

APPENDIX 5.1: LVA METHODOLOGY

5.1 Introduction

5.1.1 Landscape and Visual Appraisal

The purpose of the Landscape and Visual Appraisal (LVA) is to identify, predict and evaluate potential impacts associated with the proposed development. Wherever possible, identified impacts are quantified, however the nature of LVA requires interpretation by professional judgement. In order to provide a level of consistency to the assessment, the prediction of magnitude of change/impact and assessment of the significance of the residual landscape and visual effects have been based on pre-defined criteria.

The LVA considers effects upon:

- landscape character and resources, including effects on the aesthetic values of the landscape, caused by changes in the elements, characteristics, character and qualities of the landscape; and
- visual amenity, including effects upon potential viewers and viewing groups caused by change in the appearance of the landscape as a result of the development.

Landscape character and resources are considered to be of importance in their own right and are valued for their intrinsic qualities regardless of whether they are seen by people. Impacts on visual amenity as perceived by people, are therefore clearly distinguished from, although closely linked to, impacts on landscape character and resources. Landscape and visual appraisals are therefore separate, although interrelated processes.

5.2 Appraisal Methodology

The purpose of the LVA is to identify, predict and evaluate potential impacts associated with the proposed development. Wherever possible, identified impacts are quantified, however the nature of LVA requires interpretation by professional judgement. In order to provide a level of consistency to the appraisal, the prediction of magnitude of impact and appraisal of the residual landscape and visual impacts have been based on pre-defined criteria.

5.2.1 Information for the Appraisal

Guidance for the Appraisal

The LVA accords with guidance provided in:

- Landscape Institute and Institute of Environmental Management and Assessment (2013) *Guidance for Landscape and Visual Impact Assessment – Third Edition*¹;
- The Countryside Agency and Scottish Natural Heritage (2002) *Landscape Character Assessment*²; and
- Landscape Institute Guidance Note 06/19: *Visual Representation of Development Proposals (2019)*³.

¹ Landscape Institute (2013) *Guidelines* [online] Available at: <https://www.landscapeinstitute.org/technical/glvia3> [Accessed: July 2024]

² The Countryside Agency and Scottish Natural Heritage (2002) [online]. Available at: <https://digital.nls.uk/pubs/e-monographs/2020/216649977.23.pdf> [Accessed: July 2024]

³ Landscape Institute Guidance Note 06/19: *Visual Representation of Development Proposals (2019)* [online]. Available at: https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2019/09/LI_TGN-06-19_Visual_Representation.pdf [Accessed: July 2024]

Sources of Information

The LVA was informed by data and datasets gathered from the following sources:

- Ordnance Survey mapping (1:25,000, 1:50,000);
- OS Terrain 5;
- Field surveys in 2020 and 2023;
- Commercially available aerial photography;
- Scottish Natural Heritage (SNH) Landscape Character Assessment (2019)⁴;
- NatureScot Commissioned Report No 347 (2010) 'The special qualities of the National Scenic Areas';
- Site photography; and
- Consultation with the Highland Council.

Visibility Mapping

The Zone of Theoretical Visibility (ZTV) is the area from which the development may be potentially visible. Whilst a ZTV is generally considered helpful to understand the pattern of visibility of the proposed development, in the case of underground cable development which replaces existing overhead lines, there would be no potential for views of the proposed development, i.e. the underground cabling. There would be theoretical visibility of the proposed sealing end tower. However, these generally replace an existing tower, and given that numerous towers are removed and replaced by underground cabling, the view shed of the existing OHL to be removed is larger than the potential visibility of the sealing end tower.

Site work allows the assessors an understanding of where the proposed development would be visible from in the context of the site and potential screening elements from.

Study Area

For the LVA appraisal, the study area extends to 2 km from the proposed development.

Defining the study area takes into account the nature of the topography, the pattern of visibility as defined by the screening elements noted during field work, the presence of existing vegetation and the pattern of settlement and other visual receptors such as residents, workers and those engaging in recreation in the area surrounding the proposed development. The appraisal only focuses on those areas from which there is potential for intervisibility.

Viewpoints and Visual Receptors

Only those receptors subject to potential views of the proposed development (as indicated by site work) have been considered for inclusion in the visual impact appraisal, as those receptors with no views would not be affected. Potentially affected receptors have been addressed in the visual assessment. These include settlements, recreational destinations, and road and other route receptors such as long distance paths and national cycle routes.

Access to private properties was not requested as part of the visual assessment of impacts. It is acknowledged the proposed development will be viewed from some residential properties located within the study area. The LVA does not include an assessment of impact on private views from individual properties.

⁴ NatureScot Landscape Character Assessment (2019) [online]. Available at: <https://www.nature.scot/professional-advice/landscape/landscape-character-assessment/scottish-landscape-character-types-map-and-descriptions> [Accessed July 2024]

Assessment was undertaken at selected representative viewpoints which are listed and described in **Table 5.1.1** below. The visual assessment is illustrated from viewpoints which have been selected to present typical views and illustrate the effects on viewers from different directions and at different distances. They are representative views of a variety of publicly accessible locations, all of which are views from particular places considered important by the assessors or by consultees. The purpose of the viewpoint assessment is to ascertain the level of visual impact at agreed locations and help to inform the assessment of the overall effect of the proposals on visual amenity.

Table 5.1.1: Viewpoint Locations

Viewpoint Name	Coordinates (Easting, Northing)	Receptors	Reason for selection
VP1 Near Deanie Lodge	31707, 39495	NSA, Core Path.	This view is from the Loch-side Core Path near Deanie Lodge looking north towards the proposed sealing end tower.
VP2 Looking westwards along the shore of Loch Beannacharan	31234, 39268	NSA, SLA, Core Path.	This is from within the Glen Strathfarrar NSA, on the core path looking westwards on the north side of the Loch along the length of the OHL that is to be removed.
VP3 from the South-facing slopes of Creag a Bhruic	29140, 38995	SLA, WLA.	This is an elevated view from the path on the southern slopes of Creag a Bhruic (at approx. 230 m AOD) within the SLA and the edge of the WLA overlooking Loch Beannacharan and the OHL to be removed towards the WLA on the southern side of the Loch.

Baseline photographs have been presented for each viewpoint. 3D block modelling has been used to provide an indication of the size and scale of the proposed development, and rendering using photoshop has been included to provide an indication on the materiality and colour of proposed structure.

Consultation

Consultation was undertaken with The Highland Council to agree the locations of the proposed representative VPs. **Table 5.1.2** provides details of the consultation undertaken, together with action undertaken in response to the consultation feedback.

Table 5.1.2: Consultation Responses

Consultee	Consultation Response	Applicant Action
The Highland Council	Agreement of viewpoint locations (Letter dated 06/11/20 and subsequent email dated 27/11/20)	THC confirmed agreement of proposed viewpoints.

Site Work and Work for the LVA

A desk review of maps, plans, concept visualisations and other relevant documentation was undertaken to inform the required scope of work. Site visits and field survey work (including photography) were undertaken in November 2020 by the project team.

A further site visit was undertaken in June 2023 to reassess the site due to updates to the proposals.

The site visits enabled examination of the local landscape character and landscape features and familiarisation with the wider area to identify landscape character, identify specific landscape constraints and visual receptors and to assess the effects of the proposed development from identified representative viewpoints. Site work also allowed for verification of the desk study.

Field work provided assessors with a more detailed understanding of the context and setting of the proposed development, its relationship to the wider landscape and how the proposed development would relate to the existing landscape baseline.

Measurements

Receptor distances are calculated on the basis of distance to the nearest part of the proposed development.

Where measurements are given between landscape character types, designated areas, routes or settlements, such measurements relate to the nearest part of such areas and routes to the nearest element of the proposed development.

5.2.2 Undertaking the Appraisal

Landscape Impact Appraisal

Landscape impact appraisal considers the likely nature and scale of changes to the individual elements of the landscape in its own right, its aesthetic and perceptual aspects, its distinctive character and the key characteristics that contribute to this, and the consequential effect on this landscape character as a result of the introduction of the proposed development.

Visual Impact Appraisal

Visual impact appraisal looks at the changes to the character of views experienced as a result of the proposed development, the reactions of visual receptors (the people who see the view: residents, recreational visitors, those travelling through the area, etc.) and the overall impact that the development would have on visual amenity.

Sensitivity

Landscape Sensitivity

The sensitivity of landscape receptors to change arising from the type of development proposed is defined as high, medium and low based on professional interpretation, combining judgements of their value attached to the landscape and susceptibility to the type of change or development proposed. Landscape receptors include the different landscape character types or areas which may be affected by the proposed development, as well as landscape designations and classifications (such as Wild Land Areas) within the study area.

Susceptibility to change concerns the ability of the landscape receptor to accommodate the proposed development without undue consequences for the maintenance of the baseline situation and/or the landscape planning policies and strategies. Susceptibility is defined based on an interpretation of a combination of parameters such as the scale and pattern of the landscape and its elements/features, the simplicity or complexity of the landscape, the nature of skylines, landscape quality or condition, existing land use, visual enclosure/openness of views and the scope for mitigation which would be in character with the existing landscape.

The value attached to landscape receptors is reflected by landscape designations and the level of importance which they signify. However, landscape designations are not the sole indicator of landscape value. Factors such as landscape quality, scenic quality, rarity, representativeness,

conservation interest, recreation value, perceptual aspects and cultural associations also are considered.

Visual Sensitivity

The sensitivity of visual receptors is defined as high, medium and low based on professional interpretation, combining judgements of their susceptibility to the type of change or development proposed and the value attached to the particular views. Visual receptors consist of the particular person or group of people likely to be affected at a specific viewpoint and are assessed in terms of both their susceptibility to change in views and visual amenity and also the value attached to particular views.

The susceptibility of different visual receptors to change in views and visual amenity is mainly a function of:

- the occupation or activity of people experiencing the view at particular locations; and
- the extent to which their attention or interest may therefore be focused on the views and the visual amenity they experience at that particular location.

In relation to the occupation or activity of people experiencing the view at the viewpoint, visual sensitivity is defined as follows:

- High: Residents of dwellings; users of outdoor recreational facilities including strategic recreational footpaths, cycle routes or rights of way, whose attention is focused on the landscape; visitors to cultural/historic assets, important landscape features with physical, cultural or historic attributes; beauty spots or picnic areas. Travellers on key tourist routes.
- Medium: General road users, commuters and travellers not primarily focused on the landscape.
- Low: People engaged in outdoor sports or recreation (other than appreciation of the landscape), commercial buildings, and other locations where people's attention may be focused on their work or activity, rather than their surroundings.

Magnitude of Impact

Each of the landscape and visual effects identified are evaluated in terms of their size or scale, the geographical extent of the area influenced, and their duration and reversibility.

The magnitude of impact arising from the proposed development in respect of landscape character is described as High, Medium, Low, Negligible or None based on the interpretation of a combination of largely quantifiable parameters, as follows:

- the distance of the receptor from the proposed development;
- the extent of existing landscape elements that would be lost or by adding of new ones;
- the proportion of the total extent of the landscape elements that this represents;
- the degree to which aesthetic or perceptual aspects of the landscape would be altered by removal of existing components or with the addition of new elements;
- the context in which the proposed development would be seen (i.e. similar land uses in the vicinity of the development);
- the geographic area over which the loss of landscape elements would be perceived;
- the alteration of the skyline/altering the vertical scale in relation to the existing landscape features;
- the duration of the change; and
- the reversibility of the change.

The criteria utilised in ascribing magnitude of change in respect of visual amenity is as follows:

- the scale of change in the view with respect to the loss or addition of features in the view and changes in its composition, including the proportion of the view occupied by the proposed development;
- the degree of contrast or integration of any new features or changes in the landscape with the existing or remaining landscape elements and characteristics in terms of form, scale and mass, line, height, colour and textures;
- the nature of the view of the proposed development;
- the relative amount of time over which it would be experienced and whether views would be full, partial or glimpsed;
- the angle of view in relation to the main activity of the receptor;
- the distance of the viewpoint from the proposed development; and
- the extent of the area over which the changes would be visible.

The magnitude of impact is categorised as follows:

- **High:** Total loss or considerable alteration to key elements, features or characteristics of the landscape character and/or composition of views. The development is highly prominent or even dominant and could become the defining characteristic of views and landscape character.
- **Medium:** Represents a notable alteration or loss of key elements, features or characteristics of the landscape character and/or composition of views. The development is prominent, but not dominant. In such circumstances the development may become ‘a’ defining characteristic of the view of landscape, but not ‘the’ defining characteristic.
- **Low:** Constitutes a partial loss to one or more key characteristics of the landscape or views. Localised effects within an otherwise unaltered landscape or visual context.
- **Negligible:** Represents a barely discernible loss or alteration to one or more key elements, features or characteristics of the baseline conditions. The underlying landscape character or view composition would be essentially unchanged.
- **None:** no discernible change apparent.

Residual Effects

As identified in the GLVIA3, effects are identified by establishing and describing the changes to the landscape and visual baseline resulting from the different components of the development and the resulting effects on individual landscape or visual receptors.

The assessment of effects is derived from a comparison of the sensitivity of receptors and the magnitude of impact or change anticipated as a result of the construction and operation of the proposed development, as indicated in **Table 5.1.3**, below.

Table 5.1.3: Residual Effects

Sensitivity	Magnitude of Impact				
	High	Medium	Low	Negligible	None
High	Major	Major / Moderate	Moderate	Moderate / Minor	None
Medium	Major / Moderate	Moderate	Moderate / Minor	Minor	None
Low	Moderate	Moderate / Minor	Minor	Minor	None

It should be noted, however, that the above matrix is intended to as a guide to support the professional judgement of the author.

In this appraisal, a residual effect of major / moderate or major is considered material to decision makers, in landscape and visual terms.

Nature of the Effects

Landscape and visual effects can be adverse (i.e. resulting in the loss or adverse alterations to the existing landscape and visual baselines), or beneficial (i.e. resulting in the strengthening or improvement of the character, condition or amenity of a given study area).

Committed mitigation measures have been designed to reduce, remedy or avoid any of the potential impacts identified. The appraisal focuses on residual effects, following the implementation of mitigation. For the purposes of this assessment, residual effects are considered adverse unless stated otherwise.

Assumptions and Limitations

This appraisal has also assumed that the woodland and shelterbelts/ roadside vegetation located in the study area would be retained.

APPENDIX 6.1: ECOLOGY AND ORNITHOLOGY METHODOLOGY AND RESULTS

6.1 Methodology

6.1.1 Study Areas

The ecological desk study area is defined as a 2 km buffer around the boundary of the proposed development, in order to enable data to be gathered to account for potential ecological links outwith this boundary. The ecological study area is defined at this distance in order to capture instance of species or habitats present outwith the immediate site boundary which may interact with the proposed development. The ornithological desk study area is defined as a 10 km buffer around the boundary, following review of the NatureScot (formerly SNH) Connectivity Guidance¹ in order to assess the connectivity of potential key ornithological species with the proposed development. The ornithological study area is defined at this distance as per NS guidance to account for the mobility and range of most bird species. The ecological and ornithological desk study areas are shown on **Figures 6.1** and **6.3**, respectively.

The field study area is defined as a 500 m buffer, 250 m either side of the proposed development, which was considered to represent the area within which potential impacts on ecology or ornithology would be concentrated.

6.1.2 Desk Study

A desk study was undertaken to collect existing baseline data about the site and surrounding area, such as the location of designated nature conservation sites or other natural features of potential ecological or ornithological importance. The desk study areas considered the following data sources:

- NatureScot (NS) Sitelink²; and
- Multi Agency Geographic Information for the Countryside (MAGIC)³.

Data sources were searched for protected or notable species records. Examples of notable species include, but are not limited to, national or local BAP species, restricted range species, species or species groups listed for local designated sites in the area (Local Nature Reserves, Sites of Importance for Nature Conservation, Sites of Nature Conservation Interest) or key species groups such as invertebrates or non-vascular plants. These species are not considered to have the same importance as those protected by legislation; however, their inclusion allows a more holistic approach and therefore a more robust assessment in line with the applicant's responsibilities under Schedule 9 of the Electricity Act 1989⁴. This information was used to understand what the key species for the site might be prior to field surveys. Supplementary information on the site and its surroundings was obtained from aerial images available from GoogleTM Earth Pro.

6.1.3 Impact Appraisal

A preliminary ecological appraisal⁵ of the field study area was undertaken to assess its ecological and ornithological value and to consider the likely impacts of the proposed development on the ecological and ornithological features, with the intention of identifying mitigation requirements. No assessment is made of the effect significance of potential impacts.

1 NatureScot (2016) SNH Guidance: Assessing Connectivity with Special Protection Areas [online] Available at: <https://www.nature.scot/doc/assessing-connectivity-special-protection-areas> [Accessed: June 2023].

2 NatureScot SiteLink (2023) [online] Available at: <http://gateway.snh.gov.uk/sitelink/> [Accessed: July 2023]

3 DEFRA (2023) Magic Mapping [online] Available at: <https://magic.defra.gov.uk/> [Accessed: June 2023].

4 UK Government (1989) Electricity Act [online] Available at: <http://www.legislation.gov.uk/ukpga/1989/29/schedule/9> [Accessed: June 2023].

5 CIEEM. Technical Guidance Series: Guidelines for Preliminary Ecological Appraisal (2013). Chartered Institute of Ecology and Environmental Management, Winchester.

6.1.4 Field Surveys

Extended Phase 1 habitat survey was undertaken in late July and early August 2020. A follow up habitat survey was then undertaken in June 2023 to cover new areas of the site boundary and to assess for any habitat changes since 2020 surveys. The 2023 surveys also allowed for reclassification of habitat types using the new UK Habitat classification (UKHab) method⁶, which has since been introduced as standard best practice for habitat surveys in the UK. This classification method is integral to DEFRA's Biodiversity Net Gain (BNG) metric. This section details the habitats identified under both the Phase 1 method and the UKHab method, as the UKHab method will be used to inform the BNG for this project. To further inform BNG assessment, Habitat Condition Assessment (HCA) was also undertaken for each habitat type. **Table 6.1** details the habitat types recorded in both Phase 1 and UKHab equivalent classifications.

Extended Phase 1 Habitat Survey 2020

This survey involved a walkover with an assessment of key habitats, habitat condition, land use and ecological features focusing on areas of natural interest that could be affected by the proposed development. The survey was undertaken on the 31st of July and 1st August 2020 by Dr Eric Donnelly from a9 Consulting. Habitats of potential sensitivity were recorded, such as wetlands, peatlands and other features of potential ecological value in their own right or as potential high-quality habitat for protected species. These habitats were mapped using standard Phase 1 habitat survey methodology as described in the Handbook for Phase 1 Habitat Survey⁷.

The field study area was also inspected for signs of any invasive plant species subject to legal controls, such as giant hogweed *Heracleum mantegazzianum* and Japanese knotweed *Fallopia japonica*. In addition, any notable species encountered during the course of the surveys were recorded, as defined in **Section 6.1.2**.

A Habitat Condition Assessment⁸ for Biodiversity Units calculations was also undertaken, in association with the Phase 1 habitat survey, with each habitat polygon being categorised as 'good', 'moderate' or 'poor' condition based on the pass/fail criterion in the appropriate condition assessment tables. 'Poor' condition is assigned where a habitat fails on two or more criteria.

