A83 Rest and Be Thankful

LTS EIAR VOLUME 4, APPENDIX 11.15 - OUTLINE LANDSCAPE AND ECOLOGICAL MANAGEMENT AND MONITORING PLAN

Transport Scotland

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A11-15. Outline Landscape and Ecological Management and Monitoring Plan

A11-15.1. Introduction

Scope of the document

A11-15.1.1. This Outline Landscape and Ecological Management and Monitoring Plan (OLEMMP) lists the contents that will be included in the Landscape and Ecological Management and Monitoring Plan (LEMMP) for the A83 Rest and Be Thankful project (hereafter referred to as the 'Proposed Scheme'). The description of the Proposed Scheme is set out within Volume, 2 Chapter 4: The Proposed Scheme, of the Environmental Impact Assessment (EIA) Report.

A11-15.1.2. The LEMMP will set out the management and monitoring of the landscape and ecological mitigation and compensation features of the Proposed Scheme during construction, establishment and long-term landscape maintenance operations. Four enhancement sites form part of the Proposed Scheme; these are separate from the locations directly affected by construction works, as shown in Volume 3, Figure 4.7 BNG and Natural Capital Sites. This OLEMMP excludes the enhancement sites. A separate Habitat Creation and Habitat Management Plan for these sites will be produced during detailed design.

A11-15.1.3. The preparation of the LEMMP will be secured through the Proposed Scheme's Contract Documentation and will be completed by the Appointed Contractor.

A11-15.1.4. The LEMMP will be a live document that is reviewed and updated if changes occur during the Proposed Scheme development and implementation on site. Dialogue will be maintained with relevant consultees in relation to the LEMMP and also the Construction Environmental Management Plan (CEMP) and Species Protection Plans (SPPs). The CEMP and SPPs will also be produced by the Appointed Contractor to mitigate the impacts during the construction phase of the Proposed Scheme.

A11-15.1.5. The OLEMMP is a high level preliminary document based on the design to date. All details are subject to further work and stakeholder engagement, but the LEMMP will follow the broad habitat management objectives set out in the OLEMMP. The protected species licences, SPPs and the CEMP will be taken into consideration during the development of the LEMMP. Details such as monitoring and management will be refined in the detailed habitat management plans, which will be developed with stakeholders as the project progresses.

A11-15.2. Structure of the document

A11-15.2.1. The LEMMP will be prepared in accordance with the requirements of Design Manual for Roads and Bridges (DMRB) LD 117 Landscape Design, LD 118 Biodiversity design, and LA 120 Environmental management plans. The LEMMP will include:

- an overview of how the LEMMP will be implemented, including roles and responsibilities of individual parties
- a brief summary of the environmental context of the Proposed Scheme
- the approach to mitigation and compensation design including specific design constraints and assumptions
- objectives for creation and management of new landscape and ecology features, targets for function / condition, and prescriptions for management activities
- a management plan which includes timescale periods for management requirements and
- specifications for management activities and monitoring.

A11-15.2.2. The OLEMMP should be read in conjunction with Volume 3, Figure 9.3 Landscape and Ecological Mitigation Plan.

A11-15.3. Implementation of the Landscape and Ecological Management and Monitoring Plan (LEMMP)

Roles and responsibilities

A11-15.3.1. The roles and responsibilities in relation to the LEMMP will include:

Table A11-15-1 – Roles and responsibilities

Role	Responsibilities
Transport Scotland	To be added during detailed design
Appointed Contractor	To be added during detailed design
Monitoring Party	To be added during detailed design
Operation & Maintenance Contractor	To be added during detailed design

Habitat management and monitoring duration

A11-15.3.2. The duration of management and monitoring for each landscape / ecology element created or enhanced will be determined further into the design stage and detailed in the LEMMP.

A11-15.4. Site description

A11-15.4.1. In the LEMMP, this section will provide background information to reduce the need to refer to background documents. Relevant information can be found in:

- Location – Volume 2, Chapter 1: Introduction
- Existing landscapes – Volume 2, Chapter 9: Landscape
- Designated sites – Volume 2, Chapter 11: Biodiversity
- Existing habitats and priority habitats – Appendix 11.4: Designated Sites and Terrestrial Habitats

- Priority and protected plant species, and invasive non-native plant species – Appendix 11.4: Designated Sites and Terrestrial Habitats
- Protected and priority species – Appendices: 11.4 – 11.14
- Invasive non-native animal species (American mink) – Appendix 11.8: Otter Report

A11-15.4.2. The presence of protected species will be taken into account when carrying out maintenance and management activities. Working seasons would be adapted throughout operation to reflect changes in the timing of animal behaviour as a result of climate change. Suitable mitigation measures for protected species affected by permanent and temporary works will be set out in the LEMMP, licences and SPPs.

