SWMP) any opportunities implemented to reduce waste, and update this throughout the construction phase of the Proposed Scheme, using actual waste data including quantities, types and the chosen waste management option.	To maximise resource efficiency and minimise waste from the Proposed Scheme.	Appointed Contractor	Not Applicable	On-going monitoring of Construction works by ECoW

Ref	Location of Measure	Timing of Measure	Description	Mitigation Purpose/ Objective	Party Responsible for Overseeing Implementation	Specific Consultation or Approval Required	Monitoring Requirements
MW6	Scheme Wide	Pre-Construction	In order to maximise resource efficiency and minimise waste on the Proposed Scheme, good practice principles must be considered as early as possible by the Appointed Contractor in development of their detailed design. In delivering the Proposed Scheme, the Appointed Contractor will identify opportunities and define objectives for designing out waste, e.g. by conducting Resource Efficiency Workshops. As part of this process, the following opportunities will be reviewed and refined during design, and their feasibility established. Wherever a measure cannot practicably be adopted, justification will be agreed with Transport Scotland: • Specifying the need for the value chain to remove or take back packaging. • Implementation of Lean construction methods – improving efficiency and effectiveness by avoiding unnecessary costs and eliminating waste. For example, given the drainage design generally incorporates the use of plastic pipes, consider the use of recycled plastics for drainage pipes. In addition, offcuts from these products can be returned to the suppliers, to be reincorporated in the manufacturing process or duly recycled. • Specification of reused, recycled and recyclable materials. For example, consider the use of secondary materials such as Pulverised Fuel Ash (PFA) and Ground Granulated Blast-furnace Slag (GGBS) in concrete mix designs to maximise their use and benefits in the permanent works design, for both in-situ and pre-cast concrete elements (subject to strength and stiffness requirements).	To maximise resource efficiency and minimise waste from the Proposed Scheme.	Appointed Contractor	Transport Scotland	Not Applicable

Ref	Location of Measure	Timing of Measure	Description	Mitigation Purpose/ Objective	Party Responsible for Overseeing Implementation	Specific Consultation or Approval Required	Monitoring Requirements
MW6 (cont)	Scheme Wide	Pre-Construction	• Specification of responsibly sourced materials e.g. in accordance with the BRE Environmental & Sustainability Standard: Framework Standard for Responsible Sourcing BES6001. • Specification of alternative construction methods – off site fabrication / modularisation. For example, consider the use of warm-mix asphalt for road surfacing requirements and procuring steel elements required for structural reinforcement from suppliers who re-fabricate or manufacture these products from recovered ferrous scrap, where feasible. • Alignment or compliance with BREEAM Infrastructure (Building Research Establishment Environmental Assessment Method), formerly Civil Engineering Environmental Quality Assessment and Award Scheme (CEEQUAL)), to assess scheme performance in accordance with a recognised industry standard. • Assessment of end-of-life options for materials and assets, to minimise disposal.	To maximise resource efficiency and minimise waste from the Proposed Scheme.	Appointed Contractor	Transport Scotland	Not Applicable

Ref	Location of Measure	Timing of Measure	Description	Mitigation Purpose/ Objective	Party Responsible for Overseeing Implementation	Specific Consultation or Approval Required	Monitoring Requirements
MW6 (cont)	Scheme Wide	Pre-Construction	• Assessing the opportunity to use mechanisms such as, but not limited to: - Regulatory guidance produced by SEPA with the Civil Engineering Contractors Association (Scotland) (CECA) and the Environment Industries Commission (EIC) on Promoting the sustainable reuse of greenfield soils in construction ○ International soil reuse guidelines i.e. those similar to CL:AIRE 'Definition of Waste: Development Industry' Code of Practice for excavated materials (which are only applicable in England and Wales); ○ SEPA waste exemptions and ○ BRE SMART Waste.	To maximise resource efficiency and minimise waste from the Proposed Scheme.	Appointed Contractor	Transport Scotland	Not Applicable
NV1	Noise and Vibration	Construction	During the construction phase Best Practicable Means (as defined in Section 72 of the Control of Pollution Act 1974) will be adopted, this includes the adoption of the advice contained within BS 5228-1:2009+A1:2014 and BS 5228-2:2009+A1:2014, and will be secured through the CEMP prepared by the Contractor.	To mitigate noise and vibration impacts during construction.	Appointed Contractor	To change construction impacts on site throughout the duration of the construction and restoration period	On-going monitoring of Construction works by ECoW