National Vegetation Classification Survey

National Vegetation Classification (NVC) Surveys⁹ of wetland and peatland habitats were completed to identify potential Ground Water Dependant Terrestrial Ecosystems (GWDEs)¹⁰ alongside the Phase 1 habitat survey. The surveys followed the methodology described in best practice guidance^{11,12}, with five 2 m² quadrats surveyed within each habitat, and the species composition analysed¹³.

UKHab and Survey Update 2023

The site was revisited in May 2023 to update the habitat assessment and to survey the new areas of site boundary which had been added following the 2020 visit. Ramboll ecologists Elizabeth Butler,

6 UKHab (2023) UK Habitat Classification System [online] Available at: <https://ukhab.org/> [Accessed: June 2023]

7 Joint Nature Conservation Committee (2010) Handbook for Phase 1 habitat survey – a technique for environmental audit Peterborough: JNCC.

8 Scottish Hydro Electric Transmission plc (2019) Biodiversity Net Gain Toolkit User Guide [online] Available at: <https://www.ssen-transmission.co.uk/globalassets/documents/a-network-for-net-zero/supporting-evidence/our-approach-to-implementing-biodiversity-net-gain-.pdf> [Accessed: June 2023]

9 Joint Nature Conservation Committee (2006) NVC Users Handbook [online] Available at: http://jncc.defra.gov.uk/pdf/pub06_NVCusershandbook2006.pdf [Accessed: June 2023]

10 SEPA (2017) Planning Guidance on Groundwater Abstractions [online] Available at: https://www.sepa.org.uk/media/143868/lupsgu31_planning_guidance_on_groundwater_abstractions.pdf (Accessed: July 2018)

11 Rodwell, J.S. (2009), National Vegetation Classification Users Handbook. Peterborough: JNCC.

12 Hall, J.E., Kirby, K.J. and Whitbread, A.M. (2004), National Vegetation Classification Field Guide to Woodland. Peterborough: JNCC.

13 Rodwell, J.S., Pigott, C.D., Ratcliffe, D.A., Malloch A.J.C., Birks, H.J.B., Proctor, M.C.F., Shimwell, D.W., Huntley, J.P., Radford, E., Wigginton, M.J. and Wilkins, P. (1991), British Plant Communities Volume 1: Woodlands and Scrub. Cambridge: Cambridge University Press.

Danny Oliver and Elena Goltseva carried out these surveys between 24th-26th May 2023. New areas were classified using Phase 1 and UKHab methods for continuity, with previously surveyed habitats revisited and reassessed using UKHab methods. The HCA was also updated.

Protected Species

The field study area was concurrently surveyed for its potential to support species protected by international and national legislation, such as badger *Meles meles*, otter *Lutra lutra*, red squirrel *Sciurus vulgaris*, pine marten *Martes martes* and beaver *Castor fiber*. Results acquired in 2020 were reconfirmed during the 2023 survey visit, along with any additional observations.

The following protected species signs or features were sought for during each survey visit:

Badger

The survey looked for the following field signs¹⁴:

- Setts;
- Dung pits and latrines;
- Footprints and paths; and
- Foraging signs.

Any setts found were classified as either main, subsidiary or outlier and their level of usage indicated.

Otter

The otter survey involved a detailed search of all watercourses within the field study area according to best practice guidelines¹⁵. The field signs sought were:

- Holts;
- Couches
- Lay ups;;
- Spraints;
- Feeding remains; and
- Footprints and slides.

Water Vole

The water vole survey comprised a search of riparian and pond edge habitat for characteristic signs of activity. The survey assessed all watercourses and water bodies within the field study area and for a distance of 200 m up and downstream in accordance with good practice guidelines¹⁶. The signs sought were:

- Burrows;
- Droppings and latrines;
- Feeding stations; and
- Footprints and runs.

Red Squirrel

Survey methodology for red squirrel followed good practice guidelines¹⁷. The signs sought were:

- Dreys;

14 Scottish Badgers (2023) Badger Surveying [online] Available at: <https://www.scottishbadgers.org.uk/information-hub/badger-surveying/> [Accessed: June 2023].

15 Chanin, P. (2003), Monitoring the otter *Lutra lutra*, Conserving Natura 2000 Rivers Monitoring Series No 10, Peterborough: English Nature.

16 Strachan, R. (2012), Water Vole Conservation Handbook, Third Edition, Wildlife Conservation Research Unit.

17 Gurnell, J. et al (2001), Practical Techniques for Surveying and Monitoring Squirrels. Edinburgh: Forestry Commission.

- Feeding signs; and
- Sightings.

Pine Marten

The pine marten¹⁸ survey involved a detailed search for the following field signs:

- Droppings;
- Footprints;
- Sightings;
- Scratch markings; and
- Used dens.

Beaver

Survey for beaver¹⁹ involved a detailed search for the following field signs:

- Footprints;
- Teeth marks on felled trees;
- Paths;
- Feeding signs; and
- Lodges.

Bat Species

Each tree was assessed for its potential to support roosting bats and categorised dependent on the presence of features suitable to support bat roosts. The categories assigned were: High, Medium, Low and Negligible Potential for use by bats. **Table 6.1.1** provides criteria for each of these categories²⁰. The identified trees with Bat Roost Potential (BRP) were inspected from the ground using binoculars.

Table 6.1.1: Bat Roost Potential Categories

Roost Potential	Description
High	A tree with one or more potential roost site(s) that is obviously suitable for use by larger numbers of bats on a regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.
Medium	A structure or tree with one or more potential roost site(s) that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status.
Low	A structure with one or more potential roost site(s) that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection and / or suitable surrounding habitat to be used on a regular basis or by a large number of bats (i.e. unlikely to be suitable for hibernation or maternity). Trees of sufficient size and age to contain potential roost features but with none seen from the ground or features seen with very limited roosting potential.
Negligible	Negligible potential for roosting and bats very unlikely to be present.

¹⁸ NatureScot (2023) Standing advice for planning consultations - Pine Martens [online] Available at: <https://www.nature.scot/doc/standing-advice-planning-consultations-pine-martens> [Accessed: July 2018].

¹⁹ Scottish Wild Beaver Group (2023) Beaver Survey [online] Available at: <https://www.scottishwildbeavers.org.uk/beaver-survey/> [Accessed: July 2018].

²⁰ Ibid.

Breeding Birds

The Common Bird Census methodology²¹ was adopted to survey for breeding birds. The proposed development was surveyed three times on the following dates:

- 6th of May 2020;
- 8th of June 2020; and
- 7th of July 2020.

When birds were observed or heard, their behaviour was recorded. Where this indicated territorial behaviour, e.g. singing, alarm calling, carrying food/nesting material, then it was interpreted to indicate a potential breeding territory. If territorial behaviour was recorded at the same location, by the same species on more than one survey visit, then it was considered to be a confirmed breeding territory. By combining the data and discounting records that were thought to be the same bird, the number of territories for each species could be estimated.

Breeding Raptor Surveys

In February 2020, Cnoclee Environmental Services undertook watching briefs for golden eagle following a Protected Species Risk Assessment (PSRA) during the digging of trial pits between Towers 1-13. These works were carried out between 25th-29th February 2020 based on a PSRA previously used for site investigations at Tower 132. This contained methods required to protect golden eagles if present within the vicinity of works.

Following this watching brief, Ramboll subcontracted A9 Consulting Ltd to undertake two further breeding raptor surveys in April and July, as per best practice guidelines²² to reflect on the main activity peaks for golden eagle within the breeding season.

The results of these surveys were used to inform the HRA which is attached as **Appendix 6.3**. Further information was also acquired from the Highlands Raptor Study Group (HRSRG), reported within **Appendix 6.2: Confidential Ecology Results** and within **Appendix 6.3: HRA**.

6.2 Results

6.2.1 Extended Phase 1 Habitat Survey

Figure 6.4: Habitat Survey Results shows the locations of the following habitat areas and their proximity to the proposed development.

Phase 1 Habitats

A1.1.1 Semi-natural Broadleaved Woodland

Broadleaved semi-natural woodland occurs within the site boundary south of existing Tower 3 (strip of woodland extending down from Tower 3 and through the boundary towards the loch) and between Towers 6-9 (stand of woodland covering part of the project boundary). Small areas of this woodland type are also present within the boundary south of Tower 13 and the proposed switching station location. This habitat type is also present along the shores of Loch Beannacharan and along the edges of watercourses. The presence of trees and woodland in general is heavily influenced by the presence of red deer *Cervus elaphus*, which limit the extent of woodland through browsing.

Most of the broad-leaved woodland within the survey area is dominated by black alder *Alnus glutinosa*, which typically thrives in these wet environments, the NVC community for which is W7 *Alnus glutinosa*–*Fraxinus excelsior*–*Lysimachia nemorum* woodland. Alder is dominant here, with occasional silver birch *Betula pubescens*, common hazel *Corylus avellane*, common hawthorn

²¹ Bibby, C. J., Burgess, N., Hill, D. & Mustoe, S.H. (2000). Bird Census Techniques (2nd edition). Academic Press.

²² Hardey et al. (2009). Raptors - a Field Guide to Surveys and Monitoring (Second Edition).

Crateagus monogyna, rowan *Sorbus aucuparia* and grey willow *Salix cinerea*. The understory vegetation differs in each section, with Scotch broom *Cytisus scoparius*, tufted hair-grass *Deschampsia cespitosa*, purple moor grass *Molinia caerulea*, bracken *Pteridium aquilinum*, and common gorse *Ulex europaeus* common species.

One other section of A1.1.1 is located over acid grassland is located near Deanie Lodge, consisting of mature black alder, English oak *Quercus robur* and sycamore *Acer pseudoplatanus*.

A1.1.2 Broadleaved Woodland Plantation

Broad-leaved plantation woodland is located in fenced enclosure south of Deanie Substation near the outflow for the hydro scheme. Downy birch *Betula pendula*, silver birch and rowan are present here, over a wet dwarf shrub heath understory.

A1.2.1 Semi-natural Coniferous Woodland

Semi-natural coniferous woodland is located in sections of woodland above Benachran Lodge, in Beanacharan Wood and to the north of existing Tower 6, just outwith the site boundary. These woodlands are dominated by Scots pine *Pinus sylvestris*, with occasional rowan and silver birch over a wet dwarf shrub heath understory identified as W17 *Quercus petraea* – *Betula pubescens* – *Dicranum majus* woodland, W17d *Rhytidiadelphus triquetrus* sub-community.

A1.2.2 Coniferous Woodland Plantation

A small coniferous plantation is located next to Deanie Lodge, in the form of a row of mature Sitka spruce *Picea sitchensis*.

A1.3.1 Semi-natural Mixed Woodland

Areas of semi-natural mixed woodland occur within the field study area, with small pockets occurring within the site boundary to the east of existing Tower 8.

A1.3.2 Mixed Woodland Plantation

Mixed plantation woodland is located around Deanie Lodge. Species located within these woodland blocks includes sycamore, silver birch, hawthorn, beech *Fagus sylvatica*, common holly *Ilex aquifolium*, bird cherry *Prunus avium*, dog rose *Rosa canina* and rowan

A2.2 Scattered Scrub

Scattered scrub is located on a range of habitat across the survey area, mainly consisting of gorse over wet dwarf shrub heath. Small areas of scattered and continuous scrub occur around tracks and disturbed ground to the south of Tower 13, within the site boundary.

A3.1 Broadleaved Parkland/Scattered Trees

A number of fenced off individual trees are located in areas of grassland below Deanie Lodge and alongside the metalled road. Beech, rowan and English oak were included in these protective enclosures.

B1.1 Acid Grassland, Unimproved

Unimproved acid grassland is present along the east Deanie burn and around existing Tower 12, also to the south of existing Towers 1 and 13 and between existing Towers 3-4, within the field study area. Surveys identified this as U4 *Festuca ovina*-*Agrostis capillaris*-*Galium saxatile* grassland, the *Holcus lanatus*-*Trifolium repens* sub-community U4b. This habitat is dominated by grass species such as common bent *Agrostis capillaris*, tufted hair-grass *Deschampsia cespitosa*, wavy hair-grass *Deschampsia flexuosa*, sheeps-fescue *Festuca ovina*, Yorkshire fog *Holcus lanatus*, and occasional purple moor grass and mat-grass *Nardus stricta*. Common rush *Juncus effusus* and field horsetail *Equisetum arvense* are occasional species, and although bryophytes are less abundant common haircap *Polytrichum commune* is present. Herb species present include heath bedstraw *Galium*

saxatile, tormentil *Potentilla erecta*, sheep's sorrel *Rumex acetosella*, devil's bit-scabious *Succisa pratensis*, and marsh violet *Viola palustre*.

B1.2 Semi-Improved Acid Grassland

Semi improved acid grassland is common throughout the proposed development with sizable areas present across the field survey area and the site boundary, notably around Deanie Lodge, Benachran Lodge and existing Tower 12. These areas are mown and grazed by deer and so have a shorter sward height than the un-improved acid grassland areas but similar species composition.

B2.2 Semi-improved Neutral Grassland

Semi-improved neutral grassland is present within the site boundary surrounding the western extent of the proposed development where the site connects to the proposed Deanie Substation. This habitat type is dominated by grasses. There is evidence of extensive grazing by deer and feral goats.

B4 Improved Grassland

Improved grassland is located within the deer enclosure southeast of Deanie Lodge. Areas of heavily grazed improved grassland occur within the site boundary south of existing Towers 2-5 and to the north and between existing Towers 12-13. This grassland is dominated by species such as perennial ryegrass *Lolium perenne*, timothy grass *Phleum pratense* and Yorkshire fog *Holcus lanatus* were identified as common species along with creeping buttercup *Ranunculus repens* and sheep's sorrel.

B5 Marshy Grassland

A small area of marshy grassland occurs to the south of existing Tower 1, within the site boundary, this habitat type is dominated by Yorkshire fog and soft rush with occasional dominant the vegetation coverage, with pointed spear-moss *Calliergonella cuspidata* and sheep's sorrel around ground level.

C1.1 Continuous Bracken

Dense and continuous bracken is located in many areas across the survey area on free draining slopes, classified as U20 *Pteridium aquilinum-Galium saxatile* community, the *Anthoxanthum odoratum* sub-community U20a. These bracken stands occur over mostly wet dwarf shrub heath. As well as dominant bracken, the understory vegetation includes a limited range of species such as yarrow *Achillea millefolium*, velvet bent *Agrostis canina*, sweet vernal grass *Anthoxanthum odoratum*, heath bedstraw *Galium saxatile*, ribwort plantain *Plantago lanceolata*, tormentil, white clover *Trifolium repens*, sheep's sorrel, and marsh violet.

C1.2 Scattered Bracken

Scattered bracken is located on many sloping areas over wet dwarf shrub heath, classified as U20 *Pteridium aquilinum-Galium saxatile* community *myrtillus-Dicranum scoparium* sub-community U20b.

D1 Dry dwarf shrub heath

Small areas of dry dwarf shrub heath are located on previously disturbed ground above the small lochan in the southeast of the survey area and at the end of an old track above Loch Beannacharan. This habitat is also present to the east of the proposed Deanie substation. This habitat is classified as H10 *Calluna vulgaris-Erica cinerea* heath, the *Racomitrium lanuginosum* sub-community H10b. Common heather *Calluna vulgaris* is common among the bare and rocky ground, along with occasional woolly fringe-moss *Racomitrium lanuginosum*, eyebright *Euphrasia officinalis*, sheep's fescue, petty whin *Genista anglica*, heath milkwort *Polygala serpyllifolia*, tormentil, devil's bit scabious and common gorse *Ulex europeus*.

D2 Wet dwarf shrub heath

Wet dwarf shrub heath is the most common habitat within the field study area and site boundary. All of the D2 habitats are classified as M15 *Trichophorum germanicum-Erica tetralix* wet heath, with the sub-communities differing according to the location and aspect. Constant or most common species within this habitat included common heather, wavy-hair grass, cross-leaved heather *Erica tetralix*, glittering wood-moss *Hylocomium splendens*, purple moor grass, red stemmed feathermoss *Pleurozium schreberi*, tormentil, and deergrass *Trichophorum germanicum*.

M15 *Trichophorum germanicum-Erica tetralix* wet heath, the *Carex panicea* sub-community M15a is located on less sloping and less free-draining peaty soils often at the point where D2 merged into wet modified bog or blanket bog, where water tables are consistently higher than other areas of D2. Red peat moss *Sphagnum capillifolium* is more common in this habitat, and occasional blunt-leaved bog-moss *Sphagnum palustre* and flat-topped bog-moss *Sphagnum fallax* but with lower coverage of Red-stemmed feathermoss. Bog myrtle *Myrica gale*, bog asphodel *Narthecium ossifragum* and devil's-bit scabious are also more common.

M15 *Trichophorum germanicum-Erica tetralix* wet heath, the typical sub-community M15b is located on more free draining areas of D2, either on sloping ground or less deep peat sections. *Sphagnum* mosses are less common on these areas, with bryophytes glittering wood moss and stemmed feathermoss more common. In some areas this habitat also contains a substantial coverage of cross-leaved heather, which was in flower at the time of the survey. These areas are less species diverse than M15a. Some rocky outcrops were also located on this habitat at higher altitude within D2 habitat.

M15 *Trichophorum germanicum-Erica tetralix* wet heath, the *Cladonia* species sub-community M15c is located on more exposed and areas of D2 over thin peaty soils. Vegetation here is typically clipped to an extent by exposure, although not to the extent of montane heath. Bryophytes such as reindeer moss *Cladonia portentosa* are common here, and with *Sphagnum* species rare or completely absent.

M15 *Trichophorum germanicum-Erica tetralix* wet heath, the *Vaccinium myrtillus* sub-community M15d is located on free draining peaty soils, in many cases formed due to heavier grazing pressure from herbivores. Grass species are more common on these areas, with the addition of viviparous sheep's-fescue *Festuca viviparus*, matgrass, and heath rush *Juncus squarrosus*. Red-stemmed feathermoss is most common and *Sphagnum* species rare. Bilberry *Vaccinium myrtillus* is also common.

D4 Montane heath

A small area of montane heath was located on an exposed southwest facing shoulder of the slope above Deanie Substation, classified as H13 *Calluna vulgaris-Cladonia arbuscula* heath. The vegetation here is clipped by the prevailing wind to the extent that heather stems grow horizontally. The soils are thin and rocky, with low coverage of plants. Bryophytes are also common within the stony ground including woolly fringe-moss, reindeer moss, and *C. uncialis*. Other species present include cat's ear *Antennaria dioica*, heath spotted orchid *Dactylorhiza maculate* and Alpine-azalea *Loiseleuria procumbens*. It is possible that this habitat was artificially created during the construction of the hydro scheme, or through repeated muirburn.

E1.6.1 Blanket Bog

Blanket sphagnum bog is present within the field study area and the site boundary. This habitat type occurs within the site boundary near the proposed Deanie Substation area and along the southern side of the track south of existing Towers 10-12. A notable area of this habitat type is also present within the site boundary to the south of existing Towers 13-15, between the existing OHL and the track.