A11-15.5. Proposed landscape and ecological design

A11-15.5.1. The function of the proposed landscape and ecological design is to integrate the newly built elements into a valued and sensitive landscape through the aesthetic design of the Debris Flow Shelter (DFS) and the Rest and Be Thankful car park area as well as through planting patterns. The DFS will incorporate a green roof to improve the visual appearance of the structure and integrate it into the landscape. The Rest and Be Thankful car park will utilise natural materials and retain existing views to the 'Arrochar Alps'.

A11-15.5.2. Landscape objectives will be achieved through the sympathetic design of the sustainable drainage system (SuDS) feature shape and varied slopes of the associated bund. Features have also been included within the landscape to provide mitigation and compensation measures, such as:

- bat boxes within Receptor 1
- bird nesting boxes within Receptor 1, and nest baskets for long-eared owl in suitable habitat
- possible implementation of wildlife exclusion zones

- installation of permanent and / or temporary fencing and / or barriers (if and where appropriate) to direct animals to safer crossing points and prevent egress into the works area
- installation of additional compensation features if further licences are required based on update surveys
- installation of mammal ledges and / or tunnel under the existing bridge labelled OMR_30, and the new bridge to be created along the A83
- creation of suitable grassland habitat, increasing the extent of native trees and shrubs in the immediate vicinity of the Proposed Scheme, and planting site appropriate native trees and shrubs for priority invertebrates and
- Creation of hibernacula for reptiles and amphibians in Receptor 2.

A11-15.5.3. The proposed design will:

- compensate for the felling of trees and loss of habitat to facilitate the Proposed Scheme through replacement planting and habitat creation / improvement
- include planting to help 'soften' the new built elements in views
- minimise biodiversity loss and maximise biodiversity gain
- protect existing trees using tree protection measures compliant with British Standard BS 5837:2012 'Trees in Relation to Design, Demolition and Construction – Recommendations'
- take account of relevant good practice guidance for the habitats being enhanced and created, such as Forestry Commission Bulletin 112: Creating New Native Woodlands ([Archive] Creating new native woodlands - Forest Research)

A11-15.6. Mitigation / Compensation Design Approach

A11-15.6.1. Mitigation will include embedded mitigation and additional mitigation set out in Volume 2, Chapter: 11: Biodiversity and in Appendix 11.1: Report to inform Habitat Regulations Appraisal, and will be detailed in the LEMMP. The LEMMP will include:

- design principles
- mitigation during construction
- planting and seeding specification
- monitoring strategy

Key design constraints

A11-15.6.2. Landscape and ecological mitigation are provided in response to potential significant effects identified in the EIA Report within Volume 2, Chapter 9: Landscape Effects, Chapter 10: Visual Effects, and Chapter 11: Biodiversity. Constraints considered as part of the landscape and ecological mitigation (and compensation) design include:

- restrictions to maintenance and operational activities within the road boundary arising from safety requirements
- intends minimal intervention while meeting the objectives of the landscape and biodiversity mitigation
- as far as reasonably possible the interests of the adjacent landowners
- effects the mitigation design might have on external stakeholders

Design assumptions

A11-15.6.3. The design assumptions for the Proposed Scheme will be set out in the detailed design stage and will be specified in the LEMMP.

A11-15.7. Landscape & Ecological Management Objectives

General landscape management objectives

A11-15.7.1. The following are recommended to be incorporated into the Proposed Scheme:

- ensure the function of landscape screening and integration planting areas are maintained
- apply good horticulture and ecological practices to all operations
- promote healthy growth and establishment of all plants, trees and grasses

- ensure consistent control of invasive weeds
- ensure development of optimum plant form, shape and planting density
- provide protection against pests and diseases
- promote wildlife value and species diversity where appropriate
- ensure long term commitment to replacement of defective plant material and
- ensure long term commitment to replacement of plant material associated with the green roof of the DFS.

General ecological management objectives

A11-15.7.2. The following are recommended to be incorporated into the Proposed Scheme:

- retain and protect important habitats where possible
- provide compensation habitats for those lost, using native species of local provenance
- maintain connecting habitat for commuting and foraging species and
- enhance retained habitats.

A11-15.7.3. Due to the presence of invasive non-native species (INNS) within the Proposed Scheme an appropriate INNS management plan will be developed by the appointed contractor.