Ref	Location of Measure	Timing of Measure	Description	Mitigation Purpose/ Objective	Party Responsible for Overseeing Implementation	Specific Consultation or Approval Required	Monitoring Requirements
PHH1	Scheme wide	Construction	Construction Environmental Management Plan (CEMP), Traffic Management Plan (TMP) and Community Engagement Plan will be enacted during the construction phase. This will provide a framework for the implementation of construction activities including plans related to geology and land contamination, surface water and groundwater, air quality (e.g. dust), and noise and vibration. In respect of the Community Engagement Plan, this will ensure that local communities are kept informed of the nature and duration of the works.	To reduce impacts to receptors including walkers, cyclists and horse-riders as well as members of the local community.	Appointed Contractor	Not Applicable	On-going monitoring of Construction works by Appointed Contractor
PHH2	Scheme wide	Construction	Any Land temporarily used for construction will be restored to a condition equivalent to its original state. This will be achieved by means of a Soil Resource Plan (SRP) following best practice set out in guidance such as DEFRA's Construction Code of Practice for the Sustainable Use of Soils on Construction Sites, SEPA Promoting the sustainable reuse of greenfield soils in construction sites or equivalent guidance.	To ensure the soil resource is appropriate restored.	Appointed Contractor	Not Applicable	On-going monitoring of Construction works by Appointed Contractor
PHH3	OMR	Construction	During construction on the Old Military Road, walking, cycling and horse riders will be convoyed through the route.	To reduce impacts to receptors including walkers, cyclists and horse-riders.	Appointed Contractor	Not Applicable	On-going monitoring of Construction works by Appointed Contractor
PHH4	Scheme wide	Construction	Where unrestricted agricultural uses are to be resumed on land disturbed during the construction of the Proposed Scheme, the Appointed Contractor will be responsible for ensuring no long-term reduction in the quality of the disturbed land, through the adoption of good practice techniques in handling, storing and reinstating soils and field drains.	To ensure the soil resource is appropriate restored.	Appointed Contractor	Not Applicable	On-going monitoring of Construction works by Appointed Contractor

Ref	Location of Measure	Timing of Measure	Description	Mitigation Purpose/ Objective	Party Responsible for Overseeing Implementation	Specific Consultation or Approval Required	Monitoring Requirements
EC1	Scheme Wide	Pre-Construction	The Appointed Contractor should commit to adhering to the principles of PAS 2080:2023 – Carbon Management in Buildings and Infrastructure. PAS 2080:2023 is a global standard for managing infrastructure carbon and looks at reducing carbon across the whole value chain through more design, construction and use. It also ensures that carbon is consistently and more transparently quantified at key points during the process, to inform decision making. The Appointed Contractor should report actual GHG emissions during construction of the Proposed Scheme.	To mitigate GHG emissions and inform decision making.	Appointed Contractor and Designer	Not Applicable	Not Applicable
EC2	Scheme Wide	Pre-Construction	The Appointed Contractor will produce a Carbon Management Plan (CMP) as part of their contract. The CMP will set out how Greenhouse Gas emissions will be managed and reduced over the lifetime of the Proposed Scheme. The Appointed Contractor should also set targets for GHG emissions reductions for each stage of the Proposed Scheme which will be included within the CMP.	To effectively manage GHG emissions.	Appointed Contractor	Not Applicable	On-going monitoring of Construction works by the Appointed Contractor
EC3	Scheme Wide	Construction	Materials should be sourced from as close as possible to the site to reduce the requirement for longer transportation distances. The same is applicable to construction waste in that it should be re-used, recycled or disposed of as close to the site as possible.	To mitigate GHG emissions	Appointed Contractor	Not Applicable	On-going monitoring of Construction works by the Appointed Contractor
EC4	Scheme Wide	Construction	Use of electrical equipment (connected to the mains) should be promoted during construction of the Proposed Scheme to reduce the volume of diesel that is required during construction.	To mitigate GHG emissions	Appointed Contractor	Not Applicable	On-going monitoring of Construction works by the Appointed Contractor