Within these areas, M17 *Trichophorum germanicum-Eriophorum vaginatum* blanket Mire, the *Juncus squarrosus-Rhytidiadelphus loreus* sub-community M17c is the most common community within blanket bog polygons. The water table within these areas of bogs is lower than other areas of bog, and so red-stemmed feathermoss and glittering wood moss are frequent along with acute leaved bog-moss *Sphagnum capillifolium*, and occasional blunt leaved bog-moss and papillose peatmoss *Sphagnum papillosum*.

Areas of bog with higher water tables were identified as M18 *Erica tetralix-Sphagnum papillosum* raised and blanket mire, the *Sphagnum magellanicum-Andromeda polifolia* sub-community M18a. These areas are typically surrounded by M17 or other area of bog or bog flush. A reduced coverage of common heather and almost complete coverage of *Sphagnum* species such as *Sphagnum capillifolium*, *Sphagnum palustre*, *Sphagnum cuspidatum* is common in this community, along with round-leaved sundew *Drosera rotundifolia*, bog asphodel *Narthecium ossifragum* and cotton grass *Eriophorum angustifolium*.

In some sections of both M17, M18, wet modified bog, and occasionally located in areas of M15a wet dwarf shrub heath runnels are formed with either flushed vegetation or bog pool communities. The bog pool community identified is classified as M2 *Sphagnum cuspidatum/fallax* bog pool community, the *Sphagnum fallax* sub-community M2b. *Sphagnum fallax* and/or *Sphagnum cuspidatum* are the dominant bryophytes in these channels/pools, with *Sphagnum capillifolium* along the edges of the features.

E1.7 Wet modified bog

Wet modified bog occurs in small pockets at the western end of the site, south of existing Tower 1. A larger area occurs around existing Towers 10-11, with small areas spreading into the site boundary. This habitat type occurs on areas of deep peat where purple moor grass has become the dominant species, often in lower lying sections where water accumulates or in association with watercourses through areas of deep peat. This can occur on sensitive areas of bog/flush which are subject to muirburn and heavy grazing pressure. The NVC community identified here is M25 *Molinia caerulea-Potentilla erecta* mire, the *Erica tetralix* sub-community M25a. *Molinia caerulea* is the dominant species, along with varying coverage of common heather, cross-leaved heather and tormentil. *Sphagnum* species are typically absent.

E2.1 Acid Flush

Areas of flush are present within the field study area, the site boundary overlaps with an area of this habitat just to the west of existing Turbine 13. This habitat is present within areas of wet heath and wet modified bog, M6 *Carex echinata-Sphagnum fallax/denticulatum* mire, the *Carex echinata* sub-community M6a is located. *Carex echinata*, *Carex panacea* and are common in this habitat, along with common spike-rush *Eleocharis palustris*, field horsetail *Equisetum arvense*, cotton grass, bogbean *Meyanthes trifoliata*, bog myrtle, watercress *Nasturtium officinale*, bog asphodel *Pedicularis sylvatica*, broadleaved pondweed *Potamogeton natans*, *Sphagnum fallax*, *Sphagnum palustre*, and marsh violet.

M6 *Carex echinata-Sphagnum fallax/denticulatum* mire, the *Juncus effusus* sub-community M6c is also located among area of blanket bog, wet modified bog and associated with watercourses. Soft rush is the dominant species here, over a layer of star sedge *Carex echinata*, carnation grass *Carex panicea* and *Sphagnum capillifolium*, *Sphagnum fallax* and *Sphagnum palustre*. Other species present typical of high-water table areas include marsh willowherb *Epilobium palustre*, field horsetail, *Galium palustre*, watercress, small lousewort *Pedicularis sylvatica*, meadow buttercup *Ranunculus acris*, marsh violet, and the bryophyte common haircap *Polytrichum commune*.

An area of acid flush on the shore of Loch Beannacharan was identified as M23 *Juncus effusus/acutiflorus-Galium palustre* rush-pasture, the *Juncus effusus* sub-community M23b. The soils here are less deep and peaty compared to the acid flush communities detailed above. Soft rush is

the dominant species, along with Yorkshire fog, sheep's sorrel and the bryophyte pointed spear-moss *Calliergonella cuspidata*.

Area of flushed vegetation within areas of areas of wet dwarf shrub heath were identified as M25 *Molinia caerulea-Potentilla erecta* mire, the *Erica tetralix* sub-community M25a. This habitat is similar to marshy grassland habitat. These areas are dominated by purple moor grass, most likely areas of M6 which have been dominated by this species. Other species present including pointed spear-moss, common heather, cross-leaved heather, eyebright, soft rush, glittering wood moss, bog myrtle, bog asphodel, tormentil, *Sphagnum fallax*, devil's bit-scabious, deergrass and marsh violet.

G1 Standing Water

Standing water is located within the survey areas in the form of Loch Beannacharan and a small lochan in the southeast of the site.

G2 Watercourses

A number of watercourses are located across the survey area (e.g. Deanie Burn).

J2.5 Wall

A stone dyke made of local stone was located just below Deanie Lodge, intact and in disrepair.

J3.6 Buildings

Buildings located within the survey areas including domestic properties include Deanie Lodge (not occupied, a small cottage next to Deanie Lodge, and Benachran Lodge.

J4 Bare Ground

Bare ground is located next to the metalled road where previous construction activities have been undertaken.

J5 Other habitat

Other habitats present on site include the following:

- Metalled road through glen and parking area near Deanie Substation;
- Old metalled road flooded by the damming of the loch;
- Access tracks;
- A concrete structure base;
- Structure associated with Benachran Lodge sewage system;
- Possible archaeology; and
- Area of damaged D2 through feeding of deer.

6.2.2 UKHab Assessment

Table 6.1 details the habitat types recorded in both Phase 1 and UKHab equivalent classifications.

Table 6.1: Habitat Types Identified within the Field Study Area (Phase 1 Types and UKHab Equivalents)

Phase 1 Habitat Type	UKHab type (equivalent)
Broadleaved woodland - semi natural	Woodland and forest - Lowland mixed deciduous woodland
Broadleaved woodland/ plantation	Woodland and forest - Other woodland; broadleaved

Phase 1 Habitat Type	UKHab type (equivalent)
Coniferous woodland/ semi - natural	Woodland and forest - Native pine woodlands
Coniferous woodland- Plantation	Woodland and forest - Other coniferous woodland
Mixed woodland/semi - natural	Woodland and forest - Lowland mixed deciduous woodland
Mixed woodland plantation	Woodland and forest - Other woodland; mixed
Scrub - dense/continuous	Heathland and shrub - Mixed scrub
Scrub - scattered	Heathland and shrub - Mixed scrub
Broadleaved parkland/scattered trees	Woodland and forest - Wood-pasture and parkland
Coniferous parkland / scattered trees	Woodland and forest - Other coniferous woodland
Mixed parkland - scattered trees	Woodland and forest - Wood-pasture and parkland
Acid grassland - unimproved	Grassland - Upland acid grassland
Acid grassland - semi improved	Grassland - Upland acid grassland
Neutral grassland - semi improved	Grassland - Other neutral grassland
Improved grassland	Grassland - Modified grassland
Marsh/marshy grassland	Wetland - Purple moor grass and rush pastures
Bracken - continuous	Grassland - Bracken
Bracken - scattered	Grassland - Bracken
Dry dwarf shrub heath - acid	Heathland and shrub - Upland heathland
Wet dwarf shrub heath	Heathland and shrub - Upland heathland
Montane heath/dwarf herb	Heathland and shrub - Mountain heaths and willow scrub
Blanket sphagnum bog	Wetland - Blanket bog
Wet modified bog	Wetland - Transition mires and quaking bogs (H7140)
Flush and spring - acid/neutral flush	Wetland - Fens (upland and lowland)
Standing water	Loch
Running water	Rivers and Streams
Other habitat (access tracks)	Urban - Bare ground

6.2.3 Protected Species

Table 6.1.2 details target notes recorded during the Extended Phase 1 habitat survey.

Table 6.1.2: Target Notes

Target Note Number	Grid Reference	Comment
1	NH 32010 39694	Pine marten scat.
2	NH 29634 38918	Potential pine marten den.

Target Note Number	Grid Reference	Comment
3	NH 32326 39826	Water vole habitat along edge of watercourse- burrows present
4	NH 32687 39926	Water vole habitat along edge of watercourse- potential burrows present
5	NH 28896 38586	Bog pool with submerged veg, poached edges from deer grazing
6	NH 29000 38586	Disused mammal burrow entrances
7	NH 28882 38638	Mature tree assessed for BRP (negligible)
8	NH 32456 39578	Slow worm <i>Anguis fragilis</i>

Badger

The results of the badger survey are included in **Appendix 6.2: Confidential Results**.

Otter

The results of the otter survey are included in **Appendix 6.2: Confidential Results**.

Wolverine

Water vole habitat was located around 30 m from the first tower in the east of the cable route (Target Notes 3 and 4, **Figure 6.5: Target Notes**). As well as runs within the water vole habitat, 20-25 burrows were also noted (Target Notes 3 and 4, **Figure 6.5: Target Notes**). The water vole habitat is within the flush area and along a small watercourse running through the grassland, from NH 32312 39839 in the west to NH 32329 39804 along the water course (Target Note 3, **Figure 6.5: Target Notes**). No feeding stations were located.

Red squirrel

No signs of red squirrel were located during the survey.

Pine marten

A pine marten scat was located on the access track leading to Deanie lodge at NH 32010 39694 confirming their presence on site (Target Note 1, **Figure 6.5: Target Notes**). A potential pine marten den was also located in a decaying alder tree next to Beannachran Burn at NH 29634 38918 (Target Note 2, **Figure 6.5: Target Notes**), although no scats were noted in the area. There is also another potential pine marten den in the disused den of another species (Confidential Target Note 27, **Figure 6.6: Confidential Target Notes**) is also a potential pine marten den. Dens/burrows can be used periodically by multiple species and can be used by other species throughout the year.

Beaver

Signs of beaver were identified on an island within Loch Beannacharan, mainly droppings. These observations were outwith the field study area and are not considered further in the assessment.

Bat Species

No trees with BRP were located along the route or within the field study area.

Reptiles

During the 2023 survey visit a slow worm was observed within heather of blanket bog habitat immediately to the west of the proposed CSE Compound Access Track (Target Note 8, **Figure 6.5: Target Notes**).

6.2.4 NVC Survey

Fifteen areas were surveyed to NVC level to assess their potential to be GWDTEs. The first two quadrats were undertaken at grid references NH 32145 39480 and NH 32117 39506. The following species were recorded:

- *Antennaria dioica*
- *Calluna vulgaris*
- *Deschampsia flexuosa*
- *Euphrasia officinalis*
- *Festuca ovina*
- *Genista anglica*
- *Plasmatia glauca*
- *Potentilla erecta*
- *Racomitrium lanuginosum*
- *Spharophorus globosus*
- *Succisa pratensis*
- *Ulex europeus*

This species list indicates that the area is a H10 *Calluna vulgaris-Erica cinerea* heath, with a *Racomitrium lanuginosum* sub-community H10b.

The second group of quadrats were undertaken at grid references NH 29318 38760 and NH 31851 39534, respectively. The following species were recorded:

- *Calluna vulgaris*
- *Carex* sp.
- *Carex echinata*
- *Drosera rotundifolia*
- *Erica tetralix*
- *Eriophorum angustifolium*
- *Molinia caerulea*
- *Myrica gael*
- *Narthecium ossifragum*
- *Potamogeton natans*
- *Sphagnum capillifolium*
- *Sphagnum cuspidatum*
- *Sphagnum fallax*
- *Sphagnum palustre*

This species list indicates that the area is a M2 *Sphagnum cuspidatum/fallax* bog pool community, with a *Sphagnum fallax* sub-community M2b.

The third group of quadrats were undertaken at grid references NH 29309 38868 and NH 39398 38842. The following species were recorded:

- *Calluna vulgaris*
- *Carex echinata*
- *Deschampsia flexuosa*
- *Drosera rotundifolia*
- *Erica tetralix*
- *Eriophorum angustifolium*
- *Juncus bulbosus*
- *Juncus squarossus*
- *Molinia caerulea*
- *Myrica gale*
- *Narthecium ossifragum*
- *Polygala serpyllifolia*
- *Potamogeton natans*
- *Potentilla erecta*
- *Ranunculus acris*
- *Sphagnum capillifolium*
- *Sphagnum fallax*
- *Sphagnum palustre*
- *Succisa pratensis*

This species list indicates that the area is a M6a *Carex echinata – Sphagnum fallax/denticulatum* mire, with a *Carex echinata* sub-community M6a.

The fourth group of quadrats were undertaken at grid references NH 32013 39520, NH 32110 39519, NH 29157 38625, NH 31650 39496, NH 32021 39562 and NH 32114 39584. The following species were recorded:

- *Calluna vulgaris*
- *Carex echinata*
- *Carex panicea*
- *Cladonia portentosa*
- *Deschampsia flexuosa*
- *Drosera rotundifolia*
- *Elocharis palustris*
- *Erica tetralix*
- *Eriophorum angustifolium*
- *Epilobium palustre*
- *Equisetum arvense*
- *Galium palustre*
- *Holcus lanatus*
- *Hylocomium splendens*
- *Juncus bulbosus*
- *Juncus effusus*
- *Lotus coniculatus*
- *Metanthes trifoliata*
- *Molinia caerulea*
- *Myrica gale*
- *Narsturtium officinales*
- *Narthecium ossifragum*
- *Pedicularis sylvatica*
- *Polygala serpyllifolia*
- *Polytrichum commune*
- *Potamogeton natans*
- *Potentilla erecta*
- *Ranunculus acris*
- *Sphagnum capillifolium*
- *Sphagnum fallax*
- *Sphagnum palustre*
- *Succisa pratensis*

This species list indicates that the area is a M6 *Carex echinata*-*Sphagnum fallax/denticulatum* mire, with a *Juncus effusus* sub-community M6c.

The fifth group of quadrats were undertaken at grid references NH 29307 38857 and NH 29419 38854. The following species were recorded:

- *Calluna vulgaris*
- *Carex echinata*
- *Cladonia portentosa*
- *Drosera rotundifolia*
- *Erica tetralix*
- *Festuca ovina*
- *Hjuncus squarrosus*
- *Molinia caerulea*
- *Myrica gael*
- *Narthecium ossifragum*
- *Pleurozium purpurea*
- *Pleurozium schreberi*
- *Potentilla erecta*
- *Sphagnum capillifolium*
- *Sphagnum cuspidatum*
- *Sphagnum fallax*
- *Sphagnum palustre*
- *Trichophorum germanicum*
- *Viola palustre*

This species list indicates that the area is a M15 *Trichophorum germanicum*-*Erica tetralix* wet heath, with a *Carex panicea* sub-community M15a.

The sixth group of quadrats were undertaken at grid references NH 32003 39524, NH 29105 38652, NH 29298 38956, NH 31643 39479 and NH 31596 39575. The following species were recorded:

- *Calluna vulgaris*
- *Carex nigra*

- *Cladonia portentosa*
- *Erica cinerea*
- *Erica tetralix*
- *Deschampsia flexuosa*
- *Festuca ovina*
- *Galium saxatile*
- *Genista sylvestris*
- *Hyloconium splendens*
- *Juncus bulbosus*
- *Juncus squarrosus*
- *Molinia caerulea*
- *Myrica gael*
- *Narthecium ossifragum*
- *Pedicularis sylvatica*
- *Pleurozium schreberi*
- *Potentilla erecta*
- *Pteridium aquilinum*
- *Ranunculus acris*
- *Sphagnum capillifolium*
- *Sphagnum fallax*
- *Sphagnum palustre*
- *Succisa pratensis*
- *Trichophorum germanicum*

This species list indicates that the area is a M15b *Trichophorum cespitosum-Erica tetralix* wet heath.

The seventh group of quadrats were undertaken at grid references NH 29040 38838 and NH 32019 39830. The following species were recorded:

- *Calluna vulgaris*
- *Carex bigelowii*
- *Cladonia portentosa*
- *Dicranum scoparium*
- *Deschampsia flexuosa*
- *Erica cinerea*
- *Erica tetralix*
- *Eriophorum angustifolium*
- *Euphrasia officinalis*
- *Hypnum cupresseforme*
- *Genista anglica*
- *Pleurozia schreberi*
- *Potentilla erecta*

This species list indicates that the area is a M15c *Trichophorum cespitosum-Erica tetralix* wet heath with a *Cladonia* sub-community M15c.

The eighth group of quadrats were undertaken at grid references NH 32117 39520 and NH 29034 38807. The following species were recorded:

- *Calluna vulgaris*
- *Deschampsia flexuosa*
- *Drosera rotundifolia*
- *Erica tetralix*
- *Euphrasia officinalis*
- *Festuca ovina*
- *Festuca viviparus*
- *Juncus squarrosus*
- *Leotodon hibiscus*
- *Molinia caerulea*
- *Nardus stricta*
- *Pleurozia schreberi*
- *Potentilla erecta*
- *Pteridium aquilinum*
- *Succisa pratensis*
- *Trichophorum germanicum*
- *Ulex europeus*
- *Vaccinium myrtillus*

This species list indicates that the area is a M15 *Trichophorum germanicum-Erica tetralix* wet heath, with a *Vaccinium myrtillus* sub-community M15d.

The ninth group of quadrats were undertaken at grid references NH 31972 39512, NH 31861 39531, NH 31457 39228 and NH 32438 39675. The following species were recorded:

- *Betula pubescens*
- *Calluna vulgaris*
- *Erica tetralix*
- *Eriophorum vaginatum*
- *Molinia caerulea*
- *Narthecium ossifragum*
- *Pleurozium schreberi*
- *Potentilla erecta*
- *Sphagnum capillifolium*
- *Sphagnum papillosum*
- *Trichophorum germanicum*
- *Vaccinium myrtilus*

This species list indicates that the area is a M17 *Trichophorum germanicum*-*Eriophorum vaginatum* blanket mire, with a *Juncus squarrosus*-*Rhytidadelphus loreus* sub-community M17c.

The tenth group of quadrats were undertaken at grid reference NH 31730 39465. The following species were recorded:

- *Carex echinata*
- *Calluna vulgaris*
- *Drosera rotundifolia*
- *Erica tetralix*
- *Eriophorum angustifolium*
- *Eriophorum vaginatum*
- *Narthecium ossifragum*
- *Sphagnum capillifolium*
- *Sphagnum cuspidatum*
- *Sphagnum palustre*
- *Trichophorum germanicum*

This species list indicates that the area is a M18 *Erica tetralix*-*Sphagnum papillosum* raised and blanket mire, with a *Sphagnum magellanicum*-*Andromeda polifolia* sub-community M18a.

The eleventh group of quadrats were undertaken at grid reference NH 29719 38882. The following species were recorded:

- *Deschampsia cespitosa*
- *Holcus lanatus*
- *Juncus effusus*
- *Rumex acetosella*

This species list indicates that the area is a M23b *Juncus effusus/acutiflorius* rush-pasture with a *Juncus effusus* sub-community M23b.

The twelfth group of quadrats were undertaken at grid references NH 31956 39519, NH 29349 38864 and NH 29327 38766. The following species were recorded:

- *Calluna vulgaris*
- *Carex echinata*
- *Deschampsia flexuosa*
- *Erica tetralix*
- *Equisetum arvense*
- *Hyloconium splendens*
- *Juncus effusus*
- *Molinia caerulea*
- *Myrica gael*
- *Narthecium ossifragum*
- *Pleurozium schreberi*
- *Potentilla erecta*
- *Sphagnum capillifolium*
- *Sphagnum palustre*
- *Trichophorum germanicum*
- *Vaccinium myrtilus*

This species list indicates that the area is a M25a *Molinia caerulea* - *Potentilla* mire with an *Erica Tetralix* sub-community M25a.