Landscape elements, environmental function & objectives

A11-15.7.4. The locations of landscape elements are illustrated in the Volume 3, Figure 9.3: Landscape and Ecological Mitigation Plan. Objectives are outlined below in Table A11-15-2.

Table A11-15-2 – Landscape elements, environmental function and objectives

Landscape element	Environmental function	Objectives
LE.1 Species rich grassland	• Visual amenity • Landscape integration • Nature conservation and biodiversity	• A diverse sward which allows natural colonisation by a wide variety of wildflowers and grasses, and which is ecologically and visually diverse. • Provides colour, form, texture, scale and variety. • Maintains a variety of wildflower species sympathetic to adjoining species rich habitats.
LE.2 Wet grassland	• Visual amenity • Landscape integration • Nature conservation and biodiversity	• A diverse sward which allows natural colonisation by a wide variety of wildflowers and grasses, and which is ecologically and visually diverse. • Provides colour, form, texture, scale and variety. • Maintains a variety of wildflower species sympathetic to adjoining species rich habitats.
LE.3 Acid grassland	• Visual amenity • Landscape integration • Nature conservation and biodiversity	• A diverse sward which allows natural colonisation by a wide variety of wildflowers and grasses, and which is ecologically and visually diverse. • Provides colour, form, texture, scale and variety. • Maintains a variety of wildflower species sympathetic to adjoining species rich habitats.
LE.4 Scattered trees	• Landscape Integration • Nature conservation and biodiversity • Visual Amenity	• Protect retained trees from damage during the construction period and monitor their condition for the duration of the management plan. • Mix of native species to reflect local landscape character. • Low density planting to maintain views and align with local landscape character.

Landscape element	Environmental function	Objectives
LE.5 Green Roof	• Landscape and visual Integration • Biodiversity	• Integrate the DFS structure into the landscape, particularly from elevated locations. • Mix of groundcover vegetation to reflect local landscape character and facilitate occasional maintenance works.

Ecological Constraints and Mitigation / Compensation Objectives

A11-15.7.5. The ecological constraints and mitigation / compensation objectives are outlined within Table A11-15-3 below:

Table A11-15-3 – Ecological Constraints and Mitigation / Compensation Objectives

Ecological Constraint	Ecological Objectives	Mitigation / Compensation
Designated Site and Sensitive Habitats	Mitigate against habitat loss and habitat degradation.	All habitats that are temporarily impacted during development will be reinstated following works. Efforts will be made to reduce planned habitat losses further. The geology and soils and ecology design team will review Ground Investigation data and revise GWDTE report accordingly. Depending upon that outcome, monitoring of GWDTE (groundwater levels, groundwater quality and ecological monitoring) would be planned and agreed with SEPA – in accordance with SEPA LUPS-GU31. This monitoring would target M10 zones, and other GWDTE if any design or other changes indicate they could be affected, with upslope and downslope groundwater monitoring relative to the OMR and commence pre-construction and extend post-construction to cover various seasons. Work will be constrained to a prescribed working corridor, including using temporary barriers where required, to protect retained habitats. Construction vehicles should only cross peatland habitats using rigid bog matting. The matting should be in place for only as long as needed to move vehicles. Works will follow good practice standards on construction site pollution control. An Ecological Clerk of Works (EcCoW) will be appointed. A Designated Site and Sensitive Habitats Precautionary Working Method Statement (PWMS) will be appended to the CEMP. Among other responsibilities, the EcCoW will directly supervise all works within set buffers of designated sites for nature conservation and Important Ecological Features (IEF).

Ecological Constraint	Ecological Objectives	Mitigation / Compensation
Aquatic Ecology	Mitigate against habitat degradation from pollution runoff resulting from works	The CEMP will be followed. An Aquatic Ecology Species Protection Plan (SPP) will be produced. This will detail methods for construction works, especially in-stream works. The Aquatic Ecology SPP will include timing of in-stream works to be planned to avoid the sensitive lifecycle stages of the fish present. The Aquatic Ecology SPP will include fish translocation (under appropriate authorisation) if required. The EcCoW will directly supervise all working within watercourses and within a 10m buffer.
Breeding Birds	Compensate for nesting habitat loss. Protect nesting birds and occupied nests during works.	A breeding bird SPP will be produced. Where possible, tree felling, and vegetation clearance will be minimised and undertaken outside the core bird nesting season (1 March to 31 August). If this cannot be avoided, the EcCOW will undertake checks prior to clearance. Bird boxes and nest baskets will be installed in Receptor 1. Measures to protect eagles (as set out in the Appendix 11.1 Report to inform Habitat Regulations Appraisal) will also be followed.