Ref	Location of Measure	Timing of Measure	Description	Mitigation Purpose/ Objective	Party Responsible for Overseeing Implementation	Specific Consultation or Approval Required	Monitoring Requirements
EC5	Scheme Wide	Construction	The use of onsite renewable energy sources should be considered to reduce the need for diesel generators and mains source electricity during construction.	To mitigate GHG emissions	Appointed Contractor	Not Applicable	On-going monitoring of Construction works by the Appointed Contractor
EC6	Scheme Wide	Operation	Operational energy could be sourced from green energy tariff that verifies that the energy used on site is produced from low carbon / renewable energy sources.	To mitigate GHG emissions	Owner or Appointed Operator	Not Applicable	On-going monitoring of operational assets by Owner or Appointed Operator
EC7	Scheme Wide	Construction	Efforts should be made to minimise disturbance and excavation of peat as much as possible. Further information and mitigation is provided in the Outline Peat Management Plan (Volume 4, Appendix 12.6).	To mitigate GHG emissions	Appointed Contractor	Not Applicable	On-going monitoring of Construction works by the Appointed Contractor
CV1	Scheme Wide	Pre-Construction	Health and Safety protocols will be included in the CEMP, for example weather forecasts, severe weather plans and stability observations and protocols to protect the safety of the construction workers.	To mitigate against bad weather and to promote safety for construction workers.	Appointed Contractor	Not Applicable	On-going monitoring of Construction works by ECoW
CV2	Scheme Wide	Pre-Construction	Health and safety measures would be implemented as part of maintenance plans, that would monitor forecasts and stability in the area of work.	To mitigate against bad weather and to promote safety for construction workers.	Appointed Contractor	Not Applicable	On-going monitoring of Construction works by the Appointed Contractor

Ref	Location of Measure	Timing of Measure	Description	Mitigation Purpose/ Objective	Party Responsible for Overseeing Implementation	Specific Consultation or Approval Required	Monitoring Requirements
MAD 1	Scheme wide	Construction	Construction Environmental Management Plan (CEMP) which will be embedded within the Construction Contract for the Proposed Scheme and as such is considered within the initial impact assessment.	To mitigate the risk of accidents and disasters	Appointed Contractor	Not Applicable	Employer's Requirements in the Contract.
MAD- 2	Scheme wide	Construction, Operation, maintenance	Transport Scotland has committed to constructing and managing the Proposed Scheme in accordance with the following non-exclusive list of standards and systems: • operational and maintenance phase Environmental, Health & Safety Management Systems which will be implemented prior to the road re-opening • manage all construction risks in accordance with the CDM Construction Phase Plan which will be prepared prior to the commencement of construction activities • supplier management environmental, health & safety standards (for example, Construction Skills Certification Scheme) will be considered prior to procuring contractors undertaking work during both the construction and maintenance phases • Risk Management Systems will be developed and implemented prior to the construction and the operational and maintenance phases and • Construction and Environmental Management Systems (including the Construction Environmental Management Plan (CEMP)) will be developed and implemented prior to the construction phase.	To mitigate the risk of accidents and disasters	Appointed Contractor and Transport Scotland	Not Applicable	On-going monitoring of Construction works by the Appointed Contractor

Ref	Location of Measure	Timing of Measure	Description	Mitigation Purpose/ Objective	Party Responsible for Overseeing Implementation	Specific Consultation or Approval Required	Monitoring Requirements
MAD-3	Scheme wide	Construction, Operation, maintenance	Bespoke emergency preparedness and response plan developed by Transport Scotland and/or their contractors which will identify the actions to be taken should a major event occur. The specific mitigation measures and emergency preparedness and response plan will be in place for the construction and operation of the Proposed Scheme to ensure that any potential major events are managed to be ALARP.	To manage the response should a major event occur.	Appointed Contractor and Transport Scotland	Not Applicable	On-going monitoring of effectiveness by the Appointed Contractor and Transport Scotland.
MAD-4	Scheme wide	Construction	Ground investigations to be undertaken to determine the ground conditions and understand the areas of site that are at greatest risk from instability.	To mitigate the risk of accidents and disasters	Appointed Contractor	Not Applicable	Employer's Requirements in the Contract.
MAD-5	Scheme wide	Construction	The construction contractor will plan the works and apply appropriate controls to mitigate potential instability (e.g. top-down excavations, installation of slope stabilisation systems).	To mitigate the risk of landslides	Appointed Contractor	Not Applicable	On-going monitoring of Construction works by the Appointed Contractor
MAD-6	Scheme wide	Construction, Operation, maintenance	Use of slope monitoring systems to help identify ground movements in advance of significant events.	To mitigate the risk of landslides	Appointed Contractor and Transport Scotland	Not Applicable	On-going monitoring of effectiveness by the Appointed Contractor and Transport Scotland.
MAD-7	Scheme wide	Construction, Operation, maintenance	Existing debris flow and rockfall fences and catchpits upslope of the A83, which will help retain landslide events.	To mitigate the risk of accidents and disasters	Appointed Contractor and Transport Scotland	Not Applicable	On-going monitoring of effectiveness by the Appointed Contractor and Transport Scotland.