The thirteenth group of quadrats were undertaken at grid references NH 39070 38861 and NH 29094 38721. The following species were recorded:

- *Callerigonella cuspidata*
- *Calluna vulgaris*
- *Cladonia portentosa*
- *Erica tetralix*
- *Euphrasia officinales*
- *Festuca viviparus*
- *Genista anglica*
- *Leotodon hispidus*
- *Molinia caerulea*
- *Narthecium ossifragum*
- *Pleurozium schreberi*
- *Potentilla erecta*
- *Rannunculus acris*
- *Rhytidiadelphus loreus*
- *Sphagnum capillifolium*
- *Sphagnum fallax*
- *Succisa pratensis*
- *Vaccinium myrtylus*
- *Viola palustre*

This species list indicates that the area is a M25a *Molinia caerulea* - *Potentilla* mire with an *Erica Tetralix* sub-community M25a.

The fourteenth group of quadrats were undertaken at grid references NH 39147 39654 and NH 32114 39540. The following species were recorded:

- *Agrostis canina*
- *Deschampsia cespitosa*
- *Deschampsia flexuosa*
- *Euphrasia officinalis*
- *Festuca ovina*
- *Galium saxatile*
- *Genista anglica*
- *Juncus effusus*
- *Holcus lanatus*
- *Molinia caerulea*
- *Nardus stricta*
- *Plantago lancoelata*
- *Pleurozium schreberi*
- *Polytrichum commune*
- *Potentilla erecta*
- *Rannunculus repens*
- *Rhinanthus minor*
- *Rumex acetosella*
- *Sphagnum palustre*
- *Succisa pratensis*
- *Trifolium repens*
- *Vaccinium myrtylus*

This species list indicates that the area is a *Festuca ovina*-*Agrostis capillaris*-*Galium saxatile* grassland, with a *Holcus lanatus*-*Trifolium repens* sub-community U4b.

The fifteenth group of quadrats were undertaken at grid references NH 31957 39529 and NH 29632 38912. The following species were recorded:

- *Achillea milifolium*
- *Galium saxatile*
- *Holcus lanatus*
- *Plantago lancoelata*
- *Polygala serpyllifolia*

- *Potentilla erecta*
- *Pteridium aquilinum*
- *Ranunculus repens*
- *Rumex acetosella*
- *Trifolium repens*
- *Viola palustris*

This species list indicates that the area is a U20 *Pteridium aquilinum-Galium saxatile* community, with an *Anthoxanthum odoratum* sub-community U20a.

6.2.5 Breeding Bird Survey

Table 6.1.3 provides details of the breeding birds recorded during surveys that are green-listed under the Birds of Conservation Concern (BoCC)²³. Golden plover *Pluvialis apricaria*, Grey heron *Ardea cinerea* and swallow *Hirundo rustica* were recorded but did not show breeding activity. Red and amber-listed species are detailed in Section 6: Ecology and Ornithology.

Table 6.1.3: Breeding Birds

BTO Code	Species	Breeding Territories			Birds of Conservation Concern (BOCC) Status ²⁴
		Possible	Probable	Confirmed	
BT	Blue tit <i>Cyanistes caeruleus</i>			2	Green
CH	Chaffinch <i>Fringilla coelebs</i>	1		2	Green
CT	Coal tit <i>Periparus ater</i>	1			Green
GT	Great tit <i>Parus major</i>	1			Green
PW	Pied wagtail <i>Motacilla alba</i>	2		1	Green
SC	Stonechat <i>Saxicola rubicola</i>		1	2	Green
W.	Wheatear <i>Oenanthe oenanthe</i>	1			Green

6.2.6 Breeding Raptor Surveys

VP surveys were carried out in April and July 2020. Golden eagle activity was recorded in April, with no activity recorded in July. The detailed results of golden eagle surveys are confidential and can be found in Confidential **Technical Appendix 6.3: Habitat Regulations Appraisal and Appropriate Assessment**, accompanied by Confidential **Figure 6.9: Breeding Raptor Survey Results**. Given the protected status of this species and history of persecution, this information cannot be made available to the public.

The Highlands Raptor Study Group (HRSG) has also provided further details regarding golden eagle activity in the area up to 2023, see **Appendix 6.3: Habitat Regulations Appraisal and Appropriate Assessment**.

²³ Eaton, M., Aebischer, N., Brown, A., Hearn, R., Lock, L., Musgrove, A., Noble, D., Stroud, D. and Gregory, R. (2015) Birds of Conservation Concern 4: the population status of birds in the UK, Channel Islands and Isle of Man. British Birds 108 pp. 708–746.

²⁴ Ibid.

7. APPENDIX 7.1 CULTURAL HERITAGE GAZETTEER

Table 7.1.1: Cultural Heritage Gazetteer

Asset Ref	Asset name	Asset Type	HER Ref	Easting	Northing	Sources	Description	Asset Sensitivity
1	Loch Beannacharan, Deanie Power Station	Power Station	MHG 36236	229200	838780	HER; Field Survey	<p>The HER entry records a hydro-electric power station comprising:</p> <ul style="list-style-type: none"> transformer compound (MHG 47005); Mhuillidh temporary camp site; and tailrace outfall. <p>Field Survey found that this is a modern, 20th century hydro-electric power station as described.</p>	Low
2	Loch Beannacharan, Deanie Power Station, Transformer Compound	Electricity Sub Station	MHG 47005	229244	838800	HER; Field Survey	<p>The HER entry records 'Loch Beannacharan, Deanie Power Station, Transformer Compound' and provides no further details.</p> <p>Field Survey found that this is a modern, 20th century electricity substation compound.</p>	Low
3	Loch Beannacharan, Lochanside	House	MHG 36390	229740	839060	HER; Field Survey	<p>The HER entry records 'Staff Housing, Affric Hydro-electric Scheme; Glen Affric' and provides no further details.</p> <p>Field Survey found that Lochanside Lodge is modern, 20th century housing occupied as private residential dwellings.</p>	Low
4(a-p)	Lochanside; 'Bencharn'	Farm / farming township	MHG 13243	229700	839000	HER; Historic Maps; Aerial Photography; Field Survey	<p>The HER entry records that the site of a large farm called 'Bencharn' with at least 18 structures is shown on May's Estate map (1758) along with 16 acres of arable (source: Wordsworth, undated).</p> <p>The farm named as 'Bencharn', is shown on Roy's 'Military Survey of Scotland' map (1747-55) as group of buildings and cultivation on the east side of the Beannachran Burn. On the Ordnance Survey 1st edition map (1876, Inverness-shire (Mainland), Sheet XVI (includes: Kilmorack)), the location is shown as woodland and there are no buildings depicted.</p> <p>No remains of earlier buildings are visible on modern aerial photography (Google Earth), but a pattern of cultivation is visible on the area of ground between road and loch shore south-east of Lochanside Lodge.</p> <p>Field survey found the remains of two buildings, and enclosure, a number of grass-covered field clearance cairns, other spreads of bare stone along terrace edges, a short section of a possible head-dyke marking the boundary between the low ground and the rising hillside behind Lochanside Lodge, and a short section of turf and stone bank marking the eastern extent of the area of possible form cultivation. The possible cultivation, visibly on aerial photography, is barely detectable on the ground. The individual features identified are:</p> <ul style="list-style-type: none"> 4a (229870, 839090): remains of a small, east-west aligned building, 7 m long by 3.5 m wide defined by angular stone walling footings 0.6 m wide and 0.4 m high, abutting a large bedrock outcrop. Partly damaged at its east end by construction of electricity pole (No 8). 4b (299000, 839020): remains of a small, north-west to south-east aligned, sub-rectangular/oval building, measuring 6 m by 4 m, with an entrance at the south-east end, defined by drystone wall footings 0.6 m wide by 0.4 m high. 4c (298900, 839030): remains of an east-west aligned enclosure measuring 10 m by 5 m. Defined by a turf and stone bank, 0.6 m wide by 0.3 m high, with a ditch around its outer side. 4d (229770, 839080): remains of a sinuous, linear possible head-dyke, 150 m long by 1.5 m wide by up to 1.2 m high. Runs from watercourse west of Lochanside Lodge to watercourse above modern kennel enclosure. 4e (230130, 839130): remains of turf and stone field bank, measuring 30 long north-south by 1 m wide by 0.4 m high, demarcating eastern extent of cultivated ground and terminating at modern road. 4f (230550, 839270): clearance cairn measuring 3 m diameter by 0.9 m high. 4g (230480, 839250): clearance cairn measuring 2 m diameter by 0.9 m high. 4h (230450, 839230): clearance cairn measuring 3 m diameter by 0.9 m high. 4i (230370, 839190): clearance cairn measuring 2 m diameter by 0.6 m high. 4j (230260, 839150): conical clearance cairn measuring 3 m diameter by 1 m high. 4k (230130, 839120): clearance cairn measuring 3 m by 2 m by 0.5 m high. 4l (230060, 839090): clearance cairn measuring 2 m by 1.5 m by 0.5 m high. 4m (229910, 839030): clearance cairn measuring 5 m by 2 m by 0.6 m high, lies to east of enclosure (c). 	Low

Asset Ref	Asset name	Asset Type	HER Ref	Easting	Northing	Sources	Description	Asset Sensitivity
							<ul style="list-style-type: none"> • 4n (229850, 839040): clearance cairn measuring 2 m by 1.5 m by 0.5 m high. • 4o (229780, 839010): clearance cairn measuring 3 m diameter by 0.4 m high. • 4p (229670, 838960): clearance cairn measuring 2 m diameter by 0.9 m high. 	
5	Cambussorray	Enclosure	MHG 13244	229400	838790	HER; Historic Maps; Aerial Photography; Field Survey	<p>The HER entry records that an enclosure shown on the 1876 and 1903 maps (source: Wordsworth, undated)</p> <p>The Ordnance Survey 1st edition map (1876, Inverness-shire (Mainland), Sheet XVI (includes: Kilmorack)) shows a rectangular enclosure between the road and the loch shore; defined by walls on three sides (north, west and east).</p> <p>Partial traces of north and west enclosure banks are visible on modern aerial photography (Google Earth).</p> <p>Field survey found no remains of the enclosure.</p>	Negligible
6	n/a	Quarry	n/a	230000	839060	Field Survey	Field survey recorded a large quarry measuring 30 m in diameter by up to 1.5 m deep.	Negligible
7	n/a	Quarry	n/a	230350	839170	Field Survey	Field survey recorded a large quarry measuring 15 m by 10 m by up to 1.2 m deep.	Negligible
8	n/a	Clearance Cairn (possible)	n/a	231050	839460	Field Survey	Field survey recorded and isolated single pile of bare, rounded stones in heather cover on a steep hillside. The possible clearance cairn measures 3 m by 2 m and is 0.4 m high. There is no evidence of any settlement or field system nearby.	Negligible
9	n/a	Building	n/a	231770	839650	Field Survey	Field survey recorded the remains of a building in an area of rough pasture, west of Deanie Lodge. The building, measuring 11 m east to west by 4 m wide is defined by wall footings 0.6 m wide and 0.3 m high.	Low
10	n/a	Quarry	n/a	231910	839720	Field Survey	Field survey recorded a quarry pit within the Deanie Lodge field system. It measures 7 m by 5 m by 0.7 m deep and is open at the south-east end.	Negligible
11	Deanie Lodge	Farm; Enclosure	MHG 13240	231900	839900	HER; Historic Maps; Aerial Photography; Field Survey	<p>The HER entry records that the modern farm lies directly over the farm of 'Deanie' surveyed by May (1758). The farm had 29 acres of arable and six buildings. The enclosures, on both sides of the Deanie Burn, show considerable variation on the various Ordnance Survey plans (source: Wordsworth, undated).</p> <p>Deanie Lodge is shown on the Ordnance Survey 1st edition map (1876, Inverness-shire (Mainland), Sheet XVI (includes: Kilmorack)) as a farmhouse and L-shaped steading range with two additional buildings to the north-west and enclosed and unenclosed fields either side of the Deanie Burn. The farmstead (un-named) is shown on Roy's 'Military Survey of Scotland' map (1747-55) as group of buildings and cultivation.</p> <p>The farm buildings and enclosed fields are visible on modern aerial photography (Google Earth).</p> <p>Field survey found that the farm layout is as shown on the Ordnance Survey maps. The farm buildings are still standing and in good order but unoccupied.</p>	Low
12	Deanie	Hut Circle	MHG 4396	232240	839570	HER; Historic Maps; Aerial Photography; Field Survey	<p>The HER records that a turf-covered round house lies on a terrace above the East Deanie Burn. It measures 10 m in diameter from wall top to wall top spread to 2.5 m wide and has a height of 0.8 m. The entrance, 1-1.5 m wide, is in the south-east quadrant. The area around the hut circle has been improved and there are no surviving traces of clearance cairns or field dykes (source: Spencer-Nairn and Harden, 1989).</p> <p>The hut circle is visible on modern aerial photography (Google Earth) as a circular, turf banked feature.</p> <p>Field survey found that the hut circle is well-preserved and is as described in the HER record.</p>	Medium
13	Taigh Aonarach	Rig and Furrow	n/a	232500	839765	Historic Maps; Aerial Photography	<p>An area of north-south orientated rig and furrow is visible on modern aerial photography (Google Earth) at Taigh Aonarach.</p> <p>The area is not enclosed on historic maps and is shown bounded to the east and west by small watercourses.</p> <p>Field survey recorded the rig in good condition, measuring 4.5 m in wavelength and 0.4 m in height, covering an area of approximately 0.2 ha. An east-west orientated head-dyke bounds (15a) the area to the north and further field banks (15) lie to the west and southwest. The cultivation does not survive closer to the confluence of the watercourses, to the south.</p>	Low
14	Craig a'Choin Dubh	Structure	MHG 13239	232610	839510	HER; Historic Maps; Aerial Photography; Field Survey	<p>The HER entry records a structure lying to the south of Craig a'Choin Dubh, potentially linked to the placename 'Tigh Aonarach' on historic maps.</p> <p>No structures are depicted at the location on historic maps. A square building is shown on the 1971 Ordnance Survey map.</p> <p>Modern aerial photography (Google Earth) shows a modern compound transmission infrastructure at the location.</p> <p>Field survey confirmed that the location is occupied by a small transformer compound and the surrounding area has been landscaped and resurfaced with asphalt. No structures or features survive in the vicinity.</p>	Negligible

Asset Ref	Asset name	Asset Type	HER Ref	Easting	Northing	Sources	Description	Asset Sensitivity
15(a-d)	Taigh Aonarach	Field banks	n/a	232410	839808	Historic Maps; Aerial Photography; Field Survey	<p>Unenclosed fields to the east of Deanie farmstead are depicted on May's map (1758).</p> <p>Field banks extending from the eastern boundary of the Deanie field system (17) are visible on modern aerial photography (Google Earth), forming a head-dyke for rig and furrow cultivation (13) to the east.</p> <p>Field survey recorded four turf-covered stone dykes orientated east-west and northwest-southeast:</p> <ul style="list-style-type: none"> • 15a: Curvilinear head-dyke extending from the north of the cultivation furrows to abut the Deanie field boundary (17a) to the west, measuring 1.6 m wide and 0.6 m high. • 15b: Linear rubble bank to the southwest of the cultivation, across a watercourse, measuring 42 m by 0.4 m high and 1 m wide. • 15c: A branch of the head-dyke, running northwest from the given NGR to abuts the field boundary (17a). • 15d: Linear bank dividing the area between the Deanie field boundary (17a) and the head-dyke (15a and 15c) into two compartments. 	Low
16	Taigh Aonarach	Structure	n/a	232555	839760	Field Survey	<p>Field survey recorded the turf-covered stone footings of a rectangular structure to the east of rig and furrow cultivation (13). The structure measures 10 m northwest-southeast by 6 m, with an entrance to the southwest in walls 1 m thick and 0.4 m high. The structure lies in the east of an area of semi-improved ground, bounded by a small watercourse to the north and west and by rough pasture to the south.</p>	Low
17(a-c)	Deanie	Field system	n/a	232345	839815	HER; Historic Maps; Aerial Photography; Field Survey	<p>A system of enclosed and unenclosed fields is depicted on May's map (1758) to the east and west of the East Deanie Burn, at Deanie Lodge Farm. The fields boundaries are shown on the Ordnance Survey 1st edition map (1876, Inverness-shire (Mainland), Sheet XVI (includes: Kilmorack)).</p> <p>Modern aerial photography (Google Earth) shows that the field system has been modified since the 19th century to accommodate a deer farm, with fencing built atop the existing field banks to the east of the burn. The eastern field boundary is visible on the eastern exterior of the deer farm.</p> <p>Field survey recorded three elements of the field system as depicted on historic maps:</p> <ul style="list-style-type: none"> • 17a: Eastern field boundary comprising a curvilinear turf-covered field wall, consisting of rough courses and orientated northwest-southeast. It measures 2 m wide and up to 0.7 m high, extending from NGR: 232275, 839900 to 232420, 839687, after which it runs south as a low intermittent bank across marshy ground to a modern livestock pen. • 17b: A curvilinear bank to the south of the deer farm extending southeast-northwest from the livestock pen to NGR: 232310, 839560, continuing north-northwest beneath a modern fence throughout the centre of the farm. • 17c: A probable clearance cairn comprising a circular mound of mid-sized stone heaped atop a bedrock outcrop within the deer farm, at NGR: 232232, 839800. 2.5 m in diameter and 0.6 m high. 	Low
18	n/a	Quarry	n/a	232567	839627	Field Survey	<p>Field survey recorded a small quarry scoop atop a semi-improved terrace at Taigh Aonarach surrounded by frequent bedrock outcrops. The quarry measures 12 m in diameter and 1.8 m deep, containing occasional scrap metal refuse.</p>	Negligible
19	Deanie Power Station	Concrete platform	n/a	228918	838635	Aerial Photography; Field Survey	<p>Field survey recorded a rectangular concrete platform up to 0.4 m high, measuring 15 m east-west by 10 m, to the south of the road, southwest of Deanie Power Station. No further features were observed surrounding the platform, which may have supported a building associated with the construction of nearby hydro-electric infrastructure.</p> <p>The platform is visible on modern aerial photography (Google Earth).</p>	Low
20	Deanie Power Station	Concrete mounts	n/a	228996	838668	Aerial Photography; Field Survey	<p>Field survey recorded a rectangular concrete platform with eight narrow, rectangular raised mounts, each measuring 3 m east-west by 1.1 m, in two rows of six and flanked by a single mount to the north and south. The platform itself measures 21 m east-west by 6 m, raised 0.5 m high on the north side and level with the road to the south. Each mount is raised 0.3 m high, with a 0.5 m wide extension along the interior side and features 2-4 pairs of metal pins, probably for mounting machinery.</p> <p>The platform is visible on modern aerial photography (Google Earth).</p>	Low

7. TECHNICAL APPENDIX 7.2: TABLES OF MITIGATION MEASURES

Table 7.2.1: Surviving (visible) Remains - Positive Action required to Avoid Sites

Site Ref	Site Name	Site status	Sensitivity	Character	Potential Effect	Mitigation	Residual Effect
Cable Installation Deanie Substation to Deanie Lodge (Tower 13 sealing end)							
4b	Benchairn, building	Earthworks	Low	Sub-rectangular/oval building, measuring 6 m by 4 m, with an entrance at the south-east end, defined by drystone wall footings 0.6 m wide by 0.4 m high.	Lies in pasture grassland to south side of existing road. Potential direct impact during cable installation.	Mark off and avoid during cable installation work. Full excavation if it cannot be avoided.	No effect. Minor (preservation by record).
4c	Benchairn, enclosure	Earthworks	Low	Enclosure measuring 10 m by 5 m. Defined by a turf and stone bank, 0.6 m wide by 0.3 m high, with a ditch around its outer side	Lies in pasture grassland to south side of existing road. Potential direct impact during cable installation.	Mark off and avoid during cable installation work. Full excavation if it cannot be avoided.	No effect. Minor (preservation by record).
4e	Benchairn, Field bank	Earthworks	Low	Turf and stone linear bank measuring 30 m north-south by 1 m wide and 0.4 m high.	Lies adjacent to the north side of existing road. Potential direct impact during cable installation.	Mark off and avoid during cable installation work. Excavation of cross-section through bank if it cannot be avoided.	No effect. Negligible effect.
4f	Benchairn, Clearance cairn	Stone heap	Low	Turf covered cairn measuring 3 m diameter by 0.9 m high.	Lies adjacent to south side of existing road. Potential direct impact during cable installation.	Mark off and avoid during cable installation work. Quarter section excavation and recording if it cannot be avoided.	No effect. Minor (preservation by record).