Ecological Constraint	Ecological Objectives	Mitigation / Compensation
General mammal measures	Protect during construction Reduce risks of impacts on light sensitive animals Protect animals from mortality risks during operation	Excavations will be filled or covered overnight to prevent animals becoming entrapped. Where excavations cannot be filled or covered overnight, a plank of wood (or similar) will be placed at an angle that allows means of escape. Temporary construction lighting will be directed away from habitats suitable for sensitive species including watercourses, features suitable for bats, and other mature vegetation. Lighting design will follow current good practice guidance. Mammal ledges will be installed / passages will be retained to ensure habitat permeability, and providing safer, more suitable pathways. Wildlife fencing to be installed at several locations, to direct animals to safer crossing points, discouraging them to cross over roads. Temporary fencing will be installed if required for the duration of construction at these locations, and permanent fencing would then be installed if / where appropriate. Wildlife warning reflectors will be installed along the OMR and maintained while it is used as a diversion route. Good practice measures detailed in the CEMP will be followed. For all protected species, if licensable impacts cannot be avoided, licences will be obtained prior to relevant works and all licence requirements will be followed.

Ecological Constraint	Ecological Objectives	Mitigation / Compensation
Otter	Protect during construction	An otter SPP will be produced, setting out seasonal timing and methods for vegetation clearance, including a check prior to construction by the EcCOW, monitoring of potential holts, and further mitigation if found to be present within buffer of working area.
Bats	Compensate for loss of known roosts & roosting opportunities. Protect during construction	A total of 20 bat boxes (final number to be confirmed at detailed design) to be installed in Receptor 1 to provide compensatory and mitigatory roosting locations during the construction period, including boxes will also be suitable for hibernation. A licence will be obtained prior to any loss of roosts. A bat SPP will be produced, setting out seasonal timing and methods for vegetation clearance, including checks and monitoring by the EcCOW and further mitigation if a new roost is found to be present within buffer of working area.
Badger	Protect during construction	A badger SPP will be produced, setting out seasonal timing and methods for vegetation clearance, including a check prior to construction by the EcCOW and further mitigation if found to be present within buffer of working area.
Pine Marten	Protect during construction	A pine marten SPP will be produced, setting out seasonal timing and methods for vegetation clearance, including a check prior to construction by the EcCOW, monitoring of potential dens, and further mitigation if found to be present within buffer of working area.

Ecological Constraint	Ecological Objectives	Mitigation / Compensation
Red Squirrel	Protect during construction	A red squirrel SPP will be produced, setting out seasonal timing and methods for vegetation clearance, including a check prior to construction by the EcCOW and further mitigation if found to be present within buffer of working area.
Reptiles and Amphibians	Mitigate for permanent loss of suitable habitat. Protect during construction	A reptile SPP will be produced, setting out seasonal timing and methods for vegetation clearance, including a check prior to construction by the EcCOW and habitat manipulation. Animals will be moved to safe nearby habitat. If a higher number of reptiles are found, they will be moved to Receptor 2, where hibernacula will be installed to increase carrying capacity.
Red Deer, brown hare and mountain hare	Protect during construction	The EcCoW will undertake a check prior to construction. Any red deer will be allowed to move into adjacent habitat. If adult hares or leverets are found, the ECCOW will advise on methods to safeguard animals.
Priority Invertebrates	Mitigate for permanent loss of suitable habitat for priority invertebrates	Create new areas of flower rich grassland including late flowering species such as common knapweed and devil's-bit scabious. Continue to graze stands of species rich soligenous mire on enclosed farmland with cattle to create a mixed height sward with some areas of bare, poached peat. Works in the Enhancement Sites will also benefit invertebrates.

A11-15.8. Landscape elements – management approach prescriptions and general maintenance

A11-15.8.1. Management prescriptions and general maintenance for each landscape element will be set out in the detailed design stage and specified in the LEMMP. The LEMMP will detail the management approach and prescription for the following landscape elements:

- LE.1 Species-rich grassland
- LE.2 Wet grassland
- LE.3 Acid grassland
- LE.4 Scattered Trees
- LE.5 Green Roof (DFS)

A11-15.9. General Maintenance and Programme

Maintenance Specification

A11-15.9.1. A full DMRB Series 3000 specification will be produced following the detailed design stage. As a minimum it is intended that the landscape works will be carried out in accordance with appropriate British Standards and other industry standards. These standards will be listed within the LEMMP. The LEMMP will be applied in combination with the Specification and will detail:

- plant establishment
- replacement of stock
- ground and pit preparation for replacement planting
- mammal fencing inspection
- habitat manipulation for reptiles and amphibians
- pesticide application
- control of noxious or injurious weeds
- tree works and

- grass cutting.