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MAD-8	Scheme wide	Construction, Operation, maintenance	Existing geotechnical measures (e.g. soil nails, rock blankets, retaining walls) installed to stabilise areas immediately downslope of the A83. Should a landslide occur, there is an existing debris flow barrier to mitigate the risk of land-slipped material affecting the OMR.	To mitigate the risk of landslides	Appointed Contractor and Transport Scotland	Not Applicable	On-going monitoring of effectiveness by the Appointed Contractor and Transport Scotland.
MAD-9	Scheme wide	Construction, Operation, maintenance	Site specific landslide management plan to manage the risk to road users. Mitigation measures within this plan include site-specific weather forecasts; real-time rainfall monitoring; slope inspections; and landslide patrols.	To mitigate the risk of landslides	Appointed Contractor and Transport Scotland	Not Applicable	On-going monitoring of effectiveness by the Appointed Contractor and Transport Scotland.
MAD-10	Scheme wide	Construction, Operation, maintenance	Remote monitoring instrumentation to be trialled (and if successful adopted) to providing pre-cursor information on landslide events.	To mitigate the risk of landslides	Appointed Contractor and Transport Scotland	Not Applicable	On-going monitoring of effectiveness by the Appointed Contractor and Transport Scotland.
MAD-11	Scheme wide	Construction	The CEMP will include a Flood Response Plan which will set out the mitigation measures to be implemented, (e.g. checking for flood alerts, monitoring river levels, installation of temporary drainage systems, withdrawal from works close to or within the water features should flooding be predicted, where practicable plant and materials will be stored in areas outside the functional floodplain, in addition, where practicable haul routes will be located out of the functional floodplain).	To mitigate the risk of flooding	Appointed Contractor	Not Applicable	Employer's Requirements in the Contract.

Ref	Location of Measure	Timing of Measure	Description	Mitigation Purpose/ Objective	Party Responsible for Overseeing Implementation	Specific Consultation or Approval Required	Monitoring Requirements
MAD-12	Scheme wide	Operation and maintenance	Routine inspections and preventative maintenance will be carried out throughout the lifetime of the scheme.	To mitigate the risk of accidents and disasters	Appointed Contractor and Transport Scotland	Not Applicable	On-going monitoring of effectiveness by the Appointed Contractor and Transport Scotland.
RDWE1	A83 mainline catch- pits	Operation	In relation to inspection and maintenance regimes, there will be frequent inspections and clearance of the catch pit to minimise the risk of blockage and accumulation of flow to the southerly most culvert. Maintenance to clear the culverts from sediment, should this be necessary, will also be conducted. Adaptive management of the watercourses will also be undertaken, as and when is necessary. Channels inherently change, and continually adapt to their conditions, a maintenance and management strategy should be developed to protect the critical infrastructure but with consideration for the hydromorphological functioning. Ultimately, working with natural processes, reduces the need for maintenance. A sediment management plan will form part of the maintenance plan.	To minimise the risk of blockage and accumulation of flow to the southerly most culvert	Transport Scotland's Operating Company	Not Applicable	On-going maintenance by the Operating Company
RDWE2	Between the A83 and OMR	Design / Construction	In relation to downslope protection of the A83 culverts, where required, minimise the extent of concrete cascades and/or bed and bank reinforcement downstream of the A83 and DFS, allowing the channel to naturally adjust to geomorphologically effective flows. Where possible, smooth the transition between hard engineered features (concrete cascade and/or bed and bank reinforcement) and the natural channel with boulders (e.g. creation of step-pool features), to gradually naturalise to the unprotected channel.	To minimise the degree of interventions on applicable channels, whilst remaining resilient	Appointed Contractor	Not Applicable	Not Applicable

Ref	Location of Measure	Timing of Measure	Description	Mitigation Purpose/ Objective	Party Responsible for Overseeing Implementation	Specific Consultation or Approval Required	Monitoring Requirements
RDWE3	Between the A83 and OMR	Operation	Allowing the watercourses and slopes to naturally protect themselves by fencing of the watercourses to prevent livestock access and promote vegetation growth, and in turn, stability. Utilise coir matting and seeding or planting of native shrubs to accelerate hillside stability.	Improve slope and bank stability to reduce erosion and channel mobility	Appointed Contractor	Not Applicable	On-going monitoring of Construction works by ECoW On-going maintenance by the Operating Company
RDWE4	Road Drainage and the Water Environment	Construction	In relation to PWS, where an existing private water supply (PWS) is likely to be disrupted in terms of potential impact to water quality or yield during the operational phase, the Appointed Contractor shall suggest alternative PWS solutions in consultation with the owners/users, to be installed ahead of operation (this may be installed as a pre-construction arrangement, to minimise PWS disruption across both phases).	To remove linkage between PWS and A83 or OMR contaminated runoff	Appointed Contractor	Owners/users of existing PWS	Not Applicable