Site Ref	Site Name	Site status	Sensitivity	Character	Potential Effect	Mitigation	Residual Effect
4g	Bencharn, Clearance cairn	Stone heap	Low	Turf covered cairn measuring 2 m diameter by 0.9 m high.	Lies adjacent to south side of existing road. Potential direct impact during cable installation.	Mark off and avoid during cable installation work. Quarter section excavation and recording if it cannot be avoided.	No effect. Minor (preservation by record).
4l	Bencharn, Clearance cairn	Stone heap	Low	Turf covered cairn measuring 2 m by 1.5 m by 0.5 m high.	Lies adjacent to south side of existing road. Potential direct impact during cable installation.	Mark off and avoid during cable installation work. Quarter section excavation and recording if it cannot be avoided.	No effect. Minor (preservation by record).
4m	Bencharn, Clearance cairn	Stone heap	Low	Turf covered cairn measuring 5 m by 2 m by 0.6 m high.	Lies in pasture grassland to south side of existing road. Potential direct impact during cable installation.	Mark off and avoid during cable installation work. Quarter section excavation and recording if it cannot be avoided.	No effect. Minor (preservation by record).
4o	Bencharn, Clearance cairn	Stone heap	Low	Turf covered cairn measuring 5 m by 3 m by 0.4 m high.	Lies in pasture grassland to south side of existing road. Potential direct impact during cable installation.	Mark off and avoid during cable installation work. Quarter section excavation and recording if it cannot be avoided.	No effect. Minor (preservation by record).
4p	Bencharn, Clearance cairn	Stone heap	Low	Turf covered cairn measuring 2m in diameter by 0.9 m high.	Lies in pasture grassland to south side of existing road.	Mark off and avoid during cable installation work.	No effect. Minor (preservation by record).

Site Ref	Site Name	Site status	Sensitivity	Character	Potential Effect	Mitigation	Residual Effect
					Potential direct impact during cable installation.	Quarter section excavation and recording if it cannot be avoided.	
15b	Taigh Aonarach, Field bank	Earthworks	Low	Turf and rubble bank measuring 42 m by 1 m wide and 0.4 m high.	Lies 10 m to south side of proposed CSE access track. Potential direct impact during track construction.	Mark off and avoid during track and compound construction work. Excavation of cross-section through bank if it cannot be avoided.	No effect. Negligible effect.
15c	Taigh Aonarach, Field bank	Earthworks	Low	Turf and rubble bank measuring 55 m by 1.6 m wide and 0.6 m high.	Lies 10 m to northeast of proposed CSE access track. Potential direct impact during track construction.	Mark off and avoid during track and compound construction work. Excavation of cross-section through bank if it cannot be avoided.	No effect. Negligible effect.
19	Deanie Power Station, Concrete platform	Modern surface	Low	Rectangular concrete platform measuring 15 m east-west by 10 m and 0.4 m high.	Lies within 15 m of projected line of cable trench. Potential direct impact during cable installation.	Mark off and avoid during cable installation work.	No effect.
11 kV OHL Installation Deanie Substation to Deanie Power Station							
20	Deanie Power Station, Concrete mounts	Modern surface	Low	Rectangular concrete platform measuring 21 m east-west by 6 m and 0.5 m high.	Lies adjacent to the north side of existing road. Potential direct impact during OHL installation.	Mark off and avoid during cable installation work.	No effect.

Site Ref	Site Name	Site status	Sensitivity	Character	Potential Effect	Mitigation	Residual Effect
OHL Dismantlement							
4d	Bencharn, head dyke	Earthwork	Low	Sinuuous, linear possible head-dyke, 150 m long by 1.5 m wide by up to 1.2 m high. Runs from watercourse west of Lochanside Lodge to watercourse above modern kennel enclosure.	Runs roughly parallel to existing OHL, on south side. Potential direct impact from vehicle movements during decommissioning / removal of OHL.	Mark off and avoid during dismantlement works.	No effect.
8	Clearance Cairn (possible)	Stone heap	Negligible	Loose pile of bare stone 3 m by 2 m and 0.4 m high.	Lies 18 m north of OHL between tower 8 and tower 9. Potential direct impact from vehicle movements during decommissioning / removal of OHL.	Mark off and avoid during dismantlement works.	No effect.
9	Building	Earthworks	Low	Remains of a building, measuring 11 m east to west by 4 m wide, defined by wall footings 0.6 m wide and 0.3 m high	Lies 15 m south of existing OHL, between tower 11 and tower 12. Possible direct impact on upstanding remains.	Mark off and avoid during dismantlement works.	No effect.

Table 7.2.2: Surviving (visible) and Possible Remains - mitigation required

Site Ref	Site name	Site status	Sensitivity	Character	Potential effect	Mitigation	Residual effect
Cable Installation Deanie Substation to Deanie Lodge (Tower 13 sealing end)							
4(a-p) and 5	Bencharn, Farming township and	Potential buried archaeology	Low	Low to moderate potential for buried archaeological remains to be uncovered in the vicinity of	Lies along the projected line of the cable trench. Direct impact during cable installation.	Archaeological watching brief.	Minor (preservation by record).

Site Ref	Site name	Site status	Sensitivity	Character	Potential effect	Mitigation	Residual effect
	Cambussorray, Enclosure			the post-medieval farmstead and enclosure.			
4e	Benchairn, Field bank	Earthworks	Low	Turf and stone linear bank measuring 30 m north-south by 1 m wide and 0.4 m high.	Lies adjacent to the north side of existing road. Potential direct impact during cable installation.	Excavation of cross-section through bank if it cannot be avoided.	No effect. Negligible effect.
4h	Bencharn, Clearance cairn	Stone heap	Low	Turf covered cairn measuring 3 m diameter by 0.9 m high.	Lies adjacent to south side of existing road within UGC easement. Direct impact during cable installation.	Quarter section excavation and recording.	Minor (preservation by record).
4i	Bencharn, Clearance cairn	Stone heap	Low	Turf covered cairn measuring 2 m diameter by 0.6 m high.	Lies along projected line of cable trench. Direct impact during cable installation.	Quarter section excavation and recording.	Minor (preservation by record).
4j	Bencharn, Clearance cairn	Stone heap	Low	Turf covered cairn measuring 3 m diameter by 1 m high.	Lies along projected line of cable trench. Direct impact during cable installation.	Quarter section excavation and recording.	Minor (preservation by record).
4k	Bencharn, Clearance cairn	Stone heap	Low	Turf covered cairn measuring 3 m by 2 m by 0.5 m high.	Lies adjacent to south side of existing road within UGC easement. Direct impact during cable installation.	Quarter section excavation and recording.	Minor (preservation by record).
13, 15(a-d) and 17(a-c)	Taigh Aonarach, Structure, Field banks and	Earthworks	Low	Preserved rig and furrow cultivation marks (13) and turf covered rubble banks (15a, 15d)	Lie along proposed CSE access track and within CSE compound. Direct impact during track and compound construction.	Archaeological watching brief.	Minor (preservation by record).

Site Ref	Site name	Site status	Sensitivity	Character	Potential effect	Mitigation	Residual effect
	Deanie, Field system			and 17a) measuring up to 0.7 m high.			
17c	Deanie, Clearance cairn	Stone heap	Negligible	Loose stone cairn measuring 2.5 m diameter by 0.6 m high.	Lies within 10 m of projected line of cable alignment. Direct impact during cable installation.	Quarter section excavation and recording.	Negligible (preservation by record).
OHL Dismantlement Routes							
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Table 7.2.3: Surviving (visible) and Possible Remains - no Action required

Site Ref	Site name	Site Status	Sensitivity	Character	Potential Effect	Mitigation	Residual Effect
Cable Installation Deanie Substation to Deanie Lodge (Tower 13 sealing end)							
6	Quarry	Earthworks	Negligible	Large quarry 30 m in diameter	Lies within UGC easement. Direct impact during cable installation.	None required.	Negligible.
7	Quarry	Earthworks	Negligible	Quarry scoops over an area measuring 15 m by 10 m by up to 1.2 m deep.	Lies along projected line of cable trench. Direct impact during cable installation.	None required.	Negligible.
OHL Dismantlement Route							
2	Deanie Power Station,	Standing (modern)	Low	20th century hydro-electric power station transformer compound (MHG 47005)	Forms the connection point for the underground cable connection.	None required.	Negligible.

Site Ref	Site name	Site Status	Sensitivity	Character	Potential Effect	Mitigation	Residual Effect
	Transformer Compound	electricity substation			Direct impact during OHL connection work.		
10	Quarry	Earthworks	Negligible	Quarry pit, 7 m by 5 m by 0.7 m deep.	Lies within 40 m west of tower 12. Potential direct impact from vehicle movements during decommissioning / removal of tower 12.	None required.	Negligible.

APPENDIX 8.1: WATERCOURSE CROSSING ASSESSMENT

8.1 Introduction

8.1.1 Background

As part of the Environmental Assessment (EA) process, it was identified that a number of watercourses which discharge into Loch Beannacharan, the East Deanie Burn and the River Farrar which are part of the Glen Strathfarrar Site of Special Scientific Interest (SSSI), would be crossed by the Underground Cable (UGC) route and during removal of the existing Overhead Line (OHL). This Technical Appendix has been produced in order to meet the requirements of the Water Framework Directive (WFD) as set out below.

The purpose of this document is to provide a conceptual assessment of watercourse crossings and to outline the strategic approach to proposed crossings. It does not comment on the detailed engineering design. The Principal Contractor (the Contractor) will have overall responsibility for designing water crossings, for the production of a final Watercourse Crossing Plan and for compliance with Controlled Activity Regulations¹ (CAR) regulations and the Scottish Environment Protection Agency's (SEPA) good practice guidance.

Field surveys of likely watercourse crossings, based on the proposed alignment of the Proposed Development have been used to determine the bed width, channel depth and bed substrate in order to identify the likely level of authorisation required. This Technical Appendix also sets out the general principles of design which the Contractor will follow in order to minimise changes to the hydrological regime and reduce any potential impacts on river morphology and aquatic ecology.

8.1.2 Legislation

The principal legislation with regard to the water environment is provided by the WFD which aims to protect and enhance the quality of surface freshwater (including lakes, rivers and streams), groundwater, Groundwater Dependent Terrestrial Ecosystems (GWDTEs), estuaries and coastal waters.

The key objectives of the WFD relevant to this assessment are:

- To prevent deterioration and enhance aquatic ecosystems; and
- To establish a framework of protection of surface freshwater and groundwater.

The WFD resulted in the Water Environment and Water Services (Scotland) Act 2003 (WEWS Act²), which gives Scottish Ministers powers to introduce regulatory controls over water activities, in order to protect, improve and promote sustainable use of Scotland's water environment.

The Scottish Environmental Protection Agency (SEPA) is the public body responsible for environmental protection in Scotland under both the Environment Act 1995 and the WEWS Act. Many SEPA policies relating to water are now delivered by the regulatory methods produced to implement the Water Environment (Controlled Activities) (Scotland) Regulations 2011 as amended (the 'CAR Regulations'). The CAR Regulations mean that it is an offence to undertake the following activities with regard to watercourse crossings without an authorisation under the CAR Regulations:

- Discharges to all wetlands, surface waters and groundwaters (replacing the Control of Pollution Act 1974);
- Impoundments (dams and weirs) of rivers, lochs, wetlands and transitional waters; and

¹ SEPA (2023) The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended): A Practical Guide. Version 9.3 June 2023 [online] Available at: <https://www.sepa.org.uk/media/dw5de0kh/car-a-practical-guide.pdf> [Accessed: July 2024]

² Water Environment and Water Services (Scotland) Act 2003. <https://www.legislation.gov.uk/asp/2003/3/contents> [Accessed: July 2024].

- Undertaking of engineering works in inland waters and wetlands.

Any proposed access track water crossings would therefore require authorisation under the CAR Regulations. This assessment takes into account guidance provided by SEPA with regards to the implementation of CAR.

The SEPA Position Statement on Culverting of Watercourses³ (WAT-PS-06-02) and Supporting Guidance on Sediment Management⁴ (WAT-SG-78) have also been taken into account within this assessment, along with the supporting guidance provided in the River Crossings Good Practice Guide⁵.

8.2 Identification of Watercourse Crossing Locations

Field surveys of potential watercourse crossings were carried out along the route of the Proposed Development. The surveys were completed by Briony McIntosh who has four years hydrology consulting experience, and Scott Jamieson of Ramboll on the 15th September 2020 and further Surveying was carried out by Scott Jamieson and Tom Cusworth of Ramboll on the 4th May 2023.

A total of 17 potential watercourse crossings beneath the proposed UGC were identified and are presented in **Annex 1**. Three (3) crossings are required for the access track to the CSE location. As well as watercourses shown on Ordnance Survey mapping, several smaller watercourses were identified. In most cases a number of small channels flowed down the hillside north of the Glen Strathfarrar Road, converged and were conveyed beneath the road and to the south down to Loch Beannacharan in a single channel.

Photographs of the identified locations are presented in **Annex 2**. The majority of the watercourses are small hillside channels which at the time of the visit were in places overgrown, therefore the channels are not always clear in the photos. The average channel width and depth, as well as the bed substrate material are presented below.

Table 8.1: Watercourse Crossing Identification

Reference	Description	Width (m)	Depth (m)	Bed Substrate
WC1	Existing crossing	0.5	0.02	Peat, silt
WC2	Unnamed burn	0.2	0.05	Cobble
WC3	Beanachran Burn	1.0	0.2	Cobble
WC4	Unnamed burn	0.4	0.1	Cobble
WC5	Unnamed burn	0.3	0.05	Cobble
WC6	Unnamed burn	0.15	0.15	Silt, cobble
WC7	Unnamed burn	0.2	0.1	Cobble
WC8	Unnamed burn	0.1	0.1	Silt, cobble
WC9	Unnamed burn	0.15	0.05	Gravel, pebble
WC10	Fascamhodan Burn	1.2	0.07	Cobble
WC11	Unnamed burn	0.3	0.05	Cobble

³ SEPA (2015) Position Statement to support the implementation of the Water Environment (Controlled Activities) (Scotland) Regulations 2001: WAT-PS-06-02: Culverting of Watercourses – Position Statement and Supporting Guidance. June 2015. Version 2.0. [online] Available at: https://www.sepa.org.uk/media/150919/wat_ps_06_02.pdf [Accessed: July 2024].

⁴ SEPA (2012) Supporting Guidance (WAT-SG-78). Sediment Management Authorisation (replacing WAT-PS_06-03). Version 1. [online] Available at: <https://www.sepa.org.uk/media/151062/wat-sg-78.pdf> [Accessed: July 2024].

⁵ SEPA (2010) Engineering in the water environment: good practice guide: River crossings. Second edition, November 2010 [online] Available at: <https://www.sepa.org.uk/media/151036/wat-sg-25.pdf> [Accessed: July 2024]

Reference	Description	Width (m)	Depth (m)	Bed Substrate
WC12	Unnamed burn	1.2	0.05	Cobble, boulder
WC13	Unnamed burn (bog, limited defined channel)	0.2	0.05	Peat, silt
WC14	Tributary of Allt an Reidhleinn	0.25	0.25	Cobble
WC15	East Deanie Burn	2.2	0.2	Cobble, boulder
WC16	Unnamed drain	0.5	0.05	Gravel Pebble
WC17	Unnamed burn	0.4	0.2	Bedrock, boulder, cobble, sand, silt
TC1	Minor flow path	0.2	0.3	Peat/silt
TC2	Minor flow path	0.3	0.2	Sand/silt
TC3	Unnamed burn	0.5	0.3	Gravel/Pebble
*CSE Compound location, proposed stream diversion to avoid culverting				

8.3 Potential Type of Crossings

The watercourse characteristics, both physical and ecological, will be matched to the most appropriate crossing type as part of detailed design.

8.3.1 OHL

The OHL would not be anticipated to interact directly with any watercourses and therefore not likely to require further mitigation.

8.3.2 UGC

The underground cable route will interact directly with a number of watercourses which will be crossed. For the cable trench, smaller watercourses would be crossed by excavating a trench whilst the channel is dry using cofferdams with bypass pumps.

8.3.3 Access Tracks

The potential crossing types for access tracks, if required, which could be considered at detailed design stage are described below:

- Single span structures – recommended where there is a need to minimise disturbance to the bank and bed of the watercourse. Where it is possible to set back abutments from the watercourse, it should be possible to maintain bank habitats under the crossing. Taking in to account the maximum width of crossings to be undertaken on the proposed development, it is not anticipated that in-stream supports will be necessary at any crossings.
- Bottomless Box/Arches⁶ - can be used where there are watercourses narrower than those appropriate for bridge construction, but which have a requirement to provide mammal and/or fish passage and ensure sufficient hydraulic capacity during peak flow periods. Arches minimise disruption to the stream bed. Box culverts may incorporate mammal ledges and can be buried below stream bed level to enable bed material replacement.

⁶ SEPA (2024) Assessment of the suitability of culverting of watercourses and anticipated choice of culverting method follows WAT-PS-06-02: Culverting of Watercourses - Position Statement and Supporting Guidance [online] Available at: <https://www.sepa.org.uk/regulations/water/engineering/engineering-guidance/> [Accessed: July 2024]

- Circular Culverts – where potential impact is negligible due to the size, location or typology of the watercourse circular culverts can be embedded into the channel to allow the natural bed to re-establish. Where necessary provision can also be made for mammals adjacent to the culvert. Where a circular culvert is utilised, it is assumed that neither natural bed material, nor water velocity nor depth are critical other than in respect of very localised hydraulic sense. In these cases, circular culverts are a more economic solution.
- Porous granular rock fill blanket and perforated pipes – where there is no clearly defined channel flow, flow can be maintained by a drainage blanket wrapped in geotextile placed below the road construction. Where such a crossing structure is utilised, flow is predominantly sub-surface interflow and a porous fill below the track provides flow continuity without concentrating the discharges into a narrow channel.

8.4 Watercourse diversion

The channel of a minor watercourse (the upstream extent of an unnamed tributary of Loch Beannacharan) crosses the proposed T13 sealing end tower and hardstand (CSE compound) at WC17 as shown in **Figure 8.1.1**. Were the present path of the stream maintained culverting below the platform would be required. Culverting of a watercourse below the CSE compound would not be possible due to the presence of underground cables at this location. Therefore, a diversion of the minor watercourse is proposed to maintain an open channel east of the CSE.

The diversion would follow the present flow direction of the field drain (rather than flowing in the current channel approximately 20 m west) in a south easterly direction to the east of the CSE compound, to re-join the existing flow path of the watercourse south of the T13 access track. The diversion of the stream from the existing course would be approximately 90 m in length and the channel would be designed to accommodate the 1 in 200 (0.5%) annual probability flow, inclusive of allowance for climate change. Further details regarding CAR authorisations associated with the diversion are included in **Section 8.5**. The bed and banks of the new drain would be naturalised to replicate existing flow conditions through the use of appropriate substrate for the river bed and the use of check dams at suitable intervals to control flow rate and prevent erosion. The banks of the channel would be naturalised and vegetated.

During a site visit conducted in May 2023 it was observed that upstream of this location the watercourse comprised a cut land drain flowing in a south easterly direction adjacent to a field boundary. The downstream flow path (depicted as a watercourse on OS 1:50,000 scale mapping) is to an area of distributed surface water flows without a clearly defined channel of flow. The diverted watercourse would continue to discharge to this area in order to maintain the existing pattern of downstream surface water flows, and flows of surface water runoff would continue to flow to downslope areas.

There is the potential for engineering carried out on this drain to impact physical or biological characteristics of the watercourse or to lead to downstream quality of the water resource. Works to divert the minor watercourse would be carried out in line with SEPA guidance⁷. The access track watercourse crossing (WC37) at this location would be designed in line with guidelines for other crossings as set out in this Technical Appendix. Based on the implementation of best practice measures set out in the CEMP and adherence to SEPA guidance the diversion of a short stretch of the watercourse would not lead to a loss in condition of the water environment in the surrounding area.

It is also noted that OS mapping suggests that the access track to the T13 location interacts with a watercourse. Field surveying showed that at this location surface water flow is distributed and no clear channel is present. Flows would be maintained to this area through the design of the

⁷ SEPA (2009) WAT-SG-29, Engineering in the Water Environment Good Practice Guide. March 2009

watercourse diversion as set out above. Further downstream, watercourse crossings for the track would be in line with specifications for crossings at other points. Were the track drainage to interact with the existing watercourse, water supplies to downslope areas would be maintained through the use of cross-drains.

8.5 CAR Authorisations

As set out previously, the CAR advise on which activities are regulated by SEPA. In particular, Section 6 of the Water Environment Regulation Practical Guide sets out that CAR requires authorisation for the carrying out of building or engineering works, or works other than impounding works in:

- inland surface waters (other than groundwater) or wetlands; or
- in the vicinity of inland water or wetlands and having, or likely to have, a significant adverse impact on the water environment.

In order to allow for proportionate regulation based on the risk an activity poses to the water environment, there are three types of CAR authorisation as described in the following paragraphs.

8.5.1 Potential Levels of Authorisation

The detailed design of bridges and other crossings will include the application to SEPA for the necessary consents under CAR. The potential levels of authorisation which could be necessary are described below.

General Binding Rules

General Binding Rules (GBRs) represent a set of mandatory rules which cover specific low risk activities. Activities complying with the rules do not require an application to be made to SEPA, as compliance with a GBR is considered to be compliance with an authorisation. Since the Applicant or its Contractor is not required to apply to SEPA, there are no associated charges.

SEPA uses its statutory role in the land use planning system to highlight GBRs that may apply to a given proposal. The individual GBRs are described in more detail in the appropriate regime-specific sections of the Water Environment Regulation Practical Guide. They are numbered according to Schedule 3 of the CAR Regulations.

Registrations

These allow for the registration of small-scale activities that individually pose low environmental risk but, cumulatively, can result in greater environmental risk. The Applicant or its Contractor must apply to SEPA to register these activities. A registration will include details of the scale of the activity and its location, and there will be a number of conditions of registration that must be complied with. There is an application fee for registrations, though subsistence (annual) charges do not apply.

Licences

These allow for site-specific conditions to be set to protect the water environment from activities that pose a higher risk. Licences can cover linked activities on a number of sites over a wide area, as well as single or multiple activities on a single site. Application fees apply to all licences, and subsistence (annual) charges may apply. SEPA has simple licences and complex licences for activities for which different charges apply.

A key feature of CAR licences, unlike GBRs and registrations, is that they require the applicant to nominate a 'responsible person' (i.e. an individual/partnership/company) to be held accountable for securing compliance with the terms of the licence.

8.5.2 Likely Levels of CAR Authorisation

OHL and UGC

The OHL crosses and the UGC route will intersect a number of watercourses which would be crossed during the construction phase using culverts to allow the temporary construction haul road to pass over the watercourse. For the cable trench, smaller watercourses would be crossed by excavating a trench whilst the channel is dry using cofferdams with bypass pumps. Any such methods are likely to require Registration or a Simple Licence, subject to detailed design.

Watercourse Diversion

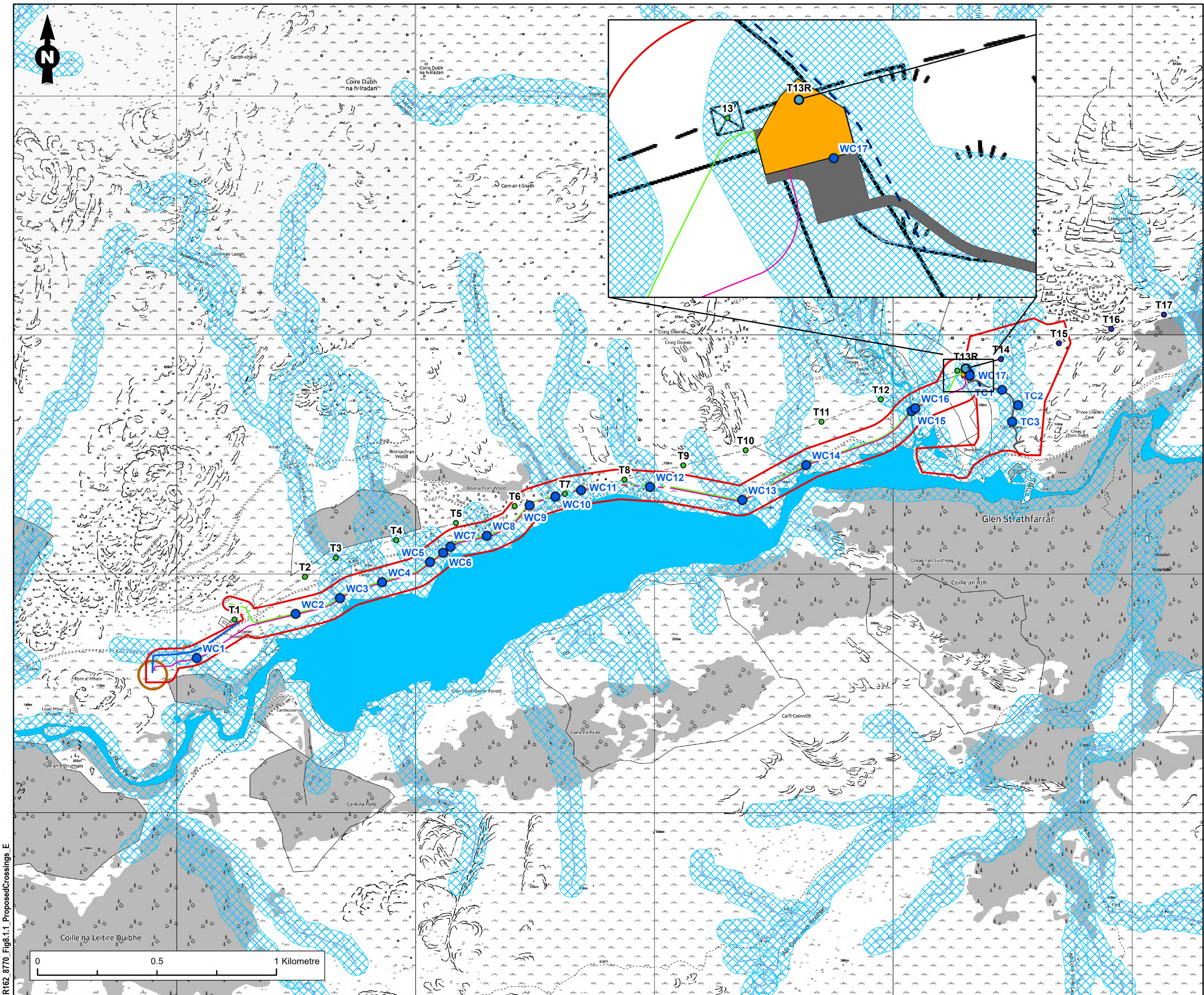
A Simple Licence is likely to be required under Controlled Activities Regulations (CAR) for diversion of the minor watercourse, as site observation has confirmed that the stream is <3m wide. Proposals for diversion of the drain would be agreed with SEPA by the appointed contractor through application for a Simple Licence prior to the commencement of works.

Access Tracks

Similarly, culverts for access tracks (if necessary) would involve construction on the bed or banks of the watercourses. Where feasible, bottomless arched culverts may be installed, however it is noted that closed culverts are likely to be appropriate at most locations due to the small size of watercourses, artificial morphology or intermittent flow. This suggests that any access track crossing would require Registration or a Simple Licence, subject to detailed design. The detailed design of each access track watercourse crossing would seek to ensure hydraulic conveyance is maintained to prevent any restriction of flows, as well as allowing the free passage of mammals and aquatic ecology. Therefore, it is proposed that each watercourse crossing would have sufficient capacity to pass the climate change adjusted 1:200-year flood, and include an allowance for potential partial blockage. Detailed flow calculations would be undertaken by the Contractor in order to inform detailed design and to inform applications for CAR authorisation. Consideration would be given to any local variations in channel dimensions and to bankside conditions. Where feasible within micro-siting allowances, the narrowest locations will be selected, and the stability of the channel banks will also be considered. Splash boards and run-off diversion measures, including silt fencing adjacent and parallel to watercourses beneath bridges and at culvert crossings, will be used at all crossings during construction to prevent direct siltation of watercourses.

To ensure that drainage measures employed during the construction phase of the Proposed Development along access tracks are maintained appropriately and remain effective, the performance of the drainage measures will be monitored. The drainage management works will, therefore, be supervised by the Environmental Clerk of Works (ECoW). All monitoring and supervision of the drainage management works will be recorded. As the Proposed Development exceeds 4 ha, it is anticipated that management of surface water drainage from the development shall be carried out under a construction site license (in accordance with the controlled activities regulations). This shall be confirmed by the Contractor and any application for a construction site license will be undertaken by the Contractor prior to the commencement of works.

ANNEX 1: WATERCOURSE CROSSING FIGURE



Legend

- Site Boundary
- Existing Towers
- Existing Towers to be Removed
- Proposed Sealing End Tower (T13R)
- Proposed Crossings
- Proposed 11kV Cable Route
- Proposed 132kV Cable Route
- Proposed 132kV Cable Route (HDD)
- Proposed 33kV Cable Route
- Proposed 33kV Cable Route (HDD)
- OHL Connection
- Proposed CSE Compound
- CSE Compound Access Track
- Proposed Deanie Substation LOD
- Watercourse
- Proposed Diverted Watercourse
- Waterbody
- 250 m Watercourse Buffer

Figure Title
Watercourse Crossing Assessment

Project Name
Glen Strathfarrar VISTA

Project Number 1620008770	Figure No. 8.1.1
Date November 2024	Prepared By GA
Scale 1:15,000 @A3	Issue 1

Client
SSEN Transmission

R162_8770_Fig8.1.1_ProposedCrossings_E



ANNEX 2: WATERCOURSE CROSSING SCHEDULE

Watercourse Crossing Schedule

WCC1: No photo available

Location: WC 2



Photo 1: Downstream



Photo 2: Upstream

Location: WC 3



Photo 1: Downstream

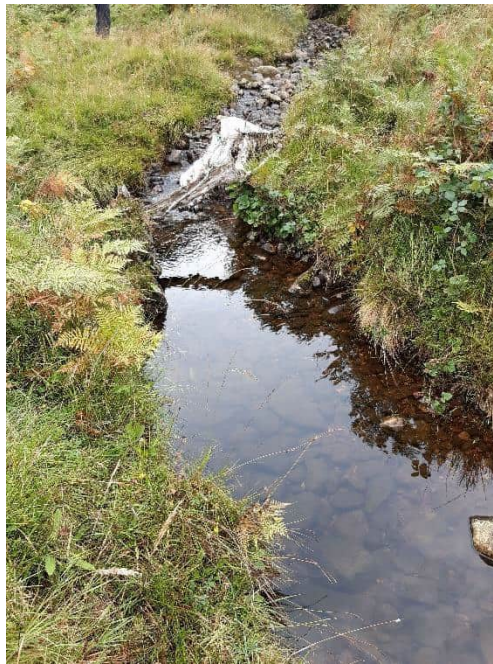


Photo 2: Upstream

Location: WC 4

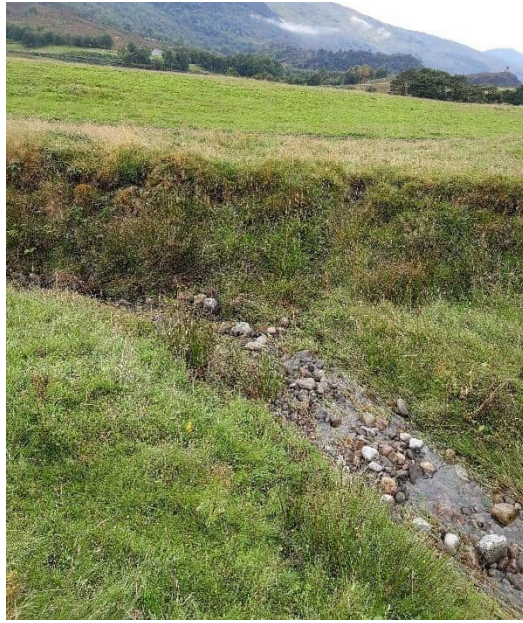


Photo 1: Downstream



Photo 2: Upstream

Location: WC 5



Photo 1: Downstream



Photo 2: Upstream

Location: WC 6



Photo 1: Downstream



Photo 2: Upstream

Location: WC 7



Photo 1: Downstream



Photo 2: Upstream

Location: WC 8



Photo 1: Downstream



Photo 2: Upstream

Location: WC 9



Photo 1: Downstream



Photo 2: Upstream

Location: WC 10



Photo 1: Downstream



Photo 2: Upstream

Location: WC 11



Photo 1: Downstream



Photo 2: Upstream

Location: WC 12



Photo 1: Downstream



Photo 2: Upstream

Location: WC 13



Photo 1: Downstream



Photo 2: Upstream

Location: WC 14



Photo 1: Downstream



Photo 2: Upstream

Location: WC 15



Photo 1: Downstream



Photo 2: Upstream

Location: WC 16



Photo 1: Downstream



Photo 2: Upstream

Location: WC 17



Photo 1: Downstream



Photo 2: Upstream

Location: WC T1



Photo 1: Downstream



Photo 2: Upstream

Location: WC T2



Photo 1: Downstream



Photo 2: Upstream

Location: WC T3



Photo 1: Downstream



Photo 2: Upstream

APPENDIX 9.1: OUTLINE CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

9.1 Introduction

This document provides a framework for a Construction Environmental Management Plan (CEMP). A CEMP would outline the environmental management and construction methods to be employed during the:

- removal of a section of existing overhead transmission line (OHL) in Glen Strathfarrar approximately 40 km west of Inverness;
- installation of three new sections of underground cable (UGC) to replace the sections of removed OHL;
- construction of a new cable sealing end (CSE) compound and tower;
- installation of one new section of OHL to connect the new CSE tower to the existing T14;
- access track to new cable sealing end compound and tower; and
- associated temporary works to enable the decommissioning and construction process.

Herein referred to as 'the proposed development'. This draft outline document would be updated with detailed information and finalised prior to commencement of construction, in consultation with the relevant authorities and taking account of the approved plans.

The contractor(s) appointed to construct the proposed development will prepare detailed method statements which will be incorporated into the final CEMP.

The requirement to produce a CEMP will form part of the contract for the construction works for the proposed development. The management measures, method statements and referenced good practice guidance and legislation will form the basis of the detailed design to be prepared by the Contractor.

The CEMP will provide:

- a schedule of all construction and decommissioning stage mitigation measures required to address likely significant effects identified in the Environmental Appraisal (EA);
- a schedule of all additional construction and decommissioning stage good practice management measures included as part of the proposed construction work, in line with industry good practice guidance;
- a schedule of roles and responsibilities for delivering the requirements of the CEMP, including a statement of responsibility to 'stop the job / activity' if in potential breach of a mitigation or legislation occurs;
- a method statement for monitoring, auditing, and templates for reporting and communication of environmental management performance on site and with the client, planning authority and other relevant parties;
- a Pollution Prevention Plan developed in accordance with Scottish Environment Protection Agency (2018) guidance (WAT-SG-75) sector specific guidance for construction;
- construction stage environmental management measures, based on compliance with legislation and good practice including but not limited to:
 - The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended);
 - Scottish Environment Protection Agency (2019) The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended) A Practical Guide (or the most recent edition);
 - Forestry Commission (2011). Forests and Water. UK Forestry Standard Guidelines. Forestry Commission, Edinburgh. i-iv + 1- pp; and

- CIRIA Publications 2006: Control of Water Pollution from Linear Construction Projects. Site Guide (C649);
- Scottish Environment Protection Agency (2010): River Crossings, WAT-SG-25, Second Edition;
- Scottish Environment Protection Agency (2009): Temporary Construction Methods, WAT-SG-29, First Edition;
- Scottish Natural Heritage (2013) Constructed Tracks in the Scottish Uplands, 2nd Edition; and
- Forestry Commission Scotland and Scottish Natural Heritage (2010) Floating Roads on Peat.
- a template for the production of detailed and task/site specific plans for on-site components of the construction work.

It is anticipated that specific mitigation plans and additional management measures will be required to address archaeology, ecology (protected species), surface water management and pollution prevention, watercourse crossings, waste, access arrangements, soil and peat management, construction and decommissioning nuisance (noise, dust), and community liaison. An appropriately qualified Environmental Clerk of Works (ECoW)/ Site Environment Manager will be appointed with the responsibility for monitoring compliance with the CEMP.

9.2 Schedule of Environmental Commitments From Environmental Assessment

The CEMP will provide a schedule of mitigation commitments made in the EA.

Table 9.1.1: Schedule of Mitigation and Additional Good Practice Measures

Reference	Commitment
General	<ul style="list-style-type: none"> • Construction would be during daytime only. Construction working hours would be limited to a maximum of 08.00 – 19.00 Monday - Friday and 08.00 – 13.00 Saturday with no working on Sunday. Any out of hours working would be agreed in advance with the relevant competent authority. • Follow additional work hour restrictions to prevent disturbance to golden eagles. Works would take place outside the periods of breeding activity for golden eagle (February to October) to prevent disturbance during breeding and fledging, where the works are within 1 km of the eyrie (eagle nest site). Works with the potential to cause significant disturbance would not occur before 9am or after 4pm to prevent disturbing eagles which are roosting nearby. This applies throughout the year, within 1 km of the eyrie. • Any other out of hours working would be agreed in advance with the relevant competent authority. Weekend working shall be planned to minimise construction traffic and areas of work shall be restricted to those which have the least impact on the local community and general public. • No borrow pits are proposed. • The area which would be temporarily disturbed during construction would be backfilled with the excavated subsoil and topsoil, seeded with either a grass mix or other seed mix requested by the landowner (e.g. on agricultural land) or another appropriate seed mix recommended by a landscape architect in consultation with an Ecological Clerk of Works (ECoW) and a width of 10 m maintained clear of trees to allow for future access for fault finding and to prevent root damage to the cable. • Smaller watercourses would be crossed during the construction phase using culverts to allow the temporary construction haul road to pass over the watercourse. For the cable trench, smaller watercourses and field drains would be crossed by excavating a trench whilst the channel is dry using cofferdams with bypass pumps. • Once the existing OHL has been removed, the land formerly covered by the OHL operational corridor would be returned to the landowner and the land

Reference	Commitment
	<p>would be left for them to manage as they choose (subject to restrictions related to the proposed UGC and CSE tower.</p> <ul style="list-style-type: none"> • At the end of the design life of the proposed development, a decision would be made by the network operator to either replace or decommission the cable. Any replacement infrastructure would be subject to the consents and associated environmental assessments required at that time. If the decision is taken to decommission the cable, then an assessment would be made as to whether to leave the cable and CSE tower infrastructure in situ or to remove it. • Stone for the construction of haul roads and crane pads, ready mixed concrete and tarmac would be locally sourced. • Where possible, arrangements would be made for car sharing for staff journeys to site. • A CTMP would be prepared by the appointed construction contractor in order to manage the potential impacts of construction related vehicle movements on the local road network, including identifying construction compound locations; road crossings for the underground cable construction works; and potential requirements for public road improvements (e.g. bell mouth widening) and/or temporary traffic management. • All vehicles directly owned by the SHE Transmission or main contractor would have a communications system installed that would be legal to use while the vehicle is in motion. • If required, passing places would be constructed along the local roads in advance of the works commencing. The location and size of each passing places would be determined and agreed with Highland Council roads department and landowners and would be subject to gaining necessary consents. • Passing places would not be used by drivers of construction vehicles as a place to wait or as a place to park. Local residents would be able to report any instances of inappropriate driving or use of passing places to the project community liaison officer. • Passing places would not be used by drivers of construction vehicles as a place to wait or as a place to park. • Existing and new accesses would be improved to double gate access bell mouth layouts. Where required visibility would be improved or provided at the access points, appropriate for the nature and speed of the road. All public road improvement works would be subject to the approval of the relevant planning and roads authority and individual traffic management plans agreed before works commence. • In order to reduce mud and debris being deposited onto the road network, wheel washing facilities would be provided at all accesses where vehicles can exit onto the public road. The minimum provision would be a brush and a water supply. Where considered necessary the public roads, adjacent to the site access points shall be kept clean by utilising a mechanical road sweeper. Local residents would be able to report any instances of mud being carried onto the public highway to the project community liaison officer. • A maximum 15 mph speed limit would be imposed for all construction traffic on private roads and tracks, which would be reinforced through temporary construction traffic speed limit signs. Along public roads national speed limits or signed speed limits (whichever is lower) would apply. Local residents would be able to report any instances of speeding on the public highways to the project community liaison officer. • Temporary construction site signage would be erected on the local road network in the vicinity of each of the proposed construction accesses, and at

Reference	Commitment
	<p>other locations as considered necessary, to warn people of construction activities and associated construction vehicles.</p> <ul style="list-style-type: none"> • Information on the project would be distributed using a variety of methods including the project website, local newsletters, public notices and public meetings by the project community liaison officer. A construction liaison committee comprising of the project community liaison officer would meet periodically to provide updates on the construction programme, vehicle movements and public road improvements. Representatives from SHE Transmission and the construction contractor would attend. Contact details for key project staff would be provided to the community in order for any complaints or information requests to be actioned. • Public access safety advice signage would be installed at all access points from the public road network. All excavations shall be surrounded by barriers. All construction works would be undertaken with strict adherence to the current CDM regulations. • A CTMP would be developed by the contractor to include details of access design in order to assess and demonstrate the adequacy of construction access arrangements; describe how it would be ensured that there is no parking of construction vehicles or loading and unloading of materials on the local public roads; steps taken to limit and where possible avoid restrictive traffic management measures; and how conflicts with school opening and closing times would be avoided. • The developer would undertake a road condition survey in conjunction with the roads authority prior to commencing works on site; this survey would identify any visually apparent defects with the road pavement and would be used as a baseline for any future surveys. • Upon completion of the works in any area, a final road condition survey would be undertaken in conjunction with the roads authority. Defects would be recorded for comparison with the initial survey. Where deterioration of the road pavement can be agreed as a result of the construction works, the developer would arrange for a repair to be undertaken. • The draft outline CEMP would be updated with detailed information and finalised prior to commencement of construction, in consultation with the relevant authorities and, where applicable, taking account of the approved plans and planning conditions. The contractor(s) appointed to construct the project would prepare detailed method statements which would be incorporated into the final CEMP. • An appropriately qualified Environmental Clerk of Works (ECoW)/ Site Environment Manager would be appointed with the responsibility of monitoring compliance the CEMP. • The CEMP would provide a schedule of mitigation commitments made in the EA Report. The CEMP would also maintain a schedule of any commitments required by specific planning conditions. • The CEMP would confirm the roles, responsibilities and communication routes for environmental management during the works. The plan would make reference to or incorporate communication protocols for use during an environmental emergency or incident. • The CEMP would set out the requirements for recording and reporting all aspects of environmental management. • The CEMP would set out the programme of environmental audits, including audits of sub-contractors to be undertaken by the contractor, on a quarterly basis (as a minimum) and provides an audit report within two weeks of the audit being undertaken. The contractor would develop a template for completing and reporting audits for the agreement of the employer prior to the commencement of site works.

Reference	Commitment
	<ul style="list-style-type: none"> • The CEMP would provide an Ecological Management Plan (EMP), agreed with the planning authority, to include all measures required to protect ecology at the site and ensure compliance with relevant nature conservation and wildlife protection legislation. • Specify requirement for visual inspection of surface water courses to be undertaken on discharge waters during the construction phase to assess and manage the performance of the drainage system. • The CEMP would be developed in accordance with SSEN Transmission's Species Protection Plans (SPPs). • Keep local residents informed of the proposed working schedule, where appropriate, including the times and duration of any abnormally noisy activity. • Ensure site work continuing throughout 24 hours of a day shall be programmed, when appropriate, so that haulage vehicles would not arrive at or leave the site between 19.00 and 07.00 hours, with the exception of abnormal loads that would be scheduled to avoid significant traffic flows. • Ensure all vehicles and mechanical plant would be fitted with effective exhaust silencers and 'smart' reversing alarms and be subject to programmed maintenance. • Select inherently quiet plant where appropriate - all major compressors would be 'sound reduced' models fitted with properly lined and sealed acoustic covers, which would be kept closed whenever the machines are in use. • Review the options to utilise close boarded fencing as acoustic screens whenever works are in close proximity to dwellings. • Ensure all ancillary pneumatic percussive tools would be fitted with mufflers or silencers of the type recommended by the manufacturers. • Instruct that machines would be shut down between work periods or throttled down to a minimum. • Ensure regular maintenance of all equipment used on site, including maintenance related to noise emissions. • Ensure that vehicles are loaded carefully to ensure minimal drop heights so as to minimise noise during this operation. • Ensure all ancillary plant such as generators and pumps would be positioned so as to cause minimum noise disturbance and if necessary, temporary acoustic screens or enclosures should be provided. • Works occurring within 1 km of the Deanie crag nesting/roosting area should be strictly controlled to prevent disturbance to breeding eagle activity (between February to October) and roosting eagles over winter. As such works with the potential to cause significant disturbance would not occur before 9am or after 4pm as to prevent disturbing eagles which are breeding or roosting on the surrounding Craggs. Monitoring of works within 1 km would take place under the watching brief of a suitably qualified ECoW. Works would be carried out based on a Protected Species Risk Assessment. This applies throughout the year, within 1 km of the eyrie.
Landscape and Visual Amenity	<p>In landscape and visual terms, the mitigation of the proposed development is inherent to its nature (i.e. undergrounding the OHL).</p>
Ecology & Ornithology	<ul style="list-style-type: none"> • Immediate reinstatement of habitats would be undertaken following construction activities, particularly in areas of temporary access, removed tower locations, following excavation of the cable trench and following installation of the new OHL and CSE tower. • Horizontal directional drilling would avoid impacts on watercourses and the trees around them as no works would occur in or immediately around the watercourses.

Reference	Commitment
	<ul style="list-style-type: none"> • It is not expected that any trees would need to be felled to facilitate the construction of the proposed development however, the UGC traverses a stand of broadleaved woodland on the banks of the Loch, there is not expected to be any requirement to fell any part of this woodland to allow for the cable trenching. All works should avoid damage to woodland when working within close proximity. • During installation of UGC and removal of existing OHL, floated access tracks / bog mats and low ground-pressure vehicles would be used to cross the GWDTs, the wet modified bog and wet / dry dwarf shrub heath where possible to minimise disturbance of these habitats. Trench breakers would also be used when channelling through sloping ground (i.e. south east of Deanie Substation) to prevent degradation of these habitats (caused by water flow along cable trench). • Engagement with the Scottish Environment Protection Agency (SEPA) would occur regarding any excavated peat reuse and disposal, where required. • Peat probing surveys to identify areas of deeper peat to be avoided, where possible. • Clean runoff (i.e. non-silty surface water flow, including that which has not passed over any disturbed construction areas) should be kept separate from potentially contaminated water as far as possible. Where required, interceptor ditches and other drainage measures could be installed to safeguard clean runoff from disturbed areas. • A suitably qualified Ecological Clerk of Works (ECoW) would input into the CEMP to ensure appropriate mitigation measures are in place, and to reduce any impacts. • Engagement with SEPA would occur regarding any excavated peat reuse and disposal, where required. However, it is not anticipated that there would be a need for peat disposal as all excavated material would be backfilled. • Minimising the extent of construction work within wetland habitat, with cable trenches or cuttings open for as short a time as possible. • Pre-construction surveys for protected species would be undertaken no more than eight months prior to construction and removal works. If the results indicate the presence of protected species additional to those recorded to date, an assessment of the mitigation on the species would be completed and appropriate mitigation measures identified (if required), such as micro-siting of access roads. Species protection plans would be included in the CEMP. • All infrastructure for the proposed development would be micro-sited a minimum of 30 m from the badger setts, where possible, to avoid damaging or destroying the sett. Disturbance of the setts in the north of the field study area would occur under a NatureScot licence and would be monitored by the ECoW. The existing OHL would be removed by pulling by a winch onto a cable drum. Placement of trestles/scaffolding would prevent the OHL dropping and damaging the sett. • Existing, or temporary, access tracks would be used as much as possible. • Ground or vegetation clearance works would be undertaken outwith the main bird nesting season (March–September, inclusive), if possible. If this is not possible, a suitably experienced ecologist would check the proposed development prior to construction to determine if nesting birds are present. If nesting birds are found, particularly crossbill (which are also protected from disturbance while nesting), a suitable buffer zone would be implemented around the nest, with no work in this zone until the young have fledged or the nest is no longer in use. • The CEMP would include standard pollution prevention guidelines, such as silt fencing and traps, during the construction phase to ensure that no water or air borne pollutants reach ecological features.

Reference	Commitment
	<ul style="list-style-type: none"> • If peat is encountered during excavations, the excavated peat materials would be temporarily stored prior to being reinstated. The temporary storage of such excavated peat shall seek to minimise disturbance of deposits by minimising haul distance between temporary peat storage sites and re-use areas. In general, it shall be a priority to avoid a single site dedicated temporary peat storage area. A progressive construction method that recycles peat through excavation and timely re-instatement in a continuous process shall be adopted for the excavation of the cable route. Excavated peat would be stored on geo-textile matting, which acts as a protective barrier to the underlying soils and vegetation. The geo-textile shall be designed to prevent ingress of groundwater and erosion and de-stabilisation of the base of the stored peat. Peat shall be stored to a maximum depth of 1 m with the peat turves stored separately from underlying peat. The peat turves or vegetation layer shall be stored in a single layer and a system of watering the stored peat and turves/vegetation shall be in place to ensure that the peat remains damp. • Standard mitigation and pollution prevention measures and good practice, as described in the CEMP, would be implemented during the construction and decommissioning work to ensure the integrity of the tributaries and the SAC is not affected by pollution or siltation. As a minimum, these would follow SEPA Guidelines for Water Pollution Prevention from Civil Engineering Contracts and Special Requirements. • To prevent any polluting substance, such as fuels/oils, wet cement, raw concrete or silty water, from entering groundwater or watercourses silt fences, cut-off drains, silt traps and drainage into vegetated areas would be used. These would be monitored by the ECoW and by site staff to ensure any faults are rectified. • Fuel deliveries and refuelling would be undertaken by trained staff in a designated area with an impermeable base as agreed with the EcoW. • All reasonable steps would be taken to prevent the transport of sediments or other matter disturbed by the construction work. Where possible, works would be undertaken during drier periods and avoid periods of high rainfall. • Spill kits would be available on all plant on the site as well as at any pollution sources and sensitive features.
Cultural Heritage	<ul style="list-style-type: none"> • Appointment of a retained a professional archaeological organisation (ACoW) to prepare a Written Scheme of Investigation (WSI) and to oversee the mitigation works. • Preparation of WSIs developed in consultation with (and subject to the agreement of) HET on behalf of The Highland Council. • Marking out of heritage assets for avoidance during the construction phase. Assets to be marked out are: three clearance cairns (4g-h and 4k), a head dyke (4d), three field banks (4e and 15b-c), a clearance cairn (8), footings of an old building (9) and two concrete platforms (19 and 20). • Archaeological investigations of heritage assets within the cable construction easement. Assets to be subject to investigation and recording are: three clearance cairns (4i-j and 17c). In the event that marking off for avoidance is not possible, additional assets to be recorded are: three field banks (4e, 15b and 15c). • Archaeological watching briefs: • Where the UGC route passes through the remains of an old farm or farming township (4) and the site of an old enclosure (5), where there is a low-moderate archaeological potential. • Where the proposed CSE access track passes an area of rig and furrow cultivation (13) and intersects three field banks (15a, 15d and 17a), in addition to the area for construction of the CSE compound.

Reference	Commitment
	<ul style="list-style-type: none"> • Post-excavation processing, analysis and recording to the standards required by the Council.
Noise	<ul style="list-style-type: none"> • Keep local residents informed of the proposed working schedule, where appropriate, including the times and duration of any abnormally noisy activity that may cause concern. • Ensure site work continuing throughout 24 hours of a day shall be programmed, when appropriate, so that haulage vehicles will not arrive at or leave the site between 19.00 and 07.00 hours, with the exception of abnormal loads that will be scheduled to avoid significant traffic flows. • Follow additional work hour restrictions to prevent disturbance to golden eagles. Works would take place outside the periods of breeding activity for golden eagle (February to October) to prevent disturbance during breeding and fledging, where the works are within 1 km of the eyrie (eagle nest site). Works with the potential to cause significant disturbance would not occur before 9am or after 4pm to prevent disturbing eagles which are roosting on the surrounding Craggs. This applies throughout the year, within 1 km of the eyrie. • Ensure all vehicles and mechanical plant will be fitted with effective exhaust silencers and 'smart' reversing alarms and be subject to programmed maintenance. • Select inherently quiet plant where appropriate - all major compressors will be 'sound reduced' models fitted with properly lined and sealed acoustic covers, which will be kept closed whenever the machines are in use. • Review the options to utilise close boarded fencing as acoustic screens whenever works are in close proximity to dwellings. • Ensure all ancillary pneumatic percussive tools will be fitted with mufflers or silencers of the type recommended by the manufacturers. • Instruct that machines will be shut down between work periods or throttled down to a minimum. • Ensure regular maintenance of all equipment used on site, including maintenance related to noise emissions. • Ensure that vehicles are loaded carefully to ensure minimal drop heights so as to minimise noise during this operation. • Ensure all ancillary plant such as generators and pumps will be positioned so as to cause minimum noise disturbance and if necessary, temporary acoustic screens or enclosures should be provided.
Hydrology	<ul style="list-style-type: none"> • Pollution prevention measures would be specified in the CEMP which would ensure compliance with SEPA Guidance for Pollution Prevention (GPP), with all equipment, material and chemicals securely stored and banded, where applicable, at least 50 m away from watercourses. • The CEMP would include plans to minimise potential problems related to dewatering such as: <ul style="list-style-type: none"> – Dewatering progressively in cells; – Reducing the inflow of water by sealing worked surfaces; – Managing temporary soil storage mounds and slope stability in line with industry best practice; – Avoiding seepage of contaminated run-off through floor of excavations; and – Ensuring inert fill is used for backfilling purposes. • All drainage from construction areas would be managed through a Sustainable Drainage System (SuDS) in order to attenuate flow rate, manage the volume of

Reference	Commitment
	<p>run-off and ensure that there is no effect on soil moisture regimes downstream of works.</p> <ul style="list-style-type: none"> • All of the watercourse crossings identified for the proposed development would be designed in compliance with requirements of the Water Environment (Controlled Activities) (Scotland) Regulations 2011 as amended (CAR). • HDD would be used underneath larger watercourses to reduce interaction between the proposals and hydrological receptors. • Open cut crossings are proposed for the smaller watercourses and field drains encountered along the cable route. After cable installation the channel would then be reinstated with appropriate material and with an appropriate channel cross section to ensure the reinstated channel has the same ecological and hydraulic properties as prior to cable laying. • Where construction is proposed within floodplains works would be undertaken, where feasible, during the driest (summer) months to minimize the impact of potential storms. Trenches would be dug and left open for the minimum of time to allow the installation of cables, then immediately back-filled.

9.3 Communication Protocol

9.3.1 Roles and Responsibilities

The CEMP will confirm the roles, responsibilities and communication routes for environmental management during the works. This plan will make reference to or incorporate communication protocols for use during an environmental emergency or incident.

9.3.2 Recording and Reporting

The CEMP will set out the requirements for recording and reporting all aspects of environmental management, for example:

- minutes and attendance record of start-up meeting (on-site meeting prior to commencement of construction works);
- an environmental risk register;
- minutes of weekly meetings covering environmental (ecology, archaeology, hydrology) issues (meetings may be combined with regular construction progress meetings);
- a communication plan;
- records of toolbox talks;
- dust / noise monitoring records;
- site waste and materials management plan and records;
- water quality monitoring records; and
- licensing and consents.

9.3.3 Environmental Audits

The CEMP will set out the programme of environmental audits, including audits of sub-contractors to be undertaken by the contractor, on a quarterly basis (as a minimum) and provides an audit report within two weeks of the audit being undertaken.

The contractor will develop a template for completing and reporting audits for the agreement of the employer prior to the commencement of site works.

9.4 Typical Construction Stage Environmental Management Measures

This section provides sub-headings for typical detail to be provided in the outline CEMP.

9.4.1 Hours of Work

Specify hours of work and an outline of proposed restrictions.

The expected working hours during the construction phase would generally be as outlined in **Table 9.1.3** below.

Table 9.1.3 Construction Working Hours

Monday - Friday	08:00 – 19:00
Saturday	08:00 – 13:00
Sunday	No working

Additional work hour restrictions to prevent disturbance to golden eagles are required. Works would take place outside the periods of breeding activity for golden eagle (February to October) to prevent disturbance during breeding and fledging, where the works are within 1 km of the eyrie (eagle nest site). Works with the potential to cause significant disturbance would not occur before 9am or after 4pm to prevent disturbing eagles which are roosting nearby. This applies throughout the year, within 1 km of the eyrie.

9.4.2 Archaeological Management

Specify requirement for mitigation and/or good practice measures agreed with the planning authority and in line with measures specified in the EA.

9.4.3 Ecological Management Plan

Provide an Ecological Management Plan (EMP), agreed with the council, to include all measures required to protect ecology at the site and ensure compliance with relevant nature conservation and wildlife protection legislation.

Specify requirement for an Ecological Clerk of Works.

9.4.4 Management of Surface and Ground Water and Water Quality Monitoring

Specify and provide design for drainage management measures, to incorporate two tier sustainable drainage systems (SuDS) to attenuate the volume and rate of run off and maintain water quality.

Specify requirement for visual inspection of surface water courses to be undertaken on discharge waters during the construction phase to assess and manage the performance of the drainage system.

9.4.5 Management of Surface Water and Groundwater

Specify and provide design for drainage management measures, at longer term work sites such as the CSE tower. This should incorporate two tier sustainable drainage systems (SuDS) to attenuate the volume and rate of run off and maintain water quality. For shorter term work sites such as along the UGC route, where installing two tier drainage systems is not practicable or required, the focus would be on silt and runoff control using silt fences, silt bags etc. and controls on discharge from dewatering of excavations.

Specify requirement for visual inspection of surface water courses to be undertaken on discharge waters during the construction phase to assess and manage the performance of the drainage system.

Include details of design of swales, check dams and settlement ponds, as required to provide a surface water management and treatment train that will mitigate any adverse impact on the hydrology of the site and surrounding areas during the construction phase of the project.

Depending upon the size of the construction site at any given time, authorisation may be required from SEPA under The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended). A complex licence is required for *“surface water run-off from a construction site, including access tracks, of >4 hectares, or >5 km or which includes any area >1 hectare or >500 m on ground with a slope >25°”*. A construction site which does not meet this definition (i.e. is below the thresholds given) does not require a licence but must still be carried out under the requirements of GBR10. The construction contractor will be responsible for obtaining any applicable authorisation from SEPA.

9.4.6 Dust Management

Detail dust management controls and protocols for implementation (e.g. in the event of dry weather) and for the avoidance of tracking mud onto public roads.

9.4.7 Waste Management

Provide details of site waste management, identifying all waste streams and responsibilities of the contractor.

9.4.8 Soil Management

Provide a soils management plan, to be produced using data acquired through the site investigation campaign. Specify measures to maintain soil structure and function during temporary storage and reinstatement work

9.4.9 Noise Management

Specify community liaison and noise control measures required during construction work in close proximity (e.g. 100 m of dwellings).

9.4.10 Traffic Management

Specific management plan measures will be agreed with the local planning authority and the contractor will liaise with the local highways authority to detail traffic mitigation.

9.5 Construction Method Statements

This section provides sub-headings for typical detail to be provided in the outline CEMP.

9.5.1 Temporary Construction Compound and Site Fencing

Specify layout in temporary construction compound.

9.5.2 Public Access Roads

Specify the improvements proposed along the site access route and detail in a Traffic Management Plan (TMP) which will also set out any Agreements or Licences required with the relevant statutory authorities.

9.5.3 Site Entrance

Specify requirement for inspection of site entrance roads and detail requirement/protocol for providing a road sweeper to remove any mud or debris transferred onto the roads from site activities if required.

9.5.4 Site Tracks

Specify construction details for site tracks, including installation of track drainage, and the locations and use of cut and floating track design.

Specify areas requiring sub-grade drainage measures to maintain groundwater connectivity (based on detailed site investigation at pre-construction phase).

9.5.5 Watercourse Crossings

The base case assumption is that all major watercourses will be crossed using the HDD method and that therefore there will be no requirement for working in watercourses. Should this assumption change prior to construction, or should any small watercourses (e.g. field drains) need to be crossed by a trenching method, the following principles would apply.

Specify design of watercourse crossings in accordance with the Water Environment (Controlled Activities) (Scotland) Regulations 2011 (CAR) as amended.

Specifications will comply with:

- Flood Estimation Handbook (Statistical Analysis) and Flood Studies Report (FSR) - used where appropriate used to determine the design flow;
- CIRIA Culvert design and operation guide (C689) (2010); and
- Scottish Executive (2002) (as amended in 2012) River Crossings and Migratory Fish: Design Guidance (where appropriate).

9.5.6 Construction Methodology

Specify watercourse crossing construction methodology, including detailed measures to prevent pollution.

9.5.7 Cable Sealing End Construction

Specify construction design details for the cable sealing end tower/poles and construction methods for their installation

9.5.8 Cable Laying

Specify construction design details for the installation of cables and construction methods for their installation.

9.5.9 OHL Decommissioning and Removal

Specify methodology for the decommissioning, dismantling and removal of the existing OHL.

9.5.10 Site Electrical Works

Specify construction details for site electrical works.

9.5.11 Cable Trench Design Philosophy

Specify route and design of onsite cables, including methods of installation, watercourse crossing and measures to ensure that cable trenches do not provide a preferential pathway for dewatering peat forming habitats.

9.6 General Environmental Management Plans

The CEMP would be developed in accordance with SHE Transmission's General Environmental Management Plans (GEMP). As an example, those potentially applicable to this proposed development may include:

- Watercourse crossings;
- Working in or near watercourses;
- Private Water Supplies;
- Soil Management;
- Unexpected contaminated land;
- Working with concrete;
- Oil storage and refuelling;
- Dust management;
- Waste management;
- Working in sensitive habitats;
- Bad weather;
- Restoration; and
- Forestry.

9.7 Species Protection Plans

The CEMP would be developed in accordance with SSEN Transmission's Species Protection Plans (SPPs). As an example, those potentially applicable to this proposed development may include:

- Badger;
- Bats;
- Beaver;
- Birds;
- Water Vole;
- Wildcat;
- Otter;
- Red Squirrel; and
- Pine Marten.

9.8 Decommissioning Method

This section will provide details on how decommissioning (of the OHL cable) has been considered as part of the design and construction process. Decommissioning of the existing OHL is considered to be part of the construction work for the new cable route and therefore has its own section of the CEMP above.

The CEMP will be updated on completion of the construction work for handover to the site owner. The CEMP would provide details of all relevant 'as built' plans/drawings and technical details which would inform the decommissioning process.

The CEMP would be the likely options and methodology envisaged for the decommissioning process.

APPENDIX 1

FIGURES

Consented planning drawings (to be updated with 'as built' drawings on completion)

APPENDIX 2

DRAINAGE DESIGN

9.8.1 General Philosophy

9.8.2 Hydraulic / Water Quality Design Criteria

9.8.3 Working in the Vicinity of Watercourses

The following SSEN GEMPS's will be considered while working in the vicinity of watercourses:

- TG-NET-ENV-512 Working in or Near Watercourses;
- TG-NET-ENV-515 Watercourse Crossings; and
- TG-NET-ENV-518 Private Water Supplies.

9.8.4 Working in Vicinity of Groundwater Dependant Terrestrial Ecosystems (GWDTEs)

9.8.5 Management of Silt and Water pollution

- Detailed drainage design;
- Trackside Drainage;
- Settlement Ponds / Lagoons;
- Watercourses;
- Tower Foundations;
- Excavated Soil Management; and
- Concrete Washout Area.

9.8.6 Maintaining Site Hydrology

9.8.7 Maintenance / Monitoring of SuDS Performance

9.8.8 Decommissioning of SuDS

APPENDIX 10.1: OUTLINE CONSTRUCTION TRAFFIC MANAGEMENT PLAN

10.1 Introduction

10.1.1 General

It is the responsibility of the main contractor to implement a Construction Traffic Management Plan (CTMP), to monitor its application and to propose and make modifications to the Plan during the planning and construction process, if necessary. Monitoring of the CTMP would be undertaken and any necessary amendments would be made in consultation with Highland Council as the local roads authority and with Transport Scotland in terms of impacts upon the trunk road network.

The CTMP is intended to be a working document that evolves during the construction period. The CTMP only applies to the construction stage of the proposed development and does not apply to the on-going operation or decommissioning of the proposed development.

An updated version of the CTMP would be developed by the appointed construction contractor and provided to the local highway authority for information.

10.1.2 Proposed Development

The proposed development is for the:

- the decommissioning and removal of the existing OHL between Deanie Substation and Tower 13 (approximately 3.75 km of 132 kV and 33 kV OHL) alongside decommissioning and removal of Towers 1 - 13;
- construction and operation of a cable sealing end compound approximately 350 m east of Deanie Lodge;
- the removal of the existing Tower 13 and construction and operation of a new terminal tower (Tower 13R) within the cable sealing end compound;
- installation of one replacement section of OHL which would link the new sealing end tower (Tower 13R) to the existing Tower 14 (approximately 180 m in length);
- installation of one new section of UGC between the cable sealing end compound and the proposed new Deanie Substation, approximately 3.75 km in total length for the 132 kV circuit OHL replacement;
- installation of one new section of UGC for the 33 kV circuit OHL replacement between the cable sealing end compound and the existing distribution network at the existing Deanie Substation, approximately 3.35 km in total length; and
- Access track and laydown/compound area to serve the proposed development.

The UGC will run parallel to the minor road heading east-west through Glen Strathfarrar between Deanie Power Station and Deanie Lodge. The UGC will cross the minor road at the eastern and western ends of the route (**Figure 1.1**).

10.2 Construction Traffic and Mitigation

10.2.1 Construction Programme

Subject to securing the necessary consents, it is the intention of the main contractor to commence construction in Autumn 2024 and be completed in Autumn 2025 (approximately 12 months).

10.2.2 Construction Traffic

The construction traffic would comprise of construction worker vehicles and HGVs carrying construction materials / plant. There is expected to be a maximum of 30 staff working on site at any

one time. Work hours are expected to be between 08:00 to 19:00 Monday to Friday, and 08:00 to 13:00 on Saturday which means that staff would arrive and depart outside the traditional peak hours associated with the surrounding road network. The majority of these movements are likely to be undertaken by car or by works mini-bus and outside network peak periods.

Additional work hour restrictions, to prevent disturbance to golden eagles will be followed. It is noted that works would take place outside the periods of breeding activity for golden eagle (February to October) to prevent disturbance during breeding and fledging, where the works are within 1 km of the eyrie (eagle nest site). Works with the potential to cause significant disturbance would not occur before 9am or after 4pm to prevent disturbing eagles which are roosting on the surrounding Craggs. This applies throughout the year, within 1 km of the eyrie.

The following activities are anticipated to generate traffic:

- delivery and removal of plant / materials in relation to site mobilisation and set up of a site compound (including felling, harvesting and extraction of timber);
- delivery of aggregates and geotextile materials to construct site access roads;
- delivery of roadstone wearing course for access roads and hardstanding areas at the site;
- delivery of concrete;
- delivery of tower, wood poles, cable;
- delivery of sand bedding for cabling;
- delivery and removal of cranes for removal of OHL;
- miscellaneous deliveries; and
- construction worker travel movements.

10.2.3 Access to Site

It is anticipated that HGVs, LGVs and private cars / vans accessing the proposed development during the construction phase may travel to / from the site via the A831 and private access road.

10.2.4 Measures to Minimise and Mitigate Construction Traffic Impacts

There are a number of traffic management measures proposed to help reduce the impact of general construction traffic (HGVs). A number of these measures are also applicable to abnormal vehicle movements for example signage. These measures are described below.

Volume of Imported and Exported Material

It is assumed that 100% of the proposed development's stone requirements will be imported to the site.

The main contractor is committed to re-using materials on-site such as soil that has been stripped from the site during the construction phase. This material would be stockpiled and used to backfill excavations and landscape the site on completion of the construction activities.

Delivery Control

The appointed contractor would be required to plan and manage deliveries and collections from the site to minimise the impact on the surrounding road network and to minimise the impact on the local community. The contractor shall consider the following measures during the construction period:

- Peak hours for the construction site are generally outside regular 'office / employment' hours and where possible deliveries shall not be within the morning and evening road network peaks.
- The number of delivery trips shall be minimised through a combination of consolidated ordering, rationalising suppliers and consolidated deliveries.

- On-site waste shall be minimised through recycling and re-use to minimise the number of collections from site.
- The release of vehicles from the site would also be controlled to prevent large convoys of vehicles, where necessary.

Sustainability

The appointed contractor would plan and execute the construction of the proposed development with a demonstrably high regard to sustainability. In particular the following objectives would be set in place:

- Minimisation of vehicle movements to / from the site.
- Promotion of shared transport arrangements for site operatives where possible.
- Thorough pre-planning of operations on-site to optimise the redistribution of earthworks materials together with minimisation of haul distances.
- Apply a reduce-reuse-recycle philosophy to all waste processing activities.
- Conform to construction / building codes of practice in relation to sustainability objectives and procedures.

Speed Limit

It is proposed to impose a maximum 15 mph speed limit for all construction related traffic on private roads and tracks, which would be reinforced through temporary construction traffic speed limit signs. Along public roads national speed limits or signed speed limits (whichever is lower) would apply. Local residents would be able to report any instances of speeding on the public highways to the project community liaison officer.

On-site operatives would be briefed on the speed limit through induction sessions and through regular staff briefings. Other parties responsible for site deliveries would also be instructed on the restrictions and made aware of the requirements relating to existing road users.

Signage

Temporary construction site signage would be erected on the local road network in the vicinity of each of the proposed construction accesses, and at other locations as considered necessary, to warn people of construction activities and associated construction vehicles. The purpose of such signage is to provide driver information and to maintain road safety along the construction vehicle route. The exact nature and location of the signage would be agreed with the roads authority prior to construction activity on site.

Site Operating Hours

The hours of site operation are intended to be 08:00 - 19:00 Monday to Friday, 08:00 – 13:00 Saturday and no operation on Sunday. The purpose of the working hour restrictions is to find a balance between progressing the proposed development at an acceptable speed and minimising the impact upon local residents. Site operating hours would be determined by local circumstances and would take cognisance of any local community concerns.

As discussed in **Section 10.2.2**, additional work hour restrictions will be followed to prevent disturbance to golden eagles including during breeding activity periods.

Workforce Travel and Parking Arrangements

It is likely that the majority of the workforce would travel to the site either by private car or via a contractor's works mini-bus. Given that the workforce is expected to number a maximum of 30 people, the traffic impacts associated with commuting to and from the site are not expected to be significant.

Car parking for the workforce would be provided within the site compound area to provide a safe area for parking away from the public highways.

Staff Induction

All site staff would be informed about traffic management arrangements and procedures via site induction literature.

10.2.5 Implementation and Monitoring of the Plan

General

The implementation of the CTMP would be the responsibility of the main contractor who would also be responsible for monitoring the Plan. Further evolution of this CTMP would likely be required during the detailed project planning stages and during the construction period itself.

The main contractor may employ a number of sub-contractors on the site and all would fall under the umbrella of the CTMP and would have an obligation to adhere to the Plan, this obligation would form part of the procurement process and would be written into any contract of employment.

Responsibilities of the Main Contractor

The main contractor would nominate a person to be responsible for the co-ordination of all elements of traffic and transport during the construction process (Liaison Officer). This person would liaise with the local community so that the community have a direct point of contact within the developer organisation who they may contact for information purposes or to discuss matters pertaining to traffic management or site operation.

The main contractor would review and update the number of site personnel, traffic numbers, and the construction programme as the project progresses. Any significant changes would be discussed and agreed with both the local authority (Highland Council). Regular meetings, where required, would be organised for monitoring purposes.

Transport Coordination

The main contractor would be responsible for the co-ordination of all elements of heavy goods and abnormal vehicle transport to and from the construction site.

Contact details for the Liaison Officer would be made available to all relevant parties prior to commencement of works on site. The details would be provided to the local community.

Monitoring of the CTMP

The CTMP would be monitored by the contractor who in turn would report to the local authority. As necessary, meetings would be held with the local authority and the main contractor to discuss the CTMP and to discuss any issues raised by the local community.

Local Community Consultation

The key to the success of the CTMP would be how it is promoted to the local community and how it is adapted to take on board any feedback received.

As indicated above, the main contractor would provide a Liaison Officer to act as a point of contact with the local community. The Liaison Officer would be responsible for keeping the local community informed of progress on the site and warning them of upcoming activities which may give rise to increased construction vehicle movements.

The Liaison Officer would be able to attend Community Council meetings to provide a report and to be on hand to answer any questions that the local community may have. Contact details would be provided for the Liaison Officer (telephone number and email address) would be made available locally so that members of the public have an opportunity to ask questions and provide feedback.

The main contractor would also make use of the local press in order to disseminate information regarding traffic management and the movement of abnormal loads.

10.3 Conclusions

The Framework CTMP identifies the high level principles for managing the effects of vehicles associated with the proposed development during construction. The Framework CTMP would be updated when a contractor is appointed.

There is expected to be a maximum of 30 staff working on site at any one time. Work hours are expected to be between 08:00 to 19:00 Monday to Friday and 08:00 to 13:00 Saturday which means that staff would arrive and depart outside the traditional peak hours associated with the surrounding road network. The majority of these movements are likely to be undertaken by car or by works mini-bus and outside network peak periods.

Additional work hour restrictions will be followed to prevent significant disturbance to golden eagles. To prevent disturbance during breeding and fledging, works will take place outside breeding activity periods for golden eagles (February to October). Works with the potential to cause significant disturbance would not occur before 9am or after 4pm to prevent disturbing eagles which are roosting on the surrounding Craggs. This applies throughout the year, within 1 km of the eyrie.

Mitigation measures have been identified for the movement of general construction traffic (HGVs). Measures include:

- managing demand;
- delivery control;
- sustainability;
- designated construction vehicle routing;
- construction vehicle speed management;
- signage;
- construction operating days / hours;
- managing workforce travel demand;
- appointment of a site liaison officer; and
- staff site induction.

The main contractor would be responsible for the CTMP. A nominated Liaison Officer would be responsible for promoting, monitoring and reviewing the Plan throughout the construction process. The Liaison Officer would consult with key stakeholders and the local community on a regular basis via a variety of communication mediums.