Programme

General Programme Considerations

A11-15.9.2. For soft landscape elements, all replacement planting will be carried out in the recognised planting seasons.

A11-15.9.3. The LEMMP will set out a detailed programme of work including but not limited to: scheduled dates for planting, refurbishment and review; maintenance operations and associated timescales; and any changes / revisions to the programme to ensure continued compliance with overall objectives.

Inspection Reports

A11-15.9.4. Inspection reports are to be completed by the Appointed Contractor and agreed by Transport Scotland.

A11-15.10. Outline Management Plan

A11-15.10.1. The outline management plan summarises the requirements for each landscape element, by specifying targets, management prescriptions, programme, timescales and overall responsibility. The management approach is detailed in Section A11-15.8 Landscape elements – management approach prescriptions and general maintenance. Table A11-15-4 below is an illustrative example of the level of information to be included in the LEMMP.

Table A11-15-4 – Example outline management plan table

Landscape Element	Target Attribute	Responsibility	Management Prescription	Detail	Timings	Years after Planting	Annual Frequency
LE1 Species Rich Grassland	Number of species Target species / habitat Landscape integration	Appointed Contractor / Landowner	Annual Site monitoring	Annual noxious / self-sown weed assessment and assessment of the general condition of the area to identification any appropriate remedial works.	September	All	Once

Landscape Element	Target Attribute	Responsibility	Management Prescription	Detail	Timings	Years after Planting	Annual Frequency
LE1 Species Rich Grassland	Number of species Target species / habitat Landscape integration	Appointed Contractor / Landowner	Noxious & injurious weed control.	As required. Weed in an appropriate manner all noxious or injurious weeds within the Wildflower Meadow.	Continuous	All	Once
LE1 Species Rich Grassland	Number of species Target species / habitat Landscape integration	Appointed Contractor / Landowner	Supplementary seeding.	As required. Cultivate existing soil profile into a fine tilth and reseed with the seed mix to match the existing.	March to May	1 to 5	Once, as required

Landscape Element	Target Attribute	Responsibility	Management Prescription	Detail	Timings	Years after Planting	Annual Frequency
LE1 Species Rich Grassland	Number of species Target species / habitat Landscape integration	Appointed Contractor / Landowner	Removal of litter	As required during each maintenance visit.	Continuous	All	Twice, as required
LE1 Species Rich Grassland	Number of species Target species / habitat Landscape integration	Appointed Contractor	Establishment cut	Mow to a height of 40 to 60mm. Rake off and remove arisings from Site.	September	1	Once

Landscape Element	Target Attribute	Responsibility	Management Prescription	Detail	Timings	Years after Planting	Annual Frequency
LE1 Species Rich Grassland	Number of species Target species / habitat Landscape integration	Appointed Contractor / Landowner	Grass cutting regime.	After flowering 'hay cut' meadow, mow to a height of 40 to 60mm. Leave the 'hay' to dry and shed seed for 1 to 7 days then remove arisings from Site.	1 cut: (August to October)	2 and thereafter	Once
LE1 Species Rich Grassland	Number of species Target species / habitat Landscape integration	Appointed Contractor	Watering	As required in order to achieve successful establishment. Additional watering will be instructed during periods of abnormally dry weather.	April to September	1 to 3	As required

A11-15.11. Monitoring

Habitat monitoring approach

A11-15.11.1. Monitoring will be undertaken during construction and operation to assess progress towards the targets that will be set out in the LEMMP.

A11-15.11.2. Table A11-15-5 below gives an illustrative draft monitoring schedule for landscape and ecology features during the establishment period. Monitoring will be planned at detailed design and will be extended to include any habitat monitoring required during the operation phase.

Table A11-15-5 – Outline monitoring schedule during 5 year establishment period

Monitoring Method	Timescale	Responsibility
Establishment inspections following completion of mitigation works	Quarterly first 2 years Annually next 3 years	Appointed Contractor
Walkover survey	Annually	Appointed Contractor (establishment period), then Operation & Maintenance Contractor

Species monitoring approach

A11-15.11.3. Species monitoring requirements shall take into account the conditions of protected species licences. The monitoring approach will be agreed with NatureScot upon submission of the relevant licence application and prior to construction commencing.

A11-15.11.4. To ensure the welfare of protected species within the works area, checks prior to construction for protected species will be undertaken.