Ref	Location of Measure	Timing of Measure	Description	Mitigation Purpose/ Objective	Party Responsible for Overseeing Implementation	Specific Consultation or Approval Required	Monitoring Requirements
RDWE5	Scheme Wide	Construction	For sediment control, the following supplementary measures to embedded mitigation are proposed. Procedures and measures will form part of a Construction Environmental Management Plan (CEMP): • suspend construction works during periods of elevated debris flow risk in all areas that have to potential to be impacted by such flow events; • agree regulatory expectations of thresholds for total suspended solids (TSS) as a maximum sediment level allowable for discharge to surface waters, furthermore, consideration of threshold levels for in-channel sediment levels taking account of baseline conditions (i.e. sediment uplift) • temporary interception, upstream of the construction zone, with over-pumping and diversion to adjacent watercourse(s) will reduce the incoming flows from hillslopes and channels. Channel flows would be reinstated following completion of local works including downstream scour and bank protection; • construction of temporary settlement basins, where topography and earthwork programming allow, to provide retention of runoff from disturbed areas prior to entering watercourse channels, these shall not be positioned within areas susceptible to flood risk, avoiding 0.5% Annual Exceedance Period with climate change (0.5% AEP + CC) zones;	To optimise sediment control	Appointed Contractor	SEPA	On-going monitoring of Construction works by ECoW Potential application of drone surveys to map sediment change and investigate incidents

Ref	Location of Measure	Timing of Measure	Description	Mitigation Purpose/ Objective	Party Responsible for Overseeing Implementation	Specific Consultation or Approval Required	Monitoring Requirements
RDWE5 (cont)	Scheme Wide	Construction	• where settlement basins are not feasible, mechanical settlement devices shall be considered to enable treatment for local discharge. These portable devices would be deployed at appropriate locations to reduce construction sedimentation risk as the construction programme progresses; and • construction of other source control methods, such as sediment fences and straw bale filters (downslope of disturbed areas and stockpiles) as required.	To optimise sediment control	Appointed Contractor	SEPA	On-going monitoring of Construction works by ECoW Potential application of drone surveys to map sediment change and investigate incidents
RDWE6	Scheme Wide	Construction	To aid sediment control, pre-approval from SEPA shall be sought for application of coagulants and flocculants as a contingency measure to promptly aid settlement of suspended solids. In accordance with pre-requisite sediment conditions and methodologies; including chemical type, dosage level and location.	To optimise sediment control	Appointed Contractor	SEPA	On-going monitoring of Construction works by ECoW Potential application of drone surveys to map sediment change and investigate incidents

Ref	Location of Measure	Timing of Measure	Description	Mitigation Purpose/ Objective	Party Responsible for Overseeing Implementation	Specific Consultation or Approval Required	Monitoring Requirements
RDWE7	Scheme Wide	Construction	Given the challenging local conditions, sediment control directly within tributary channels may be appropriate as a further contingency measure, should excess sediment entrainment linked to construction activities occur or be predicted. Ongoing GI and detailed design inputs will inform this requirement, to supplement other sediment control measures. This shall involve the installation of temporary settlement ponds or other engineering interventions to tributaries of Croe Water. These would be positioned on slopes with shallower gradient. Offline features are preferable (adjacent to channel) but online (in-channel) features may also be required to reduce sediment load in minor channels prior to their confluence with the Croe Water. Pre-approval from SEPA for such interventions would enable site preparation ahead of requirement (preferred approach) or initiation of a prompt response, with associated design details provided, taking account of local channel characteristics and constraints (including groundwater level and with avoidance of flood risk 0.5% AEP + CC zones) to determine location, footprint, maintenance plan and reinstatement method.	To optimise sediment control (contingency)	Appointed Contractor	SEPA	On-going monitoring of Construction works by ECoW Potential application of drone surveys to map sediment change and investigate incidents

Ref	Location of Measure	Timing of Measure	Description	Mitigation Purpose/ Objective	Party Responsible for Overseeing Implementation	Specific Consultation or Approval Required	Monitoring Requirements
RDWE8	Debris Flow Shelter	Operation	In relation to sediment management during operation, should sediment and/or particulates require cleansing from the covered carriageway within the DFS, due to lack of washing effect from reduced precipitation, this will be collected directly from the road surface. This will reduce sediment and sediment-bound contaminants from entering drainage network 1, with associated improvement in water quality discharged to the Croe Water.	This will reduce sediment and sediment-bound contaminants from entering drainage network 1, with associated improvement in water quality discharged to the Croe Water.	Transport Scotland's Operating Company	Not Applicable	On-going maintenance by the Operating